TEST REPORT

Report No.:	TW2311009E
Applicant:	Shenzhen JianYi KeJi Youxian Gongsi
Product:	Ground loop Noise Isolator
Trademark:	BESIGN
Model No.:	GLNI01
Test Standards:	FCC Part 15 Subpart B
Test Result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 regulations for the evaluation of electromagnetic compatibility

Approved By

Terry Tang

Manager

Dated: November 29, 2023

Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES.

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688 Fax (755) 83442996 Email: info@timeway-lab.com

Special Statement:

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

Content

1.0 General Details

1.1 Test Lab Details

Name:	SHENZHEN TIMEWAY TESTING LABORATORIES.
Address:	Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China
Telephone:	(755) 83448688
Fax:	(755) 83442996

1.2 Applicant Details

Applicant:	Shenzhen JianYi KeJi Youxian Gongsi
Address:	Rm401, Unit 1, B1 Bulding, Bqu, Jinhuhuayuan, Jinhu Road, Qingshuihejiedao, Luohu District, Shenzhen 518024, China
Telephone:	13715368860
Fax:	--

1.3 Description of EUT

Product:	Ground loop Noise Isolator
Manufacturer:	Shenzhen JianYi KeJi Youxian Gongsi
Address:	Rm401, Unit 1, B1 Bulding, Bqu, Jinhuhuayuan, Jinhu Road, Qingshuihejiedao, Luohu District, Shenzhen 518024, China
Trademark:	BESIGN
Basic Model	GLNI01
Additional Model:	N/A
Rating:	Input: DC5V

Internal Highest Frequency: up to 20kHz

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

Date of Receipt of Application: November 02, 2023

Date of Test: November 02, 2023 ~ November 29, 2023

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

The sample tested by

Print Name: Leo Lau

2.0 List of Measurement Equipment

2.1 Conducted Emission Test

Name	Model No.	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESCS 30	834115/006	RS	2023.07.14	1Year
LISN	NNB42	00012	SCHAFFNER	2023.07.14	1Year

2.2 Radiated electromagnetic disturbance test

Name	Model No	Serial No.	Manufacturer	Calibration Date	Calibration Cycle
EMI Test Receiver	ESPI 3	100379	RS	2023.07.14	1Year
Spectrum Analyzer	E4407B	MY50441392	HP/Agilent	2023.07.14	1Year
Amplifier	BBV9743	#218	HP/Agilent	2023.07.14	1Year
Bilog Antenna	VULB9163	9163/340	Schwarebeck	2022.07.18	3Year
Horn Antenna	BBHA 9120D	9120D-631	RS	2022.07.18	3Year
Amplifier	8449B	3008A00160	HP/Agilent	2023.07.14	1Year

2.3 Auxiliary Equipment

Device	Manufacturer	Model	Rating
PC	ThinkPad	R4	DC19V, 2.31A
Wireless Car Kit	Shenzhen JianYi KeJi Youxian Gongsi	BK01	DC5V, 0.5A

3.0 Technical Details

3.1 Investigations Requested

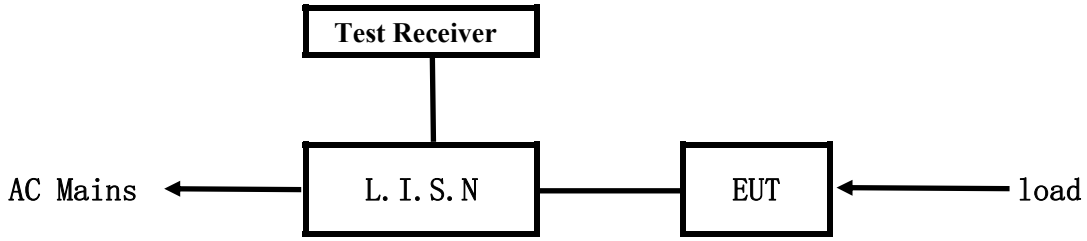
Perform Electromagnetic Interference [EMI] tests for FCC Requirement.

3.2 Test Standards

FCC Part 15 Subpart B

4.0 Conducted Power line Test

4.1 Schematics of the test



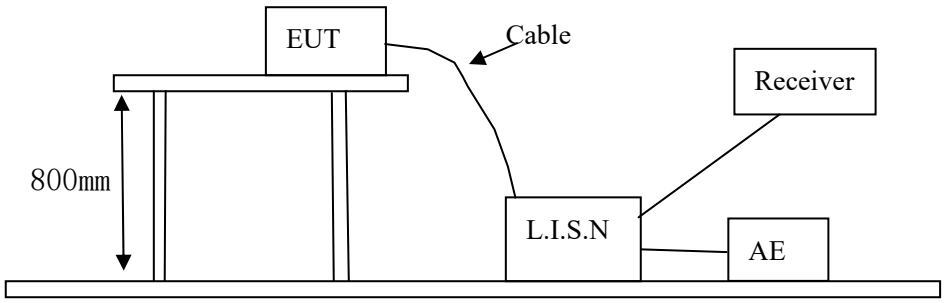
EUT: Equipment Under Test

4.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2014.The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2014.Cables and peripherals were moved to find the maximum emission levels for each frequency.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



