

Certificate of Conformity

Certification Number: HY21AC-016E

Shenzhen HuaYu Test Technology Co.,Ltd. hereby declares that testing has been completed and reports have been generated for:

Applicant:	JieYang city maist Plastic Products	Co., Ltd.
Address:	JingLian Society TangPu Village Fer	gMei Office Airport Economic Area JieYang
Manufacture:	JieYang city maist Plastic Products	Co. , Ltd.
Address:	JingLian Society TangPu Village Fer	gMei Office Airport Economic Area JieYang
Factory:	JieYang city maist Plastic Products	Co. , Ltd.
Address:	JingLian Society TangPu Village Fer	gMei Office Airport Economic Area JieYang
Product:	Electric Mosquito Swatter	
Model:	XH-06, XH-11, XH-12, XH-13, XH-14	I, XH-17, XH-18, XH8812, XH8819, XH8820,
	XH8822	
Rating:	5V, 2W	
Note:	All models share the same circuit	diagram, but the product model names are
	different and the appearance is dif	ferentAll test performance on: XH-06
	EN 55014-1:2017+A11:2020	
Test	EN 55014-2:2015	

Test standard: EN 55014-1:2017+A11:2020 EN 55014-2:2015 EN 61000-3-2:2014 EN 61000-3-3:2013+A1:2019

The EUT described above has been consolidate by us and found in compliance with the council Electromagnetic Compatibility (as amended) -- 2014/30/EU. It is only valid in connection with the report number: HY21AR-016E





This certificate of conformity is based on a single evaluation of the submitted sample(s) of the above mentioned product. It does not imply an assessment of the whole product and felevant Directives have to be observed.

No. D880, 4th Floor, Building 1, Detai Industrial Park, Huarong Road No. 460,

Dalang Street, Longhua New District, Shenzhen

Shenzhen HuaYu Test Technology Co.,Ltd. http://www.hyjctest.com

EN 55014-1:2017+A11:2020 EN 55014-2:2015 EN 61000-3-2:2014 EN 61000-3-3:2013 +A1:2019 MEASUREMENT AND TEST REPORT

JieYang city maist Plastic Products Co., Ltd.

For

JingLian Society TangPu Village FengMei Office Airport Economic Area JieYang

Model: XH-06, XH-11, XH-12, XH-13, XH-14, XH-17, XH-18, XH8812, XH8819, XH8820, XH8822

This Report Cor		b. 07, 2021 Equipment Type	a. +10 p-10	HURTO
Original Report	ري. ري	Electric Mosquito		13
Test Engineer:	Pink/	Pink	NF CEDT	HUP
Report Number:	HY21AR-016E	SPAND BE		HURNU
Test Date: Reviewed By:	Feb. 01-07, 2021 Jamin/	1 Jacourno	RIZEUA	HUAN
Prepared By:	No. D880, 4th Flo	Yu Test Technology Co oor, Building 1, Detai Indu Street, Longhua New Dis	ustrial Park, Hu	
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1 - GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

Client Information

Applicant: Address of applicant:

Manufacturer: Address of Manufacturer:

Factory: Address of Manufacturer:

General Description of E.U.T

EUT Name: Model No.:

Rating:

JieYang city maist Plastic Products Co. , Ltd.

JingLian Society TangPu Village FengMei Office Airport Economic Area JieYang

JieYang city maist Plastic Products Co., Ltd.

JingLian Society TangPu Village FengMei Office Airport Economic Area JieYang

JieYang city maist Plastic Products Co. , Ltd.

JingLian Society TangPu Village FengMei Office Airport Economic Area JieYang

Electric Mosquito Swatter

XH-06, XH-11, XH-12, XH-13, XH-14, XH-17, XH-18, XH8812, XH8819, XH8820, XH8822 5V---, 2W

Remark: * The test data gathered are from the production sample provided by the manufacturer.

1.2 Test Standards

The following Declaration of Conformity report of EUT is prepared in accordance with

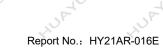
EN 55014-1:2017+A11:2020

EN 55014-2:2015

EN 61000-3-2:2014

EN 61000-3-3:2013 +A1:2019

The objective of the manufacturer is to demonstrate compliance with the described standards above.



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1.3 Test Summary

For the EUT described above. This apparatus is subdivided into category II according to the section 4.2 of EN 55014-2:2015. So according to section 7.2.2 of this standard, the immunity test item applicable to this EUT is listed in table 3.

