

CE EMC TEST REPORT

Client Information:

Applicant: Shenzhen Hui Qi Mei Technology Co., Ltd
Applicant add.: 4B, Area A, Zhong tian xin, No.4, Longping West Road,
Longcheng Street, Longgang District, Shenzhen
Brand Name: N/A

Product Information:

Product Name: Portable swing fan
Model No.: HQM-FS03
Derivative model No.: N/A
Test Standard: EN 55014-1:2017, EN 55014-2:2015
EN 61000-3-2: 2014, EN 61000-3-3: 2013
Test Date: Feb.25,2021 to Mar.04,2021 Issue Date: Mar.04,2021
Test Result: PASS
Shenzhen iTC Product Testing Co., Ltd.
Issued by: Add. : Room 204 , No.10, Phase 1, Zone 3, Xinxing Industrial
Park,Xinhe Community, Fuhai Street, Bao'an District,
Shenzhen,Guangdong.China

Test Engineer

Amanda Chen



Reviewed by

Apple Huang



Approved by

John Liu



This test report may be reproduced in full only
Test result presented in this test report is applicable to the tested sample only

Report Revision History

Report No.	Report Version	Description	Issue Date
21ITC02260566E	NONE	Original	Mar.04,2021

Customer information

Applicant Name	Shenzhen Hui Qi Mei Technology Co., Ltd
Applicant Address	4B, Area A, Zhong tian xin, No.4, Longping West Road, Longcheng Street, Longgang District, Shenzhen
Manufacturer Name	Shenzhen Hui Qi Mei Technology Co., Ltd
Manufacturer Address	4B, Area A, Zhong tian xin, No.4, Longping West Road, Longcheng Street, Longgang District, Shenzhen

Test site information

Lab performing tests	Shenzhen iTC Product Testing Co., Ltd.
Lab Address	Room 204 , No.10, Phase 1, Zone 3, Xinxing Industrial Park,Xinhe Community, Fuhai Street, Bao'an District, Shenzhen,Guangdong.China
Telephone:	(86)-0755-33138690
Fax:	(86)-0755-23071003
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under test	

Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Conducted Measurement :

Method	Measurement Frequency Range	U, (dB)
ANSI	150 KHz ~ 30Mz	3.2

Radiated Measurement :

Method	Measurement Frequency Range	U, (dB)
ANSI	30MHz ~ 1000MHz	4.7
	1GHz ~6000GHz	5.0

TABLE OF CONTENT

Test Report Declaration	Page
1. TEST SUMMARY.....	4
2. MEASUREMENT UNCERTAINTY.....	5
3. PRODUCT INFORMATION AND TEST SETUP.....	6
4.1 Product Information.....	6
4.2 Test Setup Configuration.....	6
4.3 Support Equipment.....	6
4.4 Test Mode.....	7
4. TEST FACILITY AND TEST INSTRUMENT USED.....	8
5.1 Test Facility.....	8
5.2 Test Instrument Used.....	8
5. DISTURBANCE VOLTAGES.....	9
6.1 Block Diagram Of Test Setup.....	9
6.2 Limit.....	9
6.3 Test procedure.....	9
6.4 Test Result N.A.....	9
6. RADIATED DISTURBANCE TEST.....	10
7.1 Block Diagram Of Test Setup.....	10
7.2 Limits.....	10
7.3 Test Procedure.....	10
7.4 Test Results.....	11
7. IMMUNITY TEST OF GENERAL THE PERFORMANCE CRITERIA.....	13
8. ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD).....	14
9.1 Test Specification.....	14
9.2 Block Diagram of Test Setup.....	14
9.3 Test Procedure.....	14
9.4 Test Results.....	15
9. EUT PHOTOGRAPHS.....	16

(Note: N/A means not applicable)

1. TEST SUMMARY

The Product has been tested according to the following specifications:

EMISSION		
Standard	Test Item	Test result
EN 55014-1	Disturbance voltages(CE)	N/A ⁴
EN 55014-1	Discontinuous disturbance (Clicks)	N/A ¹
EN 55014-1	Disturbance power(DP)	N/A ²
EN 55014-1	Magnetic field induced current in a 2m loop antenna(ME)	N/A ³
EN 55014-1	Magnetic field strength	N/A ³
EN 55014-1	Radiated disturbance (RE)	Pass
EN 61000-3-2	Harmonic current emission(H)	N/A ⁴
EN 61000-3-3	Voltage fluctuations & flicker(F)	N/A ⁴

IMMUNITY (EN 55014-2)		
Standard	Test Item	Test result
IEC 61000-4-2	Electrostatic discharge immunity Test (ESD)	Pass
IEC 61000-4-3	Radio frequency electromagnetic fields(RS)	N/A ⁵
IEC 61000-4-4	Fast transients immunity Test (EFT)	N/A ⁴
IEC 61000-4-5	Surges immunity Test	N/A ⁴
IEC 61000-4-6	Injected currents immunity Test (CS)	N/A ⁴
IEC 61000-4-11	Voltage dips and interruptions immunity Test (DIPS)	N/A ⁴

Remark:

1. The Product has no switching operations, automatic programme or other electrically controlled or operated functions
2. The Product shall be evaluated for emissions in the 30 MHz to 1 000 MHz range by testing in accordance with method b as described in clause 4.3.4.2 of EN55014-1.
3. It only apply to induction cooking appliances.
4. The EUT is powered by the DC by USB port, the test item is not applicable.
5. The Product is belong to category II.

