

FCC 47 CFR PART 15 SUBPART B

TEST REPORT

Shenzhen Aoyin Innovation Design Co. Ltd.

Foxshot

Test Model: FC01

Prepared for	:	Shenzhen Aoyin Innovation Design Co. Ltd
Address	:	Room A12, 1st Floor, T6 Area, GuanLongMingYuan, Xili, Nanshan District, Shenzhen City, Guangdong
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue, Bao'an District, Shenzhen, Guangdong, China
Tel	:	(+86)755-82591330
Fax	:	(+86)755-82591332
Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	October 20, 2017
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	October 20, 2017~ November11, 2017
Date of Report	:	November 11, 2017

FCC TEST REPORT
FCC 47 CFR PART 15 SUBPART B

Report Reference No. : LCS170915012AE1

Date Of Issue..... : November 11, 2017

Testing Laboratory Name : Shenzhen LCS Compliance Testing Laboratory Ltd.

**Address..... : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, China**

Testing Location/ Procedure : Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing method ☐

Applicant'S Name..... : Shenzhen Aoyin Innovation Design Co. Ltd

**Address..... : Room A12, 1st Floor, T6 Area, GuanLongMingYuan, Xili, Nanshan
District, Shenzhen City, Guangdong**

Test Specification

Standard : FCC 47 CFR Part 15 Subpart B, ANSI C63.4 -2014

Test Report Form No. : LCSEMC-1.0

TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF : Dated 2011-03

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. is acknowledged as copyright owner and source of the material. SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Test Item Description..... : Foxshot

Trade Mark..... : Foxshot

Model/ Type Reference..... : FC01

Ratings : DC 3.7V by Li-Ion-Battery

Result : Positive

Compiled by:



Ace Chai/ File administrators

Supervised by:



Dick Su/ Technique principal

Approved by:



Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS170915012AE1November11, 2017
Date of issue

Type / Model..... : Foxshot

EUT..... : FC01

Applicant..... : Shenzhen Aoyin Innovation Design Co. LtdAddress..... : Room A12, 1st Floor, T6 Area, GuanLongMingYuan, Xili,
Nanshan District, Shenzhen City, Guangdong

Telephone..... : /

Fax..... : /

Manufacturer..... : Shenzhen Aoyin Innovation Design Co. LtdAddress..... : Room A12, 1st Floor, T6 Area, GuanLongMingYuan, Xili,
Nanshan District, Shenzhen City, Guangdong

Telephone..... : /

Fax..... : /

Factory..... : Shenzhen Aoyin Innovation Design Co. LtdAddress..... : Room A12, 1st Floor, T6 Area, GuanLongMingYuan, Xili,
Nanshan District, Shenzhen City, Guangdong

Telephone..... : /

Fax..... : /

Test Result according to the standards on page 6: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	November11, 2017	Initial Issue	Gavin Liang

TABLE OF CONTENTS

Test Report Description	Page
1. SUMMARY OF STANDARDS AND RESULTS	6
1.1. Description of Standards and Results	6
2. GENERAL INFORMATION	7
2.1. Description of Device (EUT).....	7
2.3. Description of Test Facility	7
2.4. Statement of the measurement uncertainty	7
2.5. Measurement Uncertainty.....	8
3. RADIATED EMISSION MEASUREMENT	9
3.1. Test Equipment	9
3.2. Block Diagram of Test Setup	9
3.3. Radiated Emission Limit (Class B)	9
3.4. EUT Configuration on Measurement	10
3.5. Operating Condition of EUT	10
3.6. Test Procedure	10
3.7. Radiated Emission Noise Measurement Result	10
4. AC POWER LINE CONDUCTED EMISSIONS.....	13
5. TEST SETUP PHOTOGRAPHS OF EUT.....	15
6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT.....	15

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

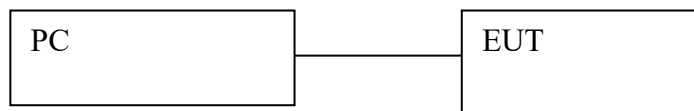
The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	FCC 47 CFR Part 15 Subpart B	Class B	PASS
Radiated disturbance	FCC 47 CFR Part 15 Subpart B	Class B	PASS
N/A is an abbreviation for Not Applicable.			