Table 1 : Tests Carried Out Under EN 55014-1:2017+A11:2020

X		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		\sim
	Standard			Test Iten	ns		Status	•
EN 55014-	-1:2017	2	Conducted E	mission (150kH	z to 30MHz)		_х х	
EN 55014-	-1:2017	NR.	Disturbance	Power (30MHz ⁻	To 300MHz)	SP	x	JP
EN 55014-	-1:2017	×.	Radiated Dis	turbances (30M	Hz To 1000MH	z)		0
EN 55014-	-1:2017		Click	.>	.5		. х	
A -	Indicates that t	he test is a	pplicable	A,	, PT	, P		P

Indicates that the test is not applicable

Table 2 : Tests Carried Out Under EN 61000-3-2:2014 / EN 61000-3-3:2013+A1:2019

Standard	Test Items	Status
EN 61000-3-2:2014	Harmonic Current Test	х
EN 61000-3-3:2013	Voltage Fluctuations and Flicker Test	\sim \checkmark
 √ Indicates that the test × Indicates that the test 		A I

Table 3 : Tests Carried Out Under EN 55014-2:2015

4 4			I.F
Standard	Test Items	Status	Ň
EN61000-4-2:2009	Electrostatic discharge Immunity	\checkmark	
EN61000-4-3:2006+A1:2008+	Radiated Susceptibility (80MHz to 1GHz)	्र ×	
A2:2010	The state of the s	P	F
EN61000-4-4:2012	Electrical Fast Transient/Burst Immunity		
EN61000-4-5:2014	Surge Immunity	\checkmark]
EN61000-4-6:2014	Conducted Susceptibility (150kHz to 230MHz)	\checkmark]
EN61000-4-11:2004+A1:2017	Voltage Dips, Short Interruptions Immunity	F V	, F

 $\sqrt{}$ Indicates that the test is applicable

Indicates that the test is not applicable

1.4 Test Methodology

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All measurements contained in this report were conducted with CISPR 16-1: 2002, radio disturbance and immunity measuring apparatus, and CISPR16-2: 2002, Method of measurement of disturbances and immunity.

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1.5 Test Equipment List and Details Test equipments list of Shenzhen SEM.Test Technology Co., Ltd.

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due. Date
SEMT-	Spectrum	Rohde &	FSP	836079/035	2020-06-	2021-06-
1031	Analyzer	Schwarz	FOP	030079/035	04	03
SEMT-	EMI Test	Rohde &		005474/005	2020-06-	2021-06-
1007	Receiver	Schwarz	ESVB	825471/005	04	03
SEMT-		$\langle \cdot \rangle$			2020-06-	2021-06-
1008	Amplifier	Agilent	8447F	3113A06717	04	03
SEMT-					2020-06-	2021-06-
1043	Amplifier	C&D	PAP-1G18	2002	04	03
	Trile a Dreedhand		E E	E E	2020-06-	2021-06-
SEMT-	Trilog Broadband	Schwarz beck	VULB9163	9163-333		
1011	Antenna	\sim \sim			04	03
SEMT-	Trilog Broadband	Schwarz beck	VULB9163(B)	9163-333	2020-06-	2021-06-
1068	Antenna	Contraiz Book	V0280100(8)	0100 000	04	03
SEMT-	Horn Antenna	ETS	3117 -	00086197	2020-06-	2021-06-
1042	I IOIII Anterina	PLIS	P JIII	00000197	04	03
SEMT-	Lan Antonna	Calculation is a str		0770	2020-06-	2021-06-
1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	04	03
SEMT-	EMI Test	Rohde &			2020-06-	2021-06-
1001	Receiver	Schwarz	ESPI	101611	04	03
SEMT-	EMI Test	Rohde &		S	2020-06-	2021-06-
1066	Receiver	Schwarz	ESPI 🚽	101391	04	
	Receiver		r Dr	- Sr		03
SEMT-	Pulse Limiter	Rohde &	ESH3-Z2	100911	2020-06-	2021-06-
1002		Schwarz			04	03
SEMT-	AC LISN	Schwarz beck	NSLK8126	8126-224	2020-06-	2021-06-
1003			NOEROTZO		04	03
SEMT-	DC LISN	Schwarz beck	NNBM8126D	279	2020-06-	2021-06-
1060	DUCTION	Schwarz beck	ININDIVIO I ZOD	219	04	03 📣
SEMT-	DO LION			000	2020-06-	2021-06-
1061	DC LISN	Schwarz beck	NNBM8126D	280	04	03
SEMT-			*	CAT3-8158-	2020-06-	2021-06-
1085	8-WIRE LISN	Schwarz beck	8158	0059	04	03
SEMT-	F	F.	F	CAT5-8158-	2020-06-	2021-06-
1086	8-WIRE LISN	Schwarz beck	8158	0117	04	03
				0117		
SEMT-	Clamp	Schwarz beck	MDS21	3809	2020-06-	2021-06-
1005	-				04	03
SEMT-	Loop Antenna	EVERFINE	N LLA-2	> 711001 🔊	2020-06-	2021-06-
1014	Loop / internite				04 _	03
SEMT-	VDH Test Head	AFJ 🔊	VDH 30	SC022Z	2020-06-	2021-06-
1071	VDITTESTITEAU		VDI130	000222	04	03
SEMT-	Digital Power	California	CTS	72831	2020-06-	2021-06-
1056	Analyzer	Instrument	013	72031	04	03
SEMT-		California	5001IX-CTS-	05005	2020-06-	2021-06-
1057	Power Source	Instrument	400	ى 25965	04	03
SEMT-	, P	P	E E		2020-06-	2021-06-
1027	ESD Generator	TESQ AG 🔬	NSG 437	161	04	03
SEMT-	× ·	X. X.	× ·	× ·	2020-06-	2021-06-
	Signal Generator	HP	8648A	3642U01277		
1055					04	03
SEMT-	Amplifier	Agilent		3113A06717	2020-06-	2021-06-
1008	7	, ignorit	F T		04	03
SEMT-	Amplifier		8447D	2944A10179	2020-06-	2021-06-
1067	Ampliner	Agilent	044/D*	2944410179	04	03
SEMT-	Transition (00000			000	2020-06-	2021-06-
1024	Transient 2000	EMC PARTNER	TRA2000	863	04	03
SEMT-	CS Immunity			S	2020-06-	2021-06-
		EMTEST	CWS500	0900-03	04	03

