

ETSI EN300 328 RADIO TEST REPORT

For

Dongguan Jingheng Electron Co., Ltd.

Active Loudspeaker System

Model Number: MegaSys 1

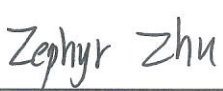
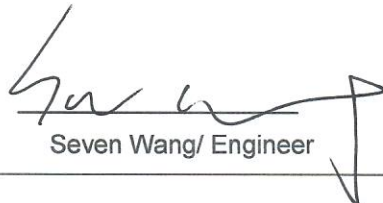
Additional Model: AXV15.12

Applicant:	Dongguan Jingheng Electron Co., Ltd.
Address:	Room 101, Building 1, No. 15, Shenle 1st Road, Hengli Town,
	Dongguan City, 523465 Guangdong, P. R. China
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2404174
Date of Test:	Apr. 10~Apr. 19, 2024
Date of Report:	Apr. 24, 2024

TABLE OF CONTENTS

Description	Page
TEST REPORT VERIFICATION	3
1. GENERAL INFORMATION	4
1.1. Description of Device (EUT).....	4
1.2. Antenna Information	4
2. SUMMARY OF MEASUREMENTS AND RESULTS.....	5
2.1. Test Facilities.....	6
2.2. Measurement Uncertainty	7
2.3. Assistant Equipment Used For Test	7
2.4. Block Diagram of Test Setup	7
2.5. Test Mode	8
2.6. Channel List.....	8
2.7. Test Equipment List.....	9
3. TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN	10
3.1. Applicability	10
3.2. Limit.....	10
3.3. Test Setup.....	10
3.4. Test Procedure	10
3.5. Test Result.....	11
4. RECEIVER SPURIOUS EMISSIONS	17
4.1. Applicability	17
4.2. Limit.....	17
4.3. Test Setup.....	17
4.4. Test Procedure	17
4.5. Test Result.....	18
5. PHOTOGRAPHS OF TEST SETUP	22
5.1. Setup for Transmitter & Receiver Spurious Emissions	22
6. EUT PHOTO.....	23

Applicant: Address:	Dongguan Jingheng Electron Co., Ltd. Room 101, Building 1, No. 15, Shenle 1st Road, Hengli Town, Dongguan City, 523465 Guangdong, P. R. China		
Manufacturer: Address:	Dongguan Jingheng Electron Co., Ltd. Room 101, Building 1, No. 15, Shenle 1st Road, Hengli Town, Dongguan City, 523465 Guangdong, P. R. China		
Factory: Address:	Dongguan Jinheng Electron Co., Ltd. No. 15, Shenle 1st Road, Hengli Town, Dongguan City, 523465 Guangdong, P.R. China		
E.U.T:	Active Loudspeaker System		
Model Number:	MegaSys 1		
Additional Model:	AXV15.12 Note: They are identical except model name.		
Power Supply:	AC 110-240V, 50/60Hz		
Trade Name:	SHOW, TOPP PRO		
Date of Receipt:	Apr. 10, 2024	Date of Test:	Apr. 10~Apr. 19, 2024
Test Specification:	ETSI EN 300 328 V2.2.2: 2019-07		
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 ETSI EN 300 328 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: Apr. 24, 2024		
Prepared by:		Reviewed by:	Approved by:
 Zephyr Zhu / Assistant		 Seven Wang/ Engineer	 Iceman Hu / Manager
Other Aspects:			
N/A			
Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested			
This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.			

1.GENERAL INFORMATION

1.1.Description of Device (EUT)

Product Name	:	Active Loudspeaker System
Model Number	:	MegaSys 1
Module Model Number	:	HJ-7188
Software Version	:	N/A
Hardware Version	:	N/A
Operation frequency	:	2402MHz~2480MHz
Number of channel	:	40
Modulation	:	GFSK
Transmit Data Rate	:	1Mbps
Operating Temperature Range	:	0℃~+45℃
Sample Type	:	Prototype production

1.2.Antenna Information

Ant No.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	-	-	PCB	-	-0.58
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 MEASUREMENTS AND RESULTS

Harmonized Standard EN300 328				
The following essential requirements and test specifications are relevant to the presumption of conformity under Article 3.2 of the Radio Equipment Directive 2014/53/EU				
No	Test Parameter	Clause No	Condition	Results
1	RF Output Power	4.3.1.2 or 4.3.2.2	Apply all equipment	N/A
2	Power Spectral Density	4.3.2.3	Only for non-FHSS equipment	N/A
3	Duty Cycle ,Tx-Sequence, Tx-gap	4.3.1.3 or 4.3.2.4	Only for non-Adaptive equipment	N/A
4	Accumulated Transmit Time, Frequency Occupation & Hopping Sequence	4.3.1.4	Only for FHSS equipment	N/A
5	Hopping Frequency Separation	4.3.1.5	Only for FHSS equipment	N/A
6	Medium Utilization	4.3.1.6 or 4.3.2.5	Only for non-Adaptive equipment	N/A
7	Adaptivity	4.3.1.7 or 4.3.2.6	Only for Adaptive equipment	N/A
8	Occupied Channel Bandwidth	4.3.1.8 or 4.3.2.7	Apply all equipment	N/A
9	Transmitter unwanted emissions in the OOB domain	4.3.1.9 or 4.3.2.8	Apply all equipment	N/A
10	Transmitter unwanted emissions in the spurious domain	4.3.1.10 or 4.3.2.9	Apply all equipment	PASS
11	Receiver spurious emissions	4.3.1.11 or 4.3.2.10	Apply all equipment	PASS
12	Receiver Blocking	4.3.1.12 or 4.3.2.11	Apply all equipment	N/A
13	Geo-location capability	4.3.1.13 or 4.3.2.12	Only for equipment with geo-location capability	N/A
Note: 1.N/A is an abbreviation for Not Applicable and means this test item is not applicable for this device according to the technology characteristic of device.				
2. The wireless module HJ-7188 included in the device passed the RED certification, when applied to the host, Re-test RSE of BLE function, all other test data refer to module test report CN23FBBU 001.				

2.1. 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

2.2.Measurement Uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	$\pm 3.48\text{dB}$
Uncertainty for spurious emissions test (30MHz-1GHz)	$\pm 4.60\text{ dB(Polarize: H)}$
	$\pm 4.68\text{ dB(Polarize: V)}$
Uncertainty for spurious emissions test (1GHz to 18GHz)	$\pm 4.96\text{dB}$
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 $k=2$.

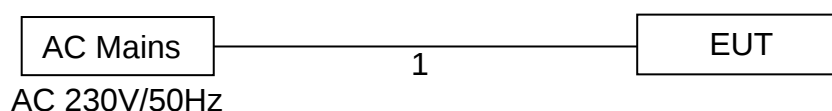
2.3.Assistant Equipment Used For Test

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

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	2.0m	AC Cable

2.4.Block Diagram of Test Setup

For radiated emissions test: EUT was placed on a turn table, which is 1.5 meter high above ground. EUT was beset into BLE test mode by software before test.



(EUT: Active Loudspeaker System)

2.5. Test Mode

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

Test Item	Modulation Type	Data Rate	Test Channel
Transmitter Unwanted Emissions In The Spurious Domain	GFSK	1 Mbps	Low/ High
Receiver Spurious Emissions	GFSK	1 Mbps	Low/ 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**.

2.6. Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2404
2	2406	3	2408
4	2410	5	2412
6	2414	7	2416
8	2418	9	2420
10	2422	11	2424
12	2426	13	2428
14	2430	15	2432
16	2434	17	2436
18	2438	19	2440
20	2442	21	2444
22	2446	23	2448
24	2450	25	2452
26	2454	27	2456
28	2458	29	2460
30	2462	31	2464
32	2466	33	2468
34	2470	35	2472
36	2474	37	2476
38	2478	39	2480

2.7. Test Equipment List

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

For Radiated Emission Test(Above 1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZBECK	BBHA9120D	EST-E144	LISAI	June 12,23	1 Year
Low Noise Amplifier	RF	TRLA-010180 G45N	EST-E142	LISAI	June 12,23	1 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	EST-E069	LISAI	June 12,23	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
Above 1GHz Cable	N/A	EST-003	N/A	N/A	N/A	N/A

3. TRANSMITTER UNWANTED EMISSIONS IN THE SPURIOUS DOMAIN

3.1. Applicability

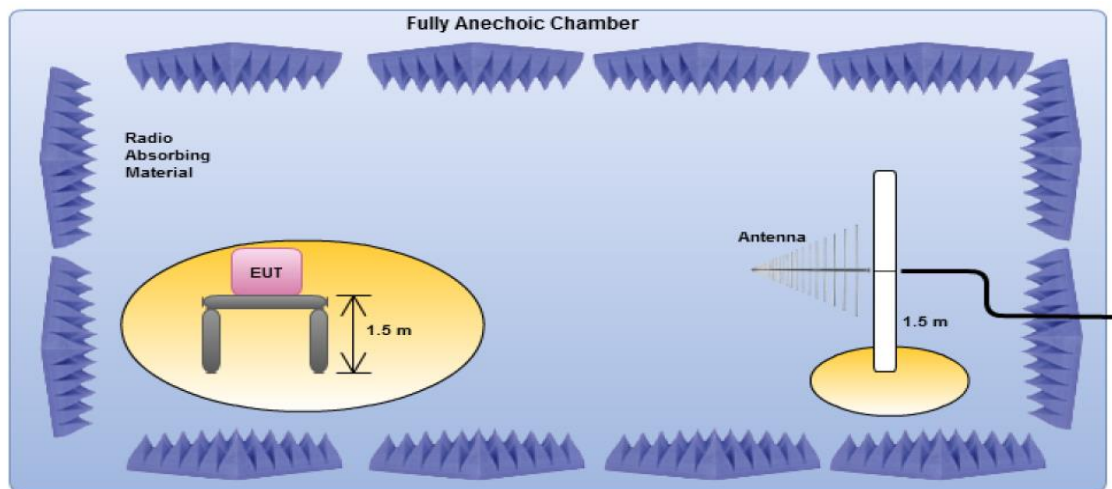
This requirement applies to all types of non-FHSS equipment.

3.2. Limit

Frequency Range	Maximum Power	Bandwidth
30MHz to 47MHz	-36dBm	100kHz
47MHz to 74MHz	-54dBm	100kHz
74MHz to 87,5MHz	-36dBm	100kHz
87,5MHz to 118MHz	-54dBm	100kHz
118MHz to 174MHz	-36dBm	100kHz
174MHz to 230MHz	-54dBm	100kHz
230MHz to 470MHz	-36dBm	100kHz
470MHz to 694MHz	-54dBm	100kHz
694MHz to 1GHz	-36dBm	100kHz
1GHz to 12,75GHz	-30dBm	1MHz

Note: These limits are e.r.p. for emissions up to 1 GHz and as e.i.r.p. for emissions above 1 GHz.

3.3. Test Setup



3.4. Test Procedure

- EUT was placed on a turn table, which is 1.5 meter high above ground.
- Test Antenna is set 3 meters away from the EUT, which is connect to a spectrum analyzer.
- Set the EUT transmit continuously with maximum output power.
- The measurement procedure refer to clause 5.4.9.2.2 of ETSI EN300 328 V2.2.2.
- Repeat above procedures until low channel and high channel were measured.
- Record the results in the test report.

