

TEST REPORT

Product Name : LED LAMP
Model Number : LED2100-QISM, LED2100-QISM-S,
LED2100-QISM-FLT, LED-QISM2100-BKG-AMZ,
LED2200-QISM-BK
FCC ID : 2AZLV-LED2100-SM10W

Prepared for : Goods iQ
Address : 50 Romano Vineyard Way North Kingstown, RI 02852

Prepared by : EMTEK (DONGGUAN) CO., LTD.
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Report Number : EDG2208310038E00801R
Date(s) of Tests : August 31, 2022 to January 09, 2023
Date of Issue : January 10, 2023

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TEST REPORT DESCRIPTION

Applicant : Goods iQ
Address : 50 Romano Vineyard Way North Kingstown, RI 02852.
Manufacturer : Ningbo Chinyo Lighting Appliance Co., Ltd
Address : No. 7, Ketai Road, Wangchun Industrial Zone Haishu District, Ningbo, Zhejiang
Province, China.
EUT : LED LAMP
Model Name : LED2100-QISM, LED2100-QISM-S, LED2100-QISM-FLT,
LED-QISM2100-BKG-AMZ, LED2200-QISM-BK
Trademark : BLACK+DECKER

We hereby certify that:

The above equipment was tested by EMTEK (DONGGUAN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15C

The test results of this report relate only to the tested sample identified in this report.

Date of Test : August 31, 2022 to January 09, 2023

Prepared by : Warren Deng
Warren deng /Engineer

Reviewer : Tim Dong
Tim Dong /Supervisor

Approved & Authorized Signer : Sam Lv
Sam Lv /Manager



Modified Information

Version	Report No.	Revision Data	Summary
/	EDG2208310038E00801R	/	Original Version



1. SUMMARY OF TEST RESULTS

EMISSION		
Description of Test Item	Standard & Limits	Results
Conducted Emission	FCC Part 15, Subpart C- Section 15.207 ANSI C63.10-2013	Pass
Radiated Emission	FCC Part 15, Subpart C- Section 15.209 ANSI C63.10-2013	Pass

Note: N/A is an abbreviation for Not Applicable.



2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product:	LED LAMP
Model Number:	LED2100-QISM, LED2100-QISM-S, LED2100-QISM-FLT, LED-QISM2100-BKG-AMZ, LED2200-QISM-BK Note: The only difference between all models is the color. The PCB schematic, PCB Layout, etc. are all the same. We choose model " LED2100-QISM " for RF testing.
Sample Number:	1#
Power Supply:	DC 12V from adapter
Adapter:	Model: RSS1006-240120-W2-J-P Input: 100-240V 50/60Hz 1.4A Output: 12V 2A
Wireless specification	10W(MAX)
Modulation:	Ask
Maximum Power Rate:	79.65 dBuV/m
Frequency Range:	110 kHz~205 KHz
Antenna Type:	Integral Antenna(Induction coil)
Antenna Gain:	0 dBi
Operating Temperature	0°C ~ +50°C
Date of Received:	August 31, 2022

2.2. Input / Output Ports

Port #	Name	Type*	Cable Max. >3m	Cable Shielded	Comments
1	DC Power Port	DC	No	N/A	None
<p>* Note: For the purposes of the present document, the following symbols apply:</p> <p>AC AC Power Port DC DC Power Port N/E Non-Electrical I/O Signal Input or Output Port (Not Involved in Process Control) TP Telecommunication Ports</p>					

2.3. Independent Operation Modes

A 1. Wireless Charging(Full load)

2.4. Test Manner

Test Items	Test Voltage	Operation Modes
Conducted Emission	AC 120V/60Hz	Mode A.1
Radiated Emission	AC 120V/60Hz	Mode A.1

2.5. Description of Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2020.08.27
The certificate is valid until 2024.07.05
The Laboratory has been assessed and proved to be in compliance with
CNAS/CL01:2018
The Certificate Registration Number is L3150

Accredited by FCC
Designation Number: CN1300
Test Firm Registration Number: 945551

Accredited by A2LA, April 05, 2021
The Certificate Registration Number is 4321.02

