FCC PART 15C REPORT FOR CERTIFICATION
On Behalf of

Arovast corporation

True HEPA Smart Air Purifier

Model Number: LAP-C601S-WUS

Additional Model: LAP-C601S-XXX(X may be A~Z)

FCC ID: 2ARBY-CORE600S

Applicant :	Arovast corporation
Address:	1202 N. Miller St., Suite A, Anaheim, CA 92806, USA
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2109250-2
Date of Test:	May. 07, 2024~ May. 11, 2024
Date of Report:	May. 16, 2024

TABLE OF CONTENTS

Applicant: **Address:**	Arovast corporation 1202 N. Miller St., Suite A, Anaheim, CA 92806, USA		
Manufacturer: **Address:**	Arovast corporation 1202 N. Miller St., Suite A, Anaheim, CA 92806, USA		
Factory: **Address:**	Ningbo Taller Intelligent Technology Co.,Ltd NO.1, Gongji Road, Industrial Park, Simen Town, Yuyao, Ningbo, Zhejiang 315470 China.		
E.U.T:	True HEPA Smart Air Purifier		
Model Number:	LAP-C601S-WUS		
Additional Model:	LAP-C601S-XXX(X may be A~Z) Note: They are identical except model name. XXX can be A-Z, with the first X representing the product color and the following XX representing the sales area.		
Power Supply:	AC 120V/60Hz		
Trade Name:	Levoit	Serial No.:	------
Date of Receipt:	May. 07, 2024	Date of Test:	May. 07, 2024~ May. 11, 2024
Test Specification:	FCC Part 15 Subpart C (15.247) ANSI C63.10:2013 FCC KDB 558074 D01 15.247 Meas Guidance v05r02		
Test Result:	The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd.		

Date: May. 16, 2024

Prepared by:	Reviewed by:	Approved by:
Ring Yang / Assistant	Seven Wang / Engineer	Iceman Hu / Manager

Other Aspects: This report base on the previous report with report number: ESTE-R2109250, motor and supply power mainboard were added in this report, The rf module has not changed, So only need re-tested conducted emissions and radiated(30-1000MHz), other test item needn't re-tested; And Modify the name of factory.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

1.GENERAL INFORMATION

1.1.Description of Device (EUT)

Product Name	:	True HEPA Smart Air Purifier
Model Number	:	LAP-C601S-WUS
Software Version	:	1.0.04（1.0.05）
Hardware Version	:	CORE600S-C_V2.3P2.3
Operation frequency	:	2412MHz~2462MHz 2422MHz~2452MHz
Number of channel	:	IEEE 802.11b/g/n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Modulation Type	:	DSSS OFDM
Sample Type	:	Prototype production

Note: For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

1.2.Antenna Information

Ant No.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	-	-	PCB	-	1.66

Note:
1.The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.
2.The test results of this report only apply to the sample as received.

2.SUMMARY OF TEST

2.1.Summary of test result

No.	Description of Test Item	FCC Standard Section	Results
1	6dB Bandwidth	15.247(a)(2)	N/A
2	Maximum Peak Output Power	15.247(b)(3)	N/A
3	Power Spectral Density	15.247(e)	N/A
4	Conducted Band Edge	15.247(d)	N/A
5	Conducted Spurious Emissions	15.247(d)	N/A
6	Radiated Spurious Emissions and Band Edge	15.205 15.209 15.247(d)	PASS
7	AC Power Line Conducted Emissions	15.207	PASS
8	Antenna Requirement	15.203	N/A

Note:“N/A” denotes test is not applicable in this test report.

2.2.Test Facilities

EMC Lab : Accredited by CNAS, CHINA
Registration No.: L5288
This Accreditation is valid until: November 12, 2029

Recognized by FCC, USA
Designation Number: CN1215
This Recognition is valid until: January 31, 2026

Accredited by A2LA, USA
Registration No.: 4366.01
This Accreditation is valid until: January 31, 2026

Recognized by Industry Canada
CAB identifier No.: CN0035
This Recognition is valid until: January 31, 2026

Recognized by VCCI, Japan
Registration No.:C-14103; T-20073; R-13663;
R-20103; G-20097
Date of registration: Apr. 20, 2020
This Recognition is valid until: Apr. 19, 2026

Recognized by TUV Rheinland, Germany
Registration No.: UA 50413872 0001
Date of registration: July 31, 2018

Recognized by Intertek
Registration No.: 2011-RTL-L2-64
Date of registration: November 08, 2018

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3.Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	±3.48dB
Uncertainty for spurious emissions test (Below 30MHz)	±1.62 dB
Uncertainty for spurious emissions test (30MHz-1GHz)	±4.60 dB(Polarize: H)
	±4.68 dB(Polarize: V)
Uncertainty for spurious emissions test (1GHz to 25GHz)	±4.96dB
Uncertainty for radio frequency	7×10^{-8}
Uncertainty for conducted RF Power	1.08dB
Uncertainty for Power density test	0.26dB

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

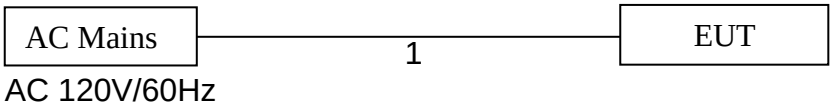
2.4.Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.8m	AC Cable

2.5.Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 meter high above ground. EUT was beset into 2.4G WIFI test mode by software before test.



AC 120V/60Hz

(EUT: True HEPA Smart Air Purifier)

2.6.Test Mode

The test mode was selected for the final test as listed below.

Test Item	Mode	Date Rate	Test Channel
Radiated Spurious Emissions(Below 1GHz)	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS0	Low/Middle/High
	IEEE 802.11n HT40	MCS0	Low/Middle/High
AC Power Line Conducted Emissions	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS0	Low/Middle/High
	IEEE 802.11n HT40	MCS0	Low/Middle/High

Note: In radiated measurement,the EUT had been pre-scan on the positioned of each 3 axis(X,Y,Z), the worst case was found when positioned on **X-plane.**

2.7.Power Setting of Test Software

Software Name	espRFTool_2.3		
Frequency(MHz)	2412	2437	2462
IEEE 802.11b Setting	DEFAULT	DEFAULT	DEFAULT
IEEE 802.11g Setting	DEFAULT	DEFAULT	DEFAULT
IEEE 802.11n HT20 Setting	DEFAULT	DEFAULT	DEFAULT
Frequency(MHz)	2422	2437	2452
IEEE 802.11n HT40 Setting	DEFAULT	DEFAULT	DEFAULT

Note: This information is provided by the applicant.