1.2. Test Modes

Test mode:	
TM 1	Connect to PC, Run emi test soft on the PC to keep data transmission.

1.3. Block Diagram of Test Setup



2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Foxshot
Test Model : FC01
Software Version : V1.00
Hardware Version : V1.00
Ratings : DC 3.7V by Li-Ion-Battery
WIFI(2.4G Band) :
Frequency Range : 2412-2462MHz
Channel Spacing : 5MHz
Channel Number : 11 Channel for 20MHz bandwidth(2412~2462MHz)
7 Channel for 40MHz bandwidth(2422~2452MHz)
Modulation Type : 802.11b: DSSS; 802.11g/n: OFDM
Antenna Description : Internal Antenna, 2.0 dBi (Max.)
EUT Clock Frequency : $\leq 108\text{MHz}$

2.2. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Lenovo	ADAPTER for notebook	ADP-90DD B	36001941	VOC
Lenovo	Notebook	B470	WB05067151	VOC

2.3. Description of Test Facility

Site Description

EMC Lab. : CNAS Registration Number. is L4595.

FCC Registration Number. is 254912.

Industry Canada Registration Number. is 9642A-1.

ESMD Registration Number. is ARCB0108.

UL Registration Number. is 100571-492.

TUV SUD Registration Number. is SCN1081.

TUV RH Registration Number. is UA 50296516-001.

NVLAP Registration Code is 600167-0.

2.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in

this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.5.Measurement Uncertainty

Test	Parameters	Expanded uncertainty (U_{lab})	Expanded uncertainty (U_{cisp})
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 2.63 dB ± 2.35 dB	± 4.0 dB ± 3.6 dB
Power disturbance	Level accuracy (30MHz to 300MHz)	± 2.90 dB	± 4.5 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.60 dB	± 2.63 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.68 dB	± 2.63 dB
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	± 2.63 dB
Radiated Emission	Level accuracy (above 1000MHz)	± 3.90 dB	N/A
Mains Harmonic	Voltage	$\pm 0.510\%$	N/A
Voltage Fluctuations & Flicker	Voltage	$\pm 0.510\%$	N/A
EMF		$\pm 21.59\%$	N/A

(1) Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

(2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

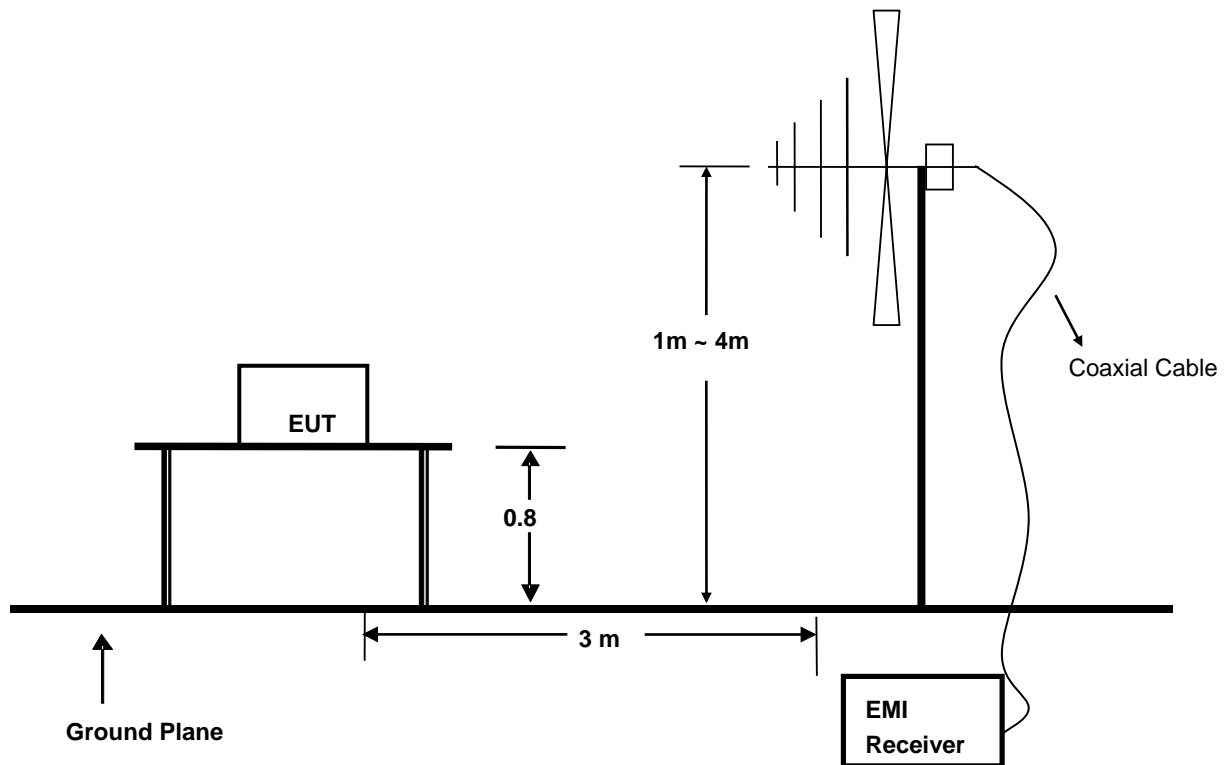
3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2017-06-17
2	EMI Test Receiver	ROHDE & SCHWARZ	ESR 7	101181	2017-06-17
3	Log per Antenna	SCHWARZBECK	VULB9163	9163-470	2017-04-17
4	EMI Test Software	AUDIX	E3	N/A	2017-06-17
5	Positioning Controller	MF	MF-7082	/	2017-06-17