3.5. Test Result

30MHz to 1GHz

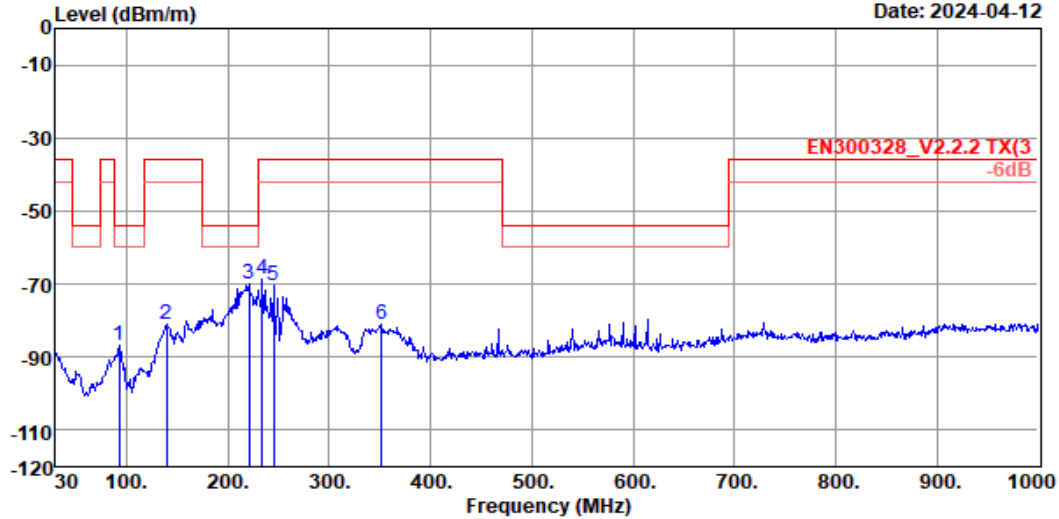
EST Technology

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

Data: 31

File: \\EMC-966-1\test data\2024\RF\Jing Heng\Mega Sys 1.EM6 (40)

Date: 2024-04-12



Site no. : 1# 966 Chamber Data no. : 31
Dis. / Ant. : 3m 37062-25MHZ Ant. pol. : HORIZONTAL
Limit : EN300328_V2.2.2 TX(3)
Env. / Ins. : Temp:22.8°C;Humi:50.6%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : TX Mode

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBm)	Site Loss (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Type
1	93.05	9.72	0.43	-95.41	-1.35	-86.61	-54.00	32.61	eirp
2	139.61	12.40	0.63	-91.71	-2.29	-80.97	-36.00	44.97	eirp
3	221.09	9.94	0.98	-84.21	3.12	-70.17	-54.00	16.17	eirp
4	233.70	11.02	1.03	-84.56	3.80	-68.71	-36.00	32.71	eirp
5	245.34	11.80	1.08	-87.28	3.82	-70.58	-36.00	34.58	eirp
6	352.04	15.34	1.54	-97.02	-1.04	-81.18	-36.00	45.18	eirp

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

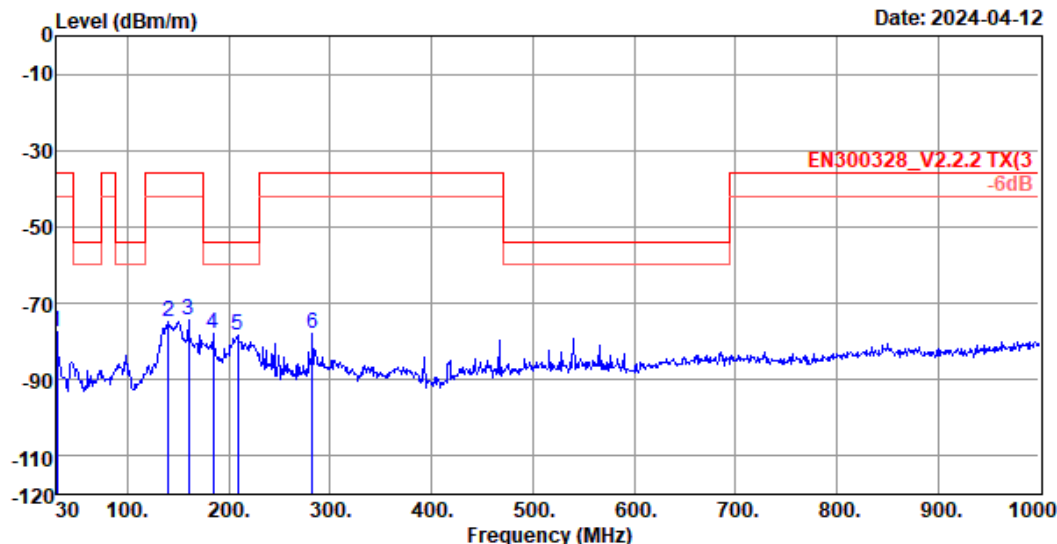
EST Technology

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

Data: 32

File: \\EMC-966-1\test data\2024\RF\Jing Heng\MegaSys 1.EM6 (40)

Date: 2024-04-12



Site no. : 1# 966 Chamber Data no. : 32
Dis. / Ant. : 3m 37062-25MHZ Ant. pol. : VERTICAL
Limit : EN300328_V2.2.2 TX(3)
Env. / Ins. : Temp:22.8°C;Humi:50.6%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : TX Mode

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBm)	Site Loss (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Type
1	30.00	18.60	0.16	-100.19	3.75	-77.68	-36.00	41.68	eirp
2	140.58	12.24	0.64	-90.04	2.51	-74.65	-36.00	38.65	eirp
3	159.98	11.20	0.72	-89.37	3.17	-74.28	-36.00	38.28	eirp
4	184.23	9.16	0.82	-90.61	2.57	-78.06	-54.00	24.06	eirp
5	208.48	8.86	0.92	-87.89	-0.45	-78.56	-54.00	24.56	eirp
6	282.20	13.02	1.24	-92.63	0.30	-78.07	-36.00	42.07	eirp

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

Above 1GHz

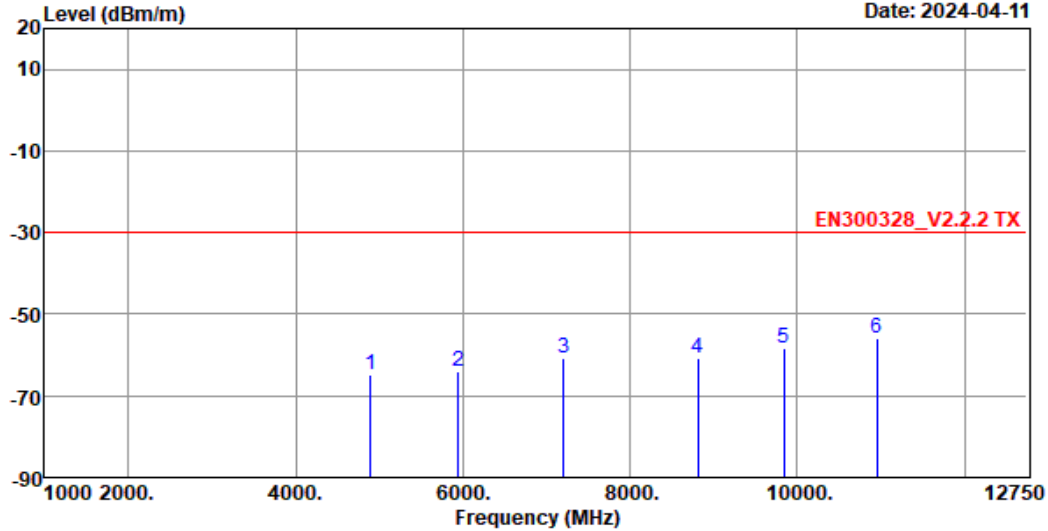
EST Technology

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

Data: 19

File: \\EMC-966-1\test data\2024\RF\Jing Heng\Mega Sys 1.EM6 (40)

Date: 2024-04-11



Site no. : 1# 966 Chamber Data no. : 19
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : EN300328_V2.2.2 TX
Env. / Ins. : Temp:22.8°C;Humi:57%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : GFSK 1Mbps TX 2402MHz

	Freq.	Ant.	Cable	Amp	Site	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Loss	Level	Limits	Margin	Type
		(dB/m)	(dB)	(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1	4901.00	32.59	5.30	44.40	-61.34	2.93	-64.92	-30.00	34.92	eirp
2	5946.75	33.84	6.12	44.11	-62.23	2.52	-63.86	-30.00	33.86	eirp
3	7204.00	36.16	6.67	44.08	-58.34	-1.27	-60.86	-30.00	30.86	eirp
4	8813.75	37.78	7.62	43.51	-62.83	0.25	-60.69	-30.00	30.69	eirp
5	9836.00	38.17	7.77	43.74	-63.37	2.63	-58.54	-30.00	28.54	eirp
6	10952.25	38.87	8.24	43.04	-63.25	3.47	-55.71	-30.00	25.71	eirp

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

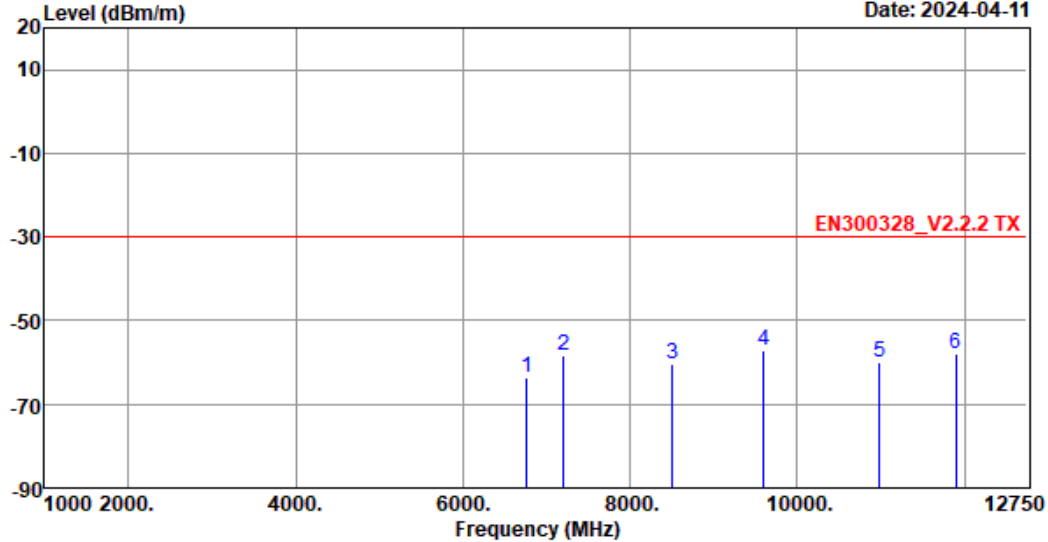
EST Technology

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

Data: 20

File: \\EMC-966-1\test data\2024\RF\Jing Heng\MegaSys 1.EM6 (40)

Date: 2024-04-11



Site no. : 1# 966 Chamber Data no. : 20
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : EN300328_V2.2.2 TX
Env. / Ins. : Temp:22.8°C;Humi:57%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : GFSK 1Mbps TX 2402MHz