2.8.Channel List

IEEE 802.11b/802.11g/802.11n HT20					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462
2	2417	7	2442		
3	2422	8	2447		
4	2427	9	2452		
5	2432	10	2457		
IEEE 802.11n HT40					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	6	2437	9	2452
4	2427	7	2442		
5	2432	8	2447		

2.9. Test Equipment List

For radiated emission test(9kHz-30MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 12,23	1 Year
Active Loop Antenna	SCHWAREBECK	FMZB 1519B	EST-E054	LISAI	June 12,23	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
9kHz-30MHz Cable	N/A	EST-001	N/A	N/A	N/A	N/A

For radiated emissions test (30MHz-1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 12,23	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 12,23	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
30-1000MHz Cable	N/A	EST-002	N/A	N/A	N/A	N/A

3.RADIATED SPURIOUS EMISSIONS AND BAND EDGE

3.1.Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

15.209 Limit

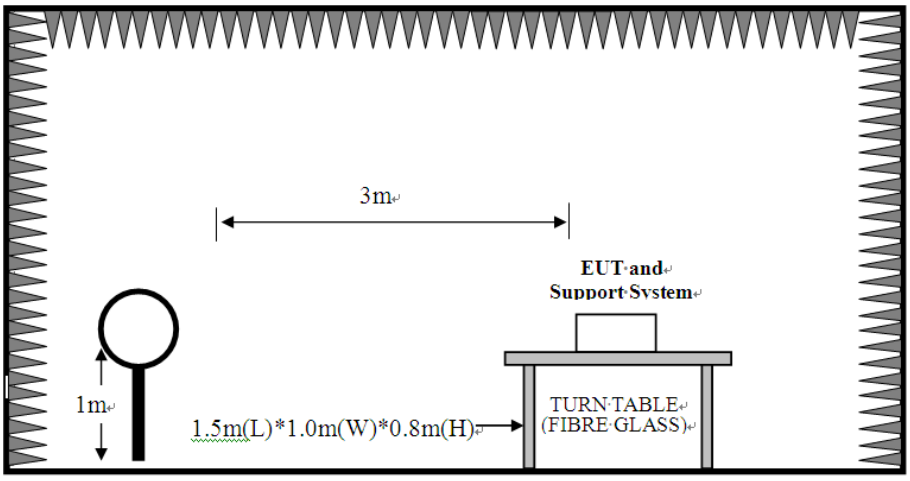
Frequency (MHz)	Field Strength(μV/m)	Distance(m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

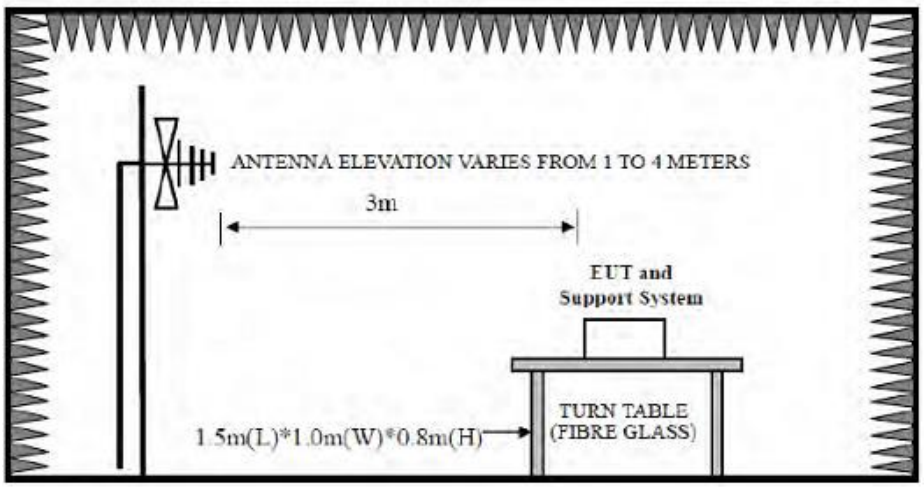
(1) Emission level dBμV = 20 log Emission level μV/m.
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument,antenna and the closest point of any part of the device or system.

3.2.Test Setup

9kHz~30MHz



30~1000MHz



3.3.Spectrum Analyzer Setting

For 9KHz-150KHz

Spectrum Parameters	Setting
RBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
VBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
Start frequency	9KHz
Stop frequency	150KHz
Sweep Time	Auto
Detector	PEAK/QP/AVG
Trace Mode	Max Hold

For 150KHz-30MHz

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

For 30MHz-1GHz

Spectrum Parameters	Setting
RBW	120KHz
VBW	300KHz
Start frequency	30MHz
Stop frequency	1GHz
Sweep Time	Auto
Detector	QP

3.4.Test Procedure

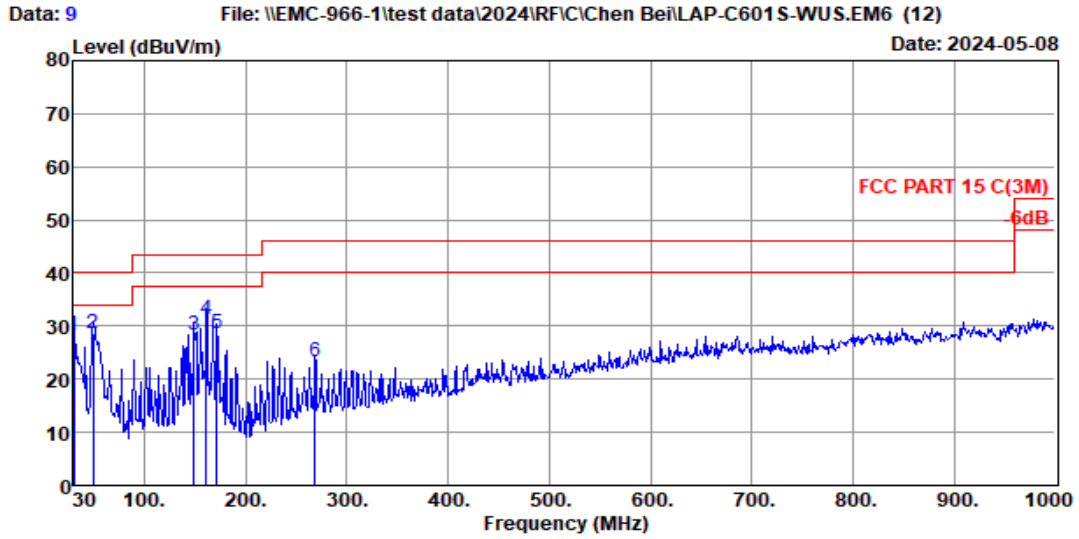
a. EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test.
b. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
c. Set the EUT transmit continuously with maximum output power.
d. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
e. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.
f. Spectrum analyzer setting parameters in accordance with section 3.3.
g. Repeat above procedures until all channels were measured.
h. Record the results in the test report.