Accredited by Industry Canada
The Certificate Registration Number is CN0113

Name of Firm : EMTEK (Dongguan) Co., Ltd.
Site Location : -1&2/F., Buiding 2, Zone A, Zhongda Marine Biotechnology Research and
Development Base, N.9, Xincheng Avenue, Songshanhu High-technology
Industrial Development Zone, Dongguan, Guangdong, China

2.6. Description of Support Device

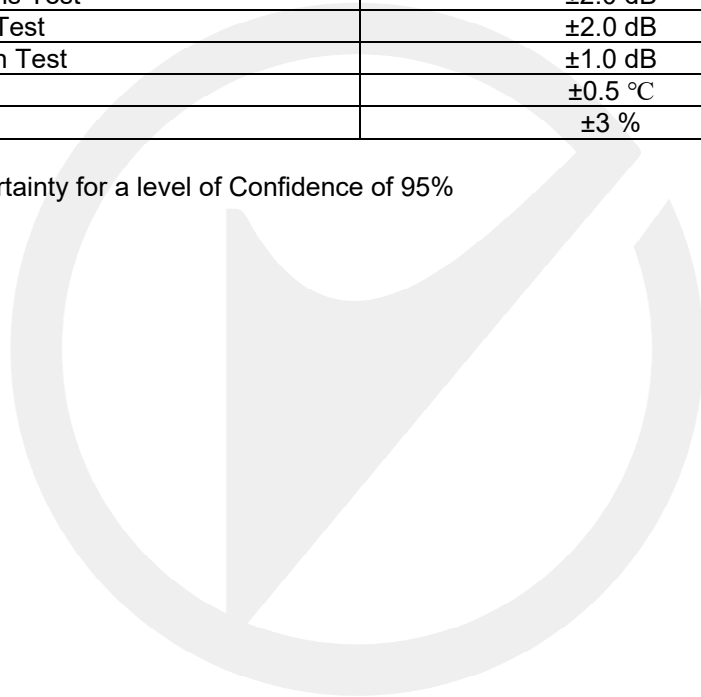
No.	Equipment	Trade name	Model	S/N	Power Cord
1	Wireless Load	/	10w	/	/

2.7. Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-5}$
Conducted Emissions Test	± 2.0 dB
Radiated Emission Test	± 2.0 dB
Occupied Bandwidth Test	± 1.0 dB
Temperature	± 0.5 °C
Humidity	± 3 %

Measurement Uncertainty for a level of Confidence of 95%



3. MEASURING DEVICE AND TEST EQUIPMENT

3.1. Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Test Receiver	Rohde& Schwarz	ESCI	100137	2022/05/19	1Year
L.I.S.N.	Rohde& Schwarz	ENV216	101209	2022/05/19	1Year
RF Switching Unit	CDS	RSU-M2	38401	2022/05/19	1Year

3.2. For 3m Radiated Emission Measurement 9K-1GHz (3m chamber 1#)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESCI	101415	2022/05/19	1Year
Power Amplifier	HP	8447F	OPH64	2022/05/19	1Year
Bilog Antenna	Schwarzbeck	VULB9163	141	2022/05/22	1Year
Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	2022/05/19	1Year
Loop Antenna	Schwarzbeck	FMZB1513	1513-60	2022/05/22	2 Year
Signal Analyzer	R&S	FSV30	103039	2022/05/19	1Year
Bilog Antenna	Schwarzbeck	VULB9163	141	2022/05/22	1Year

3.3. For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Wireless Connectivity Tester	R&S	CMW270	102543	2022/06/21	1Year
Automatic Control Unit	Tonscend	JS0806-2	2118060480	2022/06/21	1Year
Signal Analyzer	KEYSIGHT	N9010B	MY60242456	2022/06/21	1Year
Analog Signal Generator	KEYSIGHT	N5173B	MY61252625	2022/06/21	1Year
UP/DOWN-Converter	R&S	CMW-Z800A	100274	2022/06/21	1Year
Vector Signal Generator	KEYSIGHT	N5182B	MY61252674	2022/06/21	1Year
Frequency Extender	KEYSIGHT	N5182BX07	MY59362541	2022/06/21	1Year
Temperature&Humidity test chamber	ESPEC	EL-02KA	12107166	2022/06/21	1 Year

