中国认可
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检测
TESTING
CNAS L23214

TEST REPORT

Product Name:	3D Printing-Mate
Trade Mark:	N/A
Model No.:	AMS Heater
Add. Model No.:	N/A
Report Number:	25080819389EMC-1
Test Standards:	FCC 47 CFR PART 15 B ICES-003 Issue 7
Test Result:	PASS
Date of Issue:	October 24, 2025

Prepared for:

Sunlu（Guangdong）Technology Co., Ltd.

No. 162 Tanlong North Road, Tanzhou Town, Zhongshan City Zhongshan, Guangdong,528467,China

Prepared by:

Huizhou UnionTrust Quality and Technology Co., Ltd.
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Prepared by: Ken Xiao — Ken Xiao, Project Engineer

Reviewed by: Henry Lu — Henry Lu, Team Leader

Approved by: George Luo, General Manager

Date: October 24, 2025

Version

Version No.	Date	Description
V1.0	October 24, 2025	Original

CONTENTS

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	Sunlu（Guangdong）Technology Co., Ltd.
Address of Applicant:	No. 162 Tanlong North Road, Tanzhou Town, Zhongshan City Zhongshan, Guangdong,528467,China
Manufacturer:	Sunlu（Guangdong）Technology Co., Ltd.
Address of Manufacturer:	No. 162 Tanlong North Road, Tanzhou Town, Zhongshan City Zhongshan, Guangdong,528467,China

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	3D Printing-Mate
Model No.:	AMS Heater
Add. Model No.:	N/A
Trade Mark:	N/A
DUT Stage:	Production Unit
Rated Voltage:	100-120V~ 60Hz
Classification of digital devices:	Class B
Highest Internal Frequency:	≤108MHz
Sample Received Date:	August 4, 2025
Sample Tested Date:	August 6, 2025

Remark: The above EUT's information was provided by customer. Please refer to the specifications or user's manual for more detailed description.

1.2.2 Description of Accessories

None.

1.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested independently

1.4 TEST LOCATION

Huizhou UnionTrust Quality and Technology Co., Ltd.

Address: 1-2/F., Building 16/17, Liandong U Valley Park, No.27, Hexi Road, Zhongkai District, Huizhou, Guangdong, China
Telephone: TEL:+86 (0) 752 3699 188
Fax:E-mail:info@uttlab.com

1.5 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L23214
The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

1.6 DEVIATION FROM STANDARDS

None.

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.9 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.

No.	Item	Measurement Uncertainty
1	Conducted emission 150kHz-30MHz (AMN)	±2.8 dB
2	Radiated emission 30MHz-1GHz (SAC)	± 4.6 dB
3	Radiated emission 1GHz-6GHz (FAR)	± 4.5 dB
Remark: 95% Confidence Levels, k=2.		

2. TEST SUMMARY

Test Cases			
Test Item	**Test Requirement**	**Test Method**	**Result**
Conducted Emission	FCC 47 CFR Part 15.107 ICES-003 Issue 7 Section 3.2.1	ANSI C63.4-2014	PASS
Radiated Emission	FCC 47 CFR Part 15.109 ICES-003 Issue 7 Section 3.2.2	ANSI C63.4-2014	PASS

3. EQUIPMENT LIST

Radiated Emission (3m) Test Equipment List						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date**	**Cal. Due date**
☒	3m SAC	ETS-LINDGREN	3M	--	27-Sep-2024	26-Sep-2027
☒	Receiver	R&S	ESR7	101181	26-Sep-2024	25-Sep-2025
☒	Log Periodic Antenna	SCHWARZBECK	VULB9162	599	28-Sep-2024	27-Sep-2025
☒	6dB Attenuator	Huaxiang	TS5-6dB-4G-A	15121802	28-Sep-2024	27-Sep-2025
☒	Preamplifier	Sonoma	310N	292968	26-Sep-2024	25-Sep-2025
☐	Double-Ridged Waveguide Horn Antenna	ETS-LINDGREN	3115	118405	27-Sep-2024	26-Sep-2025
☐	Pre-amplifier	Agilent	8449B	3008A04538	26-Sep-2024	25-Sep-2025
☒	Multi device Controller	ETS-LINDGREN	7006-001	2.8.0	N/A	N/A
☒	Test Software	FARAD	EZ-EMCRE	Software Version: FARAD-3A1.1+		

Conducted Emission Test						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date**	**Cal. Due date**
☒	LISN	R&S	ESH2-Z5	860014/024	25-Oct-2024	24-Oct-2025
☒	Receiver	R&S	ESR7	101181	26-Sep-2024	25-Sep-2025
☒	Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	25-Oct-2024	24-Oct-2025
☒	Test Software	FARAD	EZ-CON	Software Version: EMC-CON 3A1.1		

4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

4.1.1 Normal or Extreme Test Conditions

Environment Parameter	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage	Relative Humidity (%)
NV/NT	+15 to +35	120V~ 60Hz	20 to 75
Remark: 1) NV: Normal Voltage; NT: Normal Temperature			

4.1.2 Record of Normal Environment and Test sample

Test Item	Temperature (°C)	Relative Humidity (%)	Pressure (kPa)	Sample No.	Tested by
Conducted Emission	24.5	62.2	100.0	S202508046596-ZJA01/5	Ken Xiao
Radiated Emission	23.8	57.7	100.1		