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2 - SYSTEM TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

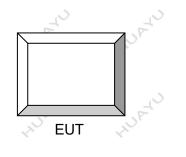
2.2 EUT Exercise Software

The EUT exercising program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software offered by manufacture, can let the EUT being normal operation.

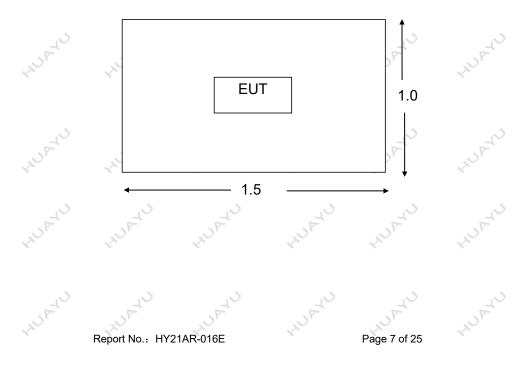
2.3 Equipment Modifications

The EUT tested was not modified by HY.

2.4 Basic Configuration of Test System



2.5 Test Setup Diagram













3 - DISTURBANCE VOLTAGE AT THE MAINS TERMINALS

3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is 3.4 dB.

3.2 Limit of Disturbance Voltage at The Mains Terminals (Class B)

Frequency Range (MHz)	Limits	(dBuV)
	Quasi-Peak	Average
0.150~0.500	66~56	59~46
0.500~5.000	56	46
5.000~30.00	60	50

Note: (1)The tighter limit shall apply at the edge between two frequency bands.

3.3 EUT Setup

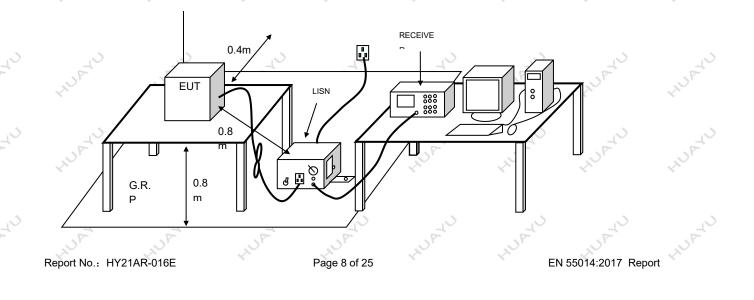
The setup of EUT is according with CISPR 16-1: 2002, CISPR16-2: 2002 measurement procedure. See following test setup figure. The specification used was the EN 55014-1 limits.

The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.



3.4 Instruments Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

3.5 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dB $_{\mu}$ V of specification limits). Quasi-peak readings are distinguished with a "**QP**". Average readings are distinguished with a "**AV**".

3.6 Summary of Test Results

According to the data in section 3.6, the EUT complied with the EN 55014-1 Conducted margin.

3.7 Disturbance Voltage Test Data

Temperature (°C)	ు 15~35 ు	
Humidity (%RH)	30~60	5
Barometric Pressure (mbar)	860~1060	L.
EUT	Electric Mosquito Swatter	
M/N	XH-06	
Operating Mode	L L LON L L	
		_

Test data see following pages

3.8 Test Result









4 - DISTURBANCE POWER

4.1 Limit of Disturbance Power

Frequency Range (MHz)	Limit (dBpW)				
	Quasi-Peak	Average			
30~300	45~55	35~45			

Note: (1) The limit line is a linear line.