	Freq.	Ant.	Cable	Amp	Site	Emission				
	(MHz)	Factor	Loss	Factor	Loss	Level	Limits	Margin	Type	
		(dB/m)	(dB)	(dB)	(dBm)	(dB)	(dBm)	(dB)		
1	6769.25	35.52	6.50	44.10	-62.77	1.23	-63.62	-30.00	33.62	eirp
2	7204.00	36.16	6.67	44.08	-58.96	1.78	-58.43	-30.00	28.43	eirp
3	8508.25	37.41	7.36	43.69	-62.30	1.02	-60.20	-30.00	30.20	eirp
4	9601.00	38.12	7.77	43.64	-59.59	0.05	-57.29	-30.00	27.29	eirp
5	10987.50	38.89	8.26	43.00	-64.62	0.62	-59.85	-30.00	29.85	eirp
6	11892.25	38.81	8.77	42.28	-65.76	2.64	-57.82	-30.00	27.82	eirp

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

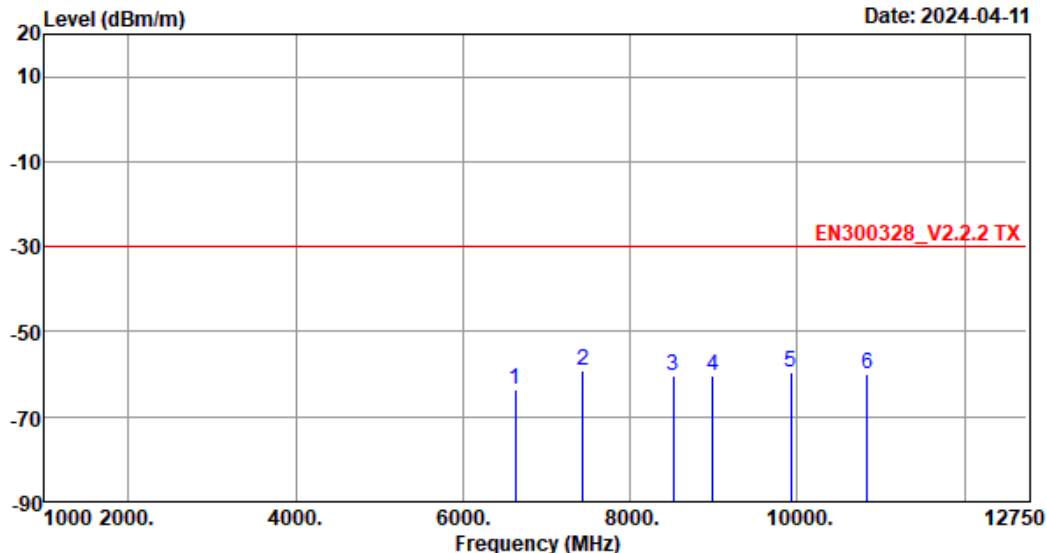
EST Technology

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

Data: 21

File: \\EMC-966-1\\test data\\2024\\RF\\J\\Jing Heng\\Mega Sys 1.EM6 (40)

Date: 2024-04-11



Site no. : 1# 966 Chamber Data no. : 21
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : EN300328_V2.2.2 TX
Env. / Ins. : Temp:22.8°C;Humi:57%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : GFSK 1Mbps TX 2480MHz

		Ant.	Cable	Amp		Site	Emission			
	Freq.	Factor	Loss	Factor	Reading	Loss	Level	Limits	Margin	Type
	(MHz)	(dB/m)	(dB)	(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1	6628.25	35.22	6.44	44.10	-62.14	0.80	-63.78	-30.00	33.78	eirp
2	7439.00	36.35	6.74	44.06	-59.81	1.61	-59.17	-30.00	29.17	eirp
3	8520.00	37.42	7.36	43.69	-62.62	1.01	-60.52	-30.00	30.52	eirp
4	8990.00	37.99	7.77	43.41	-63.56	0.82	-60.39	-30.00	30.39	eirp
5	9918.25	38.18	7.77	43.77	-61.51	-0.36	-59.69	-30.00	29.69	eirp
6	10834.75	38.78	8.19	43.12	-64.21	0.45	-59.91	-30.00	29.91	eirp

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

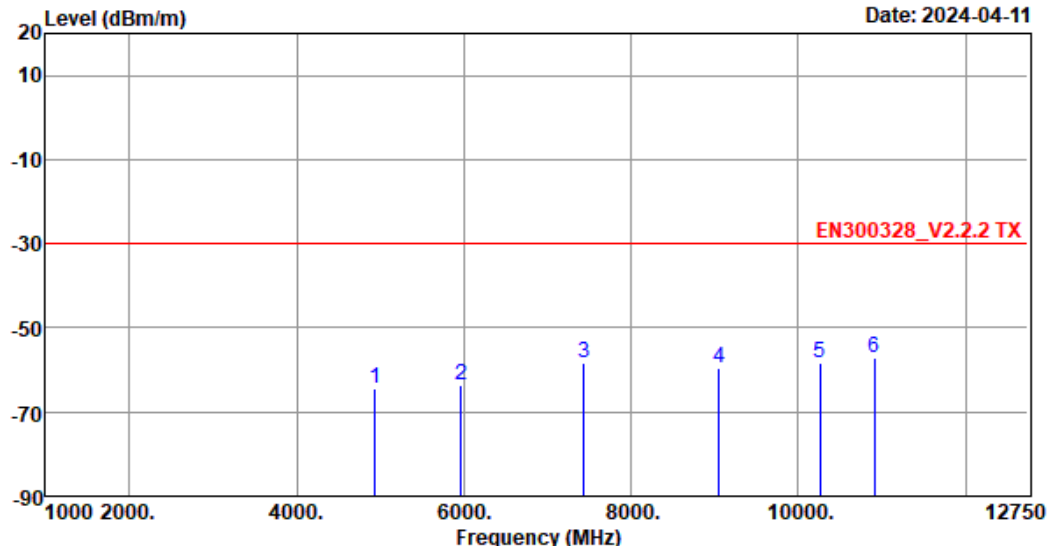
EST Technology

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

Data: 22

File: \\EMC-966-1\test data\2024\RF\Jing Heng\MegaSys 1.EM6 (40)

Date: 2024-04-11



Site no. : 1# 966 Chamber Data no. : 22
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : EN300328_V2.2.2 TX
Env. / Ins. : Temp:22.8°C;Humi:57%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : GFSK 1Mbps TX 2480MHz

	Freq.	Ant.	Cable	Amp	Site	Emission				
	(MHz)	Factor	Loss	Factor	Reading	Loss	Level	Limits	Margin	Type
		(dB/m)	(dB)	(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1	4936.25	32.67	5.35	44.35	-60.96	2.86	-64.43	-30.00	34.43	eirp
2	5970.25	33.87	6.13	44.11	-61.88	2.54	-63.45	-30.00	33.45	eirp
3	7439.00	36.35	6.74	44.06	-56.16	-1.41	-58.54	-30.00	28.54	eirp
4	9048.75	38.01	7.78	43.41	-62.87	0.82	-59.67	-30.00	29.67	eirp
5	10259.00	38.38	7.90	43.58	-63.98	3.13	-58.15	-30.00	28.15	eirp
6	10905.25	38.83	8.22	43.07	-64.42	3.44	-57.00	-30.00	27.00	eirp

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

4.RECEIVER SPURIOUS EMISSIONS

4.1.Applicability

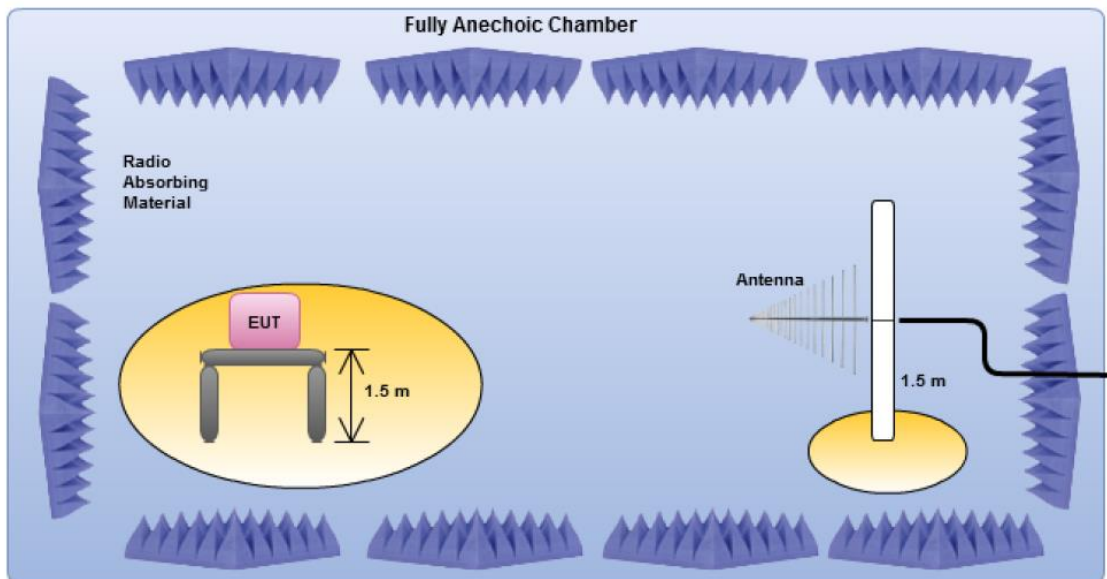
This requirement applies to all types of non-FHSS equipment.

4.2.Limit

Frequency Range	Maximum Power	Bandwidth
30MHz to 1GHz	-57dBm	100kHz
1GHz to 12,75GHz	-47dBm	1MHz

Note: These limits are e.r.p. for emissions up to 1 GHz and as e.i.r.p. for emissions above 1 GHz.

4.3.Test Setup



4.4.Test Procedure

- EUT was placed on a turn table, which is 1.5 meter high above ground.
- Test Antenna is set 3 meters away from the EUT, which is connected to a spectrum analyzer.
- Set the EUT transmit to receive mode.
- The measurement procedure refers to clause 5.4.10.2.2 of ETSI EN300 328 V2.2.2.
- Repeat above procedures until low channel and high channel were measured.
- Record the results in the test report.

