TEST REPORT

Reference No.	:	WTU24D08186939W
FCC ID	:	2AOTUKDDYM002B
Applicant	:	Changzhou Kaidi Electrical Inc.
Address	:	Jiangcun, Henglin Town, 213101, Changzhou City , Jiangsu Province, China
Manufacturer	:	Changzhou Kaidi Electrical Inc.
Address	:	Jiangcun, Henglin Town, 213101, Changzhou City , Jiangsu Province, China
Product	:	Control Box
Model(s)	:	KDDYM002B
Standards	:	FCC Part 15 Subpart B
Date of Receipt sample	:	2024-08-13
Date of Test	:	2024-08-13 to 2024-09-12
Date of Issue	:	2024-09-19
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Approved by:

Deval Qin / Designated Reviewer

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2 Revision History

Test Report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTU24D08186939W	2024-08-13	2024-08-13 to 2024-09-12	2024-09-19	Original	-	Valid

3 General Information

3.1 General Description of E.U.T.

Product	:	Control Box
Model(s)	:	KDDYM002B
Model Description	:	N/A
Test Sample No.	:	1-1/1

3.2 Details of E.U.T.

Ratings	:	Input: 29.0V⎓2.0A 58.0W from adapter Input: 29.0V⎓4.0A Max 116.0W from adapter
Adapter (Sale Without Adapter)	:	Model No.: KDDY008H Input: AC100-240V, 50/60Hz, 2.4A Output: 29.0V⎓2.0A 58.0W Output: 29.0V⎓4.0A Max 116.0W(Duty Cycle:Max 10%;2min ON/18min OFF) Manufacturer:CHANGZHOU KAIDI ELECTRICAL INC.

3.3 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test Lab: N/A

Lab address: N/A

Test items: N/A

3.4 Abnormalities from Standard Conditions

None.

4 Test Summary

Test Item	Test Requirement	Test Result
AC Power Line Conducted Emission (150kHz to 30MHz)	FCC Part 15 Subpart B	Pass
Radiated Emission (30MHz to 1GHz)	FCC Part 15 Subpart B	Pass
Radiated Emission (Above 1GHz)	FCC Part 15 Subpart B	Pass

Remark:

Pass Test item meets the requirement

Fail Test item does not meet the requirement

N/A Test case does not apply to the test object

5 Equipment Used during Test

5.1 Equipment List

Conducted emissions from the AC mains power ports						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMI Test Receiver	R&S	ESCI	100947	2024-07-18	2025-07-17
2	LISN	R&S	ENV216	100115	2024-07-18	2025-07-17
3	Cable	Top	TYPE16(3.5M)	-	2024-07-18	2025-07-17
3m Semi-anechoic Chamber for Radiation (TDK)						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2024-04-22	2025-04-21
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2023-11-04	2024-11-03
3	Amplifier	ANRITSU	MH648A	M43381	2024-04-22	2025-04-21
4	Cable	HUBER+SUHNER	CBL2	525178	2024-04-22	2025-04-21
3m Semi-anechoic Chamber for Radiation, Above 1GHz						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP	100091	2024-04-22	2025-04-21
2	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2024-01-23	2025-01-22
3	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2024-07-18	2025-07-17
4	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	NA	2024-07-18	2025-07-17

Test Software:

Test Item	Software name	Software version
Conduction disturbance Radiated Emission(3m)	EZ-EMC	EZ-EMC(RA-03A1-1)

5.2 Measurement Uncertainty

Parameter	Uncertainty (Note 1)
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±3%
Conducted Emission (150kHz-30MHz)	±3.64dB
Radiated Emission_3m (30MHz-1000MHz)	±4.53 dB
Radiated Emission_10m (30MHz-1000MHz)	±5.24 dB
Radiated Emission(1GHz~18GHz)	±5.03dB

Note 1: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

5.3 Test Mode

Test Item	Test Mode	Test Voltage
AC Power Line Conducted Emission (150KHz-30MHz)	Working mode	AC 120V/60Hz
Radiated Emissions (30MHz-1GHz)	Working mode	AC 120V/60Hz
Radiated Emissions (Above1GHz)	Working mode	AC 120V/60Hz
"*" shows the worst case mode which were recorded in this report.		

6 Emission Test Results

6.1 AC Power Line Conducted Emission, 150kHz to 30MHz

Test Requirement..... : FCC Part 15 Subpart B

Test Method..... : ANSI C63.4

Test Result ..... : Pass

Frequency Range..... : 150kHz to 30MHz

Class..... : Class B

Limit..... :

Frequency (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

6.1.1 E.U.T. Operation

Operating Environment:

Temperature..... : 25.3°C

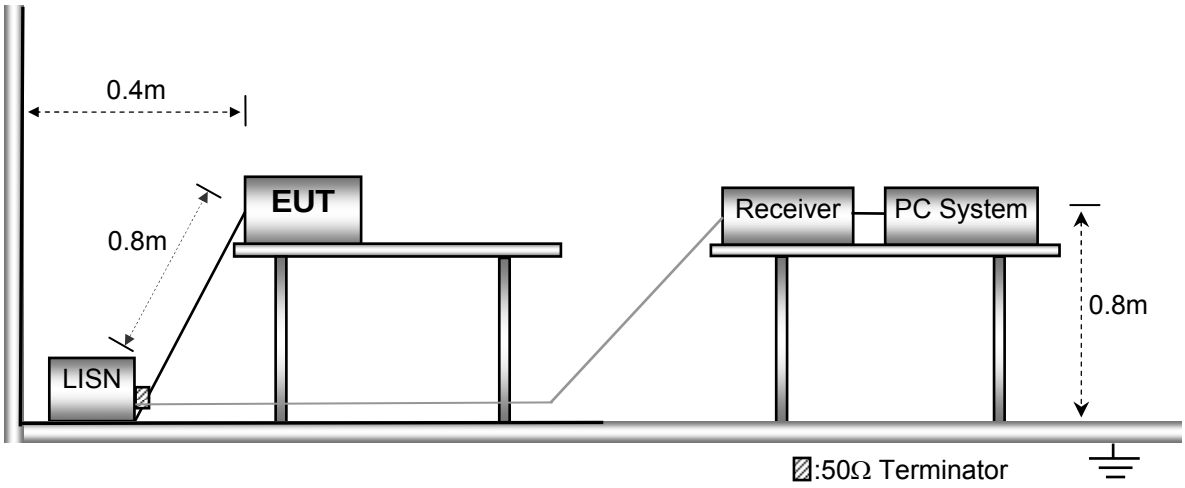
Humidity..... : 49.1%RH

Atmospheric Pressure..... : 101.3kPa

EUT Operation ..... : Refer to section 5.3.

6.1.2 Block Diagram of Test Setup

The AC Power Line Conducted Emissions tests were performed in accordance with the ANSI C63.4 .

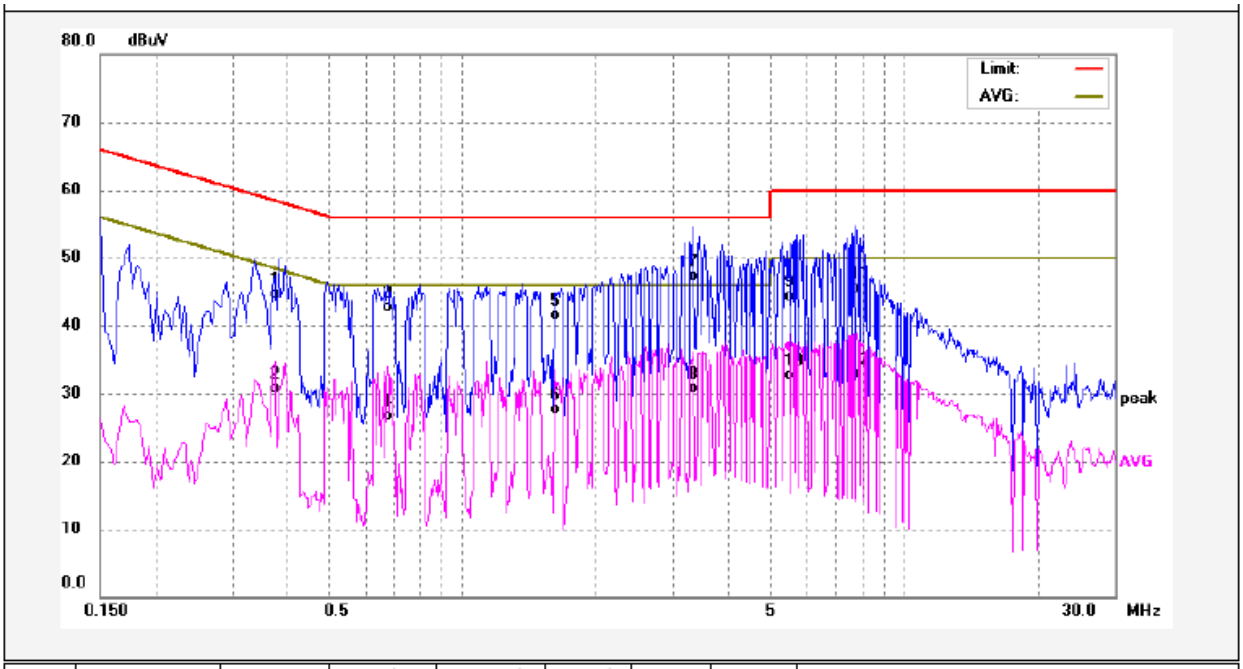


6.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line. According to the data in section 6.1.4, the EUT complied with the FCC PART 15, SUBPART B standards.