3.5.Test Result

Radiated Emissions Below 1GHz

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



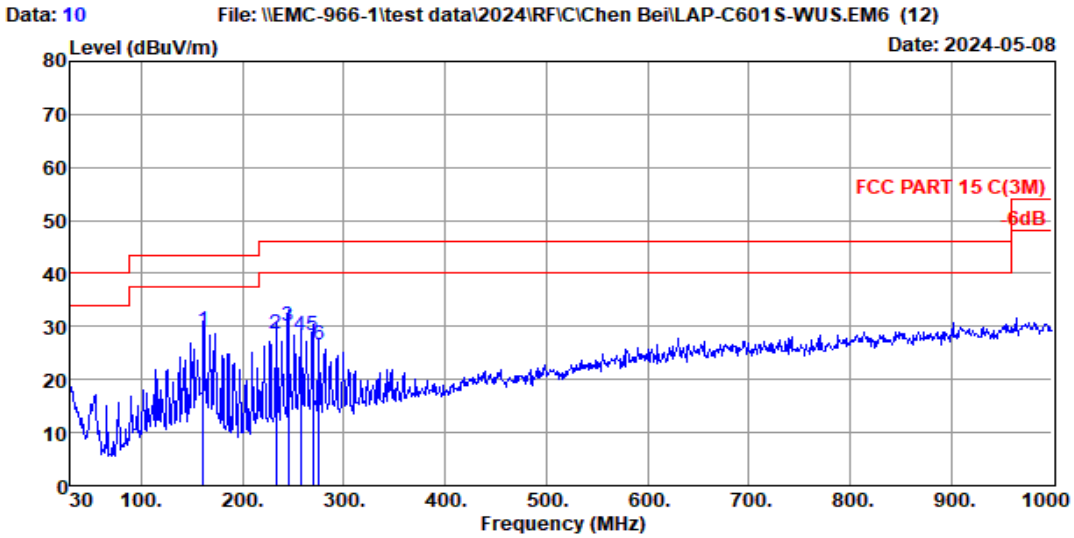
Site no. : 1# 966 Chamber Data no. : 9
Dis. / Ant. : 3m 37062 Ant. pol. : VERTICAL
Limit : FCC PART 15 C(3M)
Env. / Ins. : Temp:22.3°C.Humi:60%;Press:101.1KPa
Engineer : ZQL
EUT : True HEPA Smart Air Purifier
Power : AC 120V/60Hz
M/N : LAP-C601S-WUS
Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.00	19.00	0.70	8.74	28.44	40.00	11.56	QP
2	49.40	9.50	0.95	18.26	28.71	40.00	11.29	QP
3	149.31	11.00	1.75	15.68	28.43	43.50	15.07	QP
4	160.95	10.40	1.82	19.01	31.23	43.50	12.27	QP
5	171.62	9.40	1.89	17.22	28.51	43.50	14.99	QP
6	268.62	13.74	2.44	7.18	23.36	46.00	22.64	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



Site no. : 1# 966 Chamber Data no. : 10
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C(3M)
Env. / Ins. : Temp:22.3°C.Humi:60%;Press:101.1KPa
Engineer : ZQL
EUT : True HEPA Smart Air Purifier
Power : AC 120V/60Hz
M/N : LAP-C601S-WUS
Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	160.95	10.40	1.82	16.87	29.09	43.50	14.41	QP
2	232.73	10.62	2.23	15.92	28.77	46.00	17.23	QP
3	245.34	12.10	2.29	15.69	30.08	46.00	15.92	QP
4	256.98	14.06	2.36	11.96	28.38	46.00	17.62	QP
5	269.59	13.80	2.44	12.06	28.30	46.00	17.70	QP
6	275.41	13.10	2.48	10.85	26.43	46.00	19.57	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Note:

1. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All channels had been pre-test,only the worst case was reported.

4.AC POWER LINE CONDUCTED EMISSIONS

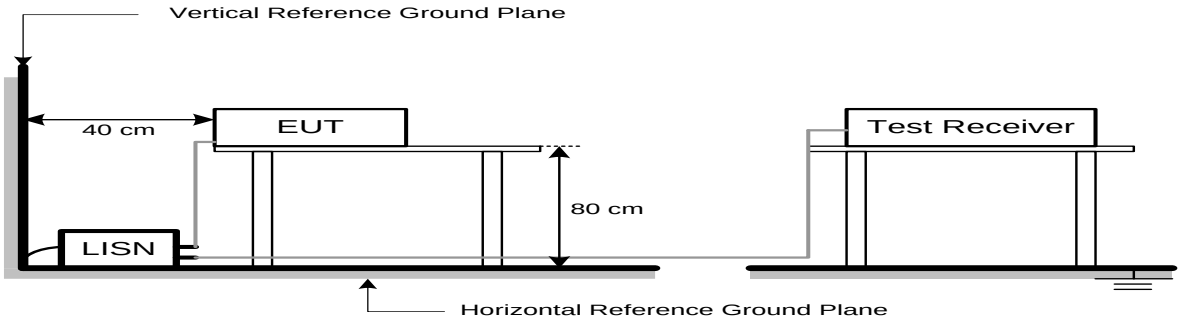
4.1.Limit

Frequency			Maximum RF Line Voltage	
			Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz	~	500kHz	66 ~ 56*	56 ~ 46*
500kHz	~	5MHz	56	46
5MHz	~	30MHz	60	50