4.5. Test Result

30MHz to 1GHz

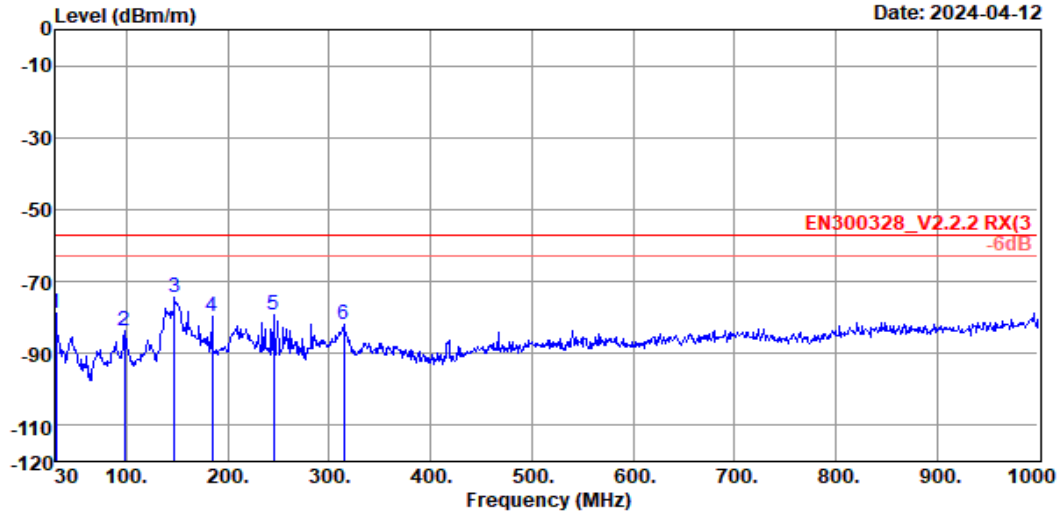
EST Technology

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

Data: 29

File: \\EMC-966-1\test data\2024\RF\Jing Heng\Mega Sys 1.EM6 (40)

Date: 2024-04-12



Site no. : 1# 966 Chamber Data no. : 29
Dis. / Ant. : 3m 37062-25MHZ Ant. pol. : VERTICAL
Limit : EN300328_V2.2.2 RX(3)
Env. / Ins. : Temp:22.8°C;Humi:50.6%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : RX Mode

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBm)	Site Loss (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Type
1	30.00	18.60	0.16	-101.52	3.75	-79.01	-57.00	22.01	eirp
2	97.90	9.92	0.45	-94.62	0.46	-83.79	-57.00	26.79	eirp
3	147.37	11.54	0.67	-89.79	3.22	-74.36	-57.00	17.36	eirp
4	184.23	9.16	0.82	-92.37	2.57	-79.82	-57.00	22.82	eirp
5	245.34	11.80	1.08	-92.40	0.06	-79.46	-57.00	22.46	eirp
6	314.21	13.92	1.38	-98.18	1.11	-81.77	-57.00	24.77	eirp

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

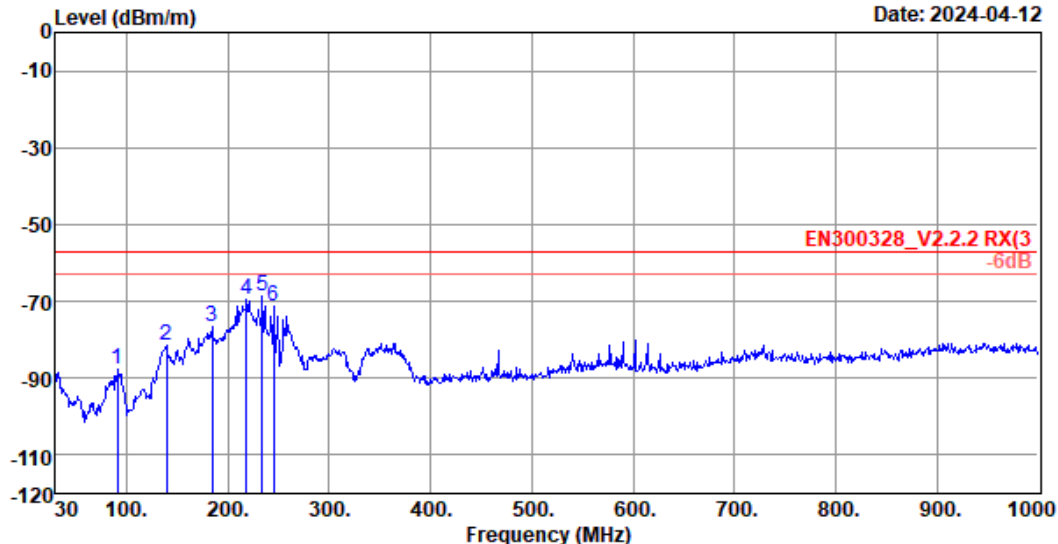
EST Technology

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

Data: 30

File: \\EMC-966-1\test data\2024\RF\Jing Heng\MegaSys 1.EM6 (40)

Date: 2024-04-12



Site no. : 1# 966 Chamber Data no. : 30
Dis. / Ant. : 3m 37062-25MHZ Ant. pol. : HORIZONTAL
Limit : EN300328_V2.2.2 RX(3)
Env. / Ins. : Temp:22.8°C;Humi:50.6%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : RX Mode

	Freq.	Ant.	Cable		Site	Emission			
	(MHz)	Factor	Loss	Reading	Loss	Level	Limits	Margin	Type
		(dB/m)	(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1	91.11	9.64	0.42	-96.84	-0.89	-87.67	-57.00	30.67	eirp
2	139.61	12.40	0.63	-92.29	-2.29	-81.55	-57.00	24.55	eirp
3	184.23	9.16	0.82	-87.00	0.40	-76.62	-57.00	19.62	eirp
4	218.18	9.72	0.97	-83.08	2.95	-69.44	-57.00	12.44	eirp
5	233.70	11.02	1.03	-84.45	3.80	-68.60	-57.00	11.60	eirp
6	245.34	11.80	1.08	-87.80	3.82	-71.10	-57.00	14.10	eirp

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

Above 1GHz

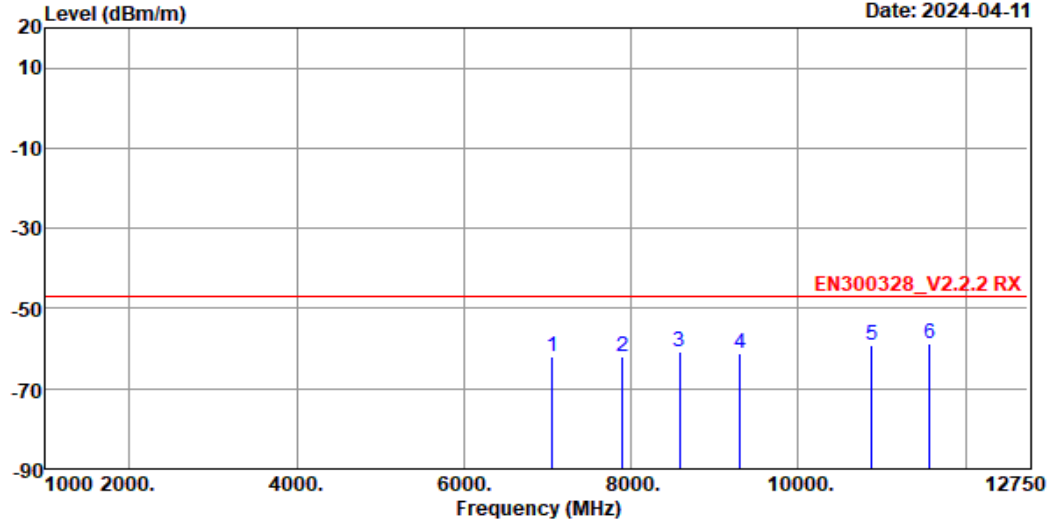
EST Technology

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

Data: 23

File: \\EMC-966-1\test data\2024\RF\Jing Heng\MegaSys 1.EM6 (40)

Date: 2024-04-11



Site no. : 1# 966 Chamber Data no. : 23
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : VERTICAL
Limit : EN300328_V2.2.2 RX
Env. / Ins. : Temp:22.8°C;Humi:57%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : RX Mode

	Freq.	Ant.	Cable	Amp		Site	Emission			
	(MHz)	Factor	Loss	Factor	Reading	Loss	Level	Limits	Margin	Type
		(dB/m)	(dB)	(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	
1	7063.00	36.05	6.62	44.09	-62.60	1.88	-62.14	-47.00	15.14	eirp
2	7897.25	36.72	6.89	44.01	-62.83	1.29	-61.94	-47.00	14.94	eirp
3	8578.75	37.49	7.42	43.65	-63.05	0.99	-60.80	-47.00	13.80	eirp
4	9307.25	38.06	7.78	43.52	-63.85	0.43	-61.10	-47.00	14.10	eirp
5	10881.75	38.82	8.20	43.09	-63.60	0.50	-59.17	-47.00	12.17	eirp
6	11575.00	38.84	8.59	42.54	-65.55	1.92	-58.74	-47.00	11.74	eirp

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

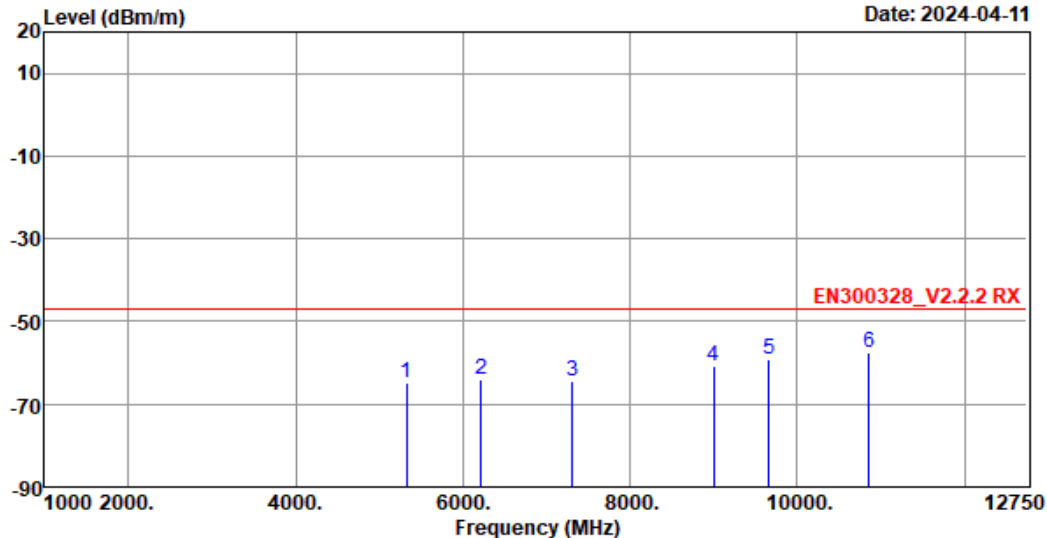
EST Technology

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

Data: 24

File: \\EMC-966-1\test data\2024\RF\JJing Heng\MegaSys 1.EM6 (40)

Date: 2024-04-11



Site no. : 1# 966 Chamber Data no. : 24
Dis. / Ant. : 3m BBHA9120D-2667 Ant. pol. : HORIZONTAL
Limit : EN300328_V2.2.2 RX
Env. / Ins. : Temp:22.8°C;Humi:57%;Press:101.55kPa
Engineer : ZQL
EUT : Active Loudspeaker System
Power : AC 230V/50Hz
M/N : MegaSys 1
Test Mode : RX Mode