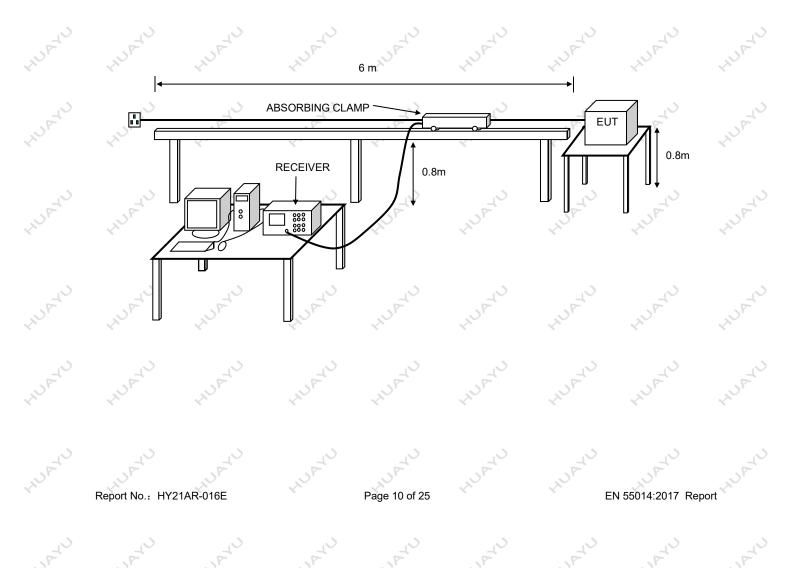
4.2 EUT Setup

The setup of EUT is according with CISPR 16-1: 2002, CISPR16-2: 2002 measurement procedure. See following test setup figure. The specification used was the EN 55014-1 limits.

The EUT was placed at the edge of the test table so as to make the end of the lead close to the EUT as short as possible between the power clamp and the EUT.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.



4.3 Instruments Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range	
Detector	Peak & Quasi-Peak & Average
Sweep Speed	Auto
IF Band Width	9 KHz

4.4 Test Procedure

The associated equipment under test is placed on a non-metallic table of 0.8 m of height above the floor and at least 0.4 m from other objects and from any person. The lead to be measured shall be stretched in a straight horizontal line for a length sufficient to accommodate the absorbing clamp and to permit the necessary adjustment of its position for tuning. The absorbing clamp is placed around the lead to be measured, with its current transformer towards the equipment under test, so as to measure a quantity proportional to the disturbance power on the lead.

Any other lead less than that to be measured shall either be disconnected, if mechanically and functionally possible, or fitted with ferrite rings to attenuate RF currents which may affect the measurement results. Such a lead shall be stretched away from the connected unit in a direction perpendicular to the direction of the lead to be measured.

All connectors not used shall be left un-terminated. All connectors having a connected lead shall be terminated in a manner representative of use. If the leads are screened and normally terminated in a screened unit, then the termination shall be screened.

4.5 Disturbance Power Test Data

Temperature(°C)	<u>ک 15~35</u>	
Humidity (%RH)		,F
Barometric Pressure (mbar)	860~1060	1
EUT	Electric Mosquito Swatter	
M/N	XH-06	
Operating Mode		1
NY NY NY		, P

4.6 Test Plot(s) for Disturbance Power

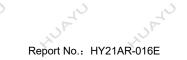
Plot(s) of Conducted Emissions Test Data is presented hereinafter as reference.



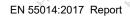
Power Clamp Test of EN55014-1 EUT: Electric Mosquito Swatter M/N: XH-06 **Operating Condition:** ON Test Site: **3m CHAMBER** Operator: Pink DC 5V **Test Specification** Comment: **Tem:25**℃ Polarization: Vertical Hum:72% Start of Test: 02/05/21/ 14:52 80.0 dBuV 12 CISPR14-1Class B 3m Radiation Morgin -6 dB 12 30 Ş

	_				_				_				
3	-20												
	30.000	40	50	60	70	80	(MHz)		300	400	500	600 700	1000.000
C		×.				<u>(</u>	×.	×		×.		×**	

No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth	P/F	Remark	
1	36.7900	-11.16	45.39	34.23	40.00	-5.77	peak			Р		
2	43.5800	-13.47	51.70	38.23	40.00	-1.77	peak			Р		
3	64.9200	-21.25	60.97	39.72	40.00	-0.28	peak			Р		
4	145.4299	-19.45	47.20	27.75	40.00	-12.25	peak			Р	2	
5	239.5200	-17.64	38.51	20.87	47.00	-26.13	peak			Р	2 2	
6	359.8000	-14.78	34.85	20.07	47.00	-26.93	peak			Р		٦