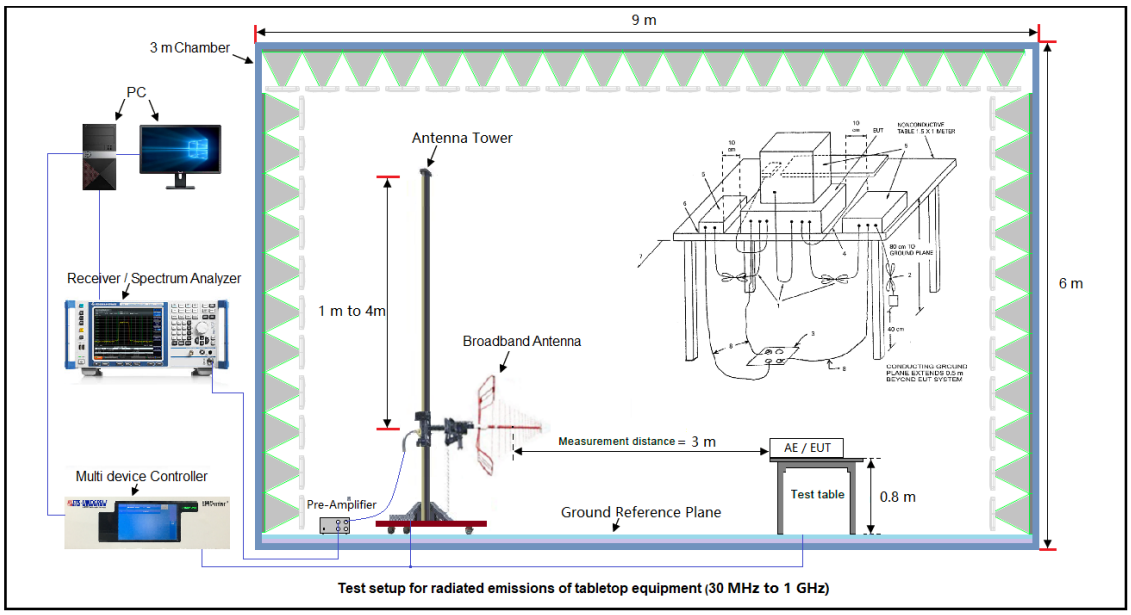
4.2 TEST MODES

Test Item	EMI Test Modes
Radiated Emission	Test Mode 1: AC 120V/60Hz+ Maximum power operation
Conducted Emission	Test Mode 1: AC 120V/60Hz+ Maximum power operation

4.3 TEST SETUP

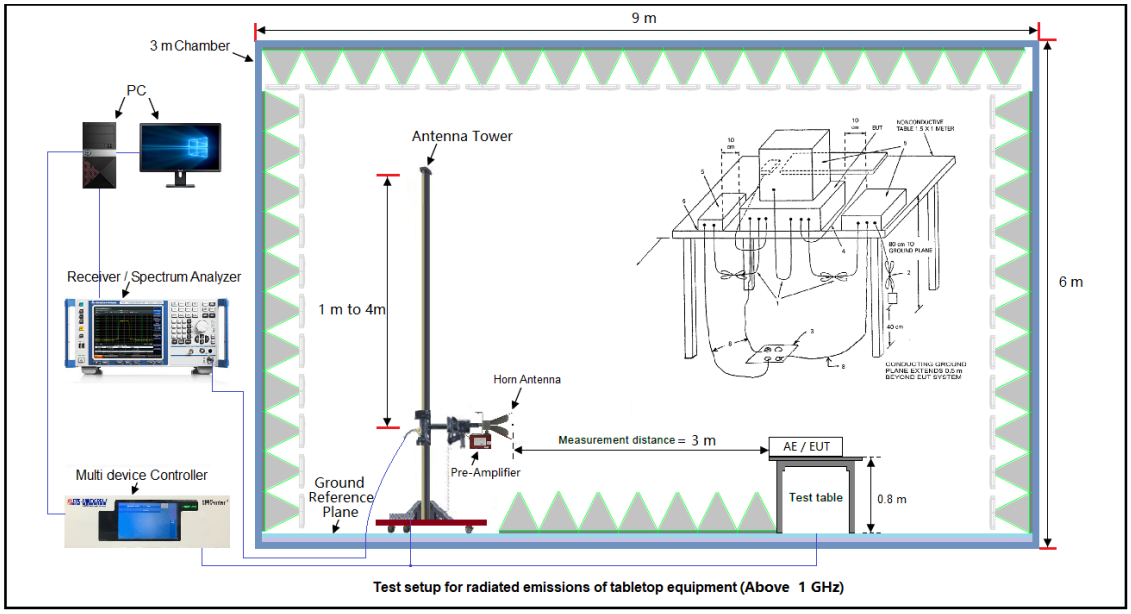
4.3.1 For Radiated Emissions test setup

Figure 1. 30MHz to 1GHz



Test setup for radiated emissions of tabletop equipment (30 MHz to 1 GHz)

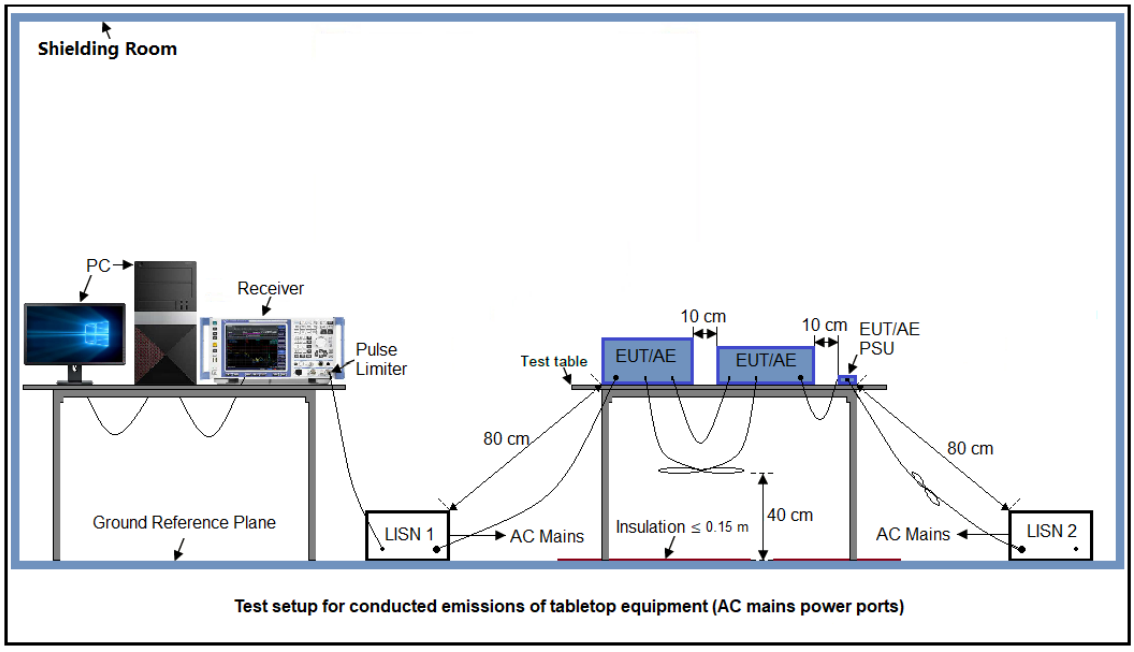
Figure 2. Above 1GHz



Test setup for radiated emissions of tabletop equipment (Above 1 GHz)