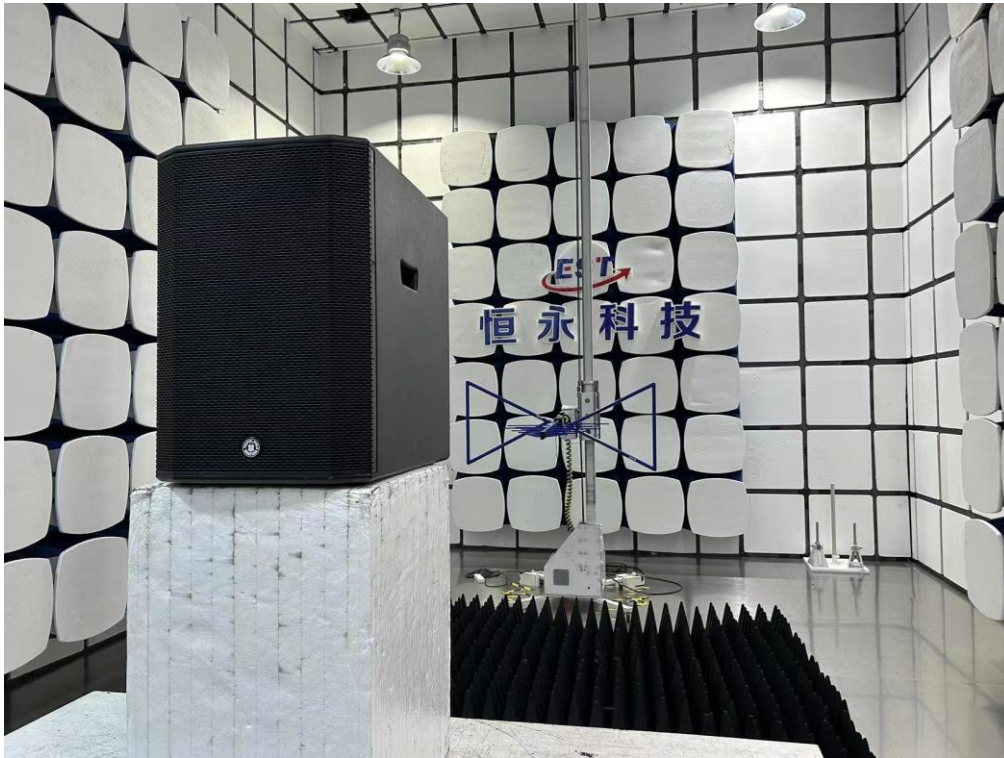
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBm)	Site Loss (dB)	Emission Level (dBm)	Limits (dBm)	Margin (dB)	Type
1	5324.00	33.16	5.65	44.24	-61.68	2.30	-64.81	-47.00	17.81	eirp
2	6217.00	34.36	6.26	44.10	-62.38	1.76	-64.10	-47.00	17.10	eirp
3	7309.75	36.25	6.70	44.07	-61.90	-1.33	-64.35	-47.00	17.35	eirp
4	9001.75	38.00	7.78	43.40	-63.91	0.71	-60.82	-47.00	13.82	eirp
5	9659.75	38.13	7.77	43.66	-63.58	2.23	-59.11	-47.00	12.11	eirp
6	10858.25	38.80	8.19	43.11	-64.63	3.42	-57.33	-47.00	10.33	eirp

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

5. PHOTOGRAPHS OF TEST SETUP

5.1. Setup for Transmitter & Receiver Spurious Emissions

Below 1GHz



Above 1GHz



6.EUT PHOTO

External Photos

M/N: MegaSys 1



External Photos

M/N: MegaSys 1



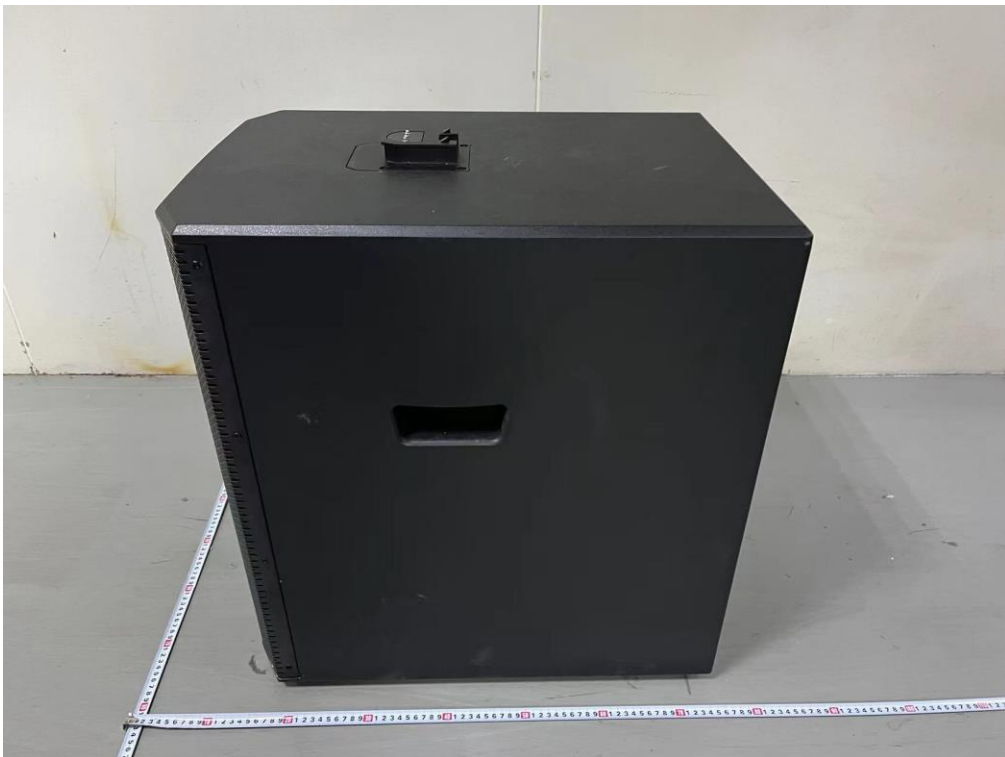
External Photos

M/N: MegaSys 1



External Photos

M/N: MegaSys 1



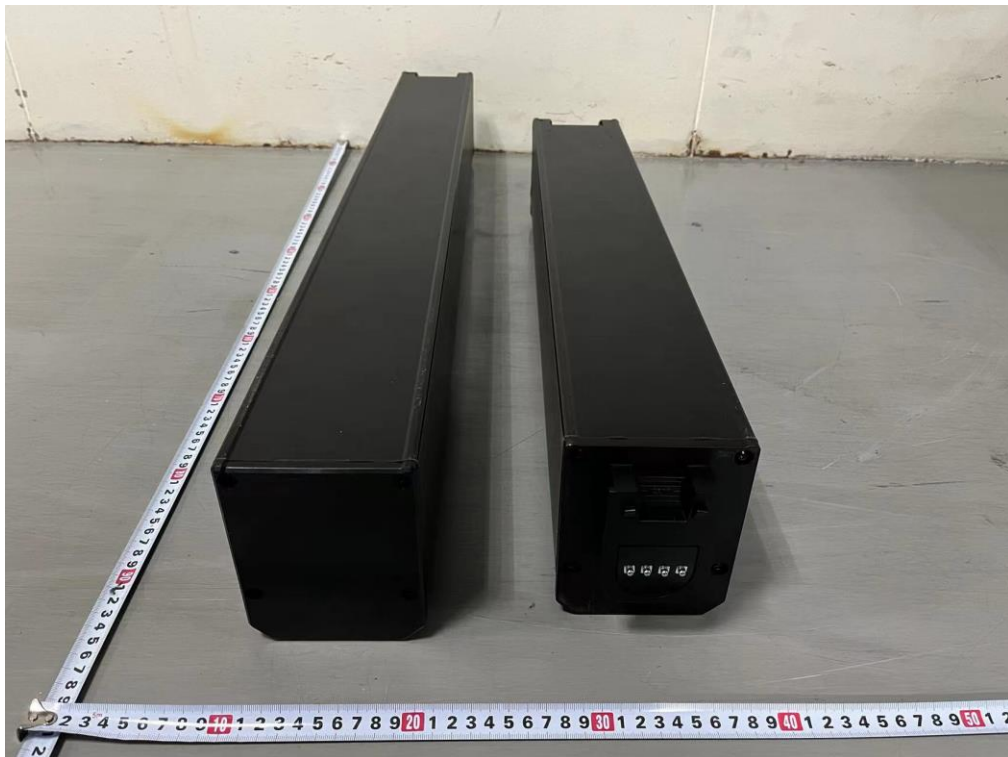
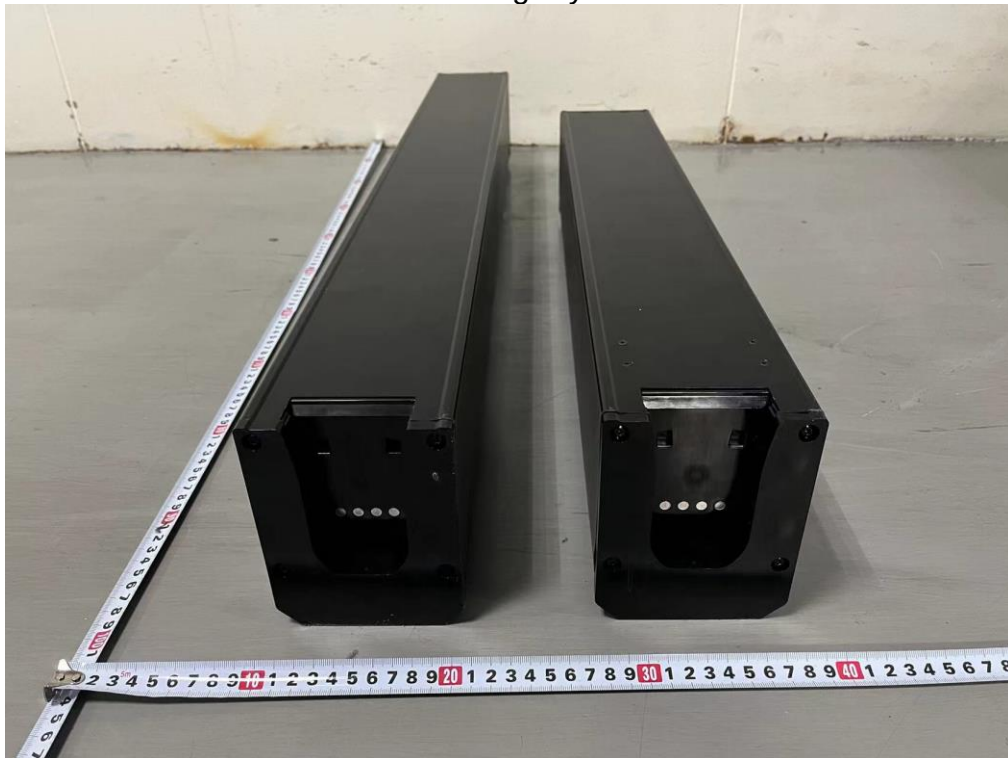
External Photos