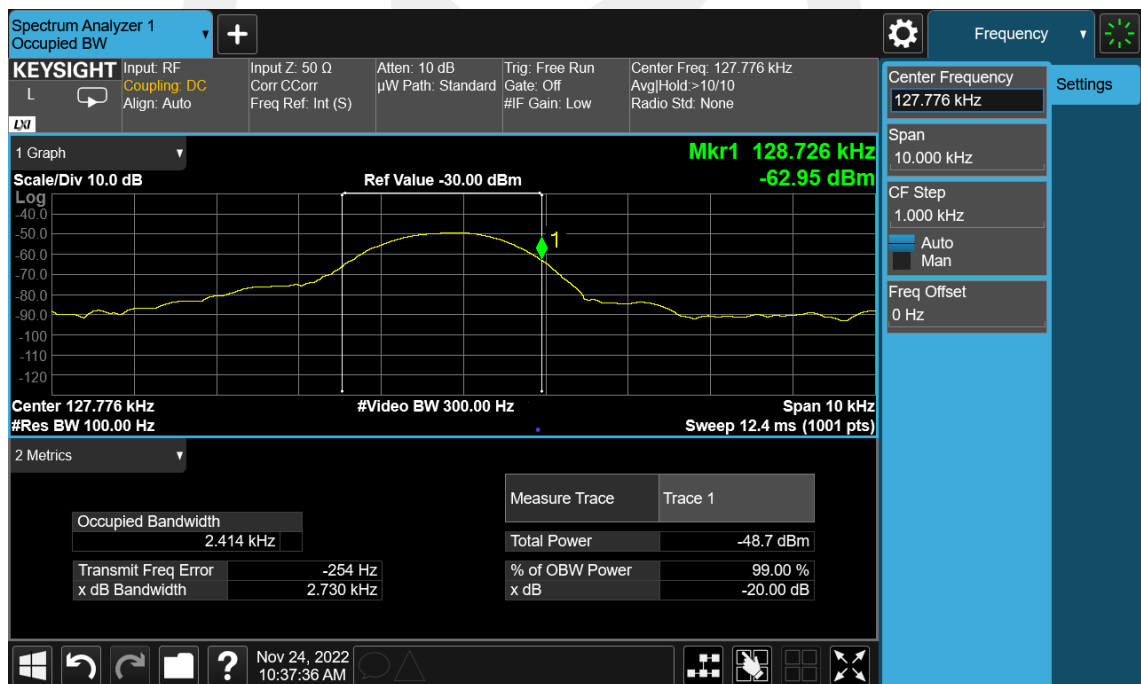
4. 20DB BANDWIDTH

4.1. Test Procedure

Set to the maximum power setting and enable the EUT transmit continuously
 Set RBW =1%-5%OBW
 Set the video bandwidth (VBW) =3*RBW
 Set Span= 10 kHz
 Set Detector = Peak.
 Set Trace mode = max hold.
 Set Sweep = auto couple.
 Measure and record the results in the test report.

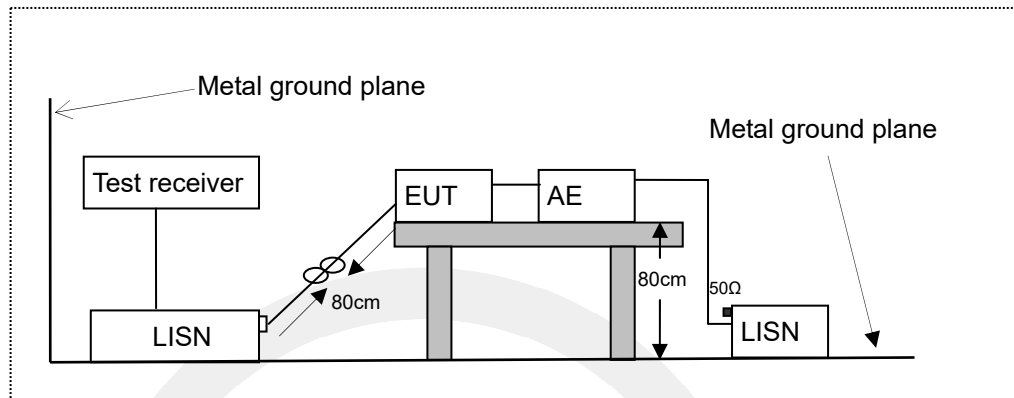
4.2. Test Results

Temperature: 24°C Test Date: November 24, 2022
 Humidity: 53 % Test By: XSJ
 20dB Band=2.730 kHz