4.3 Power line conducted Emission Limit

Frequency (MHz)	Class A Limits dB(μV)		Class B Limits dB(μV)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.00	66.00	66.00～56.00*	56.00～46.00*
0.50 ～ 5.00	73.00	60.00	56.00	46.00
5.00 ～ 30.00	73.00	60.00	60.00	50.00

Notes: 1. *decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

4.4 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

A: **Disturbance Voltage Limits at mains on Live terminals (150kHz to 30MHz)**

EUT Operating Environment

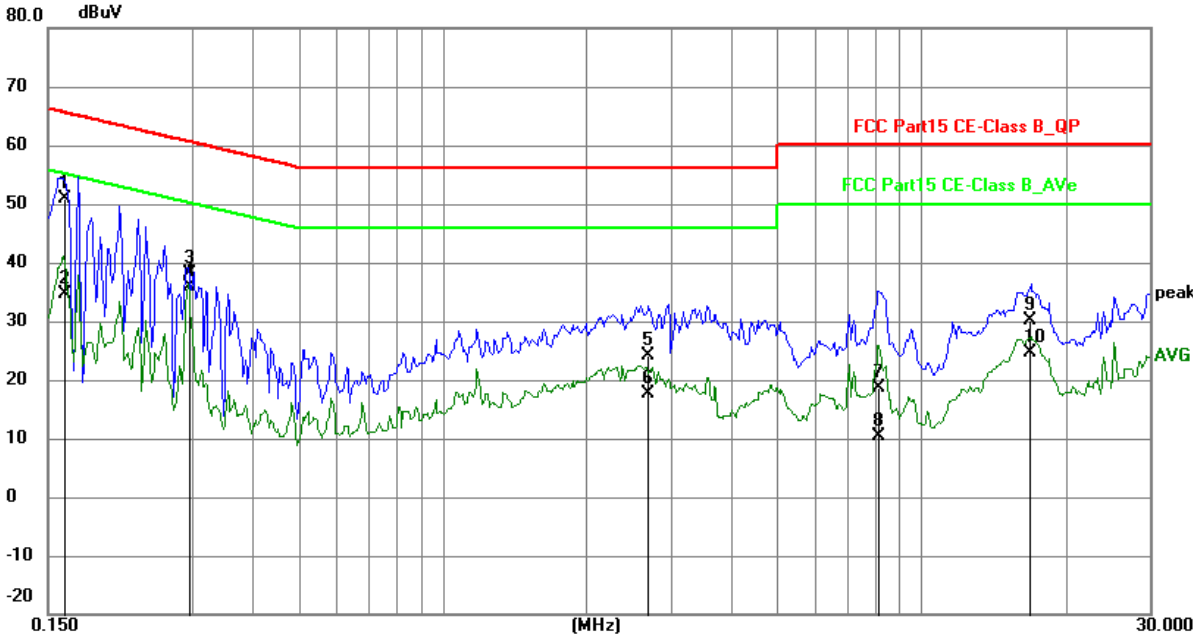
Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Working

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1624	41.07	9.78	50.85	65.34	-14.49	QP	P
2	0.1624	24.83	9.78	34.61	55.34	-20.73	AVG	P
3	0.2955	28.31	9.76	38.07	60.37	-22.30	QP	P
4	0.2955	26.15	9.76	35.91	50.37	-14.46	AVG	P
5	2.6783	14.31	9.83	24.14	56.00	-31.86	QP	P
6	2.6783	7.73	9.83	17.56	46.00	-28.44	AVG	P
7	8.1483	8.64	10.07	18.71	60.00	-41.29	QP	P
8	8.1483	0.39	10.07	10.46	50.00	-39.54	AVG	P
9	16.8387	19.54	10.49	30.03	60.00	-29.97	QP	P
10	16.8387	14.22	10.49	24.71	50.00	-25.29	AVG	P

B: Disturbance Voltage Limits at mains on Neutral terminals (150kHz to 30MHz)