Note:

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

4.2.Test Setup



4.3.Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP/AVG
Trace Mode	Max Hold

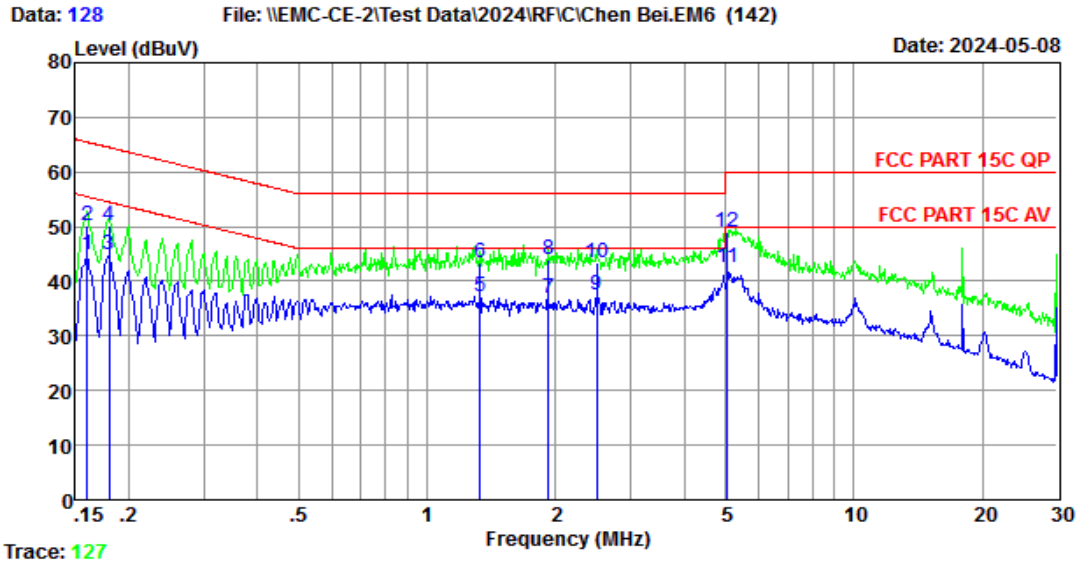
4.4.Test Procedure

a. The EUT was placed on a non-metallic table, 80cm above the ground plane.
b. The EUT Power connected to the power mains through a line impedance stabilization network.
c. Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
d. Set the EUT transmit continuously with maximum output power.
e. Spectrum analyzer setting parameters in accordance with section 4.3.
f. The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.
g. Record the results in the test report.

4.5.Test Result

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



Site no : 2#CE Shield Room Data no. : 128
Env. / Ins. : Temp:24.8℃ Humi:55% Press:101.50kPa LINE Phase : LINE
Limit : FCC PART 15C QP
Engineer : XJF
EUT : True HEPA Smart Air Purifier
Power : AC 120V/60Hz
M/N : LAP-C601S-WUS
Test Mode : TX Mode

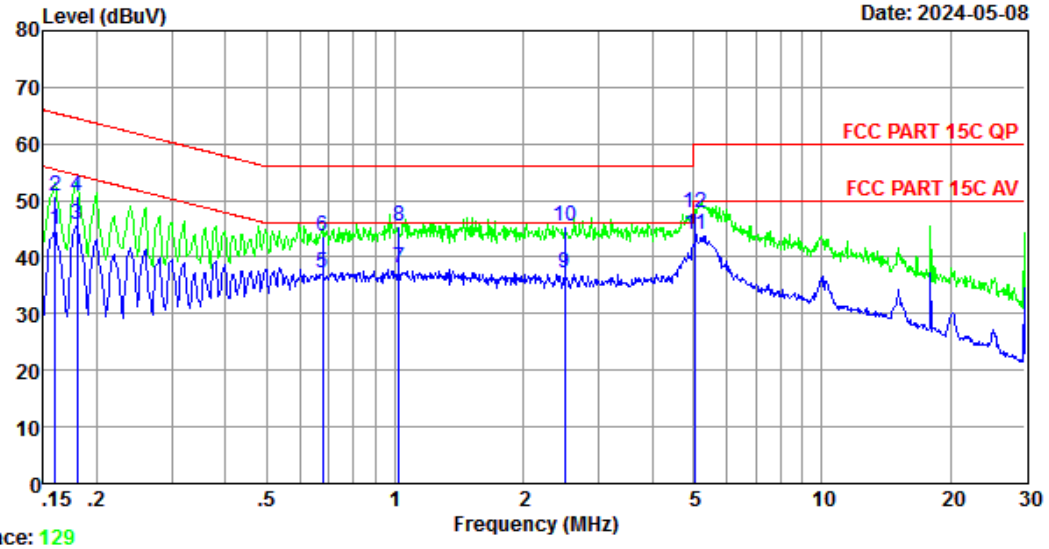
	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.16	10.12	9.89	24.81	44.82	55.47	10.65	Average
2	0.16	10.12	9.89	30.15	50.16	65.47	15.31	QP
3	0.18	10.16	9.93	24.67	44.76	54.50	9.74	Average
4	0.18	10.16	9.93	30.16	50.25	64.50	14.25	QP
5	1.33	9.97	10.03	17.19	37.19	46.00	8.81	Average
6	1.33	9.97	10.03	23.33	43.33	56.00	12.67	QP
7	1.93	9.98	10.00	16.89	36.87	46.00	9.13	Average
8	1.93	9.98	10.00	23.99	43.97	56.00	12.03	QP
9	2.50	9.98	10.00	17.58	37.56	46.00	8.44	Average
10	2.50	9.98	10.00	23.55	43.53	56.00	12.47	QP
11	5.06	10.01	9.99	22.39	42.39	50.00	7.61	Average
12	5.06	10.01	9.99	28.90	48.90	60.00	11.10	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878

Data: 130 File: \\EMC-CE-2\Test Data\2024\RF\C\Chen Bei.EM6 (142)



Trace: 129

Site no : 2#CE Shield Room Data no. : 130
Env. / Ins. : Temp:24.8℃ Humi:55% Press:101.50kPa LINE Phase : NEUTRAL
Limit : FCC PART 15C QP
Engineer : XJF
EUT : True HEPA Smart Air Purifier
Power : AC 120V/60Hz
M/N : LAP-C601S-WUS
Test Mode : TX Mode