4.3.2 For Conducted Emissions test setup

Figure 3. Conducted Emissions setup



Test setup for conducted emissions of tabletop equipment (AC mains power ports)

4.4 SYSTEM TEST CONFIGURATION

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1 MHz or greater for frequencies above 1000MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic (according to KDB 896810 D02 SDoC FAQ v01r01) of the highest fundamental frequency or to 40 GHz, whichever is lower.

5. REFERENCE DOCUMENTS FOR TESTING

No.	Identity	Document Title
1	FCC 47 CFR Part15 Subpart B	Unintentional Radiators
2	ICES-003 Issue 7	Information Technology Equipment (Including Digital Apparatus)
3	ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
4	KDB 174176 D01 Line Conducted FAQ v01r01	AC power-line conducted emission frequency asked questions
5	KDB 896810 D02 SDoC FAQ v01r02	Supplier's Declaration of Conformity frequency asked questions

6. EMC REQUIREMENTS SPECIFICATION

6.1 RADIATED EMISSION

Test Requirement: FCC 47 CFR Part 15.109
ICES-003 Issue 7 Clause 3.2.2

Test Method: ANSI C63.4-2014

Receiver Setup:

Frequency: (f) (MHz)	Detector type	Measurement receiver bandwidth	
		RBW	VBW
30 ≤ f ≤ 1 000	Quasi Peak	120 kHz	300 kHz
f ≥1000	Peak	1 MHz	3 MHz
	Average	1 MHz	3 MHz

Measured frequency range

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705-108	1000.
108-500	2000.
500-1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Limits:

Limits for Class B devices

FCC 47 CFR PART 15 B

Frequency (MHz)	limits at 3m (dBμV/m)		
	QP Detector	PK Detector	AV Detector
30 – 88	40.0	--	--
88 – 216	43.5	--	--
216 – 960	46.0		
960 – 1000	54.0	--	--
Above 1000	--	74.0	54.0

ICES-003 Issue 7

Frequency (MHz)	limits at 3m (dBμV/m)		
	QP Detector	PK Detector	AV Detector
30 – 88	40.0	--	--
88 – 216	43.5	--	--
216 – 230	46.0		

230 – 960	47.0	--	--
960 – 1000	54.0	--	--
Above 1000	--	74.0	54.0

Remark:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (μV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Test Setup: Refer to section 4.3.1 for details.

Test Procedures:

1. From 30 MHz to 1GHz test procedure as below:

1) The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
2) 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.
3) 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.

2. Above 1GHz test procedure as below:

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

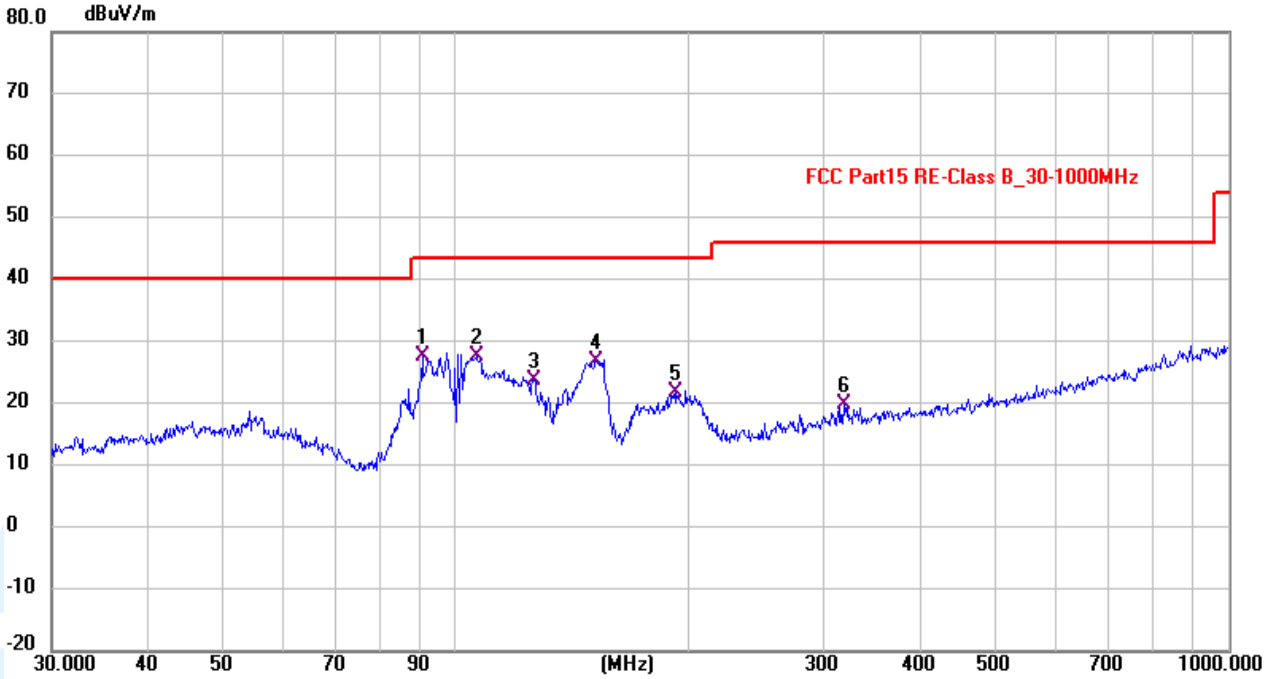
Equipment Used: Refer to section 3 for details.