EUT Operating Environment

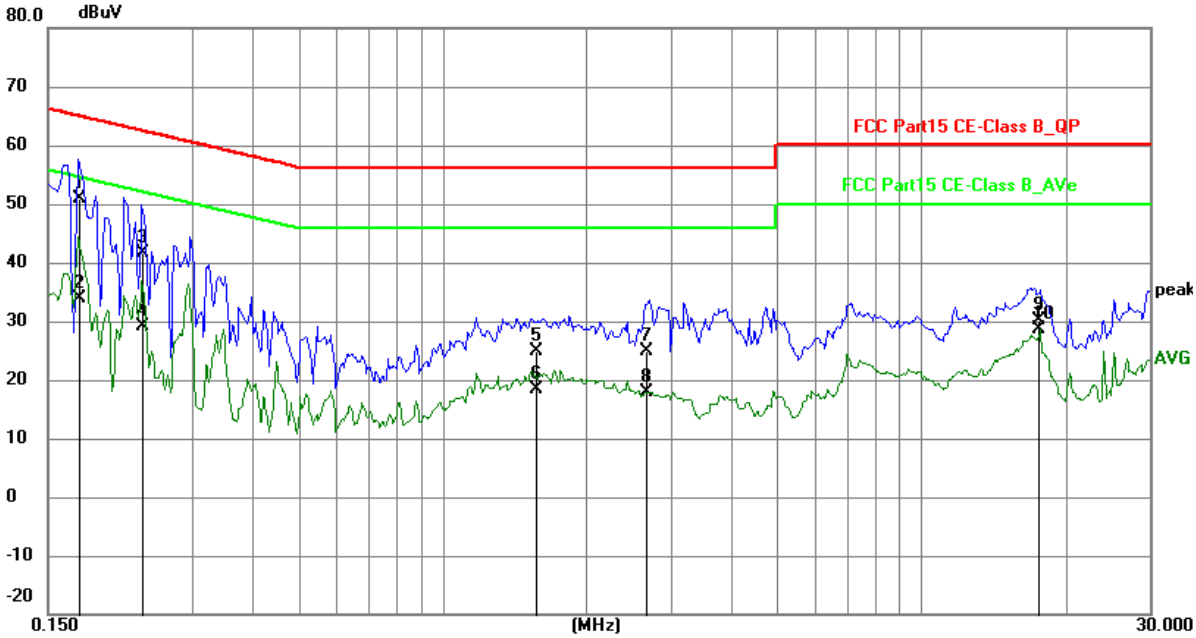
Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Working

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1734	41.23	9.77	51.00	64.80	-13.80	QP	P
2	0.1734	23.99	9.77	33.76	54.80	-21.04	AVG	P
3	0.2358	31.98	9.75	41.73	62.24	-20.51	QP	P
4	0.2358	19.48	9.75	29.23	52.24	-23.01	AVG	P
5	1.5601	15.10	9.80	24.90	56.00	-31.10	QP	P
6	1.5601	8.68	9.80	18.48	46.00	-27.52	AVG	P
7	2.6641	15.03	9.83	24.86	56.00	-31.14	QP	P
8	2.6641	8.12	9.83	17.95	46.00	-28.05	AVG	P
9	17.5677	19.52	10.53	30.05	60.00	-29.95	QP	P
10	17.5677	17.99	10.53	28.52	50.00	-21.48	AVG	P

5.0 Radiated Disturbance Test

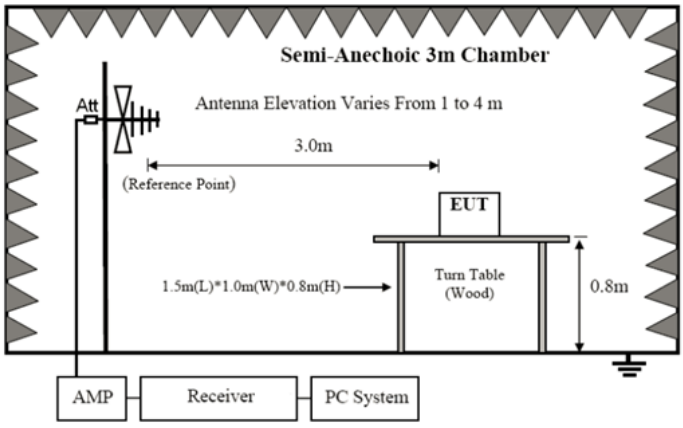
5.1 Schematics of the test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4 –2014, The frequency spectrum from 30MHz to 1GHz was investigated. All reading from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. Measurements were made at 3 meters.

Test Voltage: DC5V

Block diagram of Test setup



5.3 Radiated Emission Limit

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.00
88-216	3	43.50
216-960	3	46.00
Above 960	3	54.00