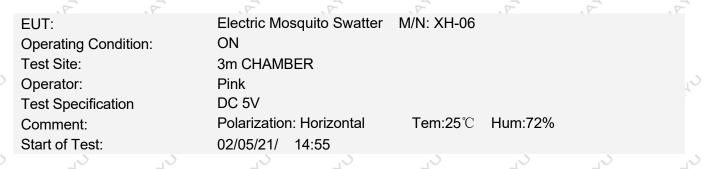


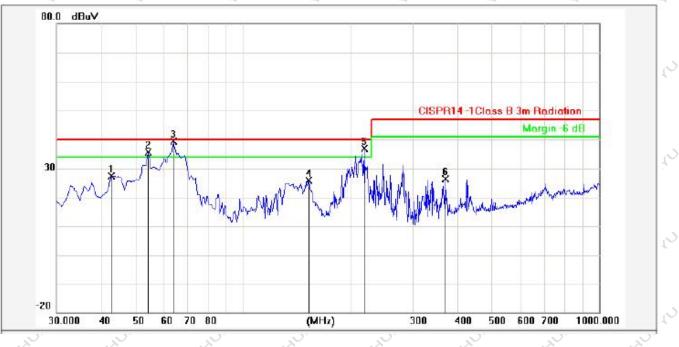




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Radiated Disturbances Test Data





					1000 million 1000 mi					
Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth	P/F	Remark
42.6100	-13.19	40.49	27.30	40.00	-12.70	peak			Ρ	
54.2500	-17.01	52.62	35.61	40.00	-4.39	peak			Ρ	5 5
63.9500	-20.85	60.24	39.39	40.00	-0.61	peak			Р	
153.1900	-20.17	46.10	25.93	40.00	-14.07	peak			Ρ	
219.1500	-17.77	54.53	36.76	40.00	-3.24	peak			Р	
371.4400	-14.31	40.65	26.34	47.00	-20.66	peak			Ρ	
	(MHz) 42.6100 54.2500 63.9500 153.1900 219.1500	(MHz) (dB) 42.6100 -13.19 54.2500 -17.01 63.9500 -20.85 153.1900 -20.17 219.1500 -17.77	(MHz) (dB) (dBuV) 42.6100 -13.19 40.49 54.2500 -17.01 52.62 63.9500 -20.85 60.24 153.1900 -20.17 46.10 219.1500 -17.77 54.53	(MHz) (dB) (dBuV) (dBuV) 42.6100 -13.19 40.49 27.30 54.2500 -17.01 52.62 35.61 63.9500 -20.85 60.24 39.39 153.1900 -20.17 46.10 25.93 219.1500 -17.77 54.53 36.76	(MHz) (dB) (dBuV) (dBuV) (dBuV) 42.6100 -13.19 40.49 27.30 40.00 54.2500 -17.01 52.62 35.61 40.00 63.9500 -20.85 60.24 39.39 40.00 153.1900 -20.17 46.10 25.93 40.00 219.1500 -17.77 54.53 36.76 40.00	(MHz) (dB) (dBuV) (dBuV) (dBuV) (dBuV) (dBuV) (dBuV) (dB) 42.6100 -13.19 40.49 27.30 40.00 -12.70 54.2500 -17.01 52.62 35.61 40.00 -4.39 63.9500 -20.85 60.24 39.39 40.00 -0.61 153.1900 -20.17 46.10 25.93 40.00 -14.07 219.1500 -17.77 54.53 36.76 40.00 -3.24	(MHz) (dB) (dBuV) (dBuV) (dBuV) (dBuV) (dB) Detector 42.6100 -13.19 40.49 27.30 40.00 -12.70 peak 54.2500 -17.01 52.62 35.61 40.00 -4.39 peak 63.9500 -20.85 60.24 39.39 40.00 -0.61 peak 153.1900 -20.17 46.10 25.93 40.00 -14.07 peak 219.1500 -17.77 54.53 36.76 40.00 -3.24 peak	(MHz) (dB) (dBuV) (dBuV) (dBuV) (dBuV) (dBuV) (dB) Detector (cm) 42.6100 -13.19 40.49 27.30 40.00 -12.70 peak 54.2500 -17.01 52.62 35.61 40.00 -4.39 peak 63.9500 -20.85 60.24 39.39 40.00 -0.61 peak 153.1900 -20.17 46.10 25.93 40.00 -14.07 peak 219.1500 -17.77 54.53 36.76 40.00 -3.24 peak	(MHz) (dB) (dBuV) (dBuV) (dBuV) (dBuV) (dBuV) (dB) Detector (cm) () 42.6100 -13.19 40.49 27.30 40.00 -12.70 peak (dB) (dB)	(MHz) (dB) (dBuV) (dBuV) (dBuV) (dBuV) (dB) Detector (cm) () P/P 42.6100 -13.19 40.49 27.30 40.00 -12.70 peak P 54.2500 -17.01 52.62 35.61 40.00 -4.39 peak P 63.9500 -20.85 60.24 39.39 40.00 -0.61 peak P 153.1900 -20.17 46.10 25.93 40.00 -3.24 peak P 219.1500 -17.77 54.53 36.76 40.00 -3.24 peak P