2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Test item	Value (dB)
Disturbance voltages (150K-30MHZ)	3.20
Disturbance power(DP)	3.70
Radiated disturbance (30MHz-1000MHz)	4.80

3. PRODUCT INFORMATION AND TEST SETUP

4.1 Product Information

Ratings: DC 5V,7W

Model difference: N/A

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Specification	Note
1	--	--	Applicant	---	Shielded	With a ferrite ring in mid Detachable
2	--	--	--	--	Unshielded	--

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Test Mode

Test item	Test Mode	Test Voltage
Radiated disturbance(30MHz-1GHz)	Working	DC 5V
Electrostatic discharge (ESD) B <input checked="" type="checkbox"/> Air Discharge: $\pm 8\text{kV}$ <input checked="" type="checkbox"/> Contact Discharge: $\pm 4\text{kV}$ <input checked="" type="checkbox"/> HCP & VCP: $\pm 4\text{kV}$	Working	DC 5V
All test mode were tested and passed, only Disturbance voltages, Disturbance power, Radiated disturbance, ME, Harmonic Current Emissions and Voltage Fluctuations and Flicker shows (*) is the worst case mode which were recorded in this report.		

4. TEST FACILITY AND TEST INSTRUMENT USED

5.1 Test Facility

All measurement facilities used to collect the measurement data . The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

Disturbance voltages and Discontinuous disturbance Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR	102075	July.11, 2020	July.10,2021
LISN	R&S	ENV216	101375	July.11, 2020	July.10,2021
ISN	HPX	ISN T800	S1509001	July.11, 2020	July.10,2021

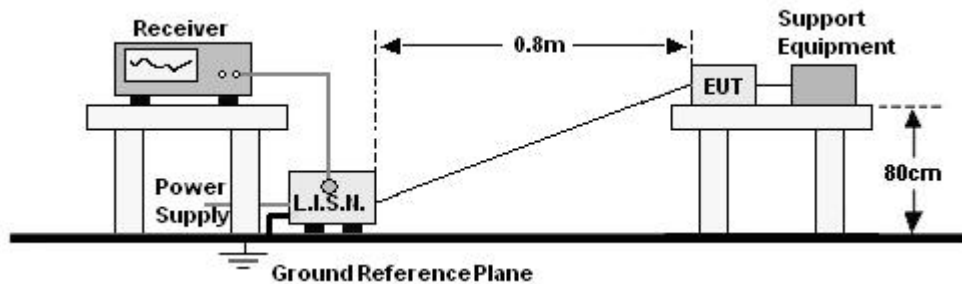
Radiated disturbance Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	July.11, 2020	July.10,2021
Receiver	R&S	ESRP	101154	July.11, 2020	July.10,2021
Amplifier	Schwarzbeck	BBV9718	9718-309	July.11, 2020	July.10,2021
Amplifier	Schwarzbeck	BBV9744	9744-0037	July.11, 2020	July.10,2021
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163 -942	July.11, 2020	July.10,2021

Electrostatic discharge immunity Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
ESD Tester	3C TEST	EDS 30V	ES0121614	July.11, 2020	July.10,2021
ESD Tester	KIKISUI	KES4201 A	UH002321	July.11, 2020	July.10,2021

5. DISTURBANCE VOLTAGES

6.1 Block Diagram Of Test Setup

For mains ports:



6.2 Limit

At mains ports Limits for Household Appliance

Frequency (MHz)	Limits dB(μ V)	
	Quasi-peak	Average
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

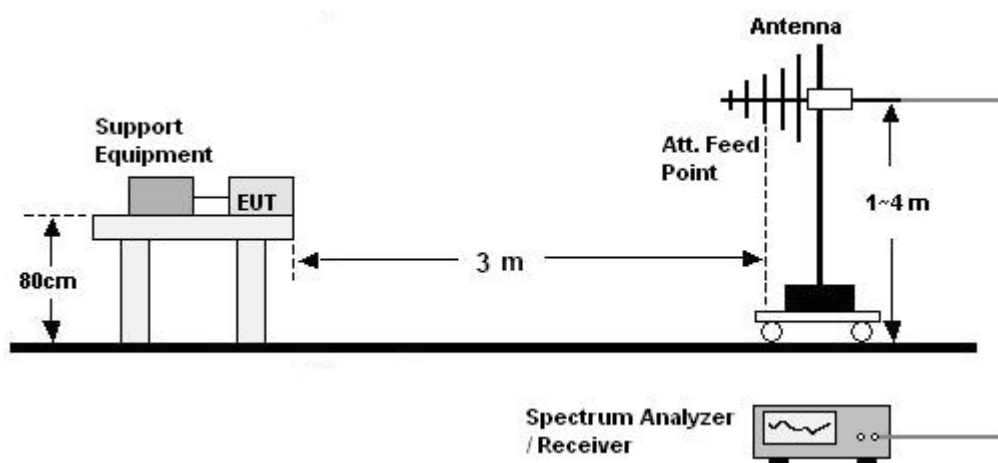
For mains ports:

- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4 Test Result N.A

6. RADIATED DISTURBANCE TEST

7.1 Block Diagram Of Test Setup



7.2 Limits

Frequency (MHz)	Quasi-peak limits at 3m dB(μ V/m)
30-230	40
230-1000	47

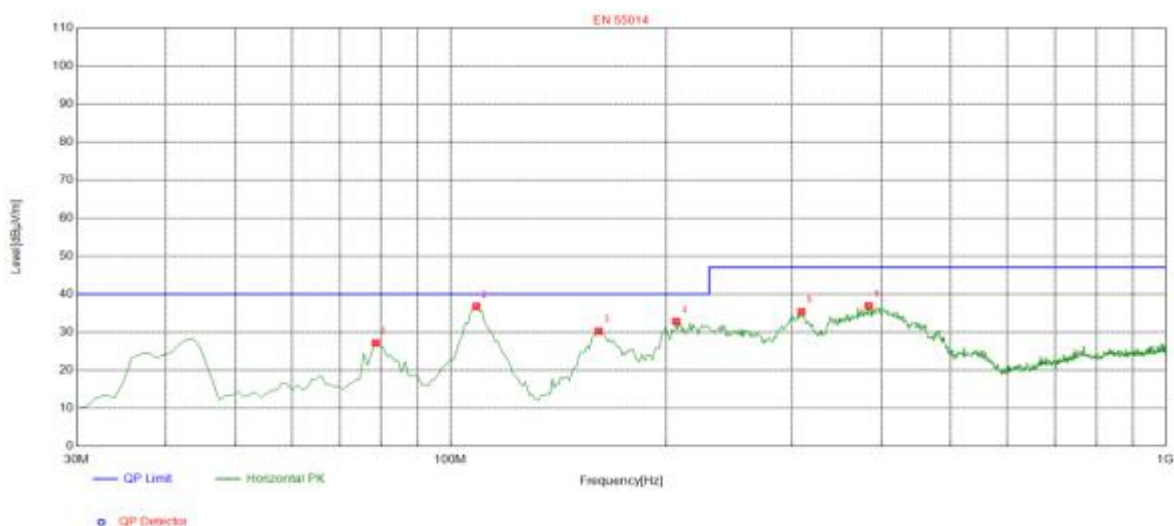
Note: The lower limit shall apply at the transition frequencies.

7.3 Test Procedure

- The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

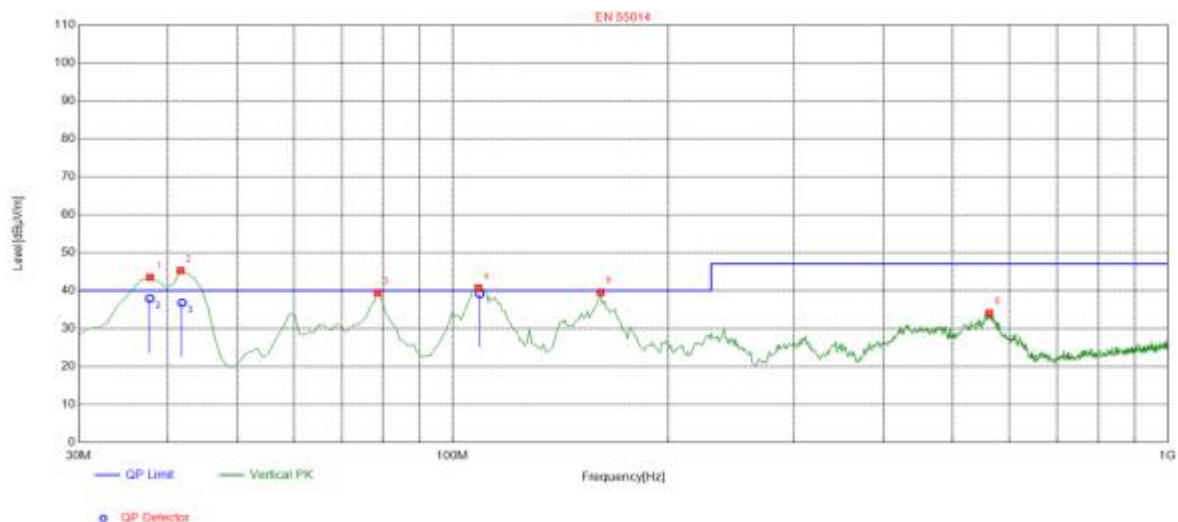
7.4 Test Results

Radiated Disturbance Test Data			
Temperature:	24.4℃	Relative Humidity:	53%
Pressure:	1004hPa	Phase :	Horizontal
Test Voltage :	DC 5V	Test Mode:	Working



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	78.5485	-19.21	46.36	27.15	40.00	12.85	100	332	Horizontal
2	108.6486	-15.43	52.20	36.77	40.00	3.23	100	229	Horizontal
3	161.0811	-18.12	48.36	30.24	40.00	9.76	100	113	Horizontal
4	206.7167	-14.89	47.71	32.82	40.00	7.18	100	255	Horizontal
5	309.6396	-12.61	47.96	35.35	47.00	11.65	100	264	Horizontal
6	384.4044	-10.75	47.66	36.91	47.00	10.09	100	245	Horizontal

Radiated Disturbance Test Data			
Temperature:	24.4℃	Relative Humidity:	53%
Pressure:	1004hPa	Phase :	Vertical
Test Voltage :	DC5V	Test Mode:	Working



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	37.7678	-15.26	58.77	43.51	40.00	-3.51	100	346	Vertical
2	41.6517	-14.25	59.54	45.29	40.00	-5.29	100	66	Vertical
3	78.5485	-19.21	58.62	39.41	40.00	0.59	100	188	Vertical
4	108.6486	-15.43	56.14	40.71	40.00	-0.71	100	12	Vertical
5	161.0811	-18.12	57.65	39.53	40.00	0.47	100	333	Vertical
6	563.0631	-6.59	40.67	34.08	47.00	12.92	100	40	Vertical