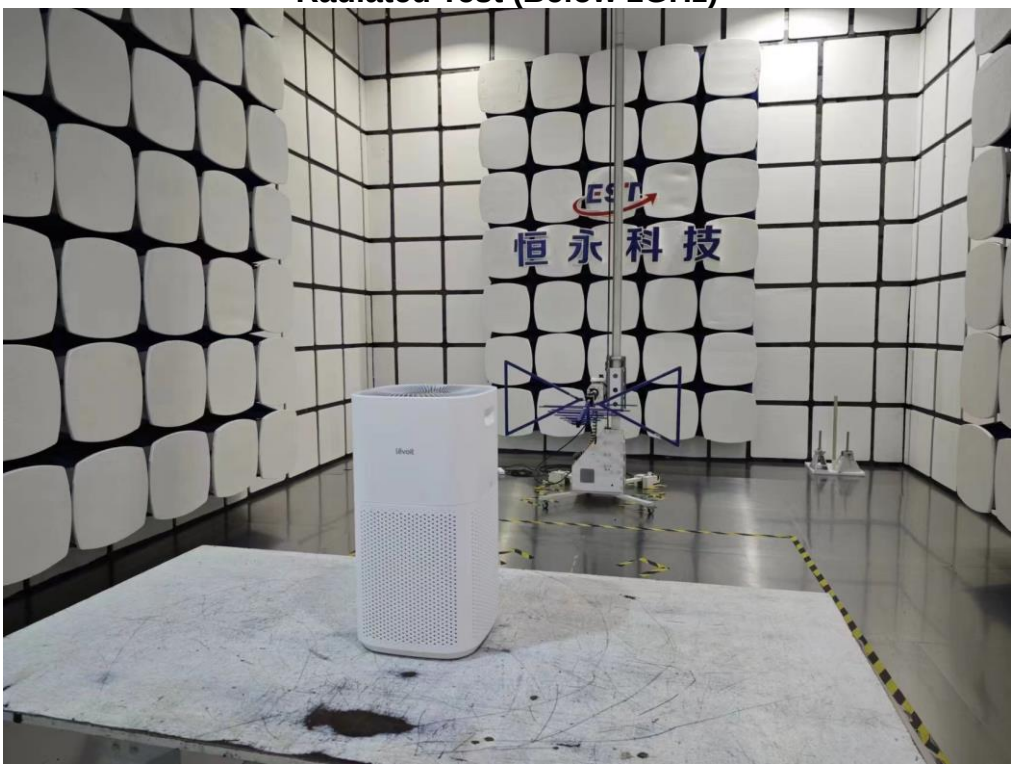
	Freq. (MHz)	LISN Factor (db)	Cable Loss (db)	Reading dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.16	10.22	9.89	24.86	44.97	55.47	10.50	Average
2	0.16	10.22	9.89	30.59	50.70	65.47	14.77	QP
3	0.18	10.14	9.93	25.60	45.67	54.50	8.83	Average
4	0.18	10.14	9.93	30.70	50.77	64.50	13.73	QP
5	0.68	10.01	9.98	17.29	37.28	46.00	8.72	Average
6	0.68	10.01	9.98	23.70	43.69	56.00	12.31	QP
7	1.02	9.99	10.05	17.98	38.02	46.00	7.98	Average
8	1.02	9.99	10.05	25.31	45.35	56.00	10.65	QP
9	2.50	10.01	10.00	17.25	37.26	46.00	8.74	Average
10	2.50	10.01	10.00	25.58	45.59	56.00	10.41	QP
11	5.06	10.01	9.99	23.93	43.93	50.00	6.07	Average
12	5.06	10.01	9.99	27.86	47.86	60.00	12.14	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

5. TEST SETUP PHOTO

Conducted Test

Radiated Test (Below 1GHz)