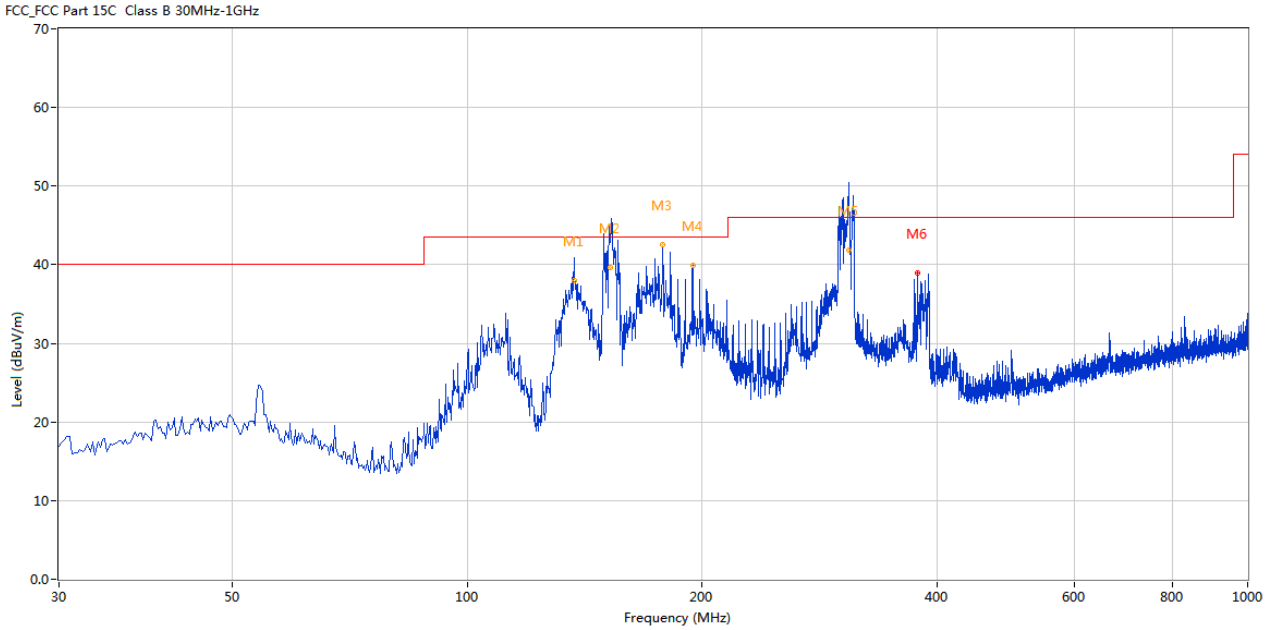
Note: The lower limit shall apply at the transition frequencies

5.4 Test result

Pass

A: Radiated Disturbance (30MHz----1000MHz)

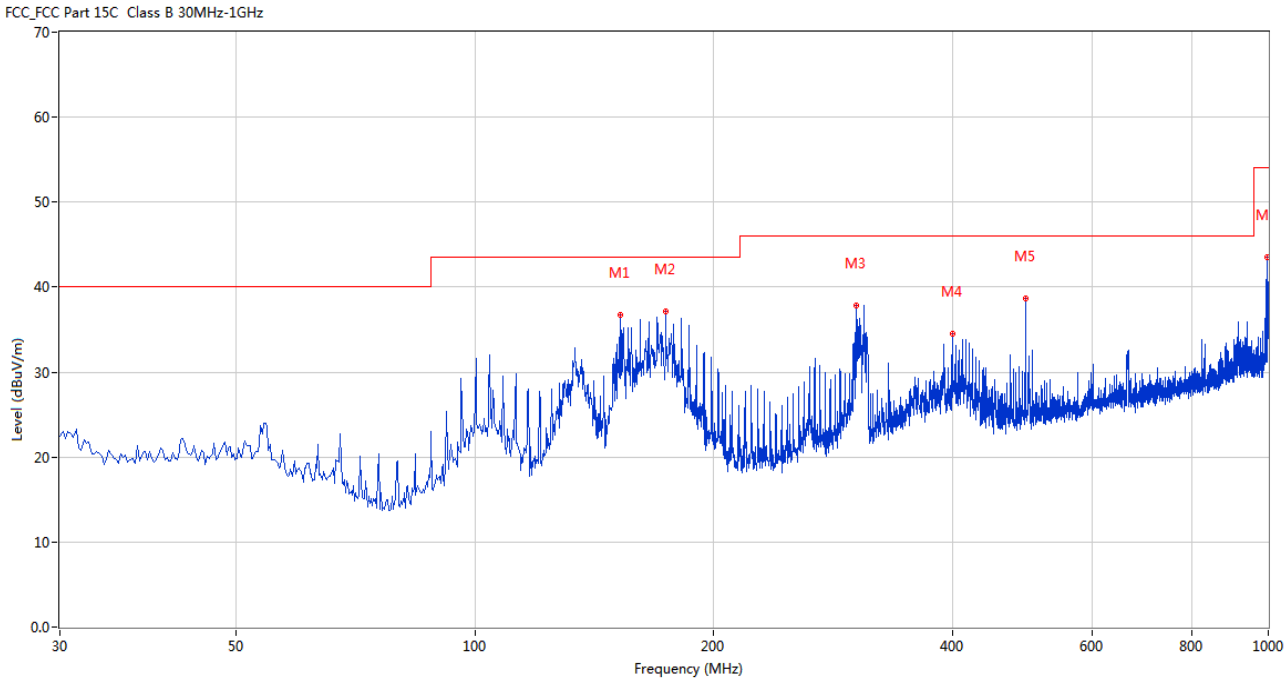
Project Number:	CASE3	Test Time:	2023-11-15_09.23.52
EUT Name:	Ground loop Noise Isolator	Test Engineer:	STEPHEN
Manufacturer:	Shenzhen JianYi KeJi Youxian Gongsi	Test Standard:	FCC Part 15B
Model:	GLNI01	Work Addition:	Working
Temp.(℃):	25	Load:	
Hum.:	65%	Charger:	