Final Data List

Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	109.1392	-15.43	54.53	39.10	40.00	0.90	180	308.9	Vertical
2	37.7148	-15.27	53.19	37.92	40.00	2.08	170	231.6	Vertical
3	41.8343	-14.22	50.98	36.76	40.00	3.24	150	143.6	Vertical

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

7. IMMUNITY TEST OF GENERAL THE PERFORMANCE CRITERIA

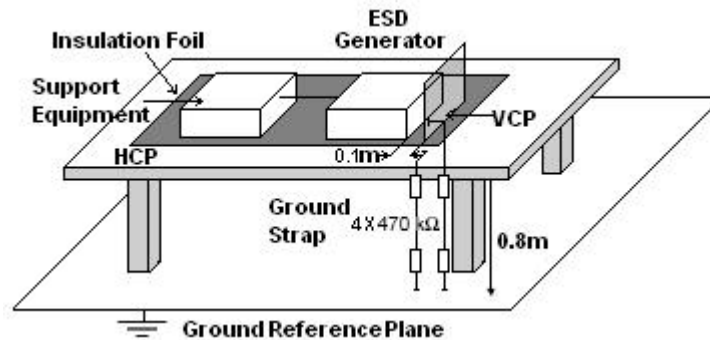
Product Standard	EN 55014-2:2015
CRITERION A	The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. 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 from what the user may reasonably expect from the apparatus if used as intended
CRITERION B	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. 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 from what the user may reasonably expect from the apparatus if used as intended.
CRITERION C	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

8. ELECTROSTATIC DISCHARGE IMMUNITY TEST (ESD)

9.1 Test Specification

Test Port	: Enclosure port
Discharge Impedance	: 330 ohm / 150 pF
Discharge Mode	: Single Discharge
Discharge Period	: one second between each discharge

9.2 Block Diagram of Test Setup



9.3 Test Procedure

- Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.
- The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
- The time interval between two successive single discharges was at least 1 second.
- The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.
- Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the Product. The ESD generator was positioned vertically at a distance of 0.1 meters from the Product with the discharge electrode touching the HCP.

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the Product were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the Product.

9.4 Test Results

Discharge Method	Discharge Position	Voltage (\pm kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	4	10	B	A
	Indirect Discharge HCP	4	10	B	A
	Indirect Discharge VCP	4	10	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	8	10	B	A
Note: N/A					