Test Result: Pass

The measurement data as follows:

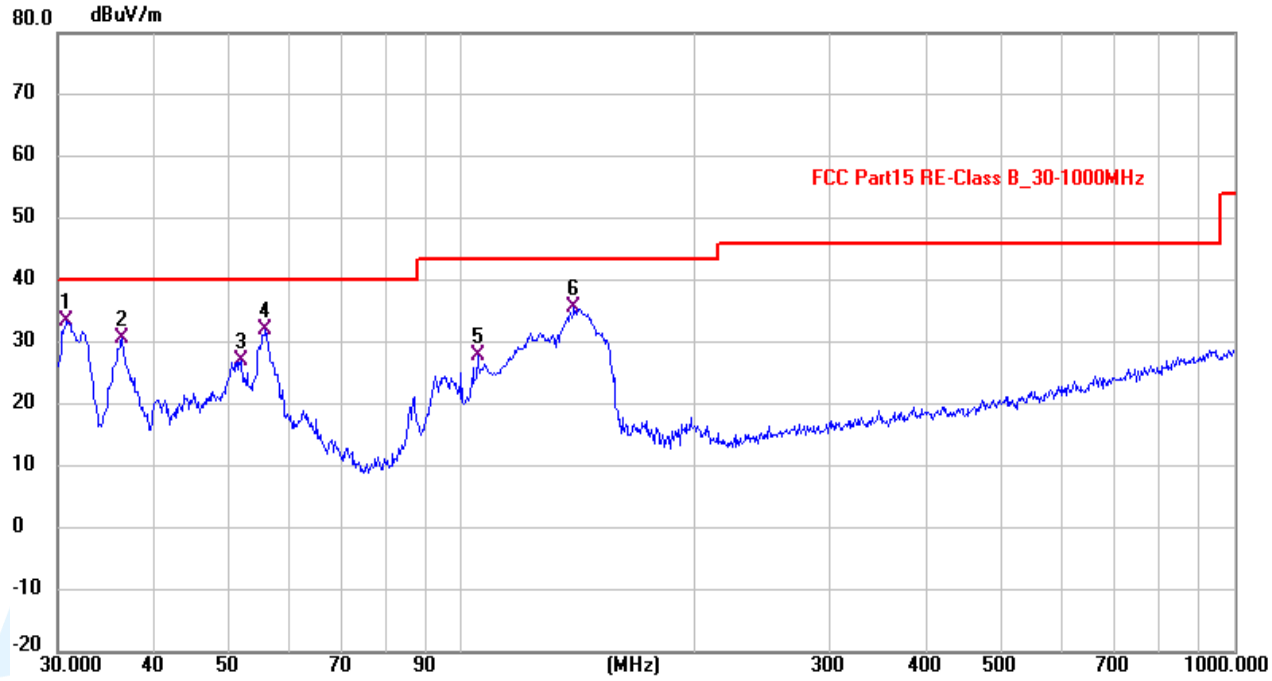
The measurement data for FCC 47 CFR Part 15 Subpart B as follows:

Below 1GHz(Quasi Peak):
Test Mode1
Horizontal



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	90.537	43.09	-15.40	27.69	43.50	-15.81	QP
2	106.385	41.16	-13.50	27.66	43.50	-15.84	QP
3	126.329	39.95	-16.14	23.81	43.50	-19.69	QP
4	152.130	43.70	-16.91	26.79	43.50	-16.71	QP
5	193.094	36.25	-14.34	21.91	43.50	-21.59	QP
6	317.701	30.31	-10.58	19.73	46.00	-26.27	QP

Vertical



No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.853	47.93	-14.54	33.39	40.00	-6.61	QP
2	36.381	44.16	-13.47	30.69	40.00	-9.31	QP
3	51.843	38.58	-11.60	26.98	40.00	-13.02	QP
4	55.805	43.96	-11.76	32.20	40.00	-7.80	QP
5	104.903	41.25	-13.22	28.03	43.50	-15.47	QP
6	139.851	52.82	-17.13	35.69	43.50	-7.81	QP

Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit
4. The limit of ICES-003 in the 230MHz to 960MHz band is higher than that of FCC Part 15B, so the radiation emission test data conform to the limit of ICES-003.

6.2 CONDUCTED EMISSION

Test Requirement: FCC 47 CFR Part 15.107
ICES-003 Issue 7 Section 3.2.1

Test Method: ANSI C63.4-2014

Limits:

Limits for Class B devices

Frequency range (MHz)	Limits (dB(μV))	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

Remark:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

Test Setup: Refer to section 4.3.2 for details.

Test Procedures:

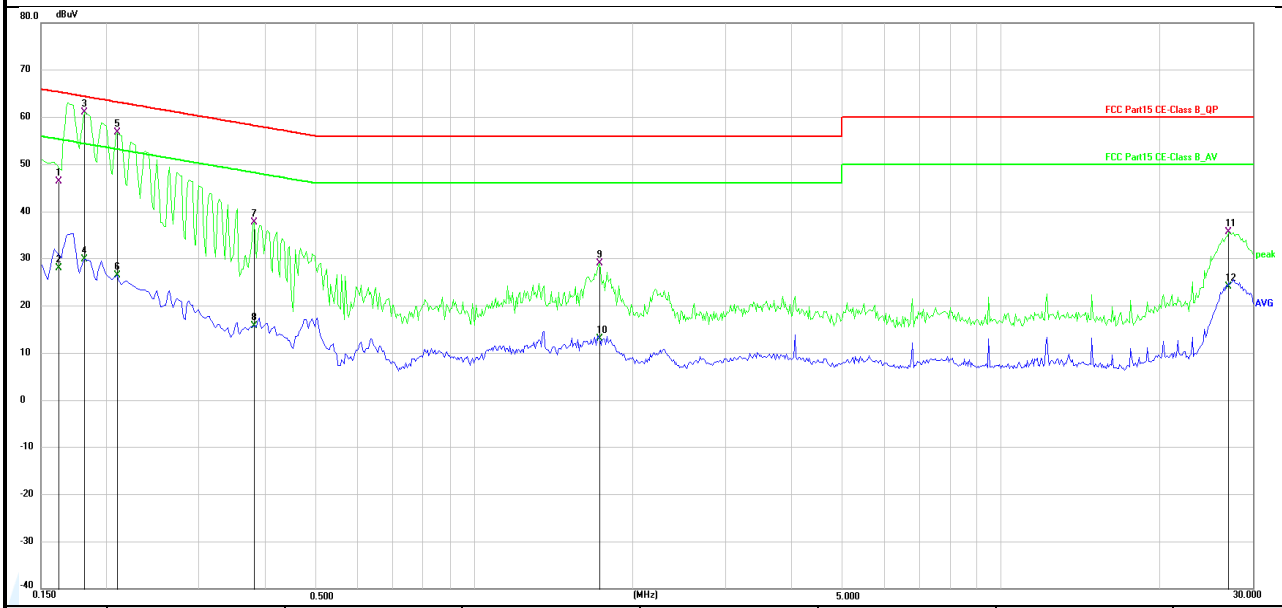
1) The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
2) The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak 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.
3) For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