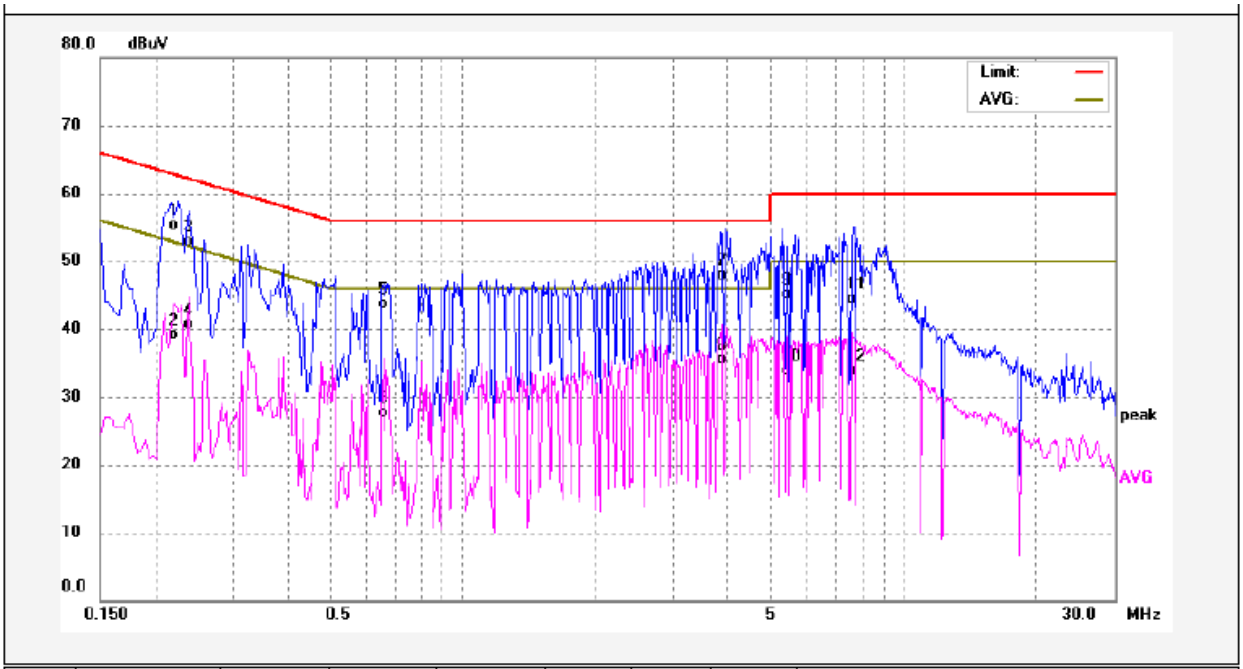
6.1.4 AC Power Line Conducted Emission Test Data

Live Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.3740	35.16	9.58	44.74	58.41	-13.67	QP	
2	0.3740	21.14	9.58	30.72	48.41	-17.69	AVG	
3	0.6740	33.02	9.60	42.62	56.00	-13.38	QP	
4	0.6740	17.08	9.60	26.68	46.00	-19.32	AVG	
5	1.6140	31.79	9.63	41.42	56.00	-14.58	QP	
6	1.6140	18.07	9.63	27.70	46.00	-18.30	AVG	
7	3.3020	37.57	9.70	47.27	56.00	-8.73	QP	
8	3.3020	21.06	9.70	30.76	46.00	-15.24	AVG	
9	5.4940	34.42	9.82	44.24	60.00	-15.76	QP	
10	5.4940	22.94	9.82	32.76	50.00	-17.24	AVG	
11	7.8380	35.55	9.95	45.50	60.00	-14.50	QP	
12	7.8380	22.97	9.95	32.92	50.00	-17.08	AVG	

Neutral Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2220	45.66	9.57	55.23	62.74	-7.51	QP	
2	0.2220	29.49	9.57	39.06	52.74	-13.68	AVG	
3	0.2380	43.41	9.57	52.98	62.16	-9.18	QP	
4	0.2380	31.10	9.57	40.67	52.16	-11.49	AVG	
5	0.6580	34.03	9.61	43.64	56.00	-12.36	QP	
6	0.6580	18.17	9.61	27.78	46.00	-18.22	AVG	
7	3.8700	38.08	9.75	47.83	56.00	-8.17	QP	
8	3.8700	25.67	9.75	35.42	46.00	-10.58	AVG	
9	5.4420	35.28	9.84	45.12	60.00	-14.88	QP	
10	5.4420	24.12	9.84	33.96	50.00	-16.04	AVG	
11	7.5900	34.48	9.95	44.43	60.00	-15.57	QP	
12	7.5900	23.87	9.95	33.82	50.00	-16.18	AVG	

6.2 Radiation Emission, 30MHz to 1000MHz

Test Requirement..... : FCC Part 15 Subpart B

Test Method..... : ANSI C63.4

Test Result ..... : Pass

Frequency Range..... : 30MHz to 1000MHz

Class..... : Class B

Limit..... :

Frequency (MHz)	Distance (Meter)	Limit (dBμV/m)
		Quasi-peak
30 to 88	3	40
88 to 216	3	43.5
216 to 960	3	46
960 to 1000	3	54

6.2.1 E.U.T. Operation

Operating Environment:

Temperature..... : 24.8°C

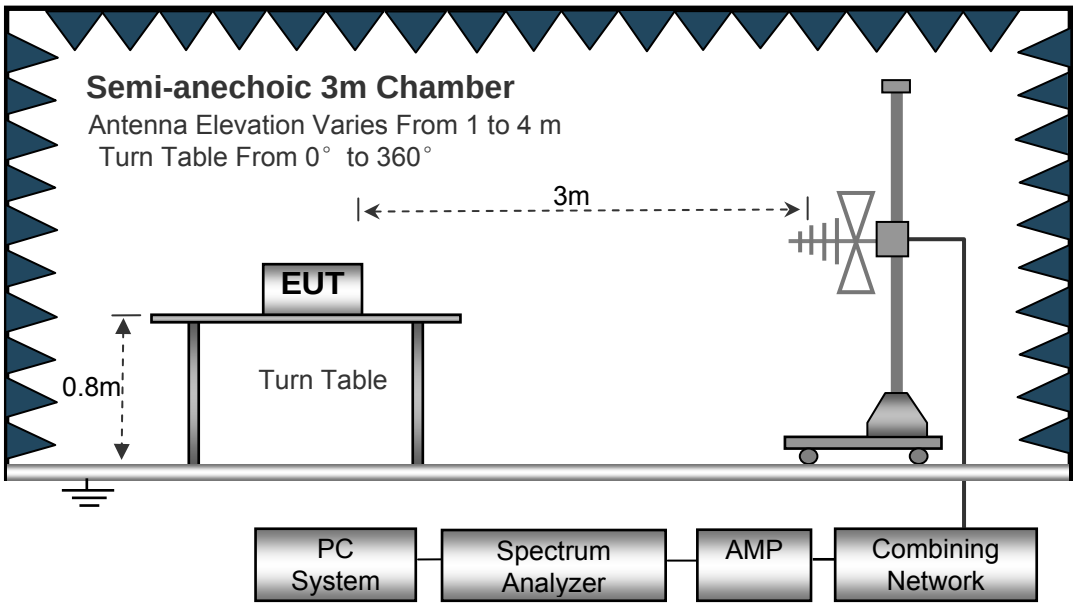
Humidity..... : 46.2%RH

Atmospheric Pressure..... : 101.5kPa

EUT Operation ..... : Refer to section 5.3.

6.2.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

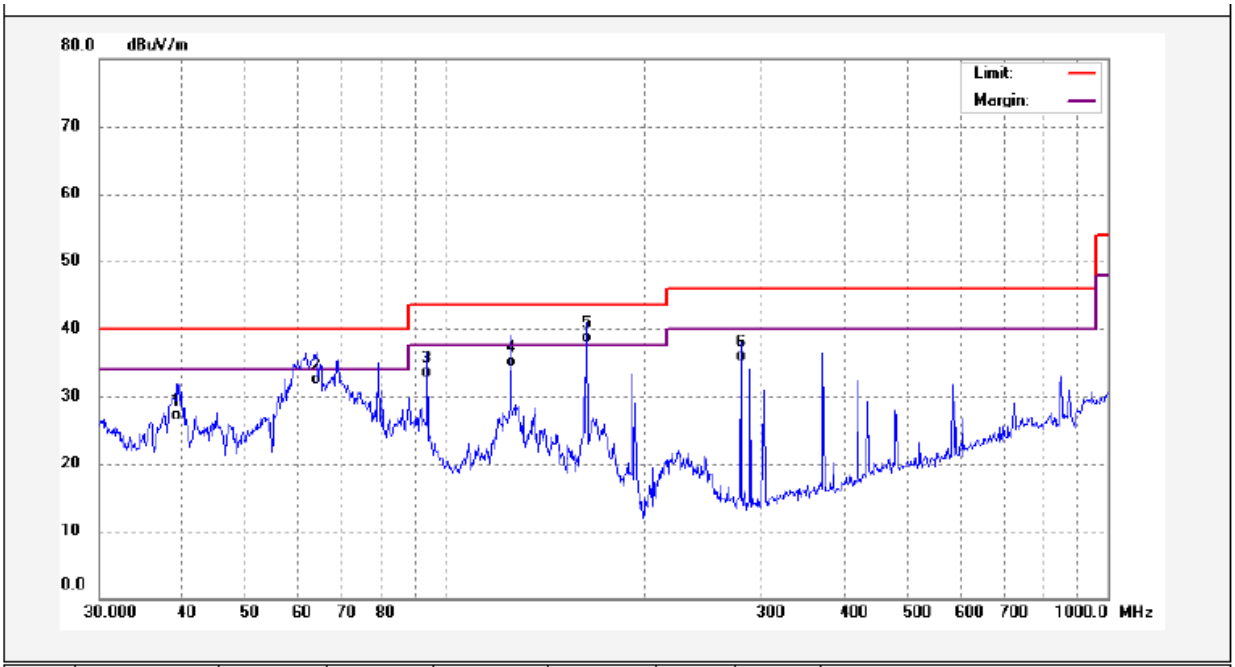


6.2.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Quasi-peak measurements were performed if peak emissions were within 6dB of the Quasi-peak limit line.