9. EUT PHOTOGRAPHS

TEST PHOTO



EUT Photo 1



EUT Photo 2



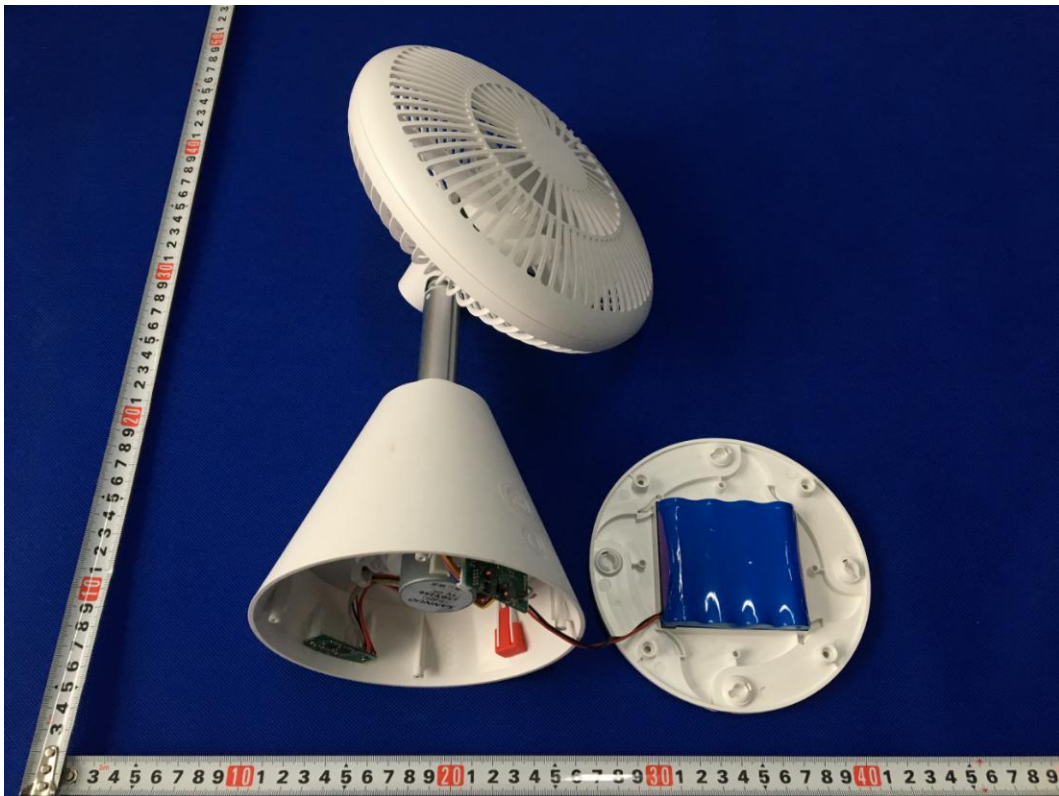
EUT Photo 3



EUT Photo 4



EUT Photo 5