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1*	137.213	38.01	-17.21	43.5	5.49	QP	2.00	160	Horizontal	Pass
2*	152.797	39.67	-16.87	43.5	3.83	QP	327.00	195	Horizontal	Pass
3*	178.176	42.51	-15.51	43.5	0.99	QP	335.00	119	Horizontal	Pass
4*	194.558	39.87	-13.82	43.5	3.63	QP	337.00	176	Horizontal	Pass
5*	308.524	41.93	-10.90	46.0	4.07	QP	41.00	100	Horizontal	Pass
6	377.901	38.95	-9.34	46.0	7.05	Peak	126.00	100	Horizontal	Pass

B: Radiated Disturbance (30MHz----1000MHz)

Project Number:	CASE3	Test Time:	2023-11-15_09.12.11
EUT Name:	Ground loop Noise Isolator	Test Engineer:	STEPHEN
Manufacturer:	Shenzhen JianYi KeJi Youxian Gongsi	Test Standard:	FCC Part 15B
Model:	GLNI01	Work Addition:	Working
Temp.(℃):	25	Load:	
Hum.:	65%	Charger:	



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	152.674	36.67	-16.88	43.5	6.83	Peak	273.00	100	Vertical	Pass
2	174.009	37.08	-15.87	43.5	6.42	Peak	358.00	100	Vertical	Pass
3	302.987	37.88	-10.98	46.0	8.12	Peak	30.00	100	Vertical	Pass
4	399.963	34.46	-8.57	46.0	11.54	Peak	326.00	100	Vertical	Pass
5	494.271	38.68	-7.12	46.0	7.32	Peak	336.00	100	Vertical	Pass
6	995.394	43.51	-1.26	54.0	10.49	Peak	329.00	100	Vertical	Pass

