



TEST REPORT

FCC ID:2A8FO-TH01

Applicant: Shenzhen Tehui Technology Co., Ltd
Address: 303, building 1, block B, Fangxing Science Park, No. 17, Baonan Road, Nanlian community, Longgang street, Longgang District, Shenzhen
Manufacturer: Shenzhen Tehui Technology Co., Ltd
Address: 303, building 1, block B, Fangxing Science Park, No. 17, Baonan Road, Nanlian community, Longgang street, Longgang District, Shenzhen
EUT: Multi-function table lamp
Trade Mark: N/A
Model Number: TH-01
Date of Receipt: Aug. 10, 2022
Test Date: Aug.10, 2022 - Aug. 18, 2022
Date of Report: Aug. 18, 2022
Prepared By: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China
Applicable Standards: FCC PART 15 Subpart C
ANSI C63.10:2013
Test Result: Pass
Report Number: DL-20220817018E

Prepared (Engineer): Alisa Song

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



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 Shenzhen DL Testing Technology Co., Ltd.

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**1. VERSION**

Version No.	Date	Description
00	Aug. 18, 2022	Original

2. TEST SUMMARY

EMC Emission			
Test Item	Section in CFR 47	Result	Remark
AC Power Line Conducted Emission	15.207	PASS	
Spurious Emission	15.209(a)(f)	PASS	
20dB Bandwidth	15.215	PASS	
Antenna requirement	15.203	PASS	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

(2) Test Facility: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone,
Baolong Street, Longgang District, Shenzhen, Guangdong, China



3. GENERAL INFORMATION

3.1 Description of Device (EUT)

Product Name: Multi-function table lamp

Trade Mark: N/A

Model No.: TH-01

Model Difference: N/A

Serial No.: N/A

Hardware version: H1.0

Software version: S1.0

Operation Frequency: 115KHz-205KHz

Modulation type: MSK

Antenna Type: Inductive loop coil Antenna

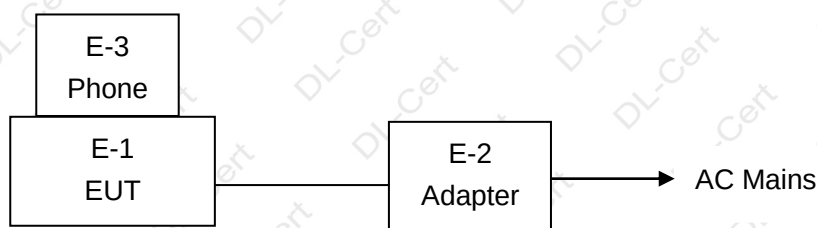
Antenna gain: 0dBi

Power supply: Input: 5V  2A
Output: 5V  1A
Wireless charging: 5W/7.5W/10W

3.2 Tested System Details

None.

3.3 Block Diagram of Test Set-up



3.4 Test Mode Description

Mode1. On Mode(I/P: 5V, Wireless charging)

Mode2. On Mode(I/P: 5V, O/P: 5V+Wireless charging+ Light)

Note: We pretest all mode, and evaluated 1%, 50% and 99% battery charging mode, the worst mode 1(99% battery charging mode)are included in the report.



3.5 Test Auxiliary Equipment

Item	Equipment	Model/Type No.	Series No.	Note
E-1	Multi-function table lamp	TH-01	N/A	EUT
E-2	Adapter	HW-0501000E	N/A	Provide by test lab
E-3	Phone	iPhone 13	N/A	Provide by test lab

Item	Shielded Type	Ferrite Core	Length	Note
N/A	N/A	N/A	N/A	N/A

3.6 Test Uncertainty

Conducted Emission Uncertainty
(150KHz-30MHz) : $\pm 2.56\text{dB}$

Radiated Emission Uncertainty
(9KHz-1GHz) : $\pm 3.24\text{dB}$



4. TEST INSTRUMENT USED

For Conducted Emission Test (843 Shielded Room)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
843 Shielded Room	ChengYu	843 Room	843	Nov. 25, 2019	Nov. 24, 2022
EMI Receiver	R&S	ESR	101421	Nov. 06, 2021	Nov. 05, 2022
LISN	R&S	ENV216	102417	Nov. 06, 2021	Nov. 05, 2022
Clamp	COM-POWER	CLA-050	431071	Nov. 06, 2021	Nov. 05, 2022
3-Loop Antenna	DAZE	ZN30401	13021	Nov. 06, 2021	Nov. 05, 2022
ISN T8	Schwarzbeck	NTFM 8158	101135	Nov. 06, 2021	Nov. 05, 2022
ISN T5	Schwarzbeck	NTFM 8158	101136	Nov. 06, 2021	Nov. 05, 2022
843 Cable 1#	ChengYu	CE Cable	001	Nov. 06, 2021	Nov. 05, 2022
843 Cable 1#	ChengYu	CE Cable	002	Nov. 06, 2021	Nov. 05, 2022