5. POWER LINE CONDUCTED EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup



LISN: Line Impedance Stabilization Network
 AE: Associated equipment
 EUT: Equipment under test

5.2. Limits

FCC Part 15.207

Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.
 NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

5.3. Test Procedure

The EUT was placed on a desk 0.8 m height from the metal ground plane and 0.4 m from the conducting wall of the shielding room and it was kept at least 0.8 m from any other grounded conducting surface. The size of the table will nominally be 1.5 m x1.0 m.

The rear of the arrangement shall be flush with the back of the supporting tabletop unless that would not be possible or typical of normal use.

All units of equipment forming the system under test (includes the EUT as well as connected peripherals and associated equipment or devices) shall be arranged such that a nominal 0.1 m separation is achieved between the neighboring units.

Connect EUT to the power mains through a line impedance stabilization network (LISN). Where the mains cable supplied by the manufacturer is longer than 1 m, the excess should be folded at the centre into a bundle no longer than 0.4 m, so that its length is shortened to 1 m.

All the support units are connecting to the other LISN.

The LISN provides 50 ohm coupling impedance for the measuring instrument.

Both sides of AC line were checked for maximum conducted interference.

The frequency range from 150 kHz to 30 MHz was sweep.

Set the test-receiver system to quasi peak detect function and average detect function, and to measure the conducted emissions values.

Test results were obtained from the following equation:

Emission Level (dB μ V) = LISN Factor (dB) + Cable Loss (dB) + Reading (dB μ V)

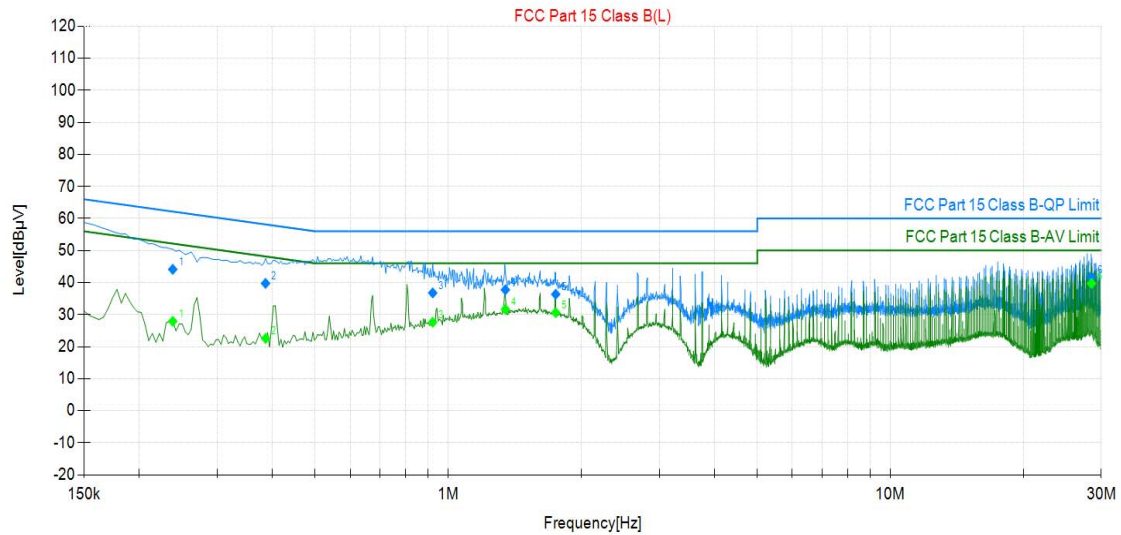
Margin (dB) = Emission Level (dB μ V) - Limit (dB μ V)

5.4. Measuring Results

Pass.