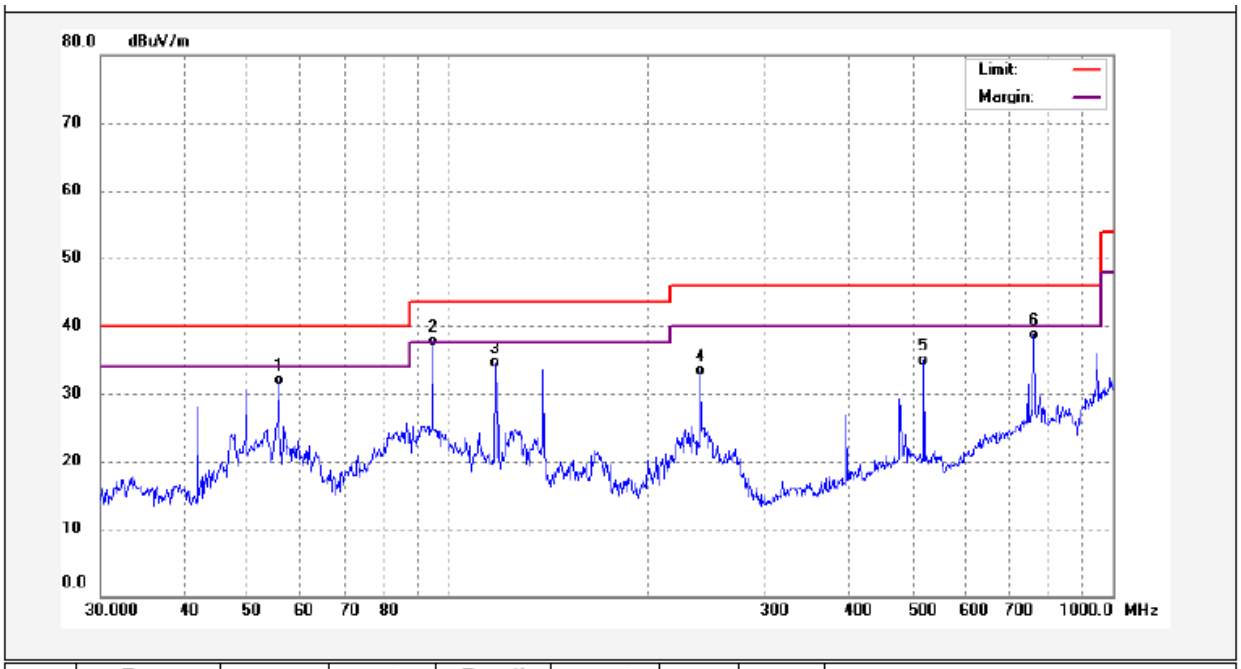
6.2.4 Radiated Emission Test Data, 30MHz to 1000MHz

Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	39.2991	43.35	-16.25	27.10	40.00	-12.90	QP	
2	63.7588	49.31	-16.81	32.50	40.00	-7.50	QP	
3	93.7684	51.83	-18.23	33.60	43.50	-9.90	QP	
4	125.4457	50.57	-15.47	35.10	43.50	-8.40	QP	
5	163.1818	52.88	-14.08	38.80	43.50	-4.70	QP	
6	279.0436	50.75	-14.85	35.90	46.00	-10.10	QP	

Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	55.6093	47.85	-15.96	31.89	40.00	-8.11	QP	
2	94.7600	55.87	-18.17	37.70	43.50	-5.80	QP	
3	117.7725	50.58	-16.14	34.44	43.50	-9.06	QP	
4	239.9873	42.92	-9.53	33.39	46.00	-12.61	QP	
5	519.0649	44.39	-9.50	34.89	46.00	-11.11	QP	
6	760.7035	42.28	-3.62	38.66	46.00	-7.34	QP	

6.3 Radiation Emission, Above 1000MHz

Test Requirement..... : FCC Part 15 Subpart B

Test Method..... : ANSI C63.4

Test Result ..... : Pass

Frequency Range..... : Above 1GHz

Class. : Class B

Limit. . ..... :

Frequency Range (MHz)	Distance (Meter)	Average Limit dB(uV/m)	Peak Limit (dBuV/m)
Above 1GHz	3	54	74

6.3.1 E.U.T. Operation

Operating Environment:

Temperature..... : 25.8°C

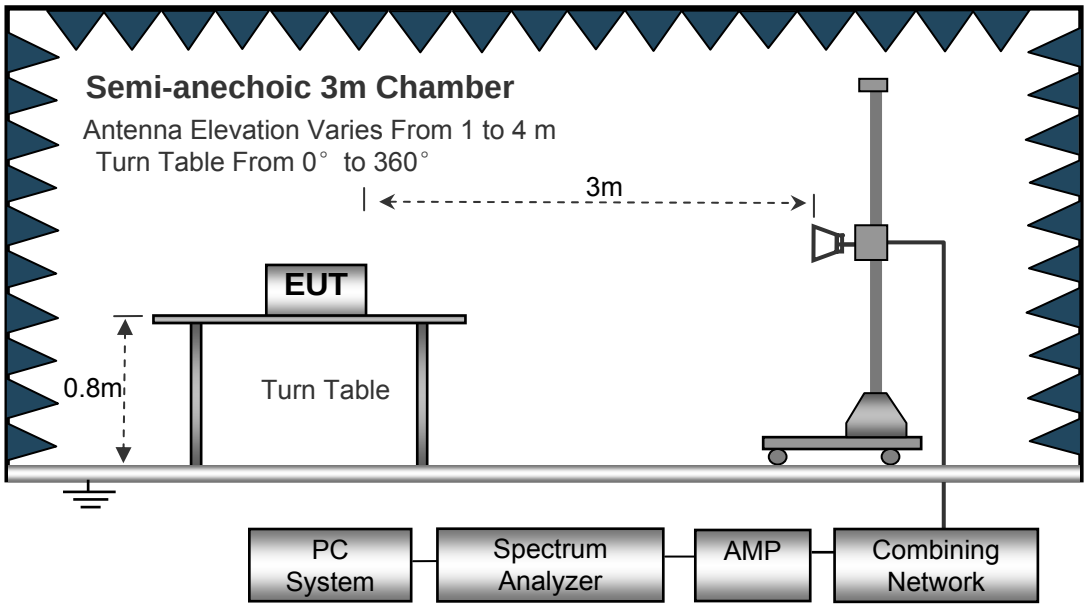
Humidity..... : 50.6%RH

Atmospheric Pressure..... : 101.3kPa

EUT Operation ..... : Refer to section 5.3.