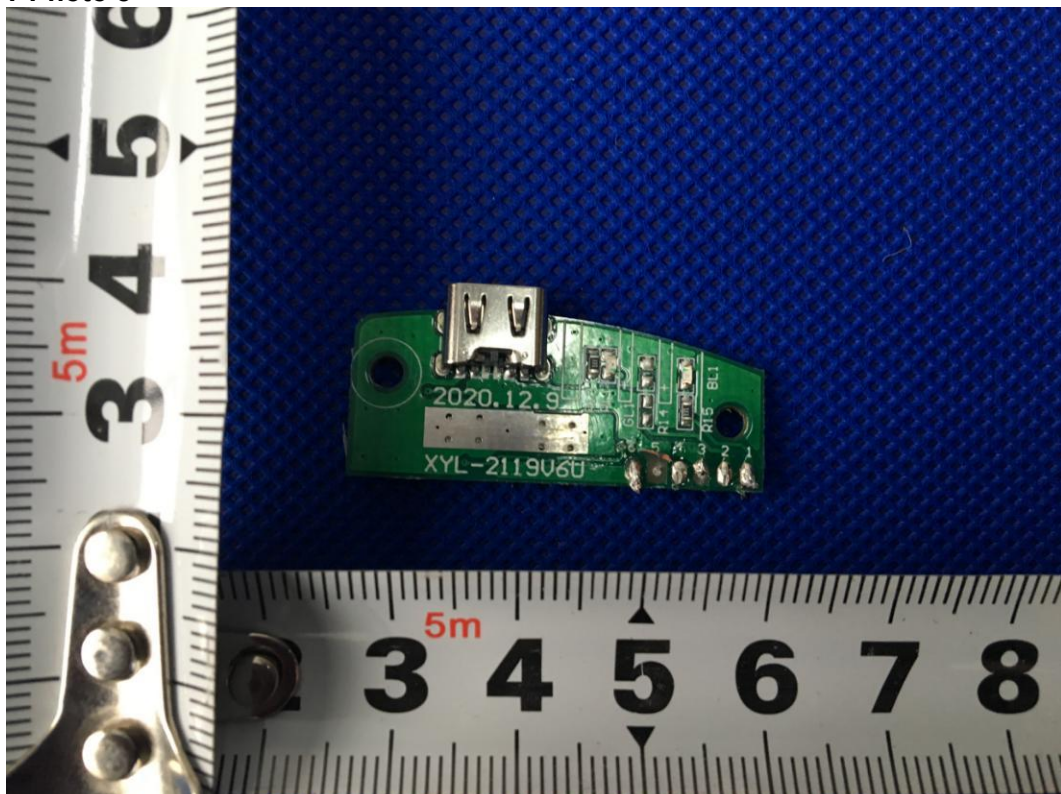
EUT Photo 6



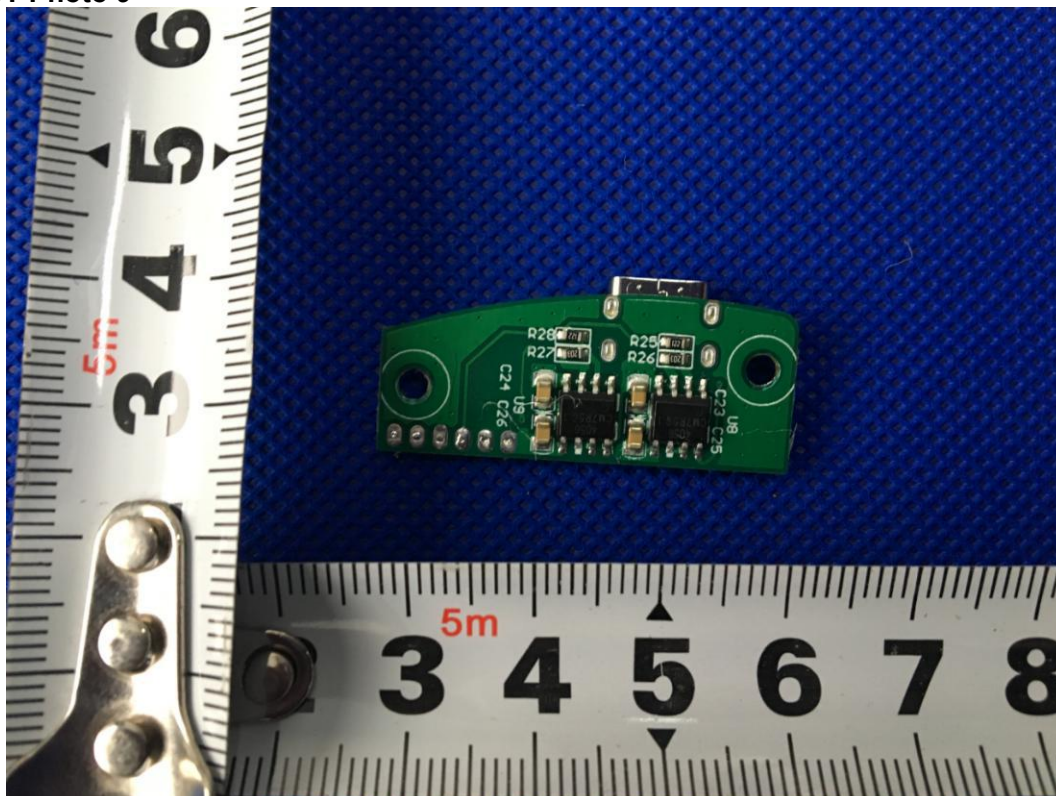
EUT Photo 7



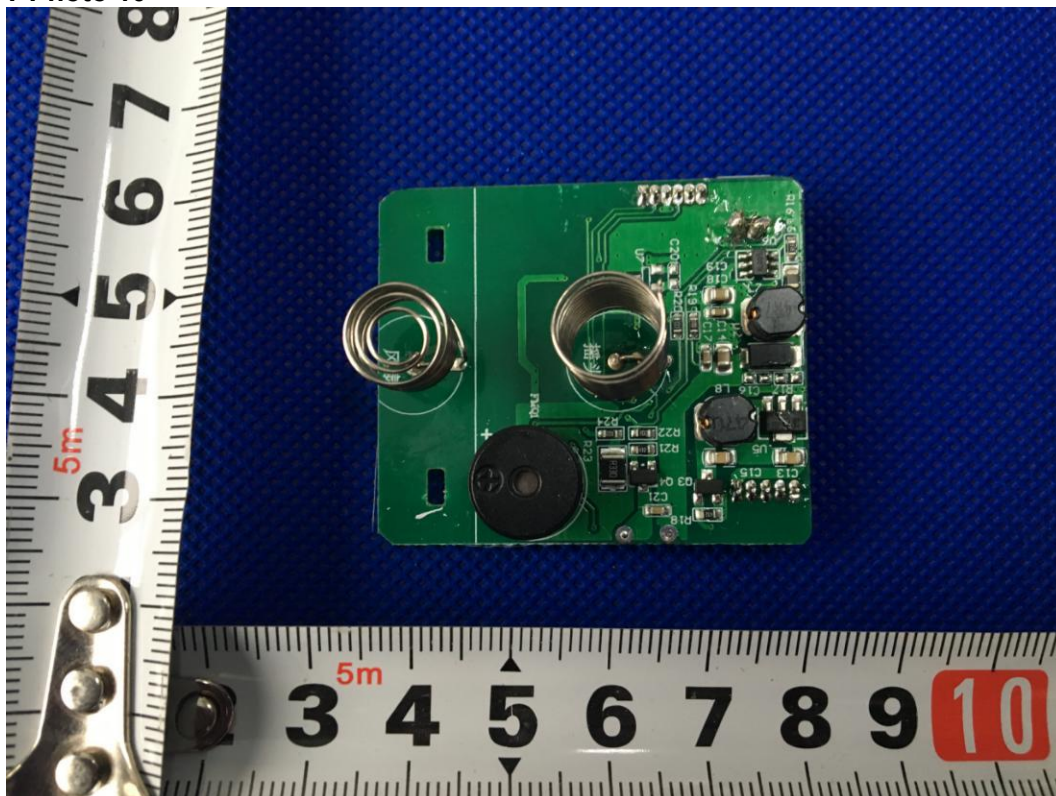
EUT Photo 8