For Radiated Emission Test (966 chamber)

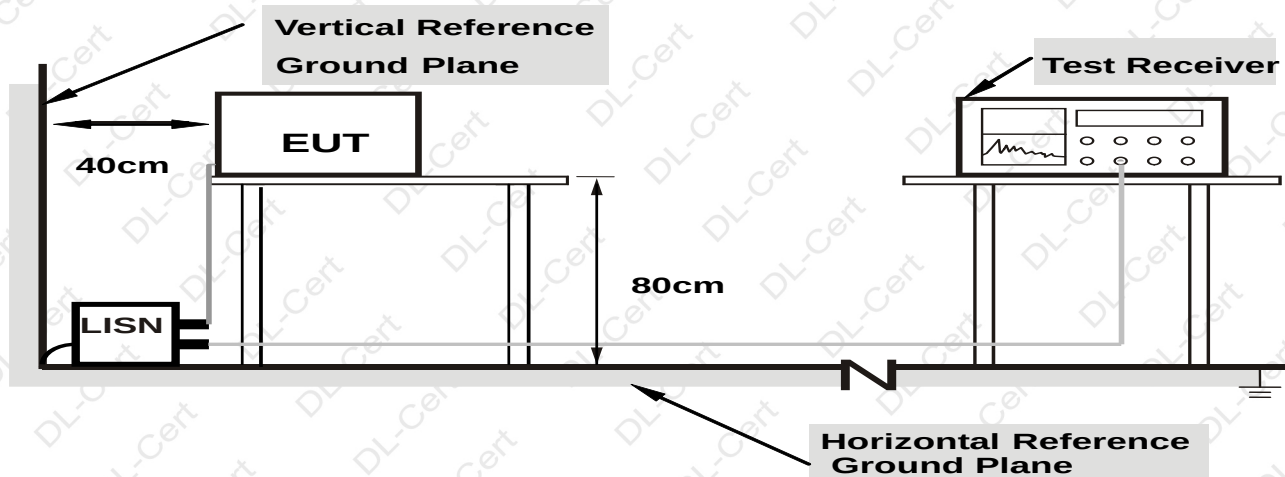
Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
966 Chamber	ChengYu	966 Room	966	Nov. 25, 2019	Nov. 24, 2022
Spectrum Analyzer	Agilent	E4408B	MY50140780	Nov. 06, 2021	Nov. 05, 2022
EMI Receiver	R&S	ESRP7	101393	Nov. 06, 2021	Nov. 05, 2022
Amplifier	Schwarzbeck	BBV9743B	00153	Nov. 06, 2021	Nov. 05, 2022
Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519B	014	Sep. 22, 2021	Sep. 21, 2022
Amplifier	EMEC	EM01G8GA	00270	Nov. 06, 2021	Nov. 05, 2022
Broadband Trilog Antenna	Schwarzbeck	VULB9162	00306	Nov. 06, 2021	Nov. 05, 2023
Horn Antenna	Schwarzbeck	BBHA9120D	02139	Nov. 06, 2021	Nov. 05, 2023
966 Cable 1# (30MHz-1GHz)	ChengYu	966	004	Nov. 06, 2021	Nov. 05, 2022
966 Cable 2# (1GHz-40GHz)	ChengYu	966	003	Nov. 06, 2021	Nov. 05, 2022



5. CONDUCTED EMISSION TEST

5.1 Block Diagram of Test Setup

For Mains Terminals Test



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

5.2 Test Standard and Limit

FCC Part 15 Subpart B

Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15~0.50	66 ~ 56*	55 ~ 46*
0.50~5.00	56	46
5.00~30.00	60	50

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

2. The lower limit shall apply at the transition frequencies.

5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet FCC Part 15 Subpart B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

5.4 Operating Condition of EUT

5.4.1 Setup the EUT and simulators as shown in Section 5.1.

5.4.2 Turn on the power of all equipments.

5.4.3 Let the EUT work in test modes and test it.



5.5 Test Procedure

The EUT is put on the table and connected to the AC mains through a Artificial Mains Network (AMN) or ISN. This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **ANSI C63.4** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESR) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated.

We pretest all mode, the result only show the worst mode's data.

Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Measurement Level = Reading level + Correct Factor

5.6 Test Result

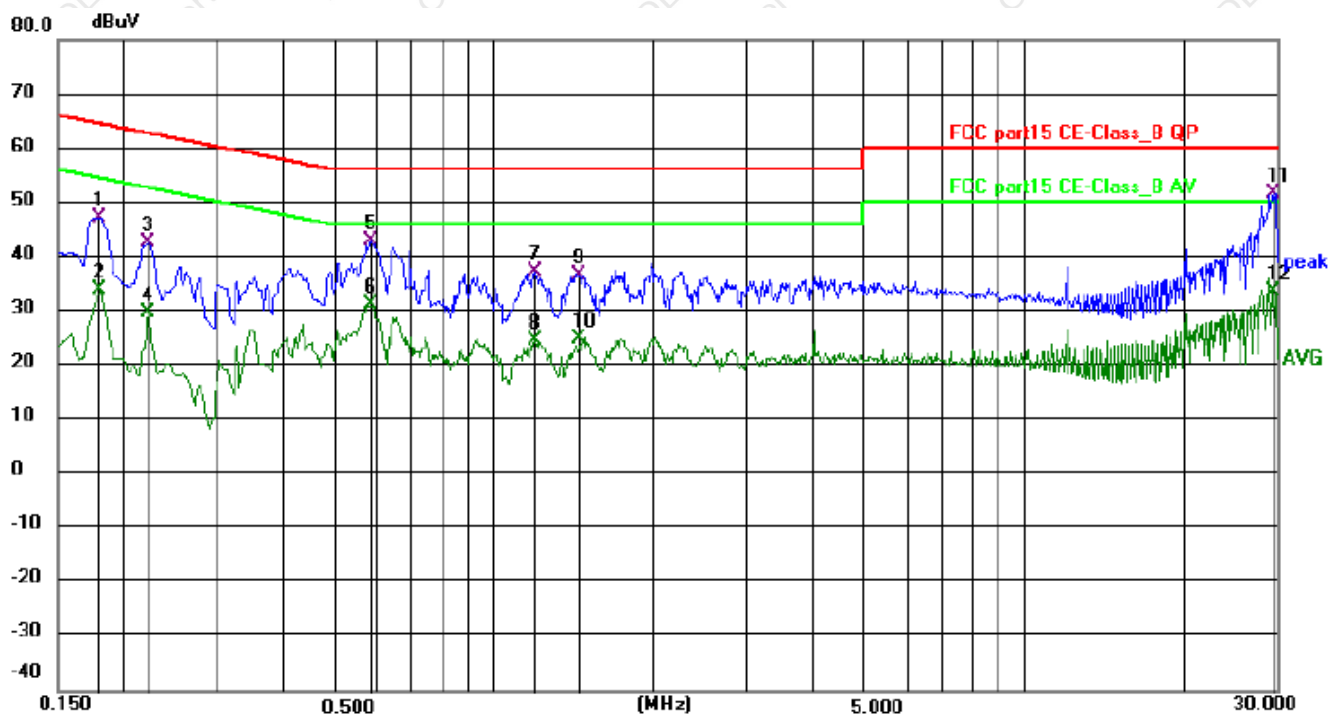
PASS

Please refer to the following page.



Conducted Emission Test Data

Temperature:	24.5 °C	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Line
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.179600	37.21	9.89	47.10	64.50	-17.40	QP	P	
2	0.179600	23.95	9.89	33.84	54.50	-20.66	AVG	P	
3	0.222000	33.22	9.41	42.63	62.74	-20.11	QP	P	
4	0.222000	20.33	9.41	29.74	52.74	-23.00	AVG	P	
5	0.581900	33.66	9.29	42.95	56.00	-13.05	QP	P	
6	0.581900	21.90	9.29	31.19	46.00	-14.81	AVG	P	
7	1.193900	27.77	9.39	37.16	56.00	-18.84	QP	P	
8	1.193900	15.20	9.39	24.59	46.00	-21.41	AVG	P	
9	1.441500	27.14	9.54	36.68	56.00	-19.32	QP	P	
10	1.441500	15.28	9.54	24.82	46.00	-21.18	AVG	P	
11 *	29.625000	40.71	10.90	51.61	60.00	-8.39	QP	P	
12	29.625000	22.88	10.90	33.78	50.00	-16.22	AVG	P	