Equipment Used: Refer to section 3 for details.

Test Result: Pass

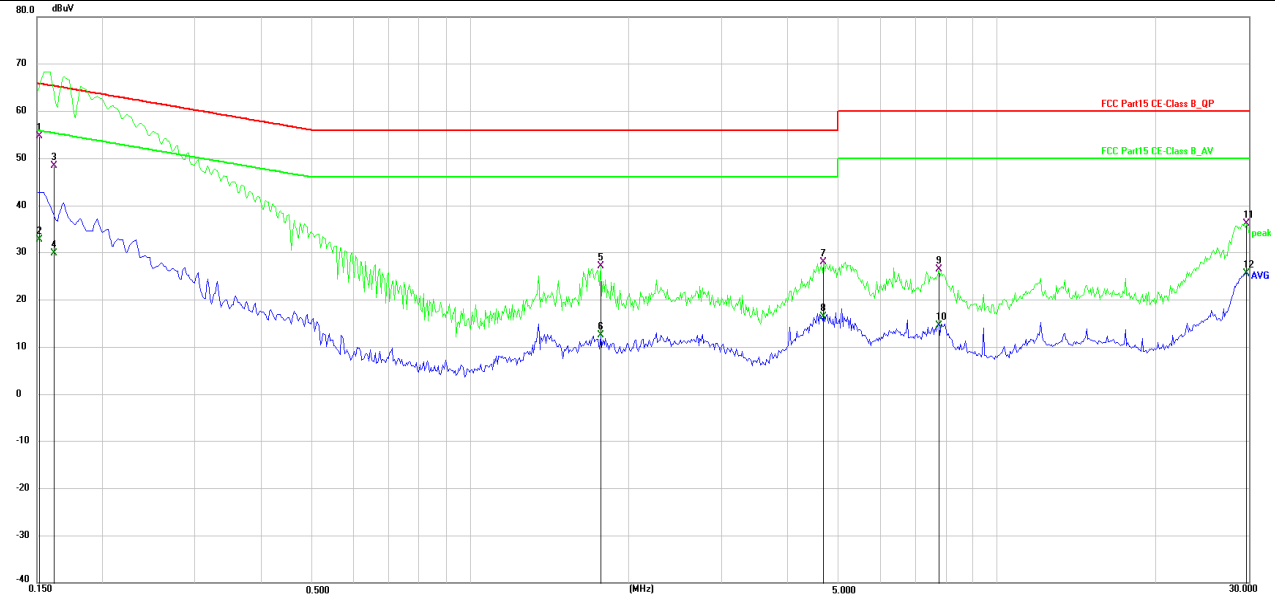
The measurement data as follows:
Quasi Peak and Average:
Test Mode 1

Live Line



No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.1628	36.42	10.03	46.45	65.32	-18.87	QP
2	0.1628	17.96	10.03	27.99	55.32	-27.33	AVG
3	0.1815	50.98	10.06	61.04	64.42	-3.38	QP
4	0.1815	19.87	10.06	29.93	54.42	-24.49	AVG
5	0.2085	46.69	10.09	56.78	63.26	-6.48	QP
6	0.2085	16.32	10.09	26.41	53.26	-26.85	AVG
7	0.3795	27.66	10.04	37.70	58.29	-20.59	QP
8	0.3795	5.63	10.04	15.67	48.29	-32.62	AVG
9	1.7295	18.83	10.24	29.07	56.00	-26.93	QP
10	1.7295	2.71	10.24	12.95	46.00	-33.05	AVG
11	27.0870	24.60	11.14	35.74	60.00	-24.26	QP
12	27.0870	12.91	11.14	24.05	50.00	-25.95	AVG