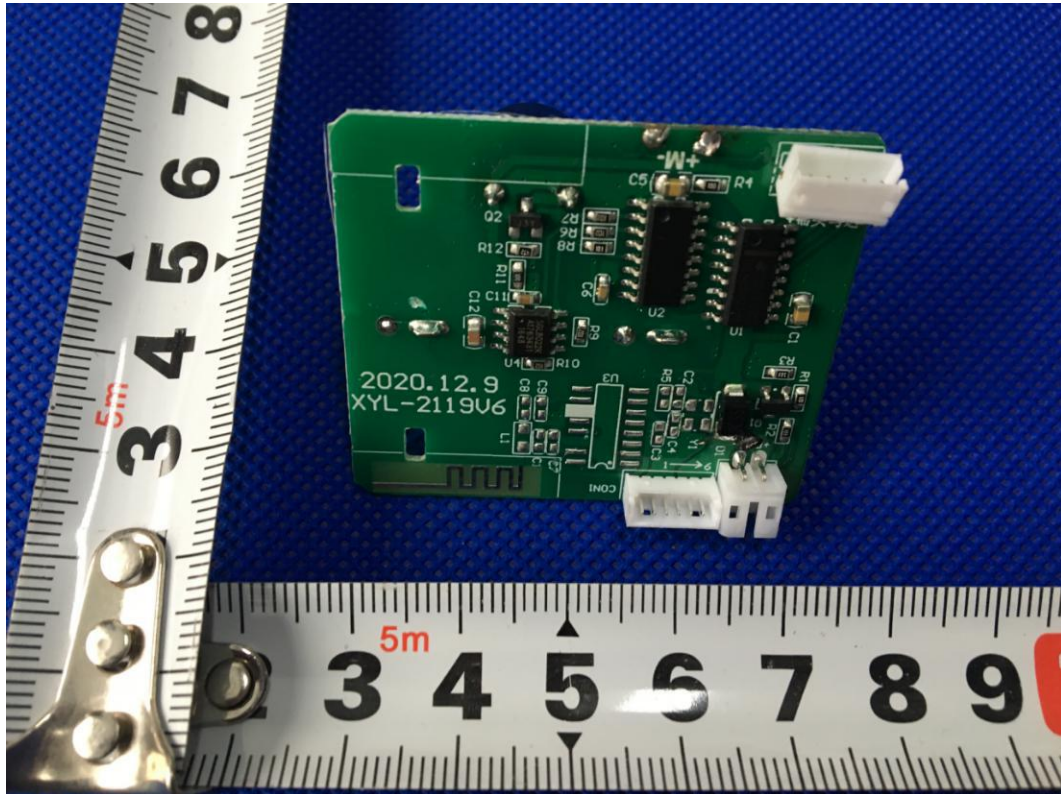
EUT Photo 9



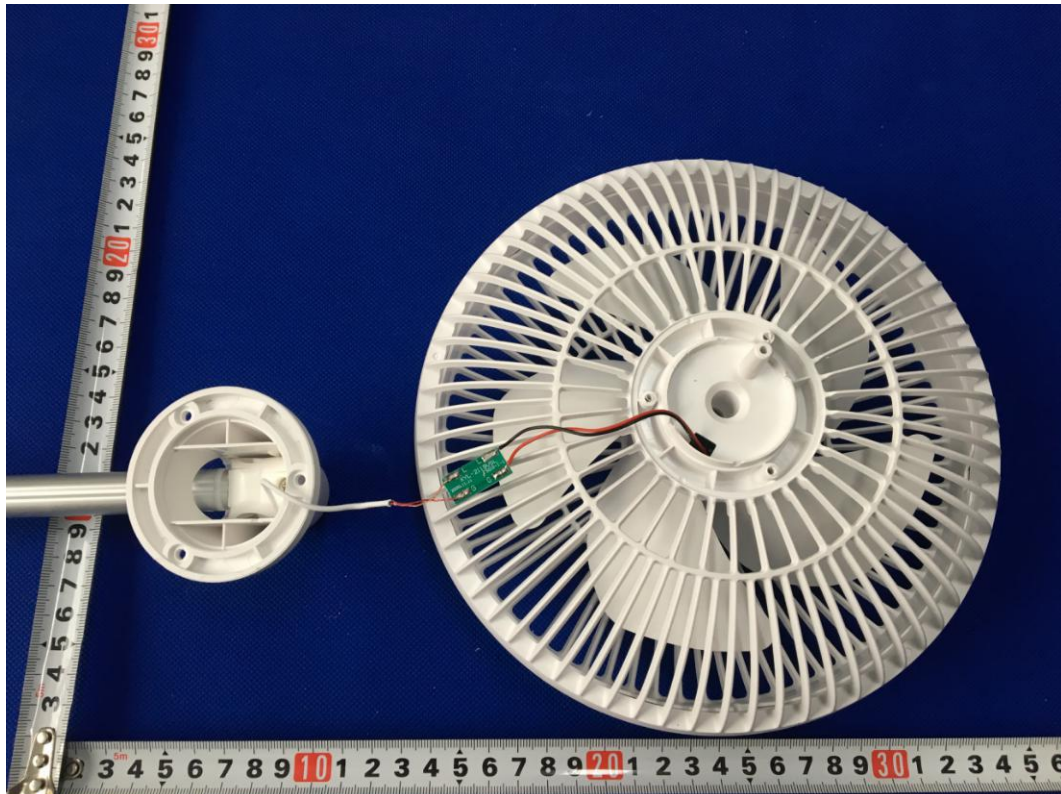
EUT Photo 10



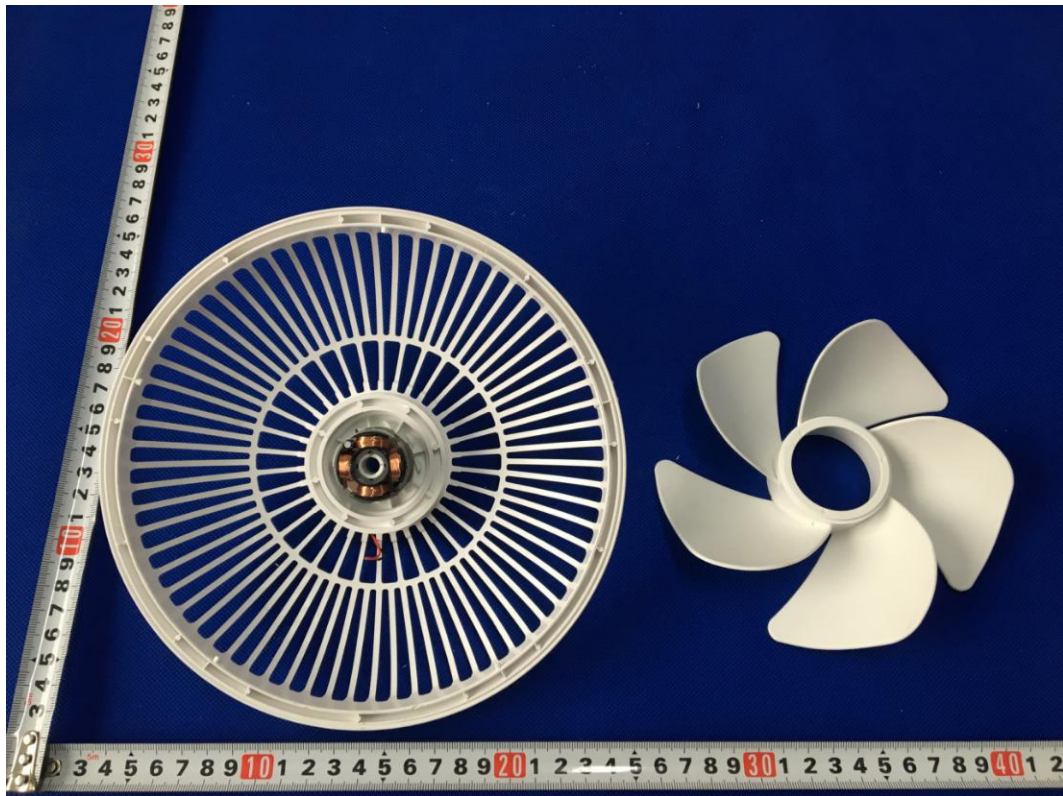
EUT Photo 11