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5 - HARMONIC CURRENT TEST (EN 61000-3-2)

5.1 Application of Harmonic Current Emission

Compliance to these standards ensures that tested equipment will not generate harmonic currents at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

5.2 Measurement Data

Standard used	EN/IEC 61000-3-2 A14 (2006) Quasi-stationary - Equipment class B
Observation time	150s
Windows width:	10 periods - (EN/IEC 61000-4-7 Edition 2000)
EUT	Electric Mosquito Swatter
M/N	XH-06
Operating Mode	ON

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5.3 Test Results

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Pass

6 - VOLTAGE FLUCTUATIONS AND FLICKER TEST (EN 61000-3-3)

6.1 Application of Voltage Fluctuations and Flicker Test

Compliance to these standards ensures that tested equipment will not generate flickers and voltage change at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

6.2 Measurement Data

		2
Standard used	EN/IEC 61000-3-3 Flicker	JF
Short time (Pst)	10 min	
Observation time	10 min_(1 Flicker measurement)	20
Flickermeter	DC12V	, JP
EUT	Electric Mosquito Swatter	
M/N	XH-06	
Operating Mode	ON JA JA JA JA	JAT
Test Result	PASS	

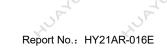
Maximum Flicker results

	EUT values	Limit	Result
Pst	0.009	1.00	PASS _
dc [%]	0.002	3.30 🔊	PASS
dmax [%]	0.021	4.00	PASS
dt [s]	0.000	0.50	PASS
-	-	-	4

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6.3 Test Results

The EUT was subjected to the voltage fluctuations and flicker test required by EN 61000-3-3:2008



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7 - EN 55014-2 MEASUREMENT INSTRUMENTATION

7.1 Electrostatic Discharge Test System

An EM TEST DITOC0103Z ESD simulator is used for all testing. It is capable of applying Electrostatic discharges in both contact discharge modes to 4 kV and air discharge modes to 8 kV in both positive and negative polarities. This is in accordance with the IEC 61000-4-2 basic EMC publication.

7.2 Electrical Fast Transient/Burst Immunity Test System

An EM Test UCS 500-M6 Immunity test system is used for all testing. It is capable of applying fast transients to the AC line at any phase angle with respect to the AC line voltage wave form and to attached cables via a capacitive coupling clamp in accordance with the IEC 61000-4-4 basic EMC publication.

7.3 Surge Immunity Test System

An EM Test UCS 500-M6 Immunity test system is used for all testing. Both positive and negative polarities of voltage up to 2kV were applied to the AC input lines. The coupling network defined in the standard was used.

7.4 Conducted Susceptibility Test System

An IFR 2032A signal generator and a set of Amplifier Research test system are used for the testing. EUT was tested from 0.15 MHz to 230 MHz with 1kHz sine wave, 80% modulation with 3Vr.m.s. CDN coupling and de-coupling networks was tested. During the tests, injected was applied to power line by using CDNs-6.2.2 method, and I/O lines was injected by using clamp injection-6.2.3.method.

7.5 Voltage Dips, Short Interruptions Immunity Tests System

An EM Test UCS 500-M6 Immunity test system is used for all testing. Test level as described in IEC 61000-4-11, section 5, titled "Test Levels".











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7.6 Equipment Test Table

IEC 61000-4-2: 1995 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.6 by 0.8-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by *0.5-millimeter* thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

IEC 61000-4-3 and IEC 61000-4-4 specify that a tabletop EUT be placed on a non-conducting table 80 centimeters above a ground reference plane and that floor-mounted equipment shall be placed on an insulating support approximately 10 centimeters above a ground plane. During the IEC 61000-4-3 tests, the EUT is positioned on a table in a shielded semi-anechoic test chamber to reduce reflections from the internal surfaces of the chamber. During the IEC 61000-4-4 tests, the EUT is positioned on a table in conformance with this requirement.

7.7 Instrument Calibration

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications.