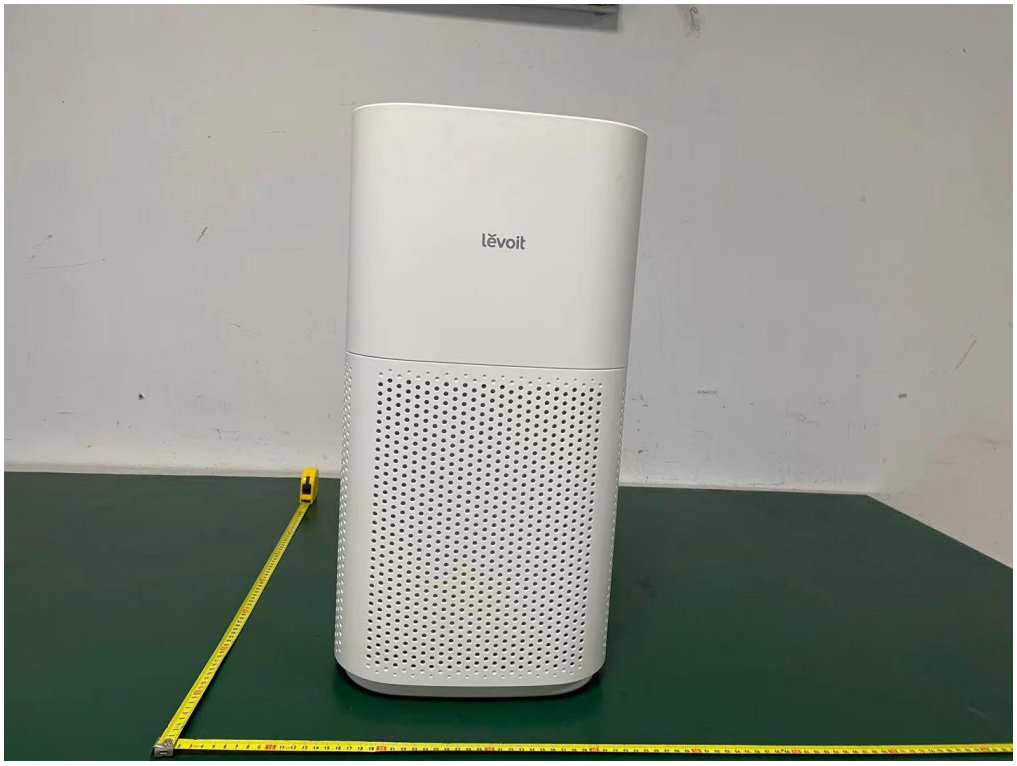
6. EUT PHOTO

External Photos

M/N: LAP-C601S-WUS

External Photos

M/N: LAP-C601S-WUS

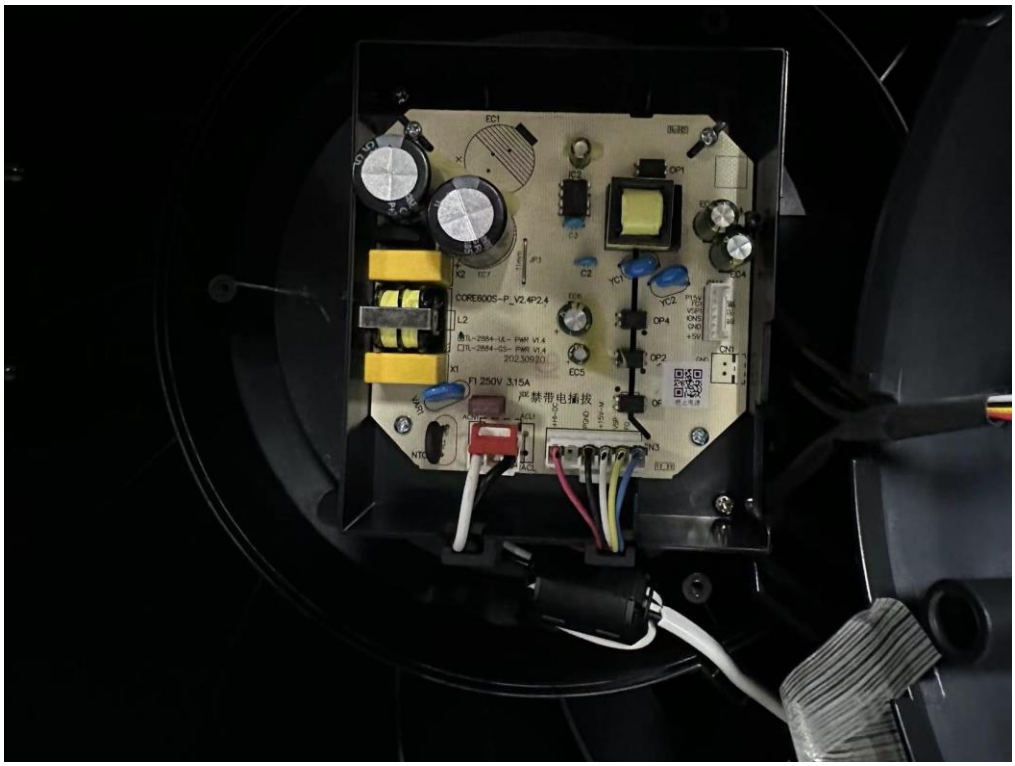


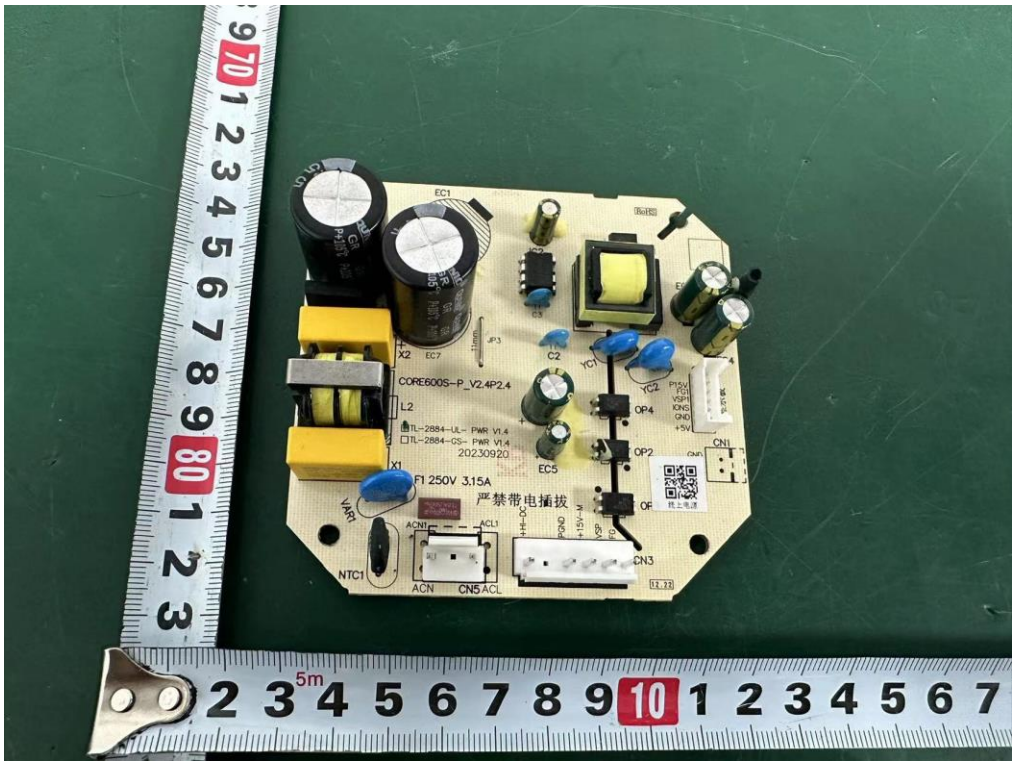
External Photos