M/N: MegaSys 1



External Photos

M/N: MegaSys 1



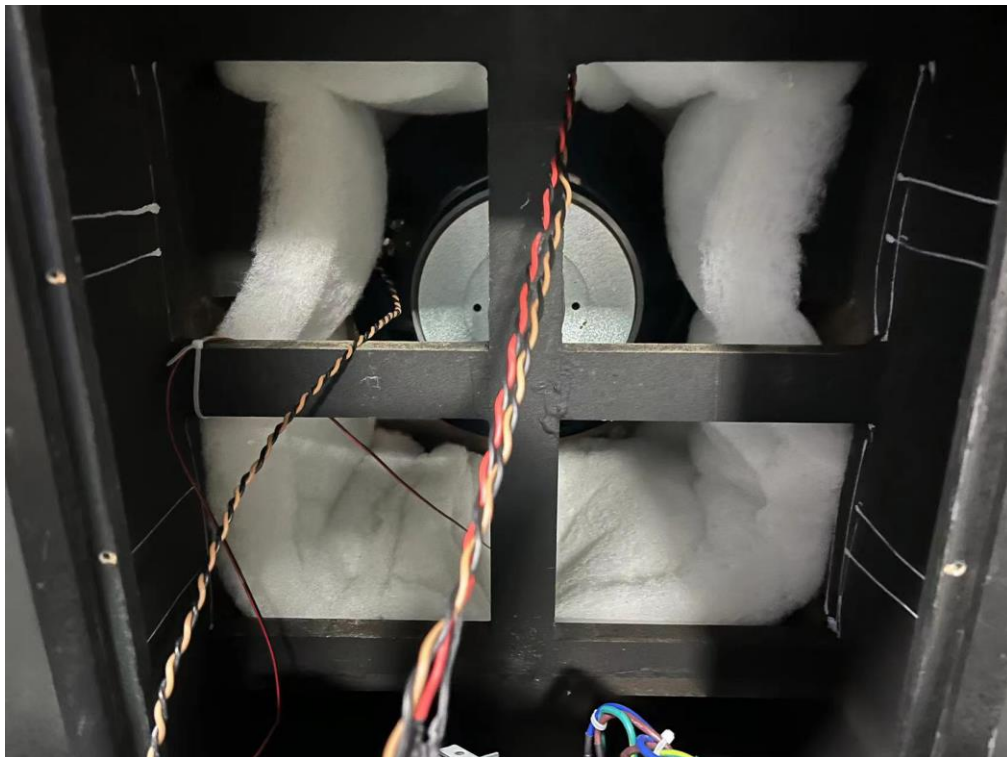
External Photos

M/N: MegaSys 1



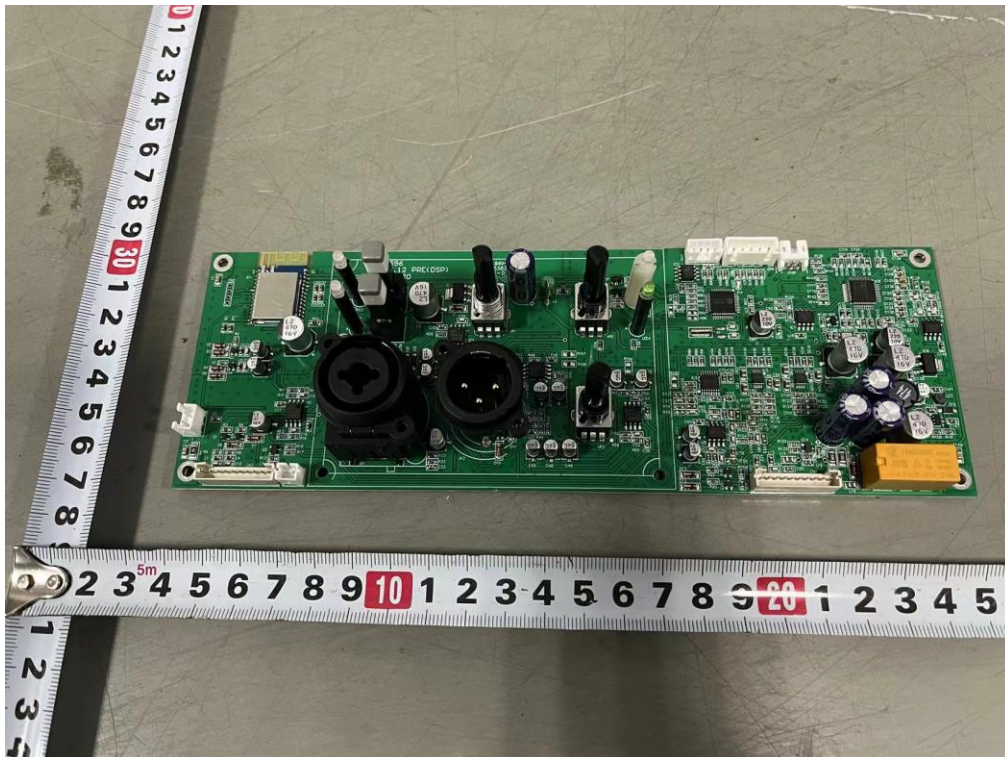
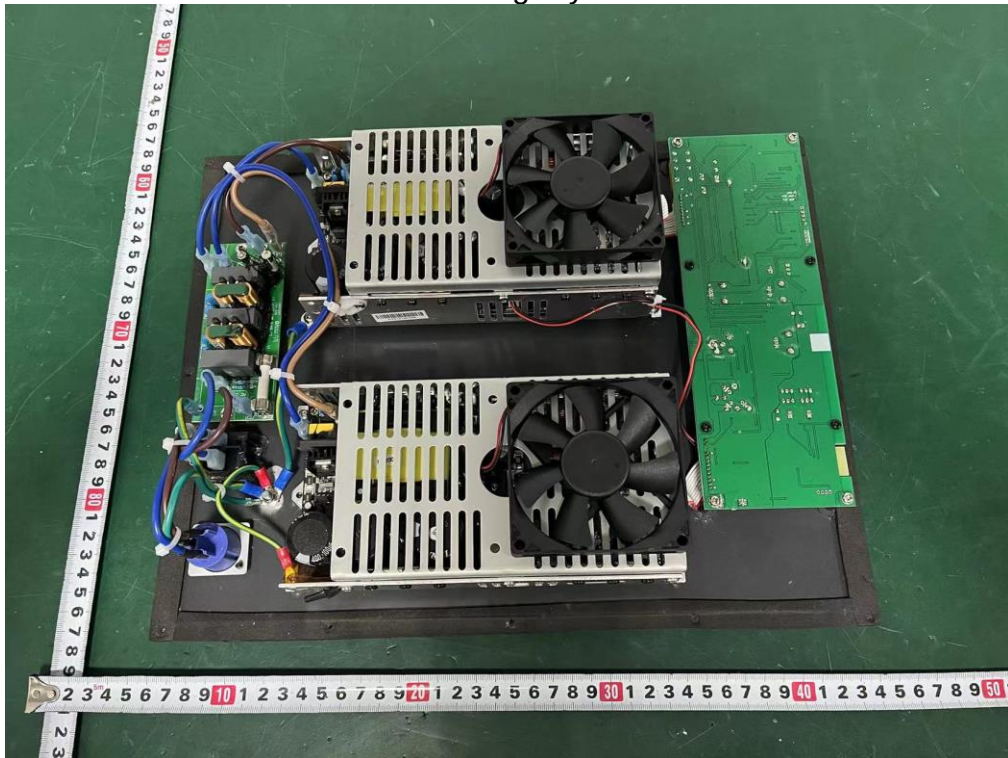
Internal Photos