Extensive engineering efforts have been made to ensure test data reliability through Quality Control and regular equipment calibration schedules. However, the application of radio frequency fields and voltages are not without an unavoidable level of uncertainty. These include inaccuracies in antenna factors, chamber imperfections and possible test generator output uncertainties.



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8 - EN 55014-2 TEST PROCEDURES

8.1 EUT and Cable Placement

The EUT and any peripherals are located at the center of the table for tabletop devices and in the center of the ground plane with the insulating support for floor-standing devices. The standards require that interconnecting cables to be connected to available ports of the unit and that the placement of the unit and the attached cables simulate a typical installation so far as to be practical.

8.2 Application of Electrostatic Discharge Immunity Test

The test is conducted in the following order according to the basic standard IEC 61000-4-2: Air Discharge, Direct Contact Discharge, Indirect Contact Horizontal Coupling Plane Discharge, and Indirect Contact Vertical Coupling Plane Discharge. The Electrostatic Discharge test levels are set and discharges for the different test modes are set appropriately. The Electrostatic Discharge is applied to the conductive surface of the computer in which the EUT is enclosed, and along all seams and control surfaces on the computer. When a discharge occurs and an error is caused, the type of error, discharge level and location is recorded.

8.3 Application of Electrical Fast Transient/Burst Immunity Test

The EUT was arranged for Power Line Coupling and for I/O Line Coupling through a capacitive clamp, where applicable. (Note: The I/O coupling test using a capacitive clamp is performed on the I/O interface cables that are longer in length than 3 meters.) A metal ground plane 2.4 meter by 2.0 meter was placed between the floor and the table and is connected to the earth by a 2.0 meter ground rod. The ground rod is connected to the test facility's electrical earth.

8.4 Application of Surge Immunity Test

The EUT was setup as described in IEC 61000-4-5 and the test shall be performed according to the test plan.

8.5 Application of Conducted Susceptibility Test

The EUT was setup according to the IEC 61000-4-6 and the test shall be performed with the test generator connected to each of the coupling and decoupling devices in turn while the other non-excited RF input ports of the coupling devices are terminated by a 50 Ω load resistor. The frequency range is 150kHz to 230 MHz.

8.6 Application of Voltage Dips, Short Interruptions Immunity Tests

The EUT was setup according to the IEC 61000-4-11 and the test shall be done as the procedure described in the standard.

8.7 Deviations from the Standard

No deviations from EN 55014-2 were made when performing the tests described in this report.

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9 - TEST DATA

9.1 Electrostatic Discharge Immunity Test (IEC 61000-4-2)

Temperature(°C)	15~35		
Humidity (%RH)	30~60	, P	F
Barometric Pressure (mbar)	860~1060	- 1 ¹ 1 ¹	
EUT	Electric Mosquito Swatter		1
M/N	XH-06] .
Operating Mode	ON The State	, F	F
			<u> </u>

Table 1: Electrostatic Discharge Immunity (Air Discharge)

IEC 610	00-4-2 Test		Test Levels											
	oints	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV	Jr		
Slots	4 points	А	А	А	А	А	А	А	А	1	1			
Shell	8 points	А	А	А	А	А	Α	А	А	1	1			
Button	10 points	А	А	А	А	А	А	А	А	1	1	SP		

Table 2: Electrostatic Discharge Immunity (Direct Contact)

IEC 61000-4-2 Test	Test Levels											
Points	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV		
N/A	/	/	/	/	/	/	/	/	/	1		

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

		C		() () () () () () () () () ()		Contract of the second s					100
IEC 61000-4-2 Test					Test L	evels					\mathcal{Y}^{r}
Points	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV	
Front Side	А	А	А	А	1	1	1	1	1	1	
Back Side	А	А	А	А	1	1	1	1	1	1	
Left Side	А	А	А	А	1	1	1	1	1	1	2
Right Side	А	А	А	А	1	1	1	1	1	1	

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

A A		F		F	1	7	F		F		
IEC 61000-4-2					Test L	evels					5
Test Points	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV	
Front Side	А	А	А	А	1	Ι	1	1	1	1	_
Back Side	А	А	А	А	Ι	1	1	1	Ι	1	SF
Left Side	А	А	А	А	1	1	1	1	1	1	
Right Side	А	А	А	А	1	1	1	1	1	1	
))			.)		.)			