6.0 FCC Label

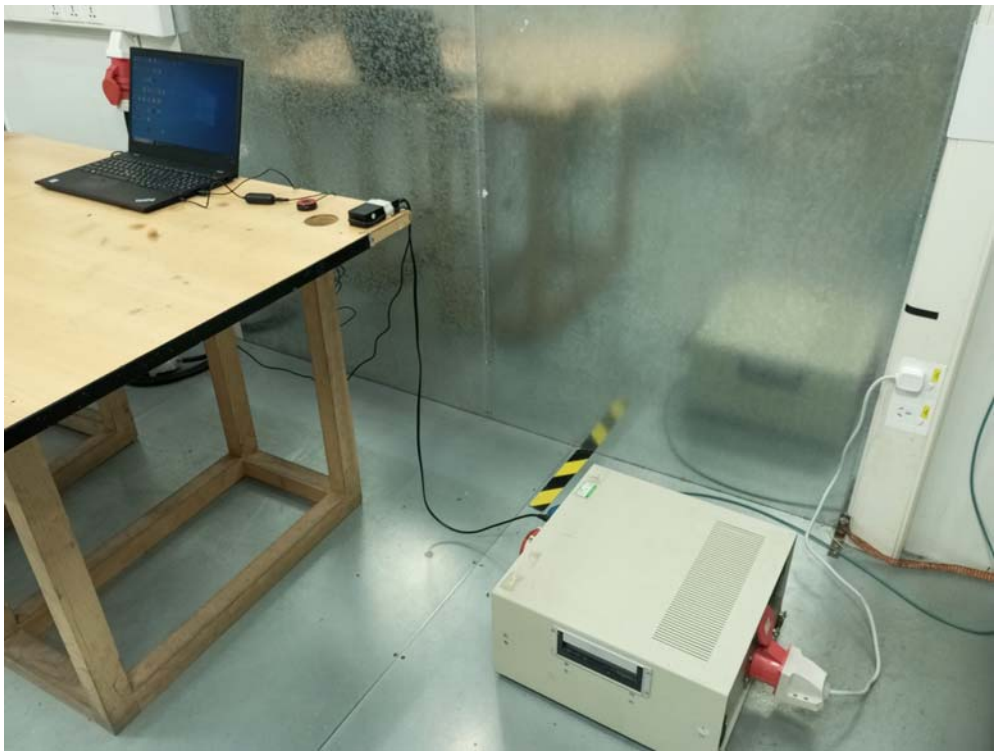
FCC ID: 2A2IXGLNI01

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

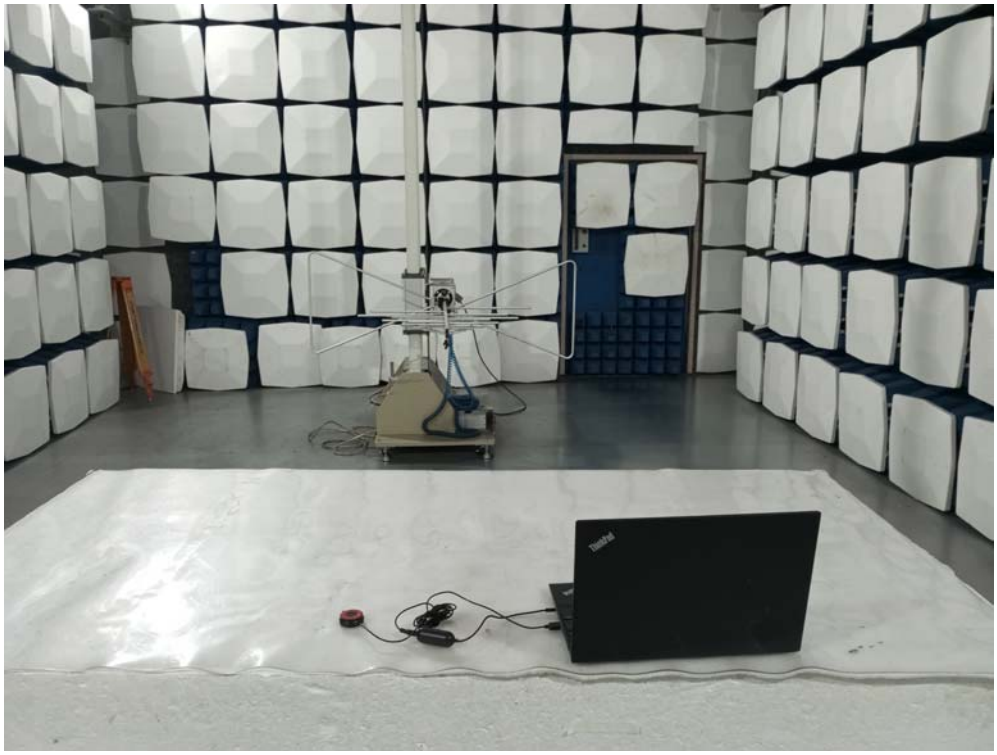
Mark Location: On the product body

7.0 Photo of testing

Conducted Emissions