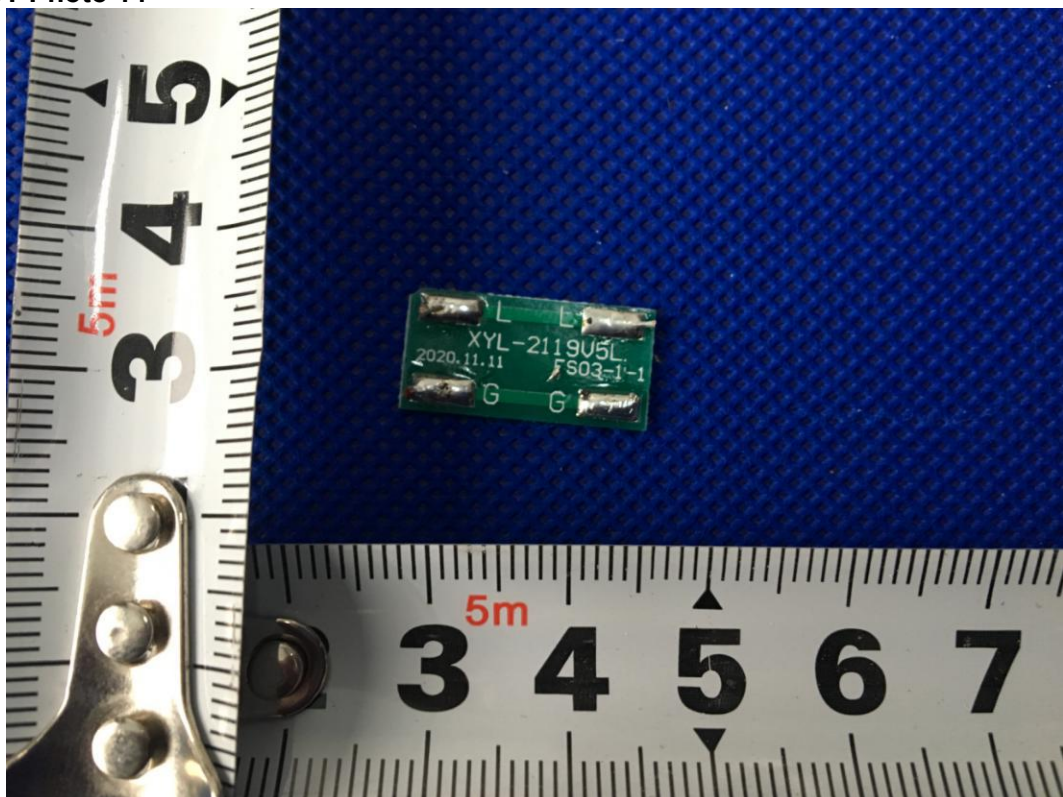
EUT Photo 12



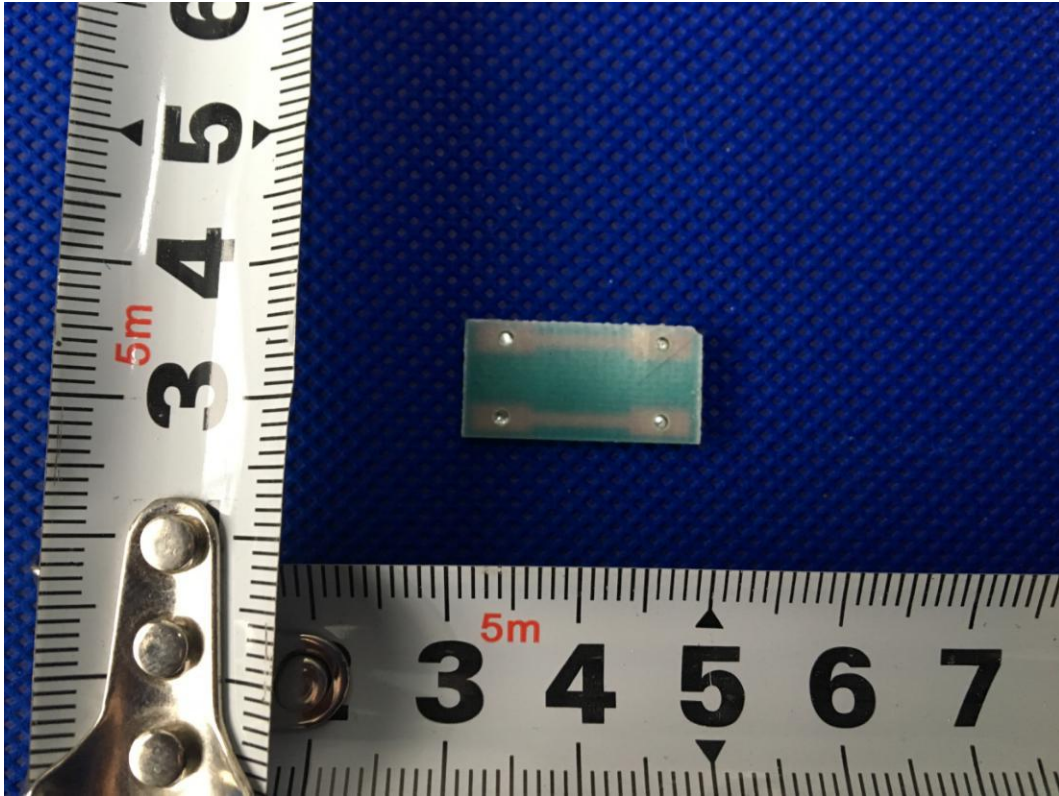
EUT Photo 13



EUT Photo 14



EUT Photo 15



***** END OF REPORT *****