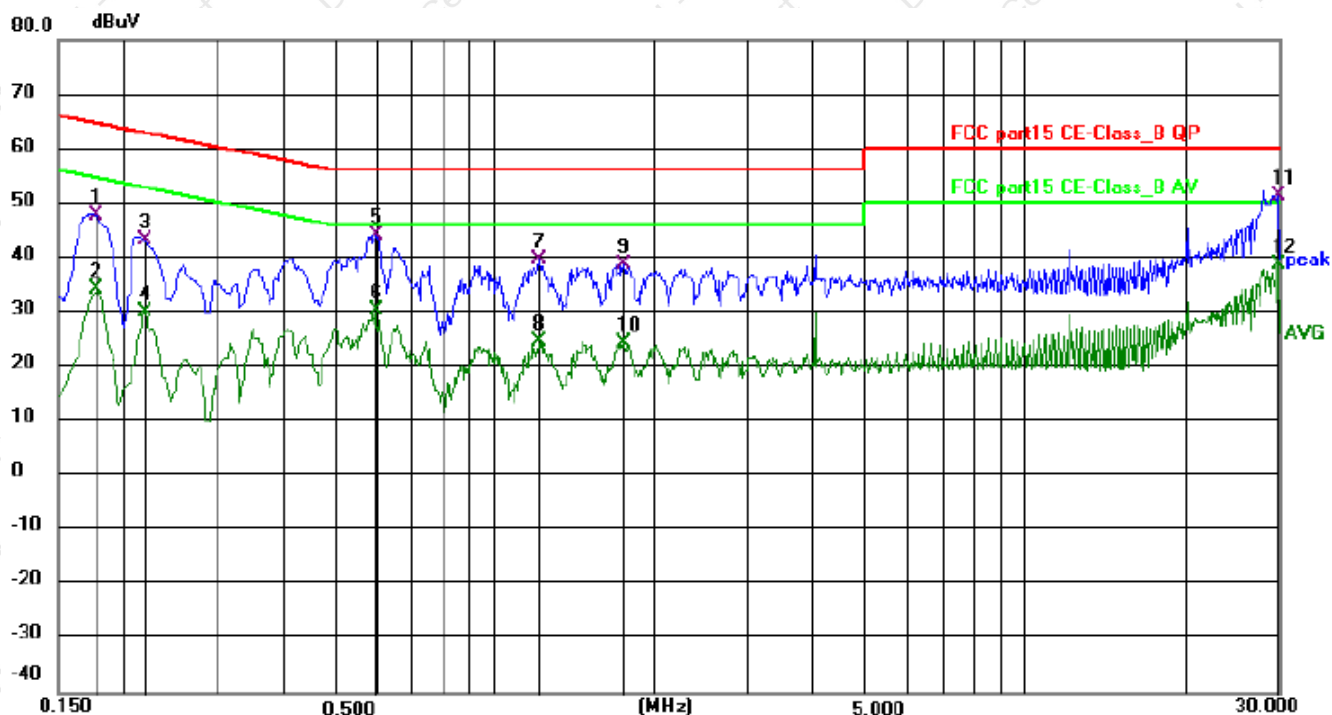
Remark:

Margin = Level - Limit, Correct Factor = Cable lose + LISN insertion loss, Level = Reading + Correct factor



Conducted Emission Test Data

Temperature:	24.5 °C	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Neutral
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.176800	38.25	9.54	47.79	64.63	-16.84	QP	P	
2	0.176800	24.63	9.54	34.17	54.63	-20.46	AVG	P	
3	0.217400	34.47	8.89	43.36	62.92	-19.56	QP	P	
4	0.217400	21.15	8.89	30.04	52.92	-22.88	AVG	P	
5	0.595500	34.86	9.26	44.12	56.00	-11.88	QP	P	
6	0.595500	21.10	9.26	30.36	46.00	-15.64	AVG	P	
7	1.211900	30.07	9.50	39.57	56.00	-16.43	QP	P	
8	1.211900	15.05	9.50	24.55	46.00	-21.45	AVG	P	
9	1.752000	28.87	9.74	38.61	56.00	-17.39	QP	P	
10	1.752000	14.67	9.74	24.41	46.00	-21.59	AVG	P	
11 *	29.863400	40.55	10.95	51.50	60.00	-8.50	QP	P	
12	29.863400	27.85	10.95	38.80	50.00	-11.20	AVG	P	

Remark:

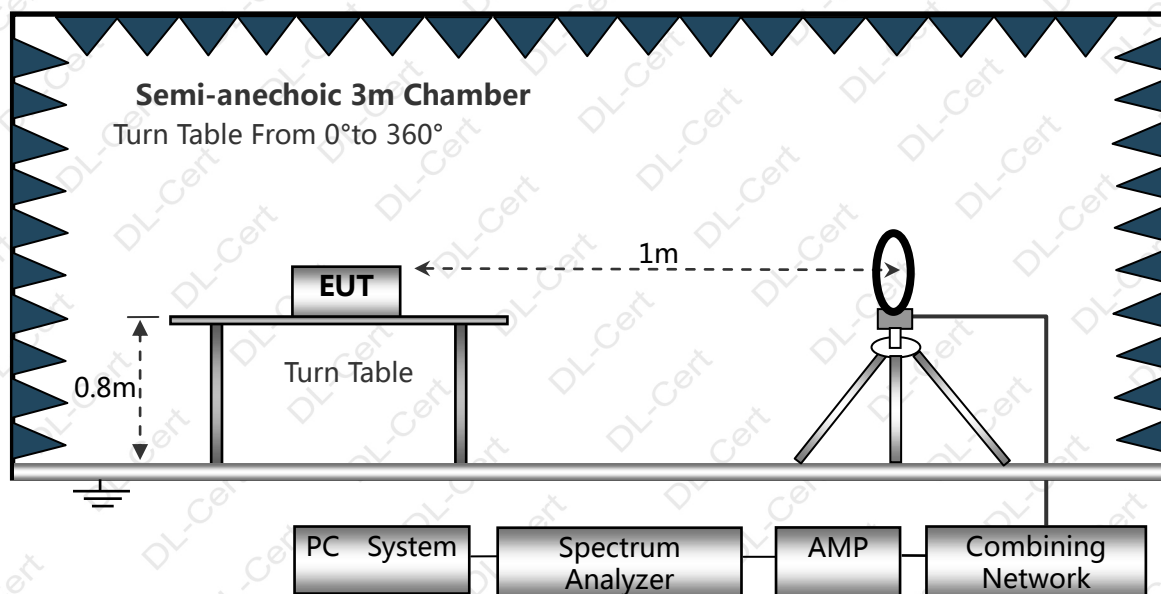
Margin = Level - Limit, Correct Factor = Cable lose + LISN insertion loss, Level = Reading + Correct factor



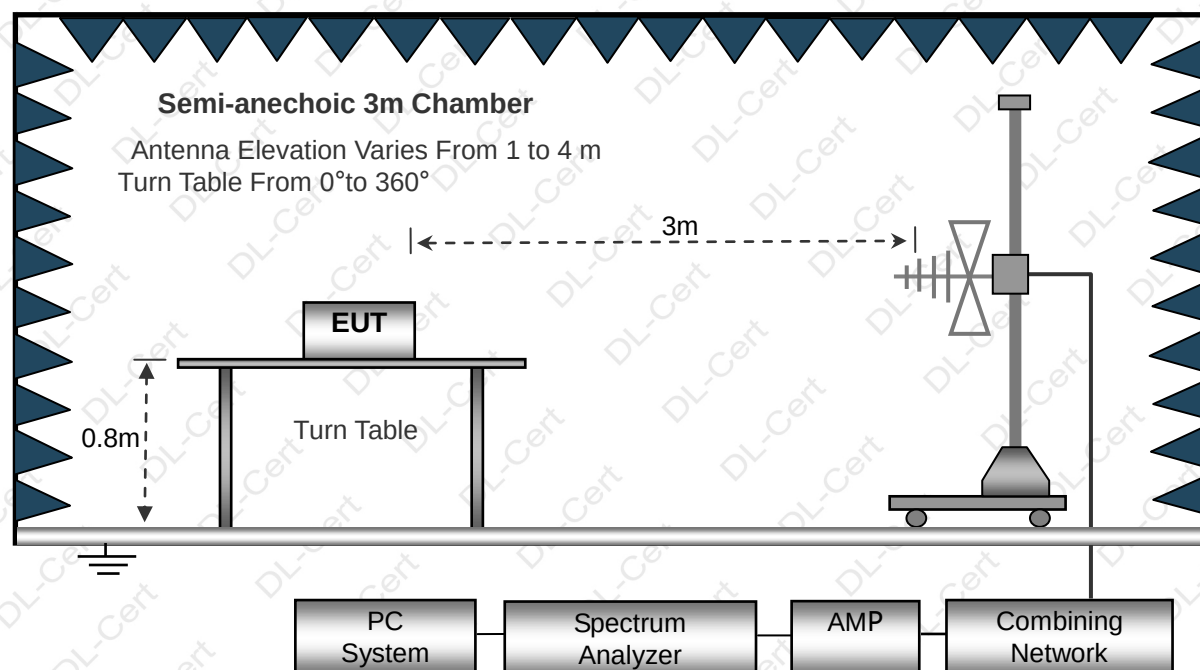
6. RADIATION EMISSION TEST

6.1 Block Diagram of Test Setup

Radiated Emission Test-Up Frequency Below 30MHz



Below 1GHz



6.2 Test Standard and Limit

FCC Part 15 Subpart B



Limits for frequency below 30MHz

Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

Above 30MHz

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)	Remark
30 ~ 88	3	40.0	Quasi-peak Value
88 ~ 216	3	43.5	Quasi-peak Value
216 ~ 960	3	46.0	Quasi-peak Value
960 ~ 1000	3	54.0	Quasi-peak Value
Above 1000	3	74.0	PEAK
		54.0	AVERAGE

Remark:

(1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.