6.3.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

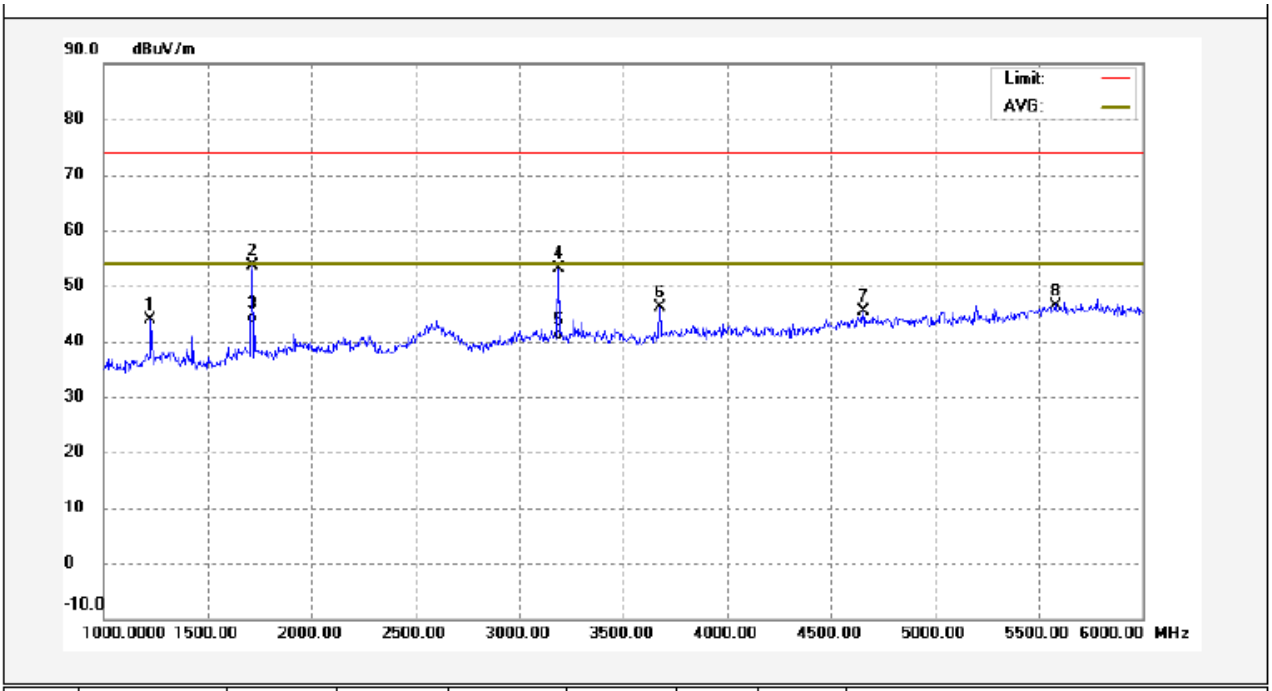


6.3.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Average measurements were performed if peak emissions were within 6dB of the average limit line

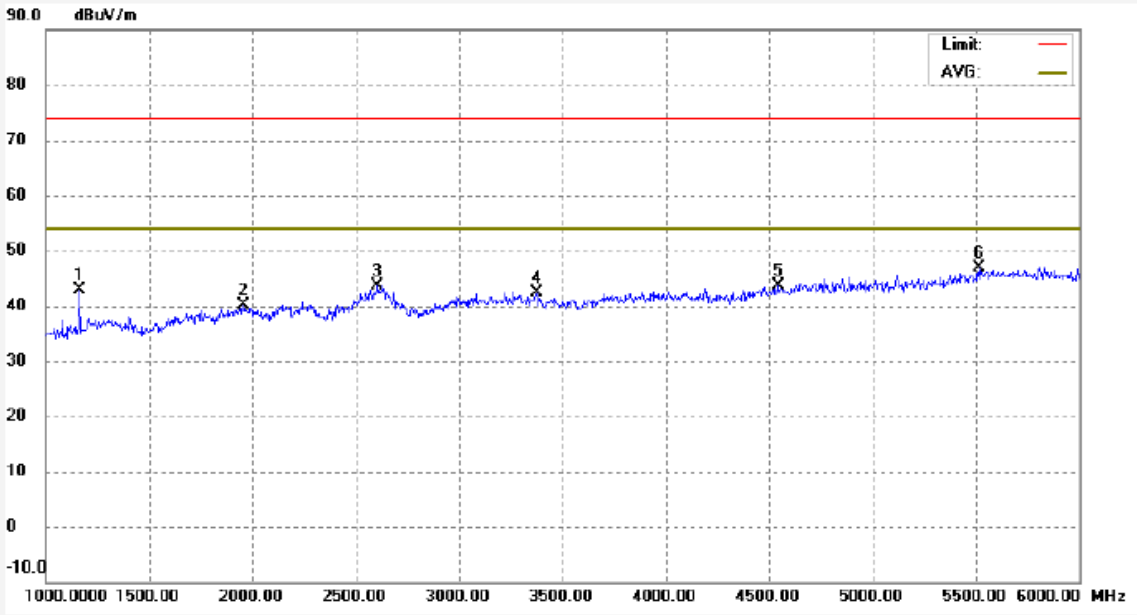
6.3.4 Radiated Emission test data, Above 1000MHz

Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1225.000	56.95	-13.03	43.92	74.00	-30.08	peak	
2	1715.000	64.84	-11.18	53.66	74.00	-20.34	peak	
3	1715.000	55.21	-11.18	44.03	54.00	-9.97	AVG	
4	3190.000	61.54	-8.34	53.20	74.00	-20.80	peak	
5	3190.000	49.45	-8.34	41.11	54.00	-12.89	AVG	
6	3675.000	54.06	-7.90	46.16	74.00	-27.84	peak	
7	4655.000	51.18	-5.74	45.44	74.00	-28.56	peak	
8	5580.000	50.50	-4.00	46.50	74.00	-27.50	peak	

Antenna Polarization: Horizontal

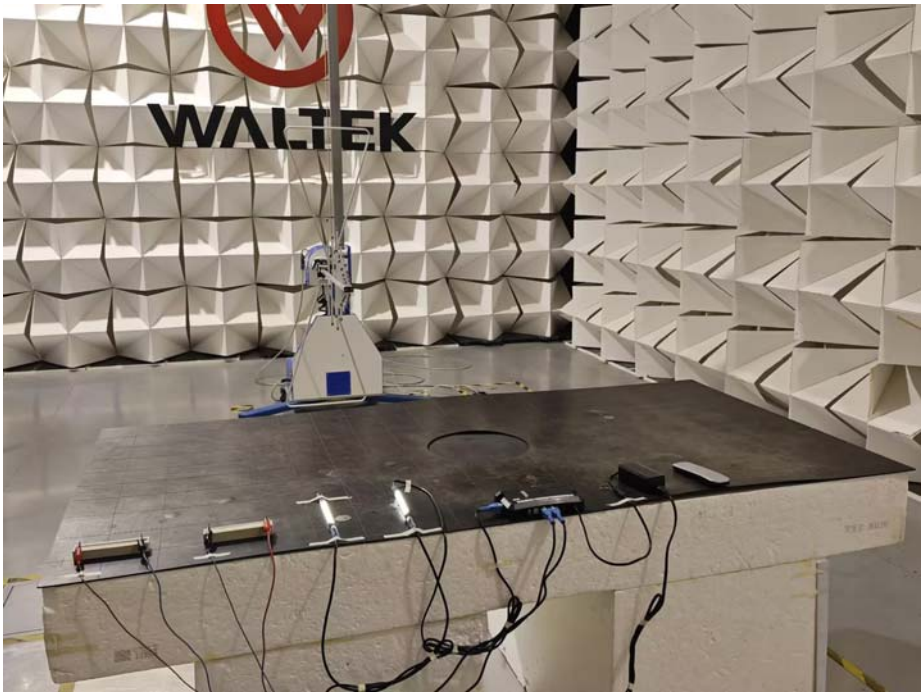


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1160.000	56.07	-13.21	42.86	74.00	-31.14	peak	
2	1955.000	50.03	-9.96	40.07	74.00	-33.93	peak	
3	2605.000	51.79	-8.20	43.59	74.00	-30.41	peak	
4	3375.000	50.67	-8.32	42.35	74.00	-31.65	peak	
5	4545.000	49.65	-5.93	43.72	74.00	-30.28	peak	
6	5515.000	50.99	-4.11	46.88	74.00	-27.12	peak	