Radiated Emissions



Photographs – EUT

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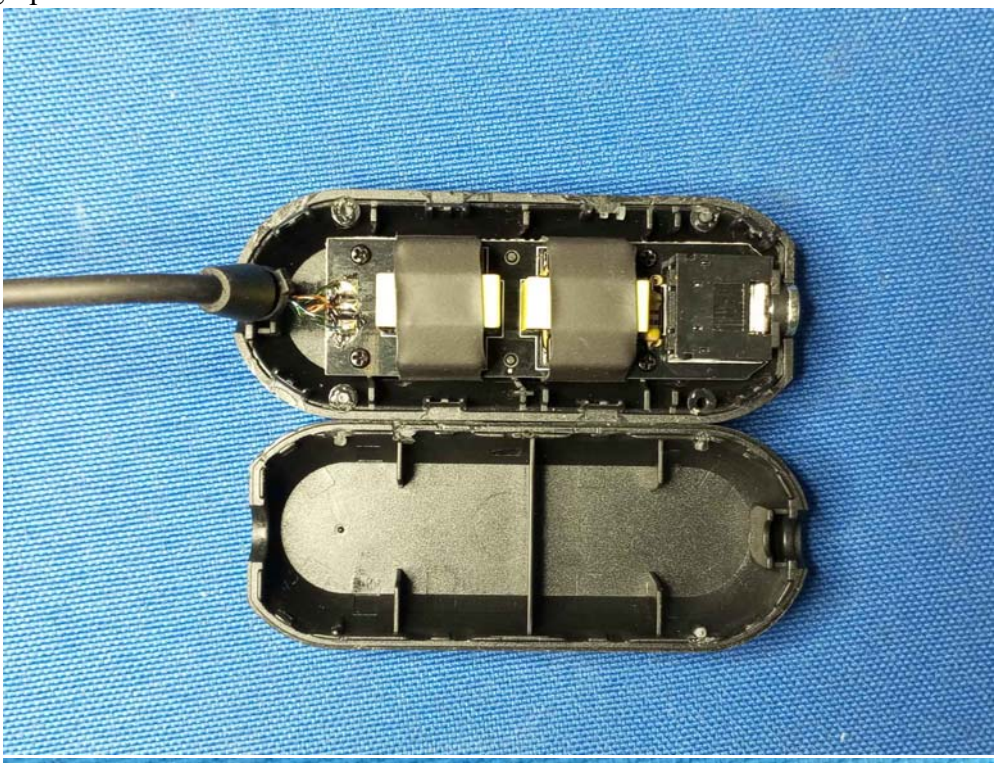
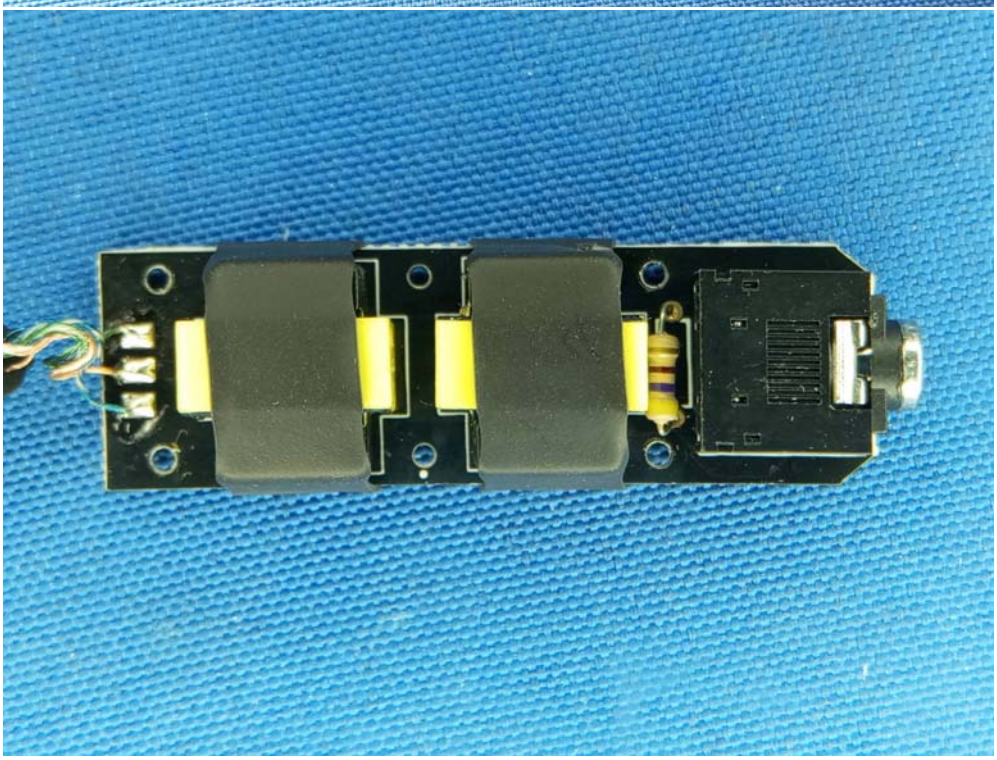
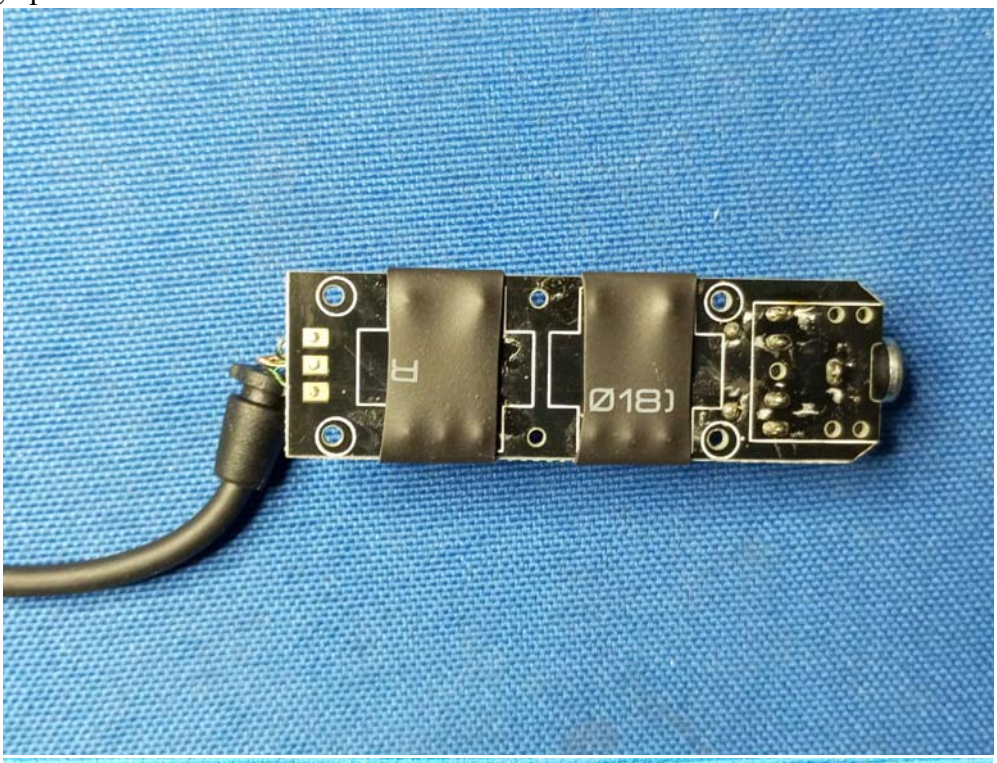
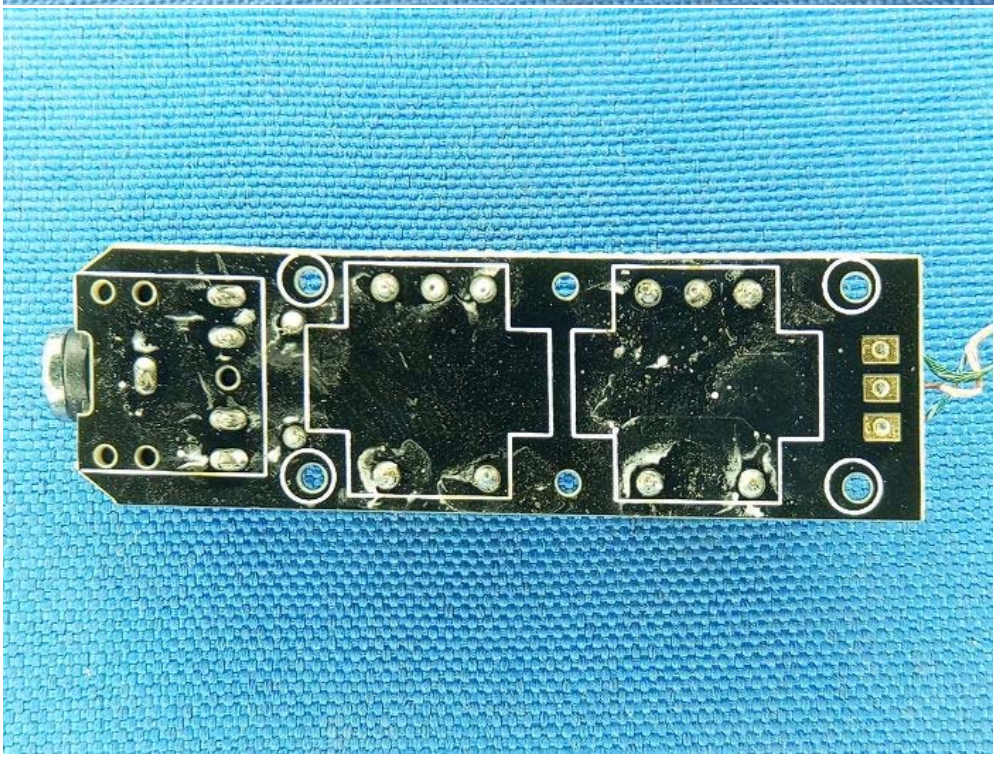