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9.2 Electrical Fast Transient/Burst Immunity Test (IEC 61000-4-4)

	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
15~35	
30~60	
860~1060	
Electric Mosquito Swatter	
XH-06	P
ON	
	30~60 860~1060 Electric Mosquito Swatter XH-06

1			1		1	_	~			
IEC 61000-4-4 Test Points		Test Levels (kV)							5	
		+0.5	-0. 5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0	
	ىL1	А	А	А	А	1	1	1	1	
AUAN AUA	L2 UP	Α	А	А	А	1	1	1	1	5
Power Supply	Earth	1	1	1	1	1	1	1	1	]
	L1+L2	Α	А	Α	Α	1	1	1	1	1
Power Line of EUT	L1 + Earth	1	1	1	1	1	1	1	1	1
they they	L2 + Earth	1	1	1	1	1	1	1	1	P
	L1+L2+Earth	1	1	1	1	1	1	1	1	]
~		-		<u>.</u>		-				-

# 9.3 Surge Immunity Test (IEC 61000-4-5)

Temperature(°C)	15~35	
Humidity ( %RH )	30~60	
Barometric Pressure (mbar)	860~1060	
EUT	Electric Mosquito Swatter	Sr
M/N	XH-06	
Operating Mode	ON	
Operating Mode	UN	

22	-22	22	40 40	20	20	20
Level	Voltage	Poll	Path	Pass	Fail	Sr
1	0.5kV	±	L-N	A	1	
2	1kV	±	L-N	A	1	
3_0	2kV	±_>	L-PE, N-PE	/	1	2
4	4kV	JUE <u>+</u>	1-N, L-PE, N-PE	1	1	JP



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# 9.4 Conducted Susceptibility Test (IEC 61000-4-6)

Frequency Range (MHz): 0.15~80MHz Modulation: Amplitude 80%, 1kHz sinewave Severity Level: 3Vr.m.s.

Temperature(°C)	15~35	2			
Humidity(%RH)	ST 30~60 ST ST	J.			
Barometric Pressure (mbar)	860~1060	<			
EUT	Electric Mosquito Swatter				
M/N	XH-06				
Operating Mode	ON	,F			
		L.			

Level	Voltage Level (e.m.f.) U₀	Pass	Fail	
NP1	NF 1, NF	1	1	SP
2	3	А	1	
3	10	1		
X	Special 🗸	1	1	
.Sr	Jr Jr	Jr Jr	Jr Jr	JP.

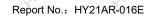
9.5 Voltage Dips, Short Interruptions Immunity Tests (IEC 61000-4-11)

LO LO LA 15~35 LO LO	1
J 30~60 J	JF.
860~1060	
Electric Mosquito Swatter	
XH-06	4
ON	SP
	30~60 860~1060 Electric Mosquito Swatter XH-06

Level	U2	td	Phase Angle	Ν	Pass	Fail
1,5	95%	10ms	0/90/180/270	3	В	/
2	30%	1000ms	0/90/180/270	3 . JP	С	/
3	60%	200ms	0/90/180/270	3	С	/

Note:

- A. The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.
- B. The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacture. No change in operating state or loss or data is permitted.
- C. Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.



# **10 - TEST RESULTS**

The following tests were performed on the **JieYang city maist Plastic Products Co.**, **Ltd.** 's product; model: **XH-06**; the actual test results are contained within the <u>Test Data section</u> of this report

# 10.1 IEC 61000-4-2 Electrostatic Discharge Immunity Test Configuration

The EUT was subjected to the electrostatic discharge tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-2.

The EUT continued to perform as intended during and after the application of the ESD. Test setup photographs presented in Appendix C.

# 10.2 IEC 61000-4-4 Electrical Fast Transient/Burst Immunity Test Configuration

The EUT was subjected to the electrical fast transient tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-4.

*The EUT continued to perform as intended during and after the application of the EFT/B.* Test setup photographs presented in Appendix C.

# 10.3 IEC 61000-4-5 Surge Immunity Test Configuration

The EUT was subjected to the Surge Immunity tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-5.

The EUT continued to perform as intended during and after the application of the Surge *Immunity Test.* Test setup photographs presented in Appendix C.

# 10.4 IEC 61000-4-6 Conducted Susceptibility Test Configuration

The EUT was subjected to the Conducted Susceptibility tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-6.

*The EUT continued to perform as intended during and after the application of the Conducted Susceptibility Test.* Test setup photographs presented in Appendix C.

# 10.5 IEC 61000-4-11 Voltage Dips, Short Interruptions Immunity Tests Configuration

The EUT was subjected to the Voltage Dips/Interruptions tests required by EN 55014-2 and all lower levels specified in IEC 61000-4-11.

The EUT continued to perform as intended during and after the application of the Voltage Dips/Interruptions Test. Test setup photographs presented in Appendix C.

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# APPENDIX A - PRODUCT LABELING

# **CE Marking Label Specification**

Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

**F** 

2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

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# Proposed Label Location on EUT

Proposed CE Marking Location

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