M/N: LAP-C601S-WUS

Internal Photos

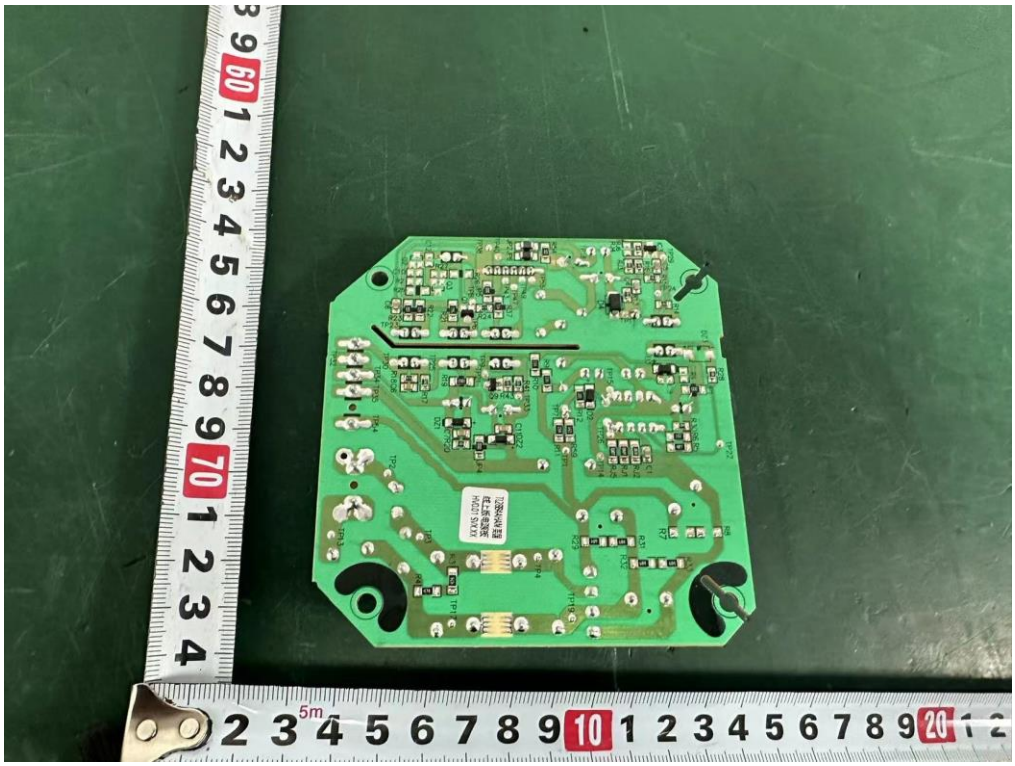
M/N: LAP-C601S-WUS

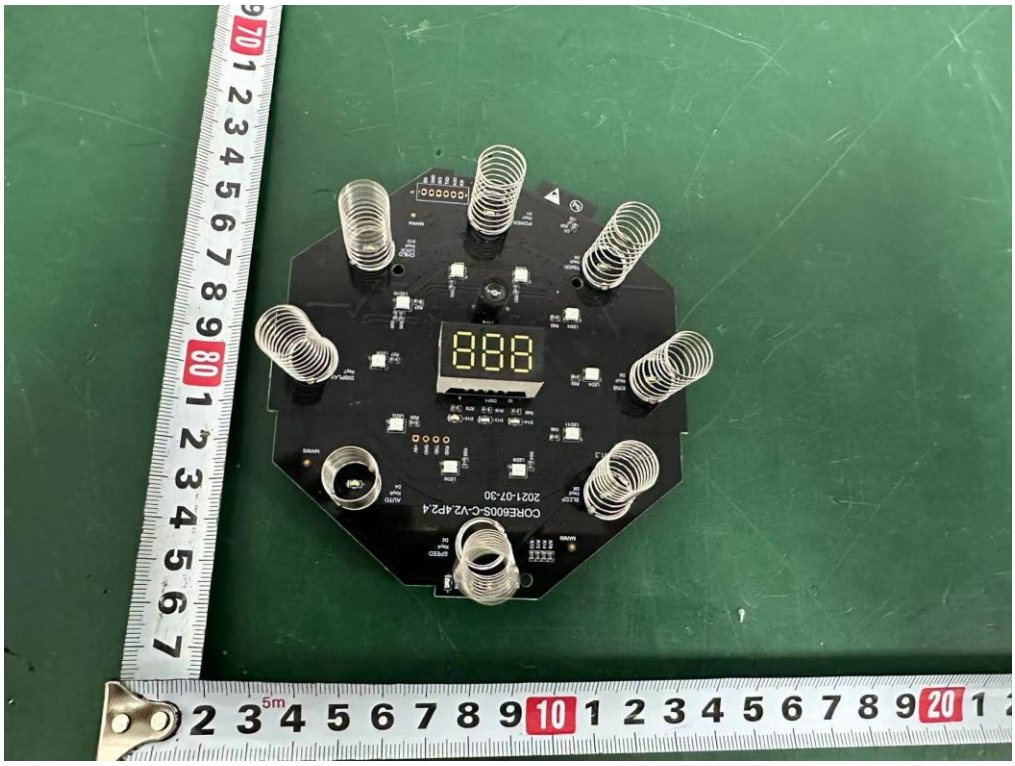




Internal Photos

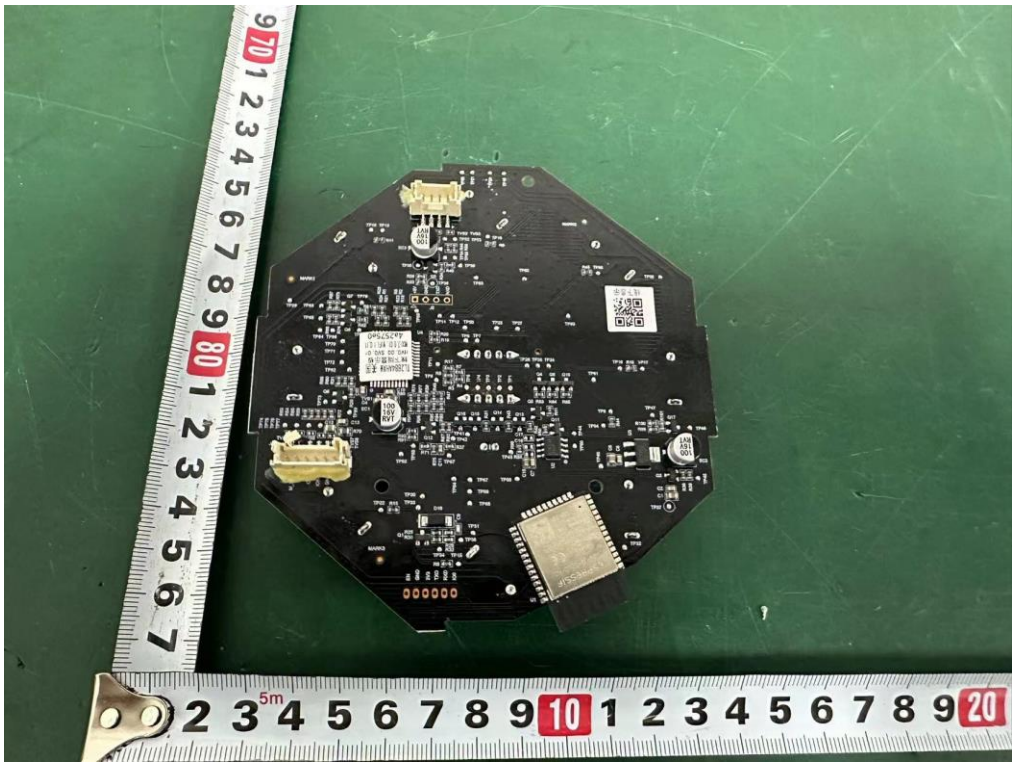
M/N: LAP-C601S-WUS