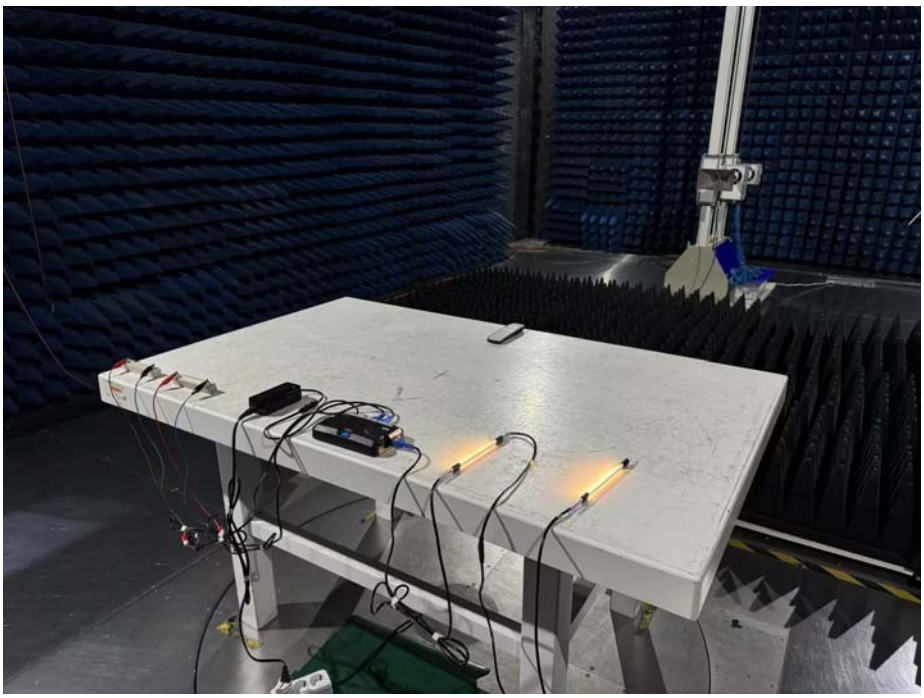
7 Photographs – Test Setup

7.1 Photograph –AC Power Line Conducted Emission Test Setup

7.2 Photograph – Radiated Emission Test Setup For 30MHz-1000MHz



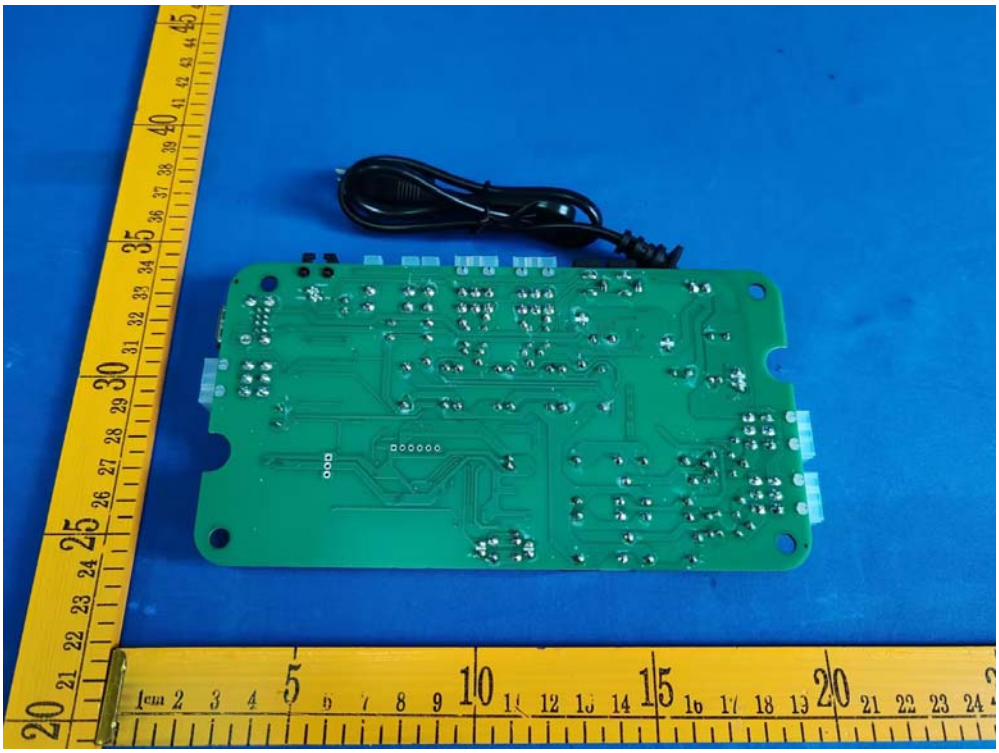
7.3 Photograph –Radiated Emissions Test Setup For Above 1GHz

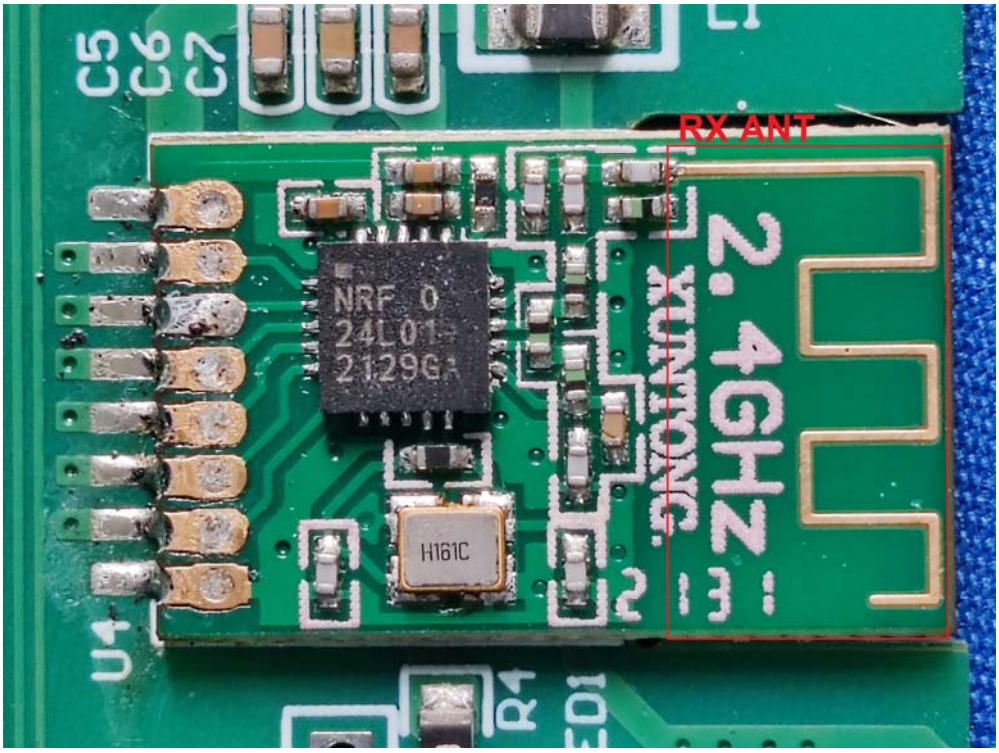


8 Photographs – Constructional Details

8.1 EUT – External View

8.2 EUT – Internal View





======End of Report======