6.3 EUT Configuration on Test

The FCC Part 15 Subpart B regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 5.3.

6.4 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.4 except the test set up replaced as Section 6.2.

6.5 Test Procedure

- 1) The radiated emissions test was conducted in a semi-anechoic chamber.
- 2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 3) Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
- 4) The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.
- 5) The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz.
- 6) The frequency range from 30MHz to 1000MHz is checked.
- 7) We pretest all mode, the result only show the worst mode's data.

6.6 Test Result

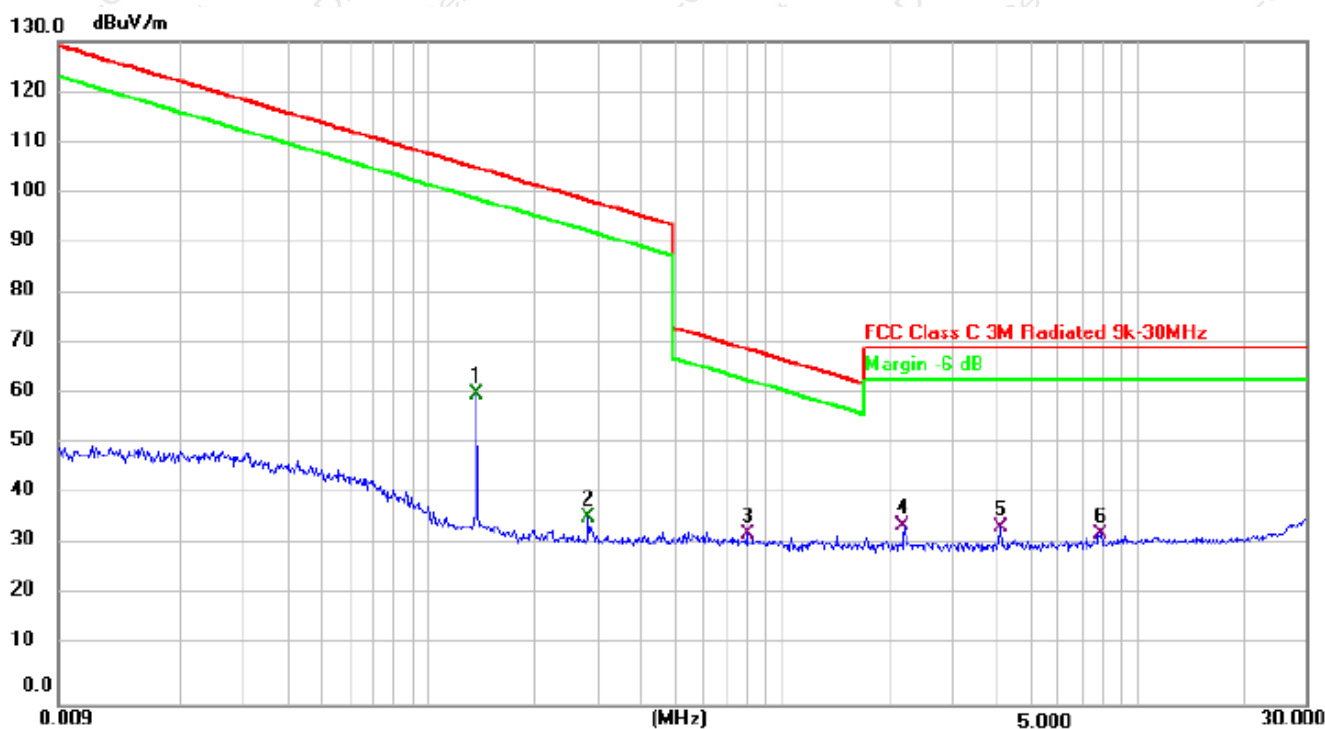
PASS

Please refer to the following page.