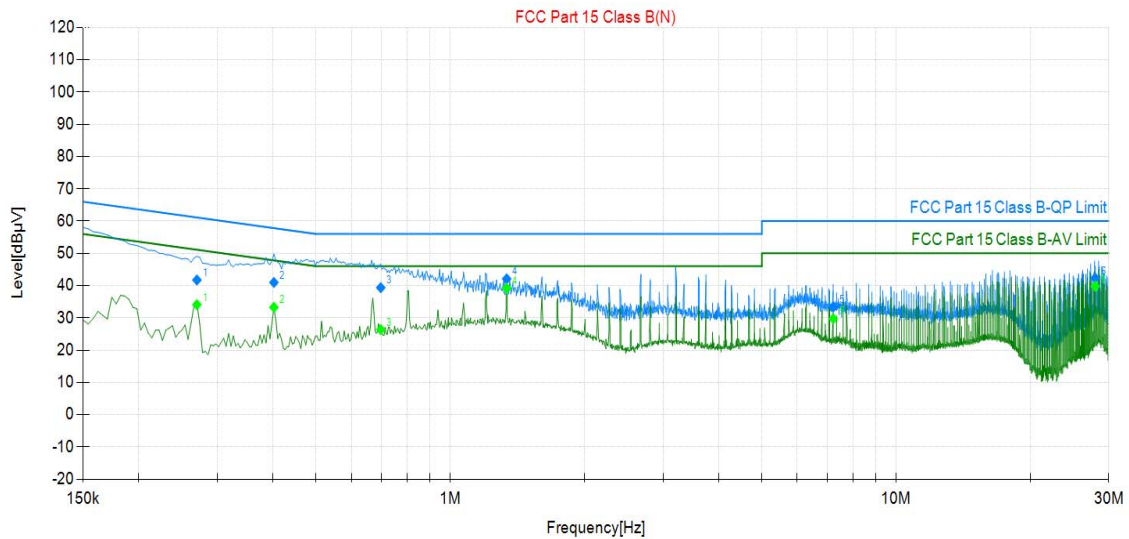
Project Information			
Mode:	Full Load	Voltage:	AC 120V/60Hz
Environment:	Temp:25°C; Humi: 55%	Engineer:	JACK ZHANG



Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBµV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.238	9.77	34.37	44.14	62.17	18.03	18.13	27.90	52.17	24.27	Pass
2	0.386	9.75	29.99	39.74	58.15	18.41	12.82	22.57	48.15	25.58	Pass
3	0.922	10.09	26.68	36.77	56.00	19.23	17.55	27.64	46.00	18.36	Pass
4	1.346	10.14	27.61	37.75	56.00	18.25	21.51	31.65	46.00	14.35	Pass
5	1.750	10.17	26.18	36.35	56.00	19.65	20.44	30.61	46.00	15.39	Pass
6	28.534	10.45	31.26	41.71	60.00	18.29	29.30	39.75	50.00	10.25	Pass

Project Information			
Mode:	Full Load	Voltage:	AC 120V/60Hz
Environment:	Temp:25°C ; Humi: 55%	Engineer:	JACK ZHANG



Final Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBµV]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Reading [dBµV]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Verdict
1	0.270	9.85	31.89	41.74	61.12	19.38	24.24	34.09	51.12	17.03	Pass
2	0.402	9.74	31.23	40.97	57.81	16.84	23.54	33.28	47.81	14.53	Pass
3	0.698	9.61	29.75	39.36	56.00	16.64	16.73	26.34	46.00	19.66	Pass
4	1.338	10.10	32.00	42.10	56.00	13.90	29.09	39.19	46.00	6.81	Pass
5	7.230	9.82	23.55	33.37	60.00	26.63	19.91	29.73	50.00	20.27	Pass
6	27.970	10.38	31.97	42.35	60.00	17.65	29.43	39.81	50.00	10.19	Pass