M/N: MegaSys 1



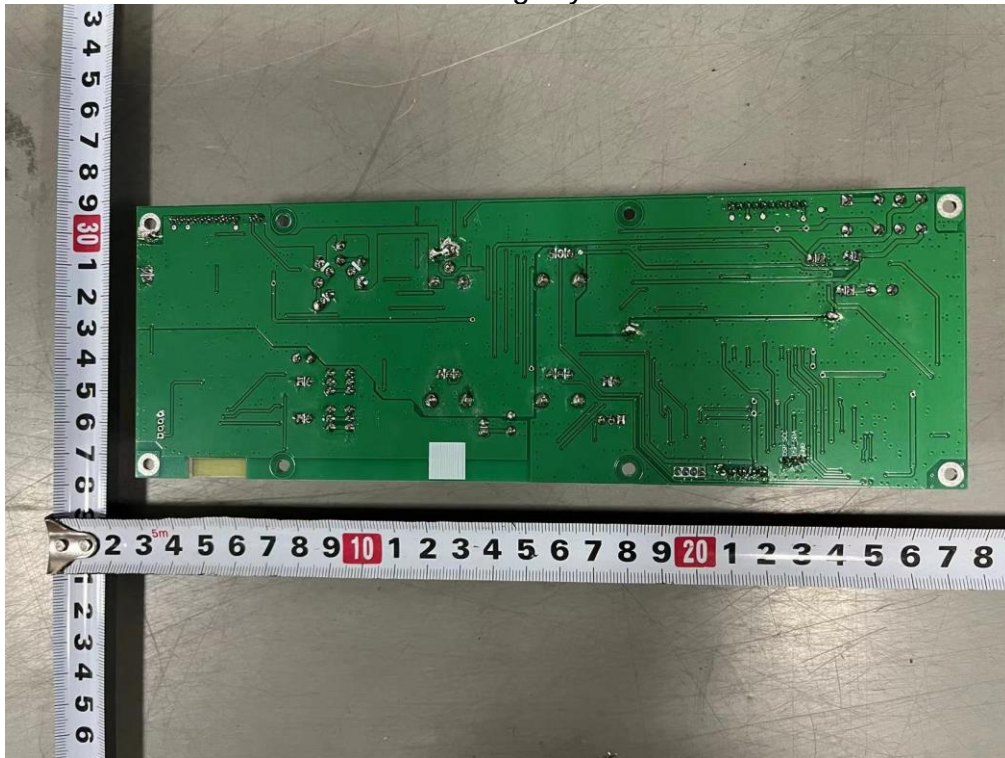
Internal Photos

M/N: MegaSys 1

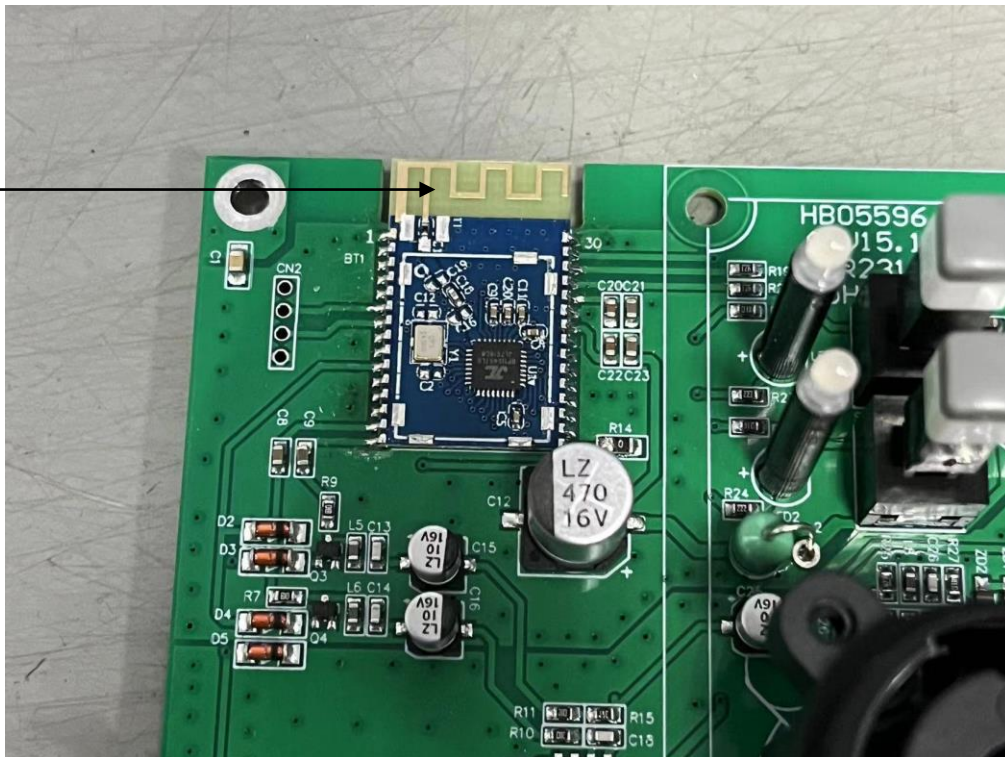


Internal Photos

M/N: MegaSys 1

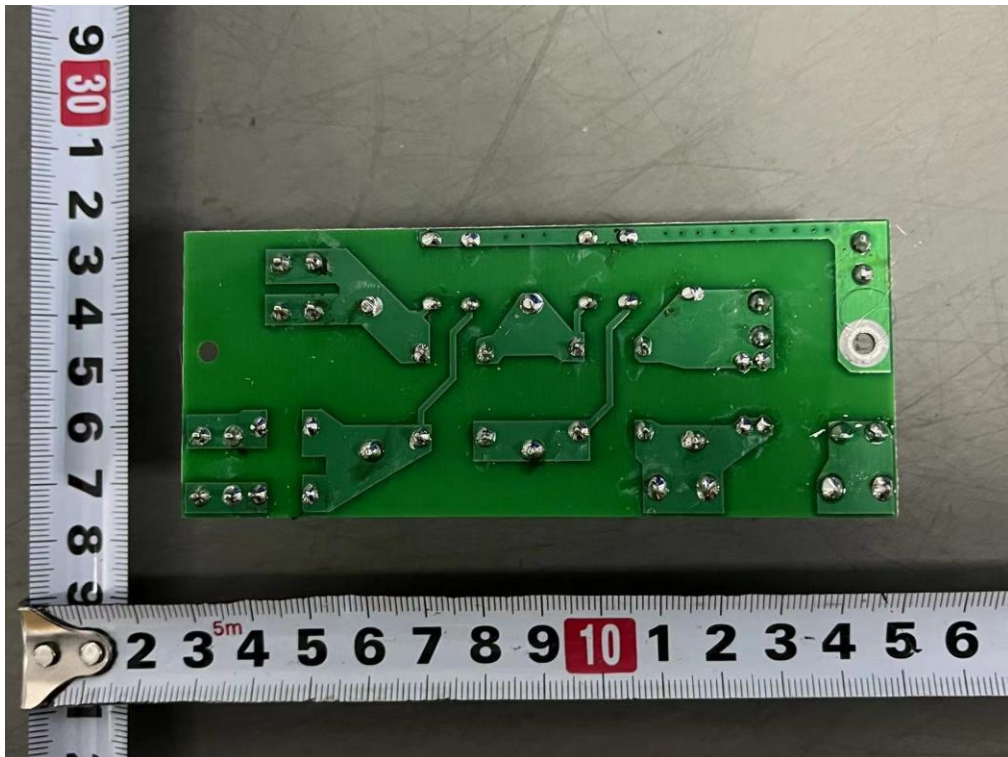
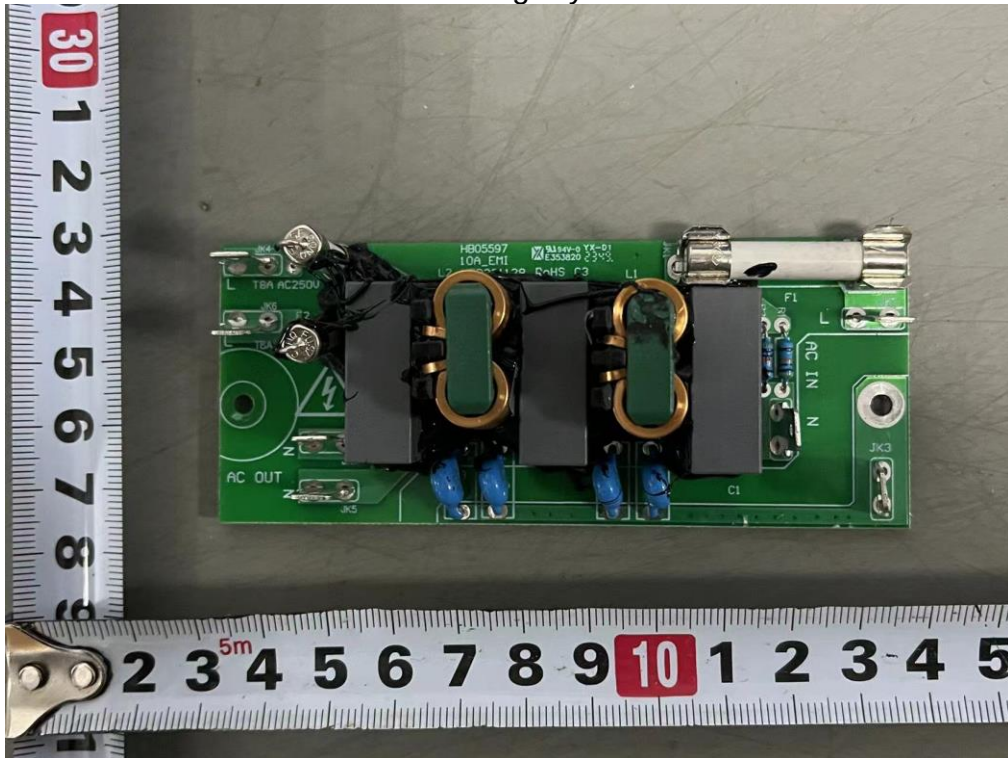


Bluetooth
Antenna



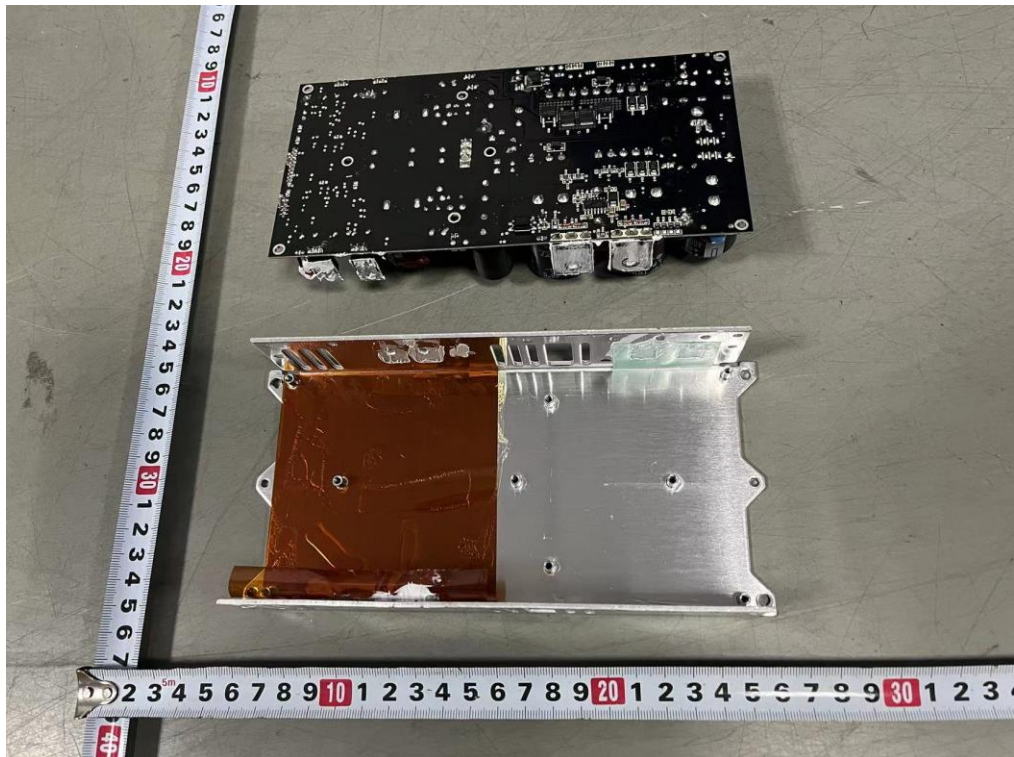
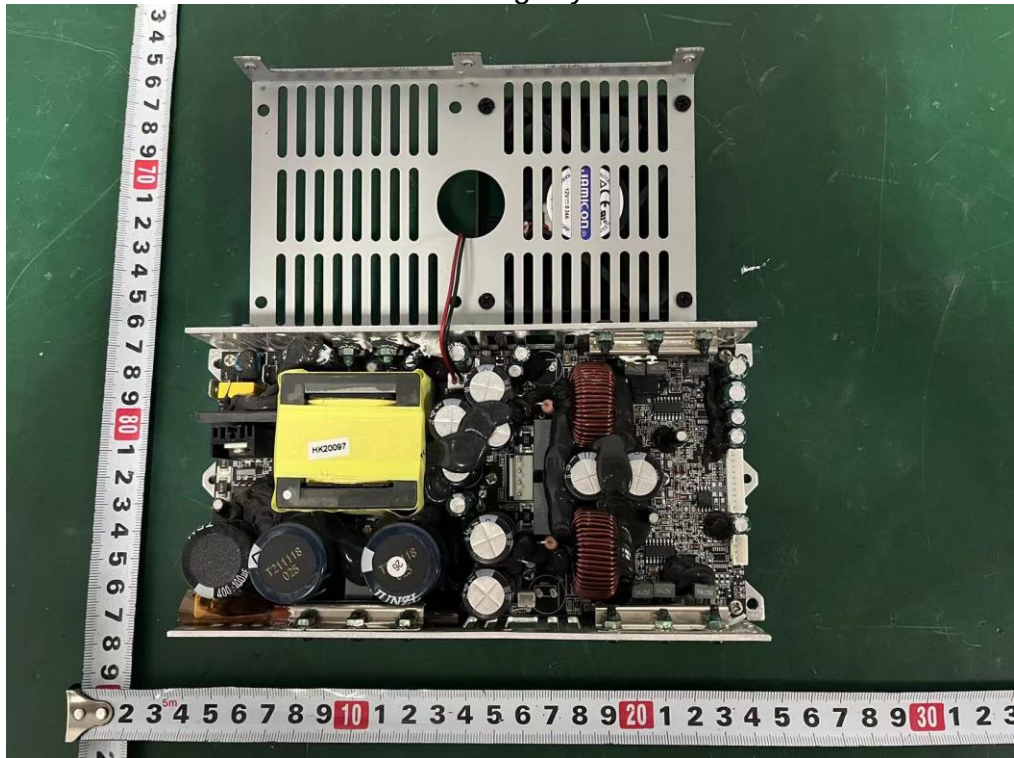
Internal Photos