Neutral Line

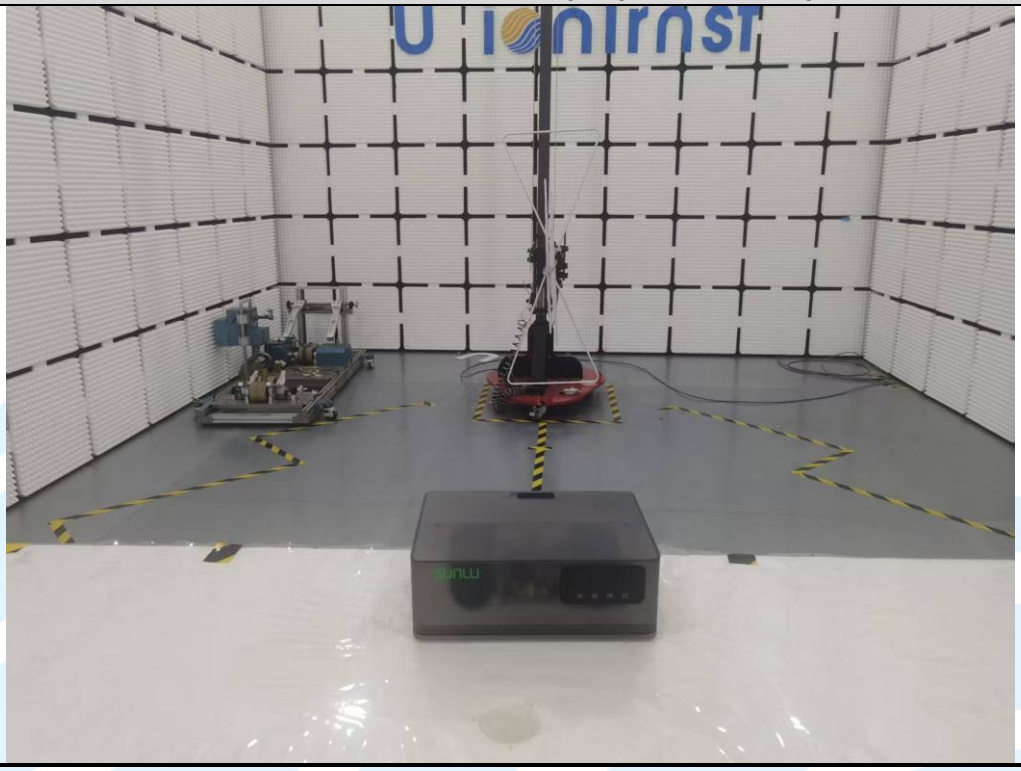


No.	Frequency (MHz)	Reading (dBμV)	Correction factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.1521	44.64	10.03	54.67	65.88	-11.21	QP
2	0.1521	22.78	10.03	32.81	55.88	-23.07	AVG
3	0.1616	38.31	10.06	48.37	65.38	-17.01	QP
4	0.1616	19.78	10.06	29.84	55.38	-25.54	AVG
5	1.7623	16.98	10.19	27.17	56.00	-28.83	QP
6	1.7623	2.34	10.19	12.53	46.00	-33.47	AVG
7	4.6715	17.79	10.21	28.00	56.00	-28.00	QP
8	4.6715	6.25	10.21	16.46	46.00	-29.54	AVG
9	7.7278	16.07	10.38	26.45	60.00	-33.55	QP
10	7.7278	4.09	10.38	14.47	50.00	-35.53	AVG
11	29.6838	25.08	11.09	36.17	60.00	-23.83	QP
12	29.6838	14.55	11.09	25.64	50.00	-24.36	AVG

Remark:

1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result - Limit
4. An initial pre-scan was performed on the Phase and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

APPENDIX 1 PHOTOS OF TEST SETUP

Radiated emission Test Setup-1 (30 MHz~1 GHz)


Conducted Emission Test Setup-2


APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

EUT EXTERNAL PHOTOS

EUT Photo


EUT Photo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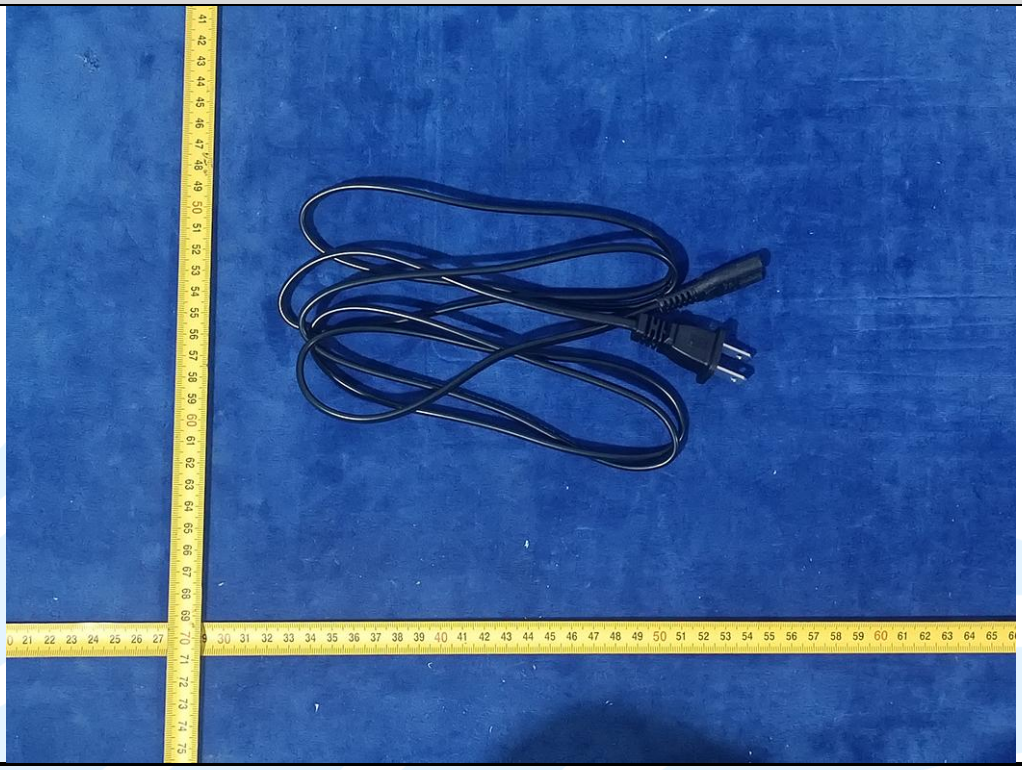