Internal Photos

M/N: LAP-C601S-WUS

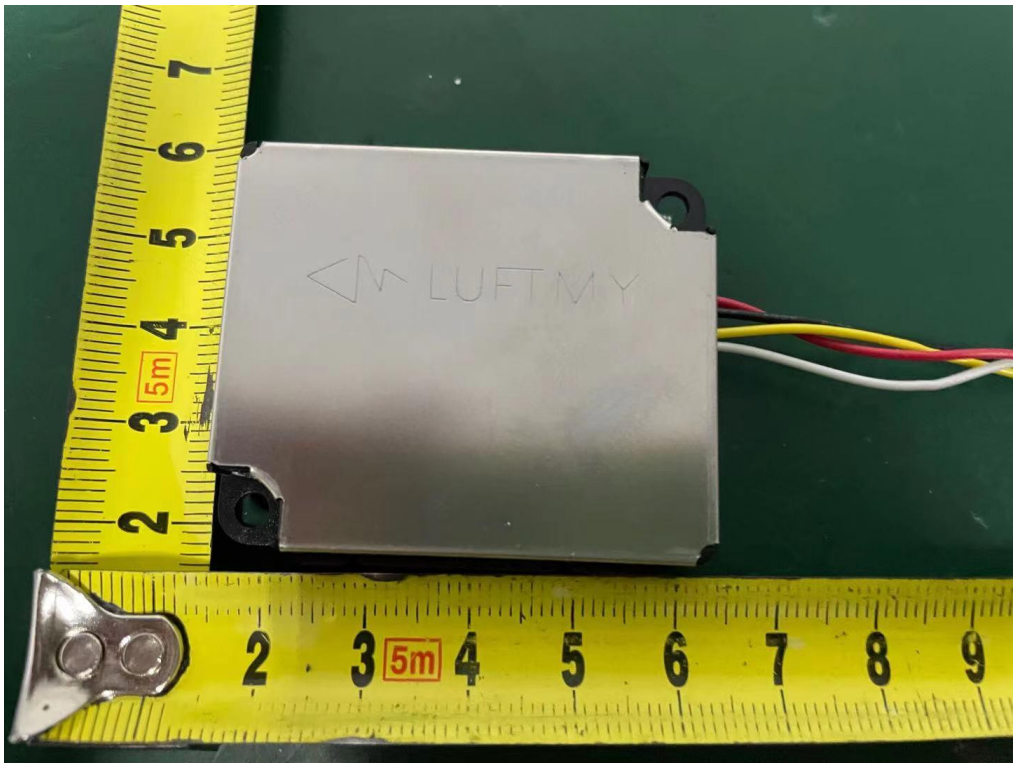


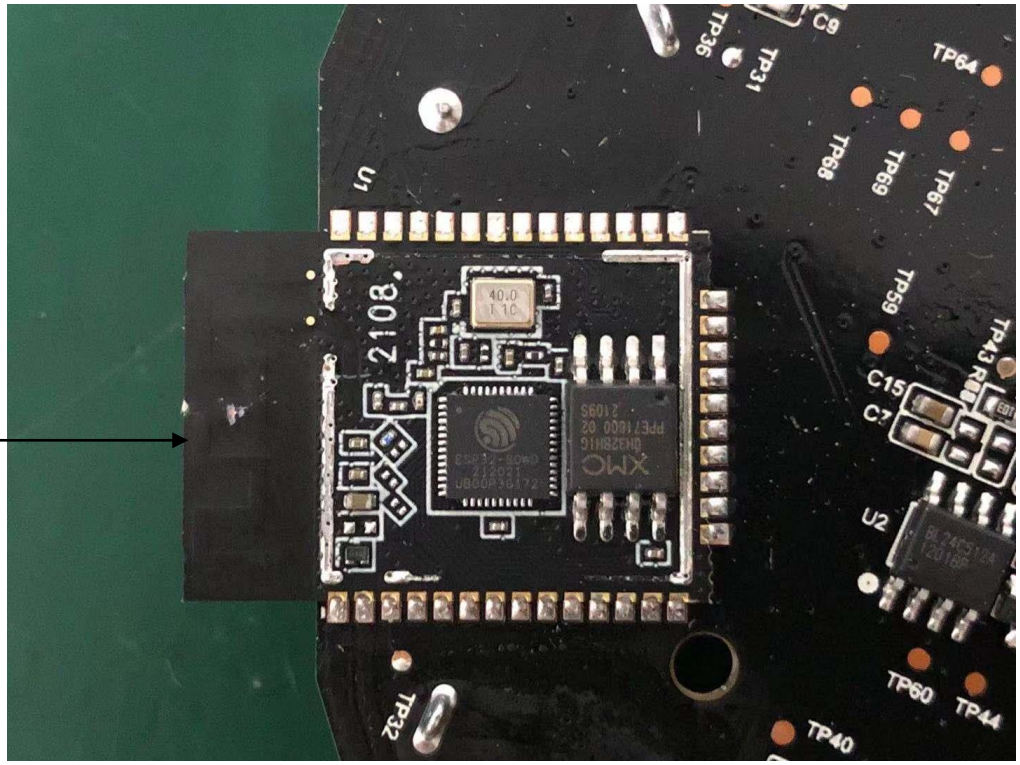
Internal Photos

M/N: LAP-C601S-WUS

Internal Photos

M/N: LAP-C601S-WUS





End of Test Report