M/N: MegaSys 1



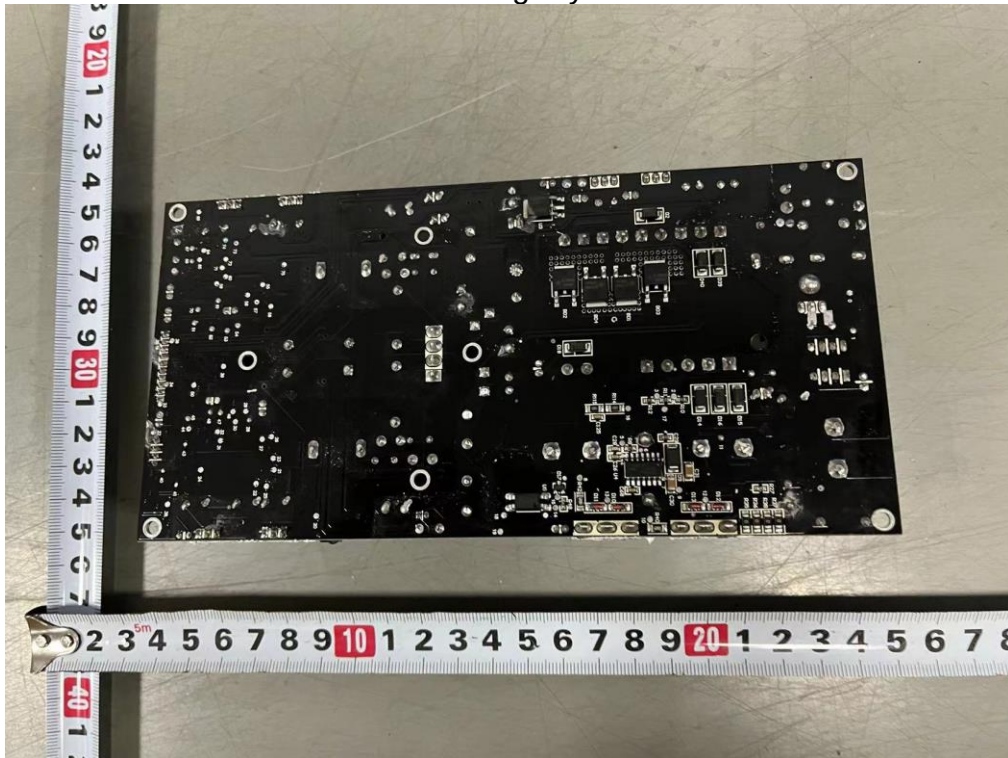
Internal Photos

M/N: MegaSys 1



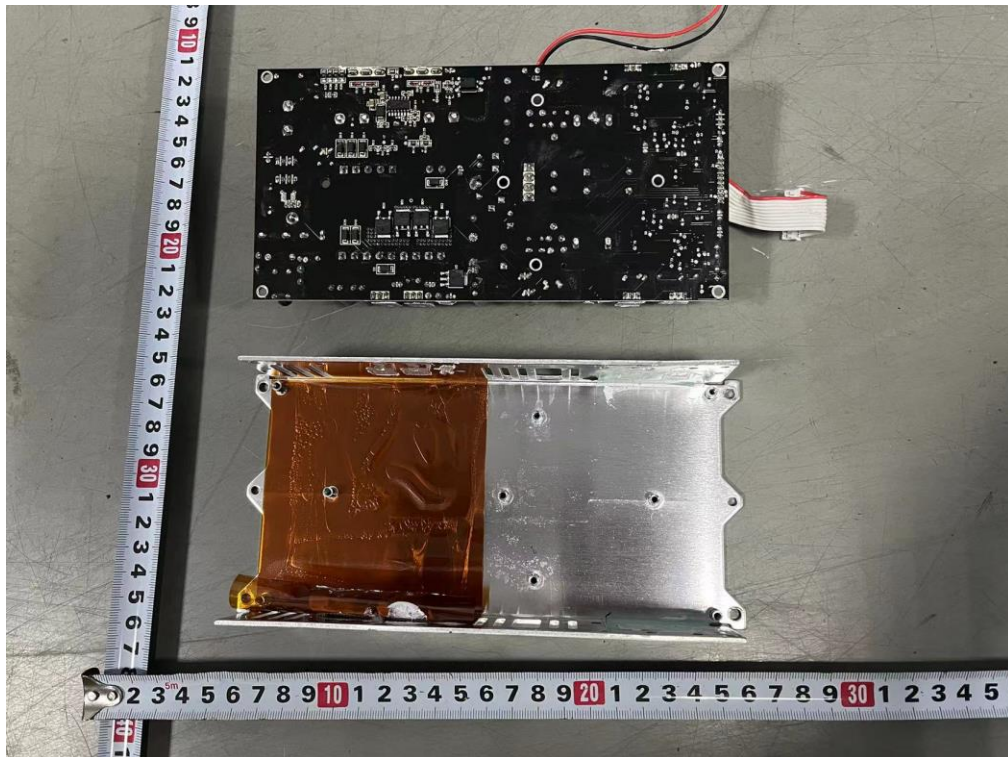
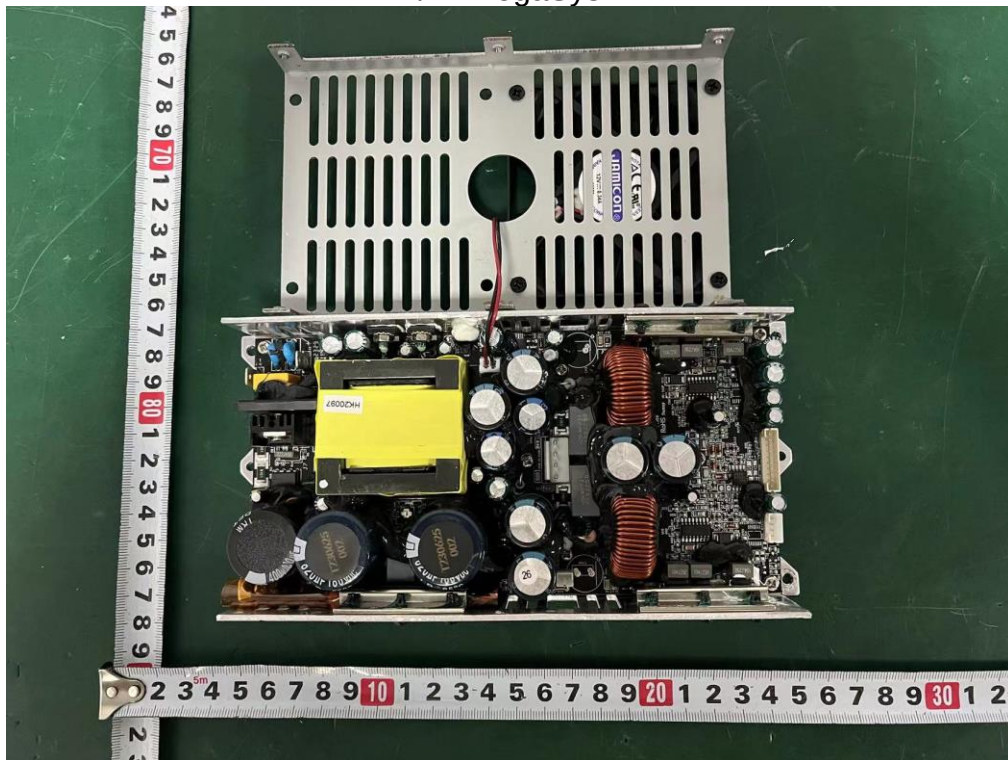
Internal Photos

M/N: MegaSys 1



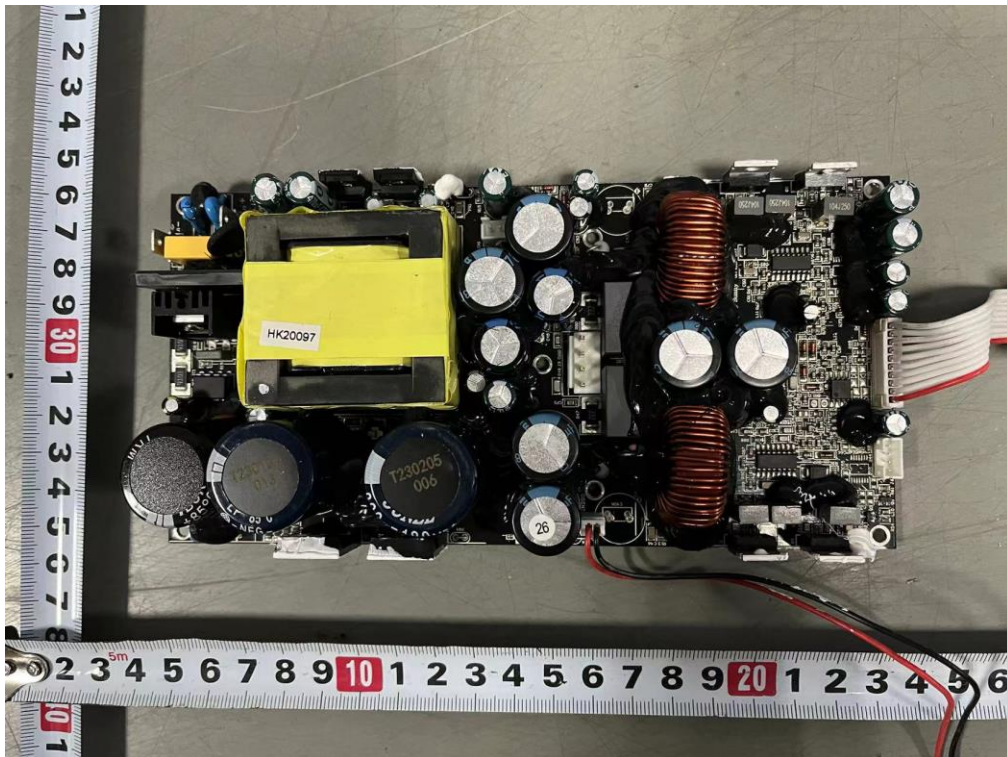
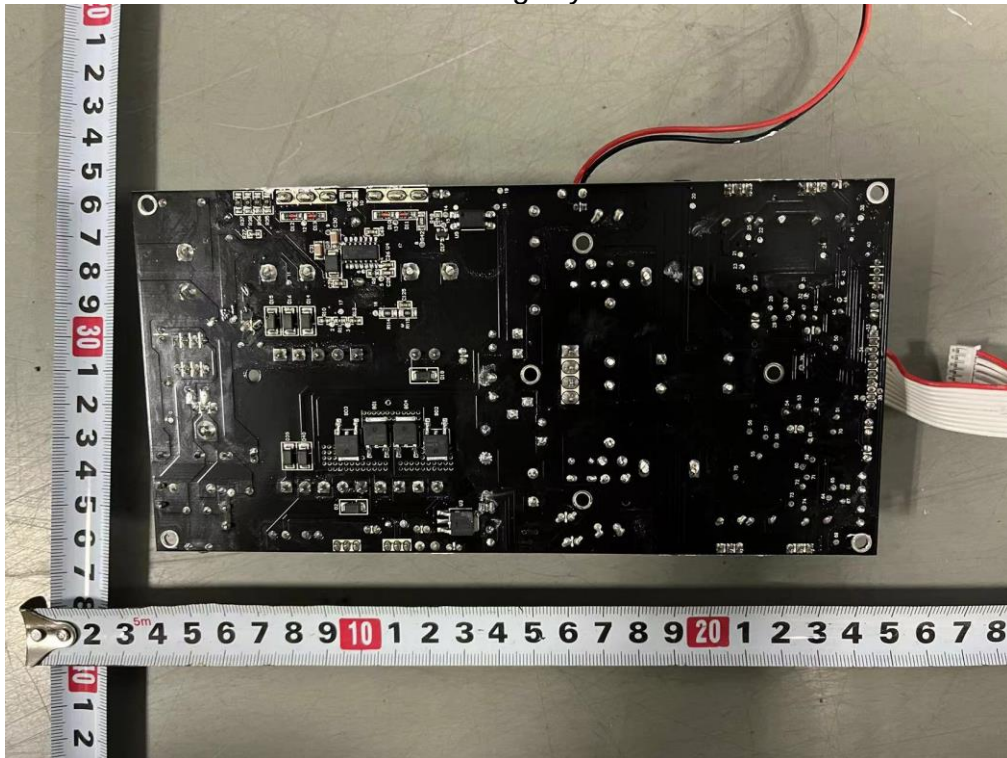
Internal Photos

M/N: MegaSys 1



Internal Photos

M/N: MegaSys 1



End of Test Report