Radiation Emission Test Data 9 kHz~30 MHz

Temperature:	24.5 °C	Relative Humidity:	54%
Pressure:	1009hPa	Test Mode:	Mode 1
Test Voltage:	AC 120V/60Hz		



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1360	61.03	0.00	61.03	105.22	-44.19	AV
2	0.2827	36.90	0.00	36.90	98.82	-61.92	AV
3	0.7922	33.49	0.00	33.49	69.76	-36.27	QP
4 *	2.2015	30.93	4.40	35.33	70.00	-34.67	QP
5	4.1116	26.67	8.22	34.89	70.00	-35.11	QP
6	7.8676	17.94	15.74	33.68	70.00	-36.32	QP

Note:

Pre-scan in the all of mode, the worst case in of was recorded.

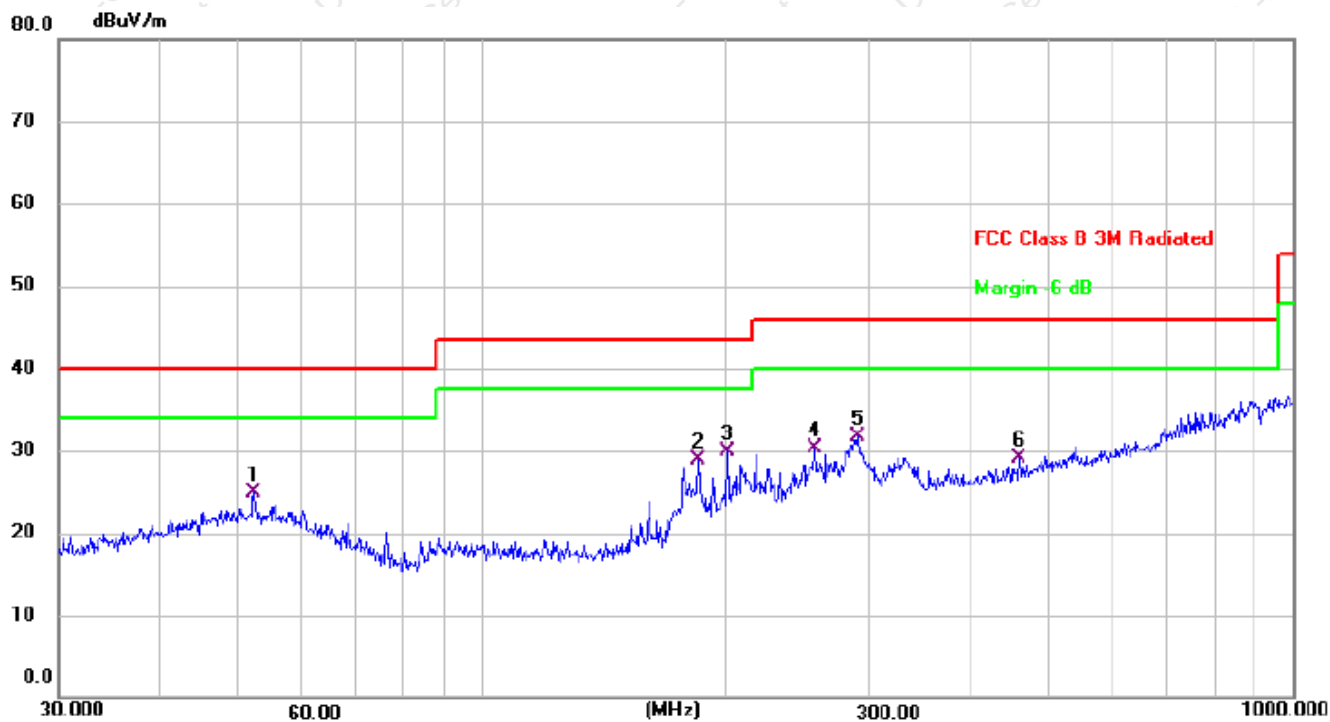
Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level(Meter Reading+ Factor) - Limit.