3.2. Block Diagram of Test Setup



3.3. Radiated Emission Limit (Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark : (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$

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

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4.EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.5.Operating Condition of EUT

3.5.1.Setup the EUT as shown in Section 3.2.

3.5.2.Let the EUT work in test mode (Discharge) and measure it.

3.6.Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver is set at 120kHz.

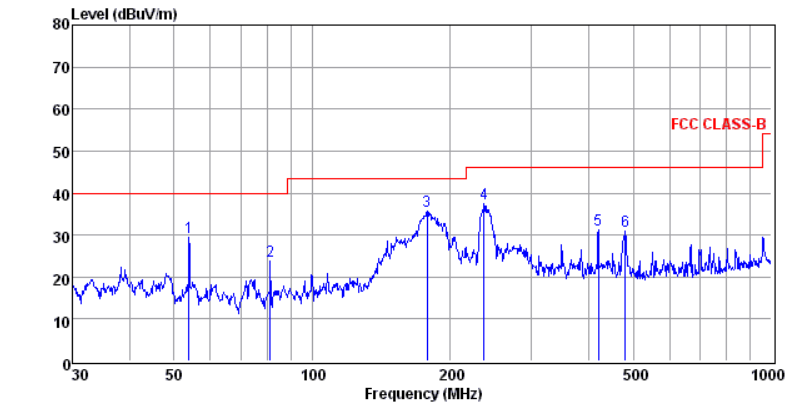
The frequency range from 30MHz to 1000MHz is checked.

3.7.Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page.

Model No.	FC01	Test Mode	TM1
Environmental Conditions	24.1°C, 54.3% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	LQP Luo		



pol:

VERTICAL

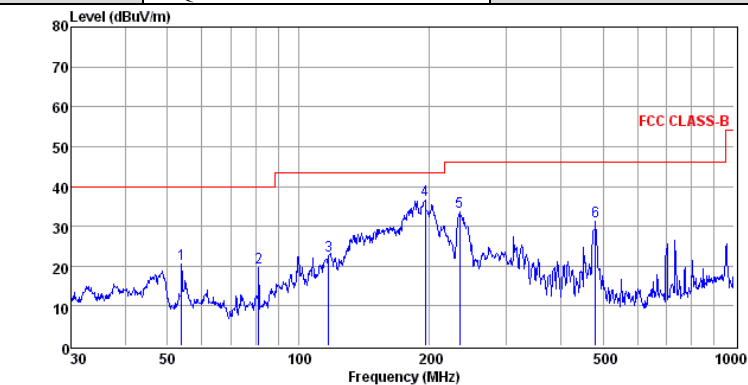
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	53.88	15.83	0.46	13.07	29.36	40.00	-10.64	QP
2	80.93	14.13	0.65	8.87	23.65	40.00	-16.35	QP
3	178.13	25.21	0.89	9.55	35.65	43.50	-7.85	QP
4	236.64	24.56	0.96	11.94	37.46	46.00	-8.54	QP
5	420.58	14.28	1.33	15.47	31.08	46.00	-14.92	QP
6	480.53	13.46	1.31	16.08	30.85	46.00	-15.15	QP