EUT INTERNAL PHOTOS

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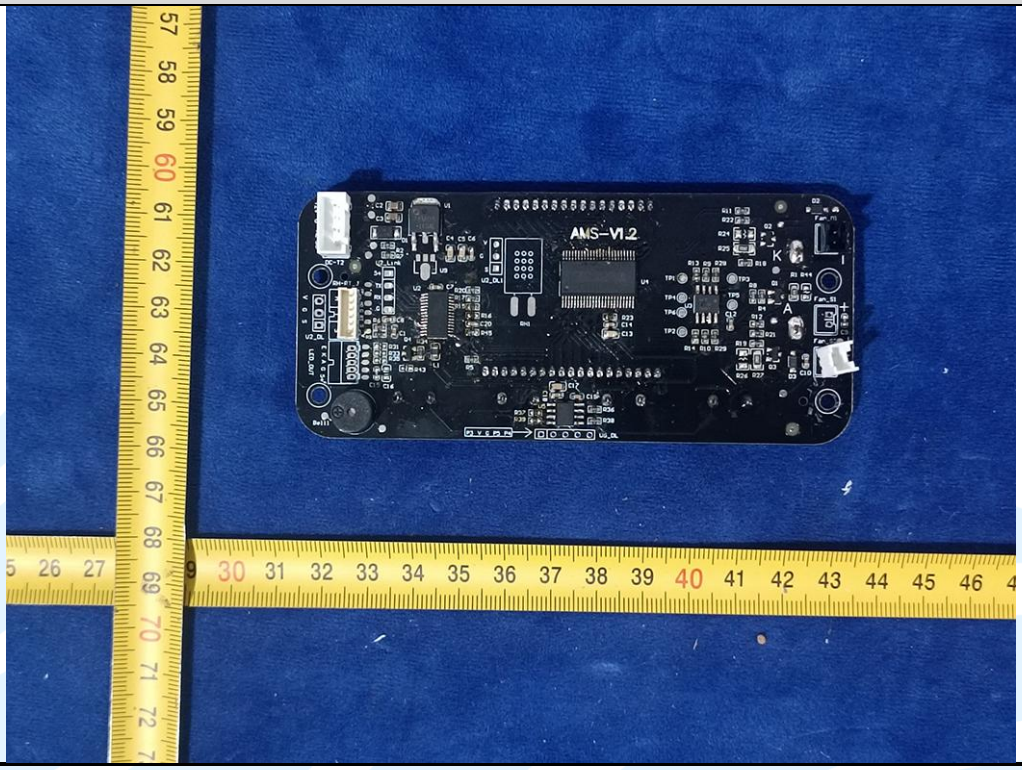

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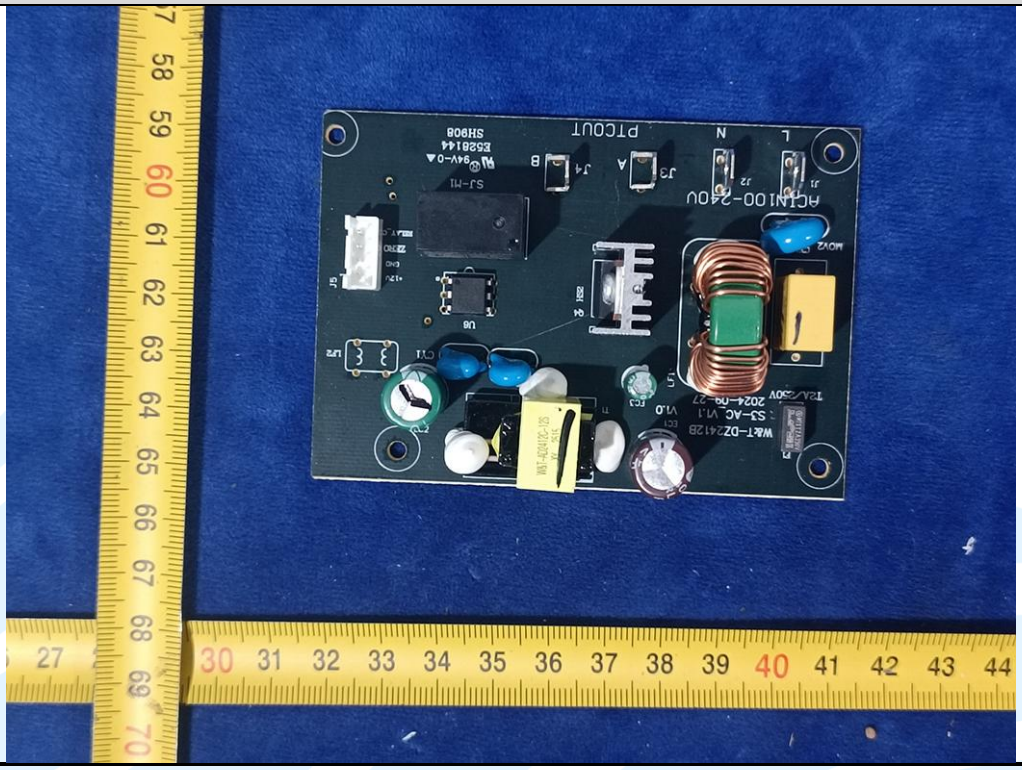

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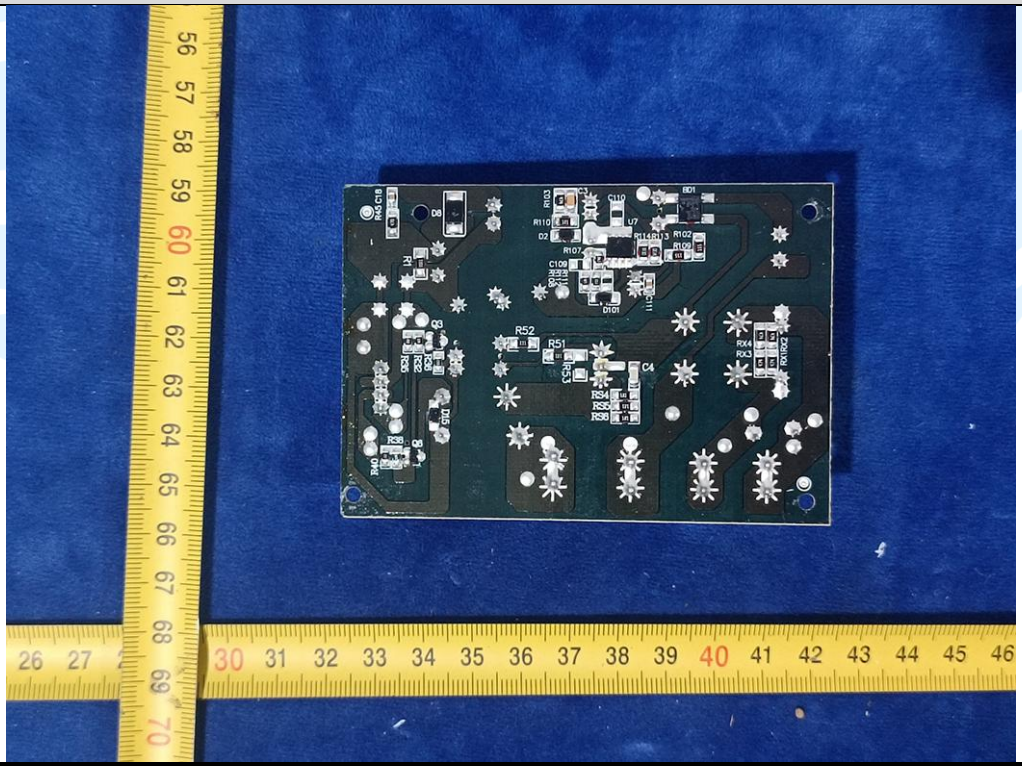