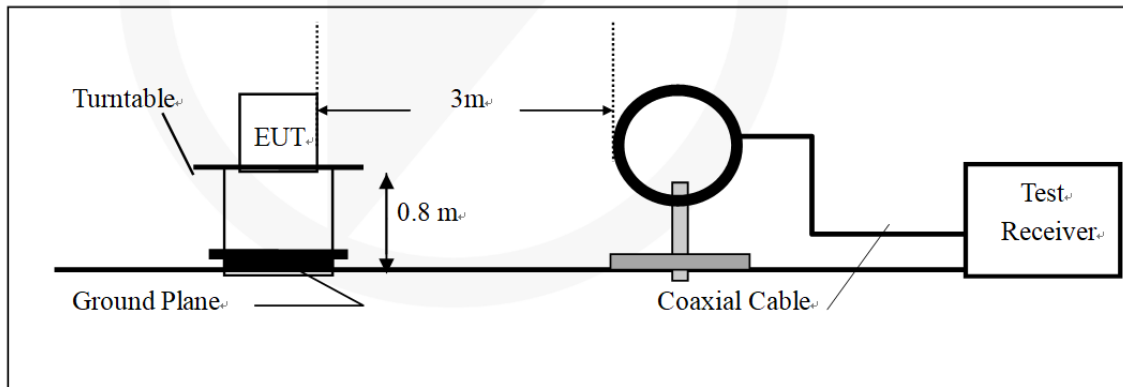
6. RADIATED EMISSION TEST

6.1.Measurement Procedure

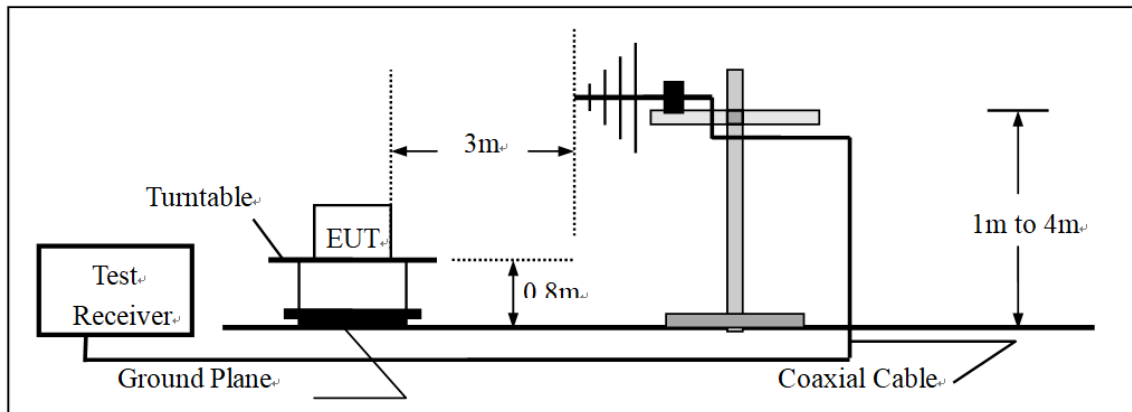
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measured were complete.
5. Use the following receiver/spectrum analyzer settings:
 Span = wide enough to fully capture the emission being measured
 RBW=200Hz for 9KHz to 150KHz,
 RBW=9kHz for 150KHz to 30MHz,
 RBW=120KHz for 30MHz to 1GHz
 VBW $\geq 3 \times$ RBW
 Sweep = auto
 Detector function = QP
 Trace = max hold

6.2.Test SET-UP (Block Diagram of Configuration)

(A)Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



6.3. Radiated Emission Limit

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table 15.209(a):

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation Frequency tion at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

15.205 Restricted bands of operation

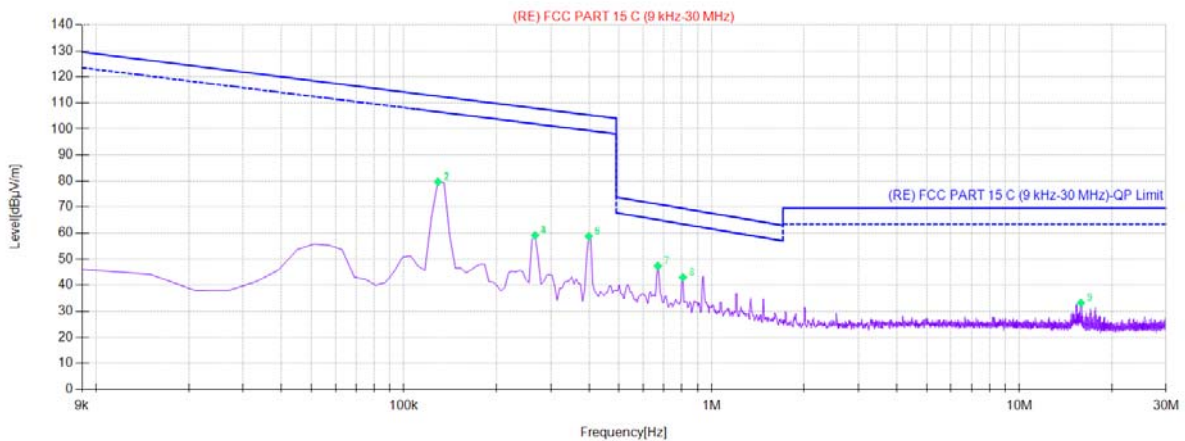
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	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)
13.36-13.41			