Note: 1. All readings are Quasi-peak values.

2. Measured= Reading + Antenna Factor + Cable Loss

3. The emission that ate 20db blow the official limit are not reported

Model No.	FC01	Test Mode	TM1
Environmental Conditions	24.1°C, 54.3% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	LQP Luo		



pol:

HORIZONTAL

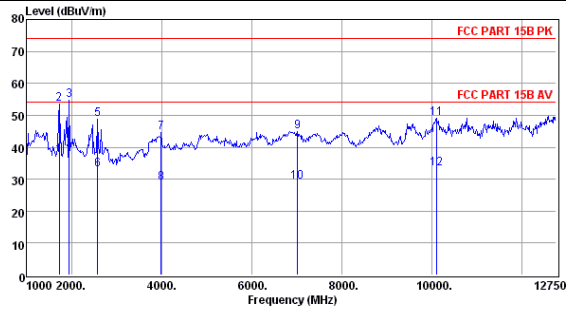
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	53.88	7.07	0.46	13.07	20.60	40.00	-19.40	QP
2	80.93	10.16	0.65	8.87	19.68	40.00	-20.32	QP
3	117.36	11.03	0.68	10.95	22.66	43.50	-20.84	QP
4	195.14	25.16	0.96	10.57	36.69	43.50	-6.81	QP
5	234.17	20.87	0.87	11.83	33.57	46.00	-12.43	QP
6	480.53	13.72	1.31	16.08	31.11	46.00	-14.89	QP

Note: 1. All readings are Quasi-peak values.

2. Measured= Reading + Antenna Factor + Cable Loss

3. The emission that ate 20db blow the official limit are not reported

Model No.	FC01	Test Mode	TM1
Environmental Conditions	24.1°C, 54.3% RH	Detector Function	PK/AV
Pol	Vertical	Distance	3m
Test Engineer	LQP Luo		



pol:

VERTICAL

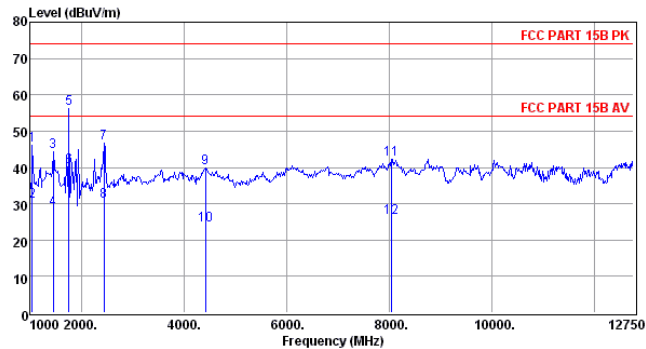
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	1731.00	43.73	4.45	26.42	37.59	54.00	-16.41	Average
2	1731.00	59.81	4.45	26.42	53.67	74.00	-20.33	Peak
3	1952.00	59.43	4.49	27.85	54.72	74.00	-19.28	Peak
4	1952.00	43.23	4.49	27.85	38.52	54.00	-15.48	Average
5	2581.00	52.80	5.31	27.87	48.87	74.00	-25.13	Peak
6	2581.00	36.88	5.31	27.87	32.95	54.00	-21.05	Average
7	3992.00	41.79	7.19	32.57	44.67	74.00	-29.33	Peak
8	3992.00	25.99	7.19	32.57	28.87	54.00	-25.13	Average
9	7018.00	34.55	9.26	36.78	45.01	74.00	-28.99	Peak
10	7018.00	18.75	9.26	36.78	29.21	54.00	-24.79	Average
11	10095.00	36.23	10.11	38.19	49.18	74.00	-24.82	Peak
12	10095.00	20.43	10.11	38.19	33.38	54.00	-20.62	Average

Note: 1. All readings are Quasi-peak values.