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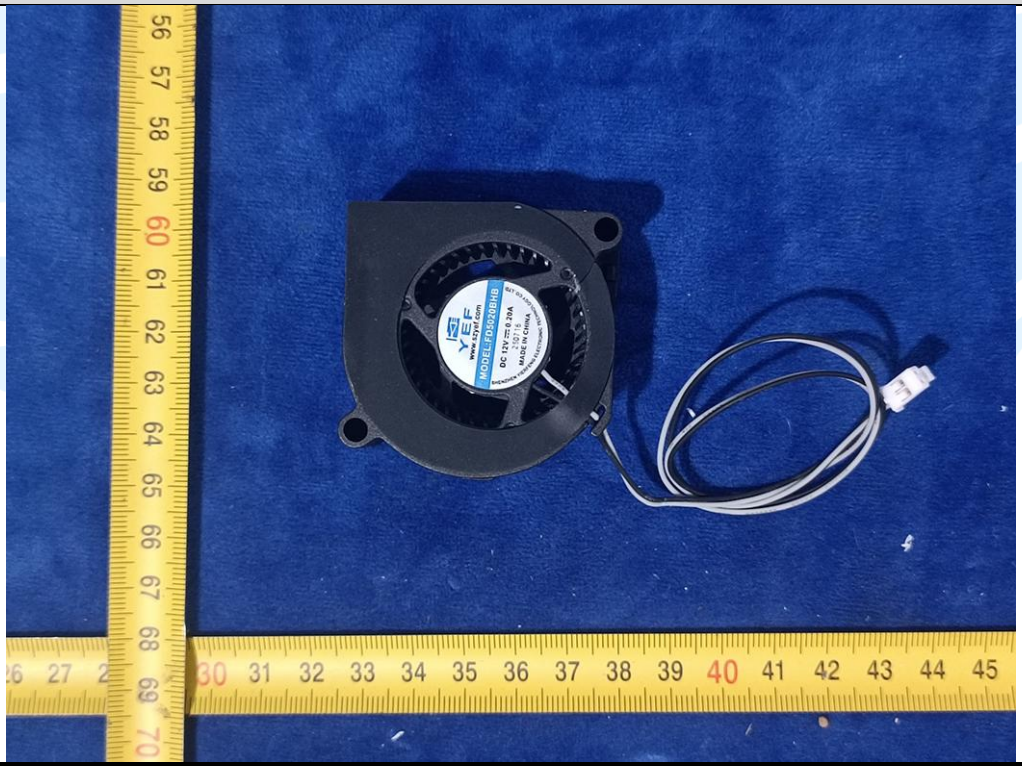

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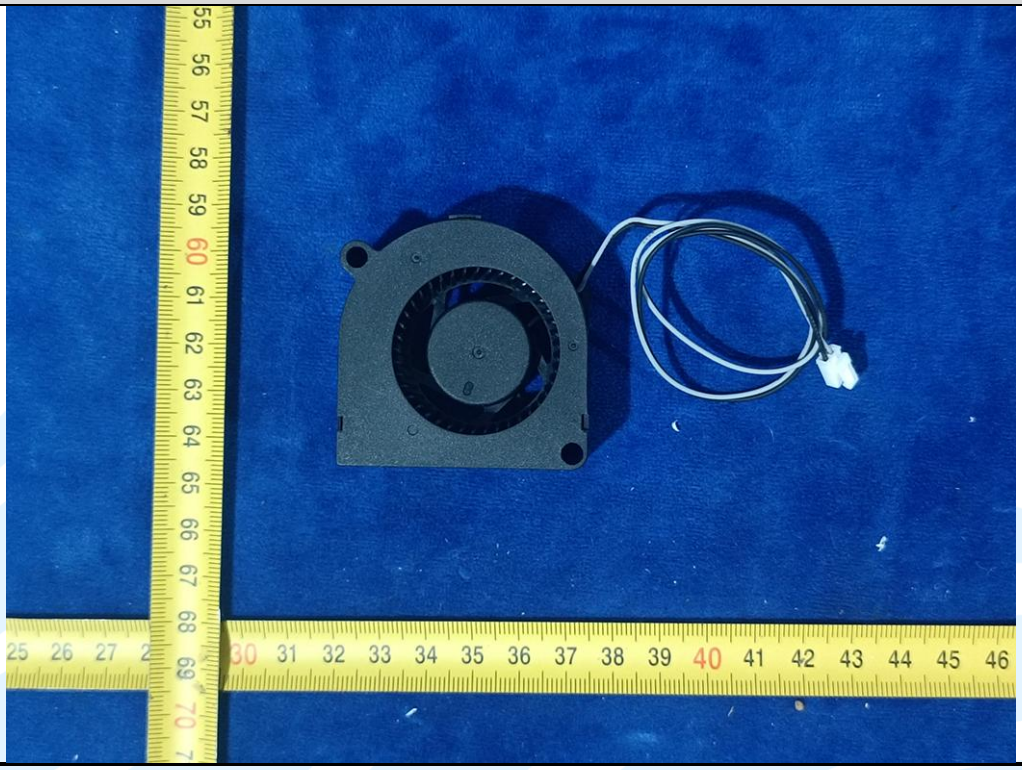

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