- Remark:
1. Emission level in dBuV/m=20 log (uV/m)
 2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
 3. Only spurious frequency is permitted to locate within the Restricted Bands specified in provision of § 15.205, and the emissions located in restricted bands also comply with 15.209 limit.

6.4.Measurement Result

9KHz-30 MHz:

Project Information			
Mode:	Full Load	Voltage:	AC 120/60Hz
Environment:	Temp: 18°C; Humi:54%	Engineer:	Lucas Xu

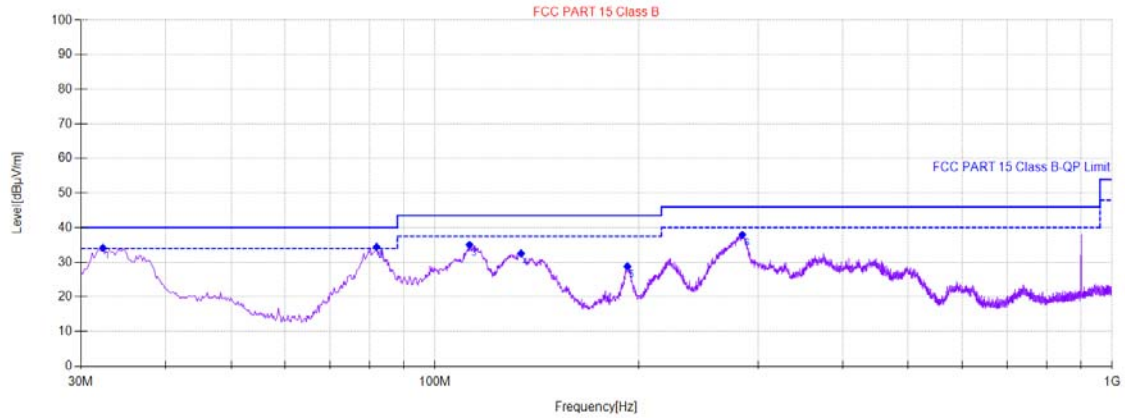


PK Final Data List									
NO.	Freq. [MHz]	PK Reading [dBµV/m]	Factor [dB]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Verdict
1	0.129	59.74	19.91	79.65	112.57	32.92	100	348	PASS
2	0.267	39.00	20.13	59.13	107.94	48.81	100	147	PASS
3	0.399	38.73	20.06	58.79	105.39	46.60	100	144	PASS
4	0.6689	27.28	20.07	47.35	71.10	23.75	100	152	PASS
5	0.8069	22.84	20.12	42.96	69.47	26.51	100	142	PASS
6	15.8654	13.47	19.73	33.20	69.54	36.34	100	350	PASS

AV Final Data List									
NO.	Freq. [MHz]	AV Reading [dBµV/m]	Factor [dB]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Verdict
1	0.129	51.72	19.91	71.63	112.57	40.94	100	348	PASS
2	0.267	32.56	20.13	52.69	107.94	55.25	100	147	PASS
3	0.399	31.89	20.06	51.95	105.39	53.44	100	144	PASS