2. Measured= Reading + Antenna Factor + Cable Loss

3. The emission that are 20db below the official limit are not reported

Model No.	FC01	Test Mode	TM1
Environmental Conditions	24.1°C, 54.3% RH	Detector Function	PK/AV
Pol	Horizontal	Distance	3m
Test Engineer	LQP Luo		



pol:

HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	1051.00	53.07	4.31	25.37	46.12	74.00	-27.88	Peak
2	1051.00	37.47	4.31	25.37	30.52	54.00	-23.48	Average
3	1459.00	50.41	4.39	26.28	44.21	74.00	-29.79	Peak
4	1459.00	34.77	4.39	26.28	28.57	54.00	-25.43	Average
5	1765.00	62.32	4.45	26.43	56.19	74.00	-17.81	Peak
6	1765.00	46.23	4.45	26.43	40.10	54.00	-13.90	Average
7	2445.00	50.98	5.12	27.76	46.76	74.00	-27.24	Peak
8	2445.00	34.79	5.12	27.76	30.57	54.00	-23.43	Average
9	4417.00	36.60	7.45	32.34	39.80	74.00	-34.20	Peak
10	4417.00	20.80	7.45	32.34	24.00	54.00	-30.00	Average
11	8038.00	29.82	9.61	37.27	42.15	74.00	-31.85	Peak
12	8038.00	13.76	9.61	37.27	26.09	54.00	-27.91	Average

Note: 1. All readings are Quasi-peak values.

2. Measured= Reading + Antenna Factor + Cable Loss

3. The emission that are 20db below the official limit are not reported

4. AC POWER LINE CONDUCTED EMISSIONS

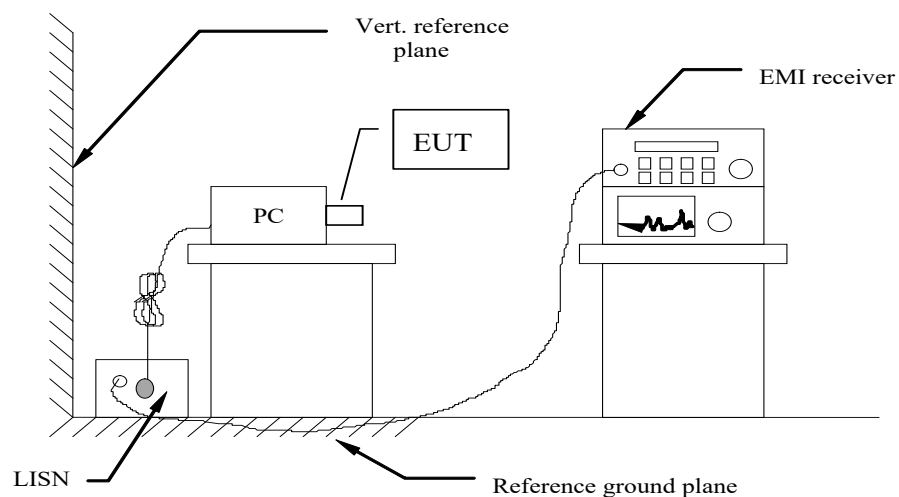
4.1 Standard Applicable

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.

* Decreasing linearly with the logarithm of the frequency

4.2 Block Diagram of Test Setup



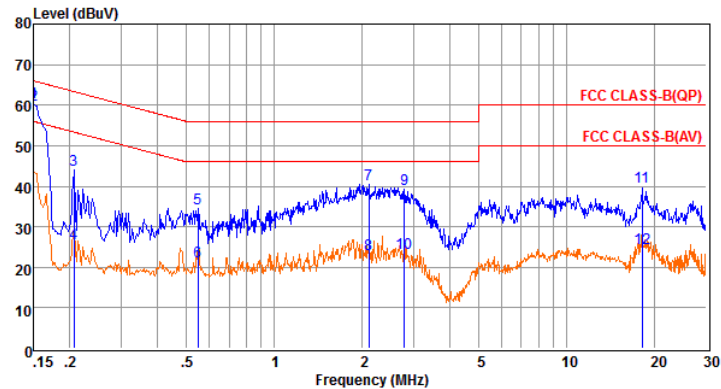
4.3 Test Results

PASS

The test data please refer to following page.