Radiation Emission Test Data

Temperature:	24.5 °C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1

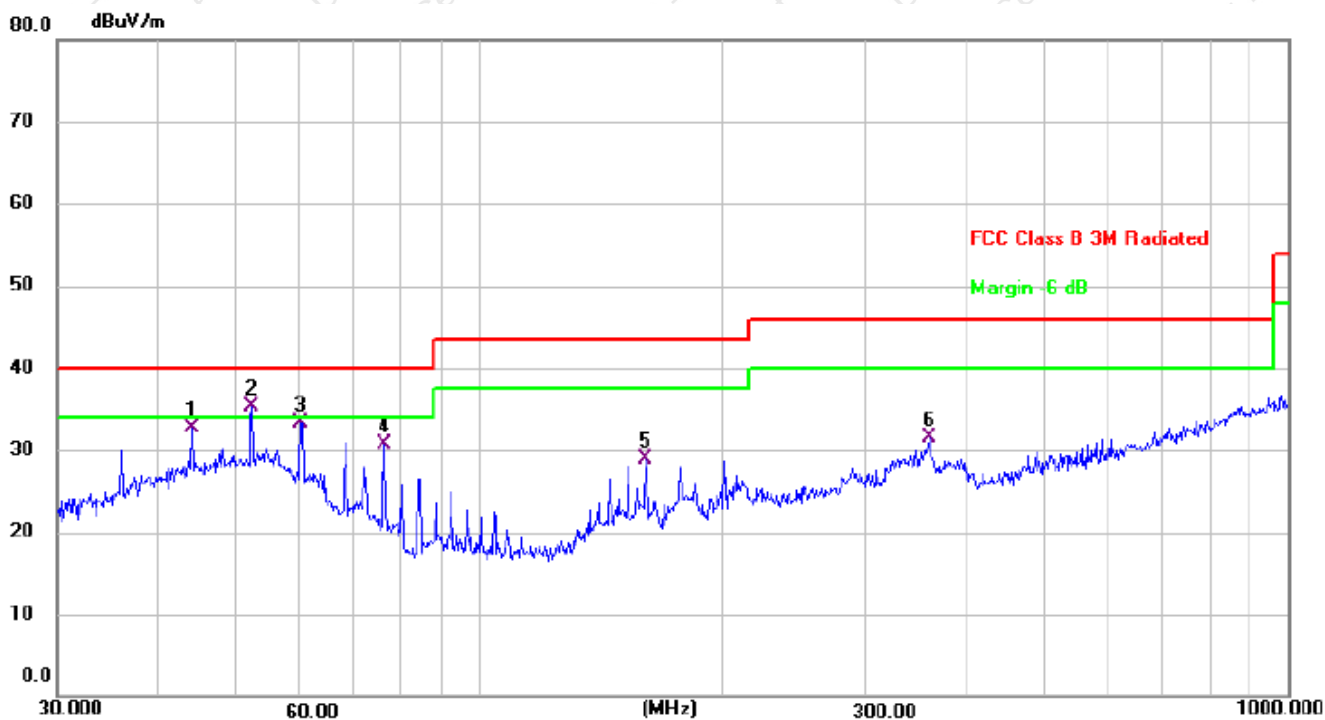


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	52.2079	36.39	-11.42	24.97	40.00	-15.03	QP
2	184.4898	43.26	-14.28	28.98	43.50	-14.52	QP
3 *	200.6881	43.19	-13.28	29.91	43.50	-13.59	QP
4	257.4222	41.90	-11.60	30.30	46.00	-15.70	QP
5	290.0172	42.69	-10.91	31.78	46.00	-14.22	QP
6	459.1144	36.91	-7.79	29.12	46.00	-16.88	QP



Radiation Emission Test Data

Temperature:	24.5 °C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	44.1202	44.60	-11.99	32.61	40.00	-7.39	QP
2 *	52.2079	46.52	-11.29	35.23	40.00	-4.77	QP
3	60.0691	45.27	-11.98	33.29	40.00	-6.71	QP
4	76.2442	47.05	-16.37	30.68	40.00	-9.32	QP
5	160.3456	44.66	-15.80	28.86	43.50	-14.64	QP
6	359.1860	40.24	-8.82	31.42	46.00	-14.58	QP

Remarks:

1. Final Level = Receiver Read level + Correct factor (Antenna Factor + Cable Loss – Preamplifier Factor)
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

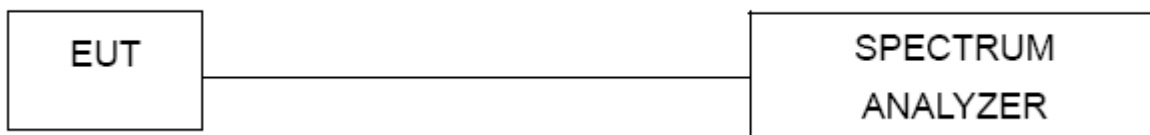


7. BANDWIDTH TEST

7.1 TEST SETUP

1. Set RBW = 10 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

7.2 TEST SETUP



7.3 TEST Result

Frequency (KHz)	20dB bandwidth (KHz)	Result
134.96	1.17	Pass





8. SETUP PHOTOGRAPHS

Reference to the setup photo for details.

9. EUT PHOTOGRAPHS

Reference to the external and internal photo for details.

***** END OF REPORT *****