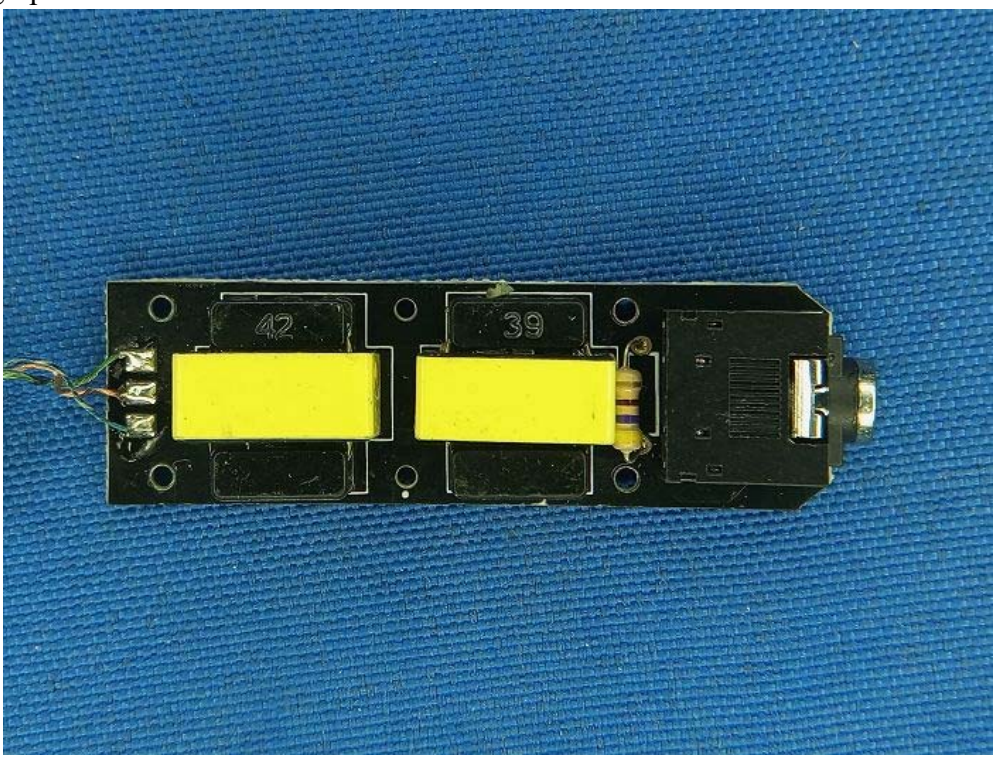


Photographs – EUT





Photographs – EUT



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