AC Conducted Emission AC Mains @ 120V/60Hz @ TM1 (worst case)

Neutral

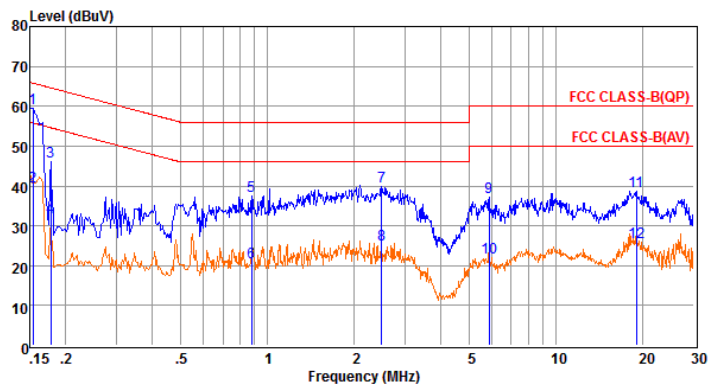


Pol: NEUTRAL

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.15	40.99	9.70	0.02	10.00	60.71	66.00	-5.29	Average
2	0.15	40.44	9.70	0.02	10.00	60.16	66.00	-5.84	QP
3	0.21	24.43	9.59	0.03	10.00	44.05	63.36	-19.31	QP
4	0.21	6.23	9.59	0.03	10.00	25.85	63.36	-37.51	Average
5	0.55	14.70	9.62	0.04	10.00	34.36	56.00	-21.64	QP
6	0.55	1.79	9.62	0.04	10.00	21.45	56.00	-34.55	Average
7	2.11	20.78	9.63	0.05	10.00	40.46	56.00	-15.54	QP
8	2.11	3.48	9.63	0.05	10.00	23.16	56.00	-32.84	Average
9	2.78	19.71	9.64	0.05	10.00	39.40	56.00	-16.60	QP
10	2.78	3.87	9.64	0.05	10.00	23.56	56.00	-32.44	Average
11	18.14	19.79	9.81	0.11	10.00	39.71	60.00	-20.29	Average
12	18.14	4.79	9.81	0.11	10.00	24.71	60.00	-35.29	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
2. The emission levels that are 20dB below the official limit are not reported.

Line



Pol: LINE

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.15	40.00	9.58	0.02	10.00	59.60	65.78	-6.18	QP
2	0.15	20.16	9.58	0.02	10.00	39.76	65.77	-26.01	Average
3	0.18	26.33	9.61	0.02	10.00	45.96	64.59	-18.63	QP
4	0.18	12.50	9.61	0.02	10.00	32.13	64.59	-32.46	Average
5	0.88	17.77	9.63	0.04	10.00	37.44	56.00	-18.56	QP
6	0.88	1.10	9.63	0.04	10.00	20.77	56.00	-35.23	Average
7	2.49	20.24	9.64	0.05	10.00	39.93	56.00	-16.07	QP
8	2.49	5.55	9.64	0.05	10.00	25.24	56.00	-30.76	Average
9	5.87	17.53	9.66	0.06	10.00	37.25	60.00	-22.75	QP
10	5.87	2.20	9.66	0.06	10.00	21.92	60.00	-38.08	Average
11	19.02	18.94	9.75	0.12	10.00	38.81	60.00	-21.19	QP
12	19.02	5.95	9.75	0.12	10.00	25.82	60.00	-34.18	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
2. The emission levels that are 20dB below the official limit are not reported.

5. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Please refer to separated files for External and internal Photos of the EUT.

----- THE END OF TEST REPORT -----