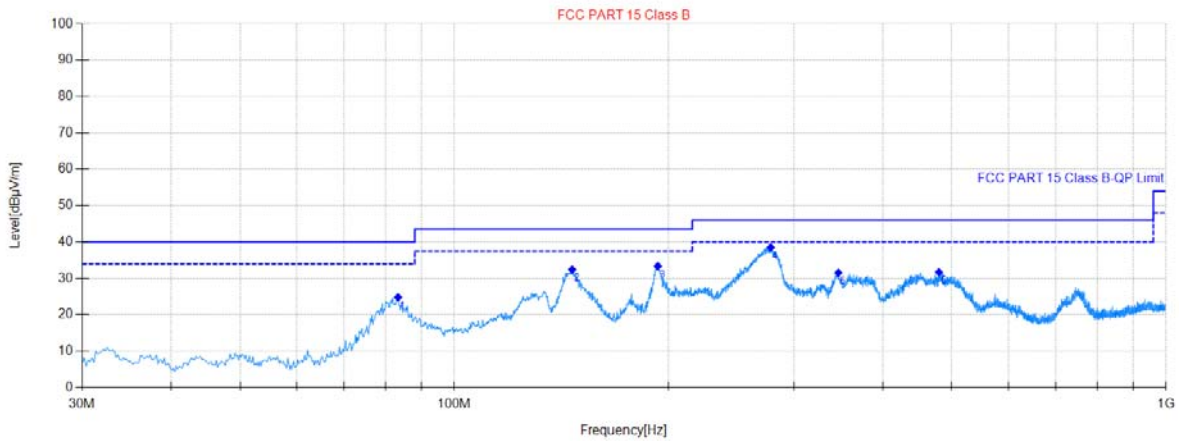
30MHz-1GHz:

Project Information			
Mode:	Full Load	Voltage:	AC 120/60Hz
Environment:	Temp: 25°C; Humi:60%	Engineer:	JACK ZHANG



Final Data List										
NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	32.329	65.54	-31.34	34.20	40.00	5.80	100	165	Vertical	Pass
2	82.002	67.15	-32.69	34.46	40.00	5.54	100	113	Vertical	Pass
3	112.467	67.10	-32.04	35.06	43.50	8.44	100	92	Vertical	Pass
4	134.005	66.33	-33.74	32.59	43.50	10.91	100	36	Vertical	Pass
5	192.411	60.28	-31.44	28.84	43.50	14.66	100	92	Vertical	Pass
6	284.385	66.45	-28.48	37.97	46.00	8.03	100	61	Vertical	Pass

Project Information			
Mode:	Full Load	Voltage:	AC 120/60Hz
Environment:	Temp: 25°C; Humi:60%	Engineer:	JACK ZHANG



Final Data List

NO.	Freq. [MHz]	QP Reading [dBµV/m]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	83.361	57.32	-32.51	24.81	40.00	15.19	200	98	Horizontal	Pass
2	146.423	66.01	-33.57	32.44	43.50	11.06	200	273	Horizontal	Pass
3	193.187	64.76	-31.37	33.39	43.50	10.11	100	115	Horizontal	Pass
4	278.370	67.01	-28.52	38.49	46.00	7.51	100	91	Horizontal	Pass
5	346.477	58.71	-27.16	31.55	46.00	14.45	100	265	Horizontal	Pass
6	479.588	56.25	-24.55	31.70	46.00	14.30	100	115	Horizontal	Pass

7. ANTENNA APPLICATION

7.1. Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.2. Result

Pass

Note: The EUT has 1 antenna: The internal antenna gain is 0.0 dBi;

- Antenna use a permanently attached antenna which is not replaceable.
- Not using a standard antenna jack or electrical connector for antenna replacement
- The antenna has to be professionally installed (please provide method of installation)

which in accordance to section 15.203, please refer to the internal photos.

*** End of Report ***

声明 Statement

1. 本报告无授权批准人签字及“检验报告专用章”无效;
This report will be void without authorized signature or special seal for testing report.
2. 未经许可本报告不得部分复制;
This report shall not be copied partly without authorization.
3. 本报告的检测结果仅对送测样品有效, 委托方对样品的代表性和资料的真实性负责;
The test results or observations are applicable only to tested sample. Client shall be responsible for representativeness of the sample and authenticity of the material.
4. 本检测报告中检测项目标注有特殊符号则该项目不在资质认定范围内, 仅作为客户委托、科研、教学或内部质量控制等目的使用;
The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
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