FCC TEST REPORT

FOR

Shenzhen Teana Technology Co.,LTD

Tuxun Bluetooth Microphone

Model No.: K9

Prepared for	:	Shenzhen Teana Technology Co.,LTD
Address	:	2F 6th Building, East Asia Industrial Park, No.6 Nanling north Road,Nanling Village, Nanwan street, Longgang District, Shenzhen, China
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample	:	June 30, 2016
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	June 30, 2016~August 03, 2016
Date of Report	:	August 03, 2016

FCC TEST REPORT **FCC CFR 47 PART 15.239**	
Report Reference No. ..... :	**LCS1608030162E**
Date of Issue ..... :	August 03, 2016
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 Teana Technology Co.,LTD**
Address ..... :	2F 6th Building, East Asia Industrial Park, No.6 Nanling north Road,Nanling Village, Nanwan street, Longgang District, Shenzhen, China
Test Specification	
Standard ..... :	FCC CFR 47 Part 15.239
Test Report Form No. ..... :	LCSEMC-1.0
TRF Originator ..... :	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF ..... :	Dated 2011-03

Test Item Description. ..... :	**Tuxun Bluetooth Microphone**
Trade Mark ..... :	
Model/ Type reference..... :	K9
Ratings ..... :	DC 3.7V by battery(1000mAh) Charging voltage: DC 5V, 0.5A
Result ..... :	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Jacky Li/ File administrators	Glin Lu/ Technique principal	Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS1608030162E	August 03, 2016 Date of issue

Type / Model.....	: K9
EUT.....	: Tuxun Bluetooth Microphone
Applicant.....	**: Shenzhen Teana Technology Co.,LTD**
Address.....	: 2F 6th Building, East Asia Industrial Park, No.6 Nanling north Road,Nanling Village, Nanwan street, Longgang District, Shenzhen, China
Telephone.....	: 0755-61665710
Fax.....	: 0755-61665747
Manufacturer.....	**: Shenzhen Teana Technology Co.,LTD**
Address.....	: 2F 6th Building, East Asia Industrial Park, No.6 Nanling north Road,Nanling Village, Nanwan street, Longgang District, Shenzhen, China
Telephone.....	: 0755-61665710
Fax.....	: 0755-61665747
Factory.....	: **Shenzhen Teana Technology Co.,LTD** 2F 6th Building, East Asia Industrial Park, No.6 Nanling north
Address.....	: Road,Nanling Village, Nanwan street, Longgang District, Shenzhen, China
Telephone.....	: 0755-61665710
Fax.....	: 0755-61665747

Test Result	**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
00	2016-08-03	Initial Issue	Gavin Liang

TABLE OF CONTENTS

Description Page

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	:	Tuxun Bluetooth Microphone
Model No.	:	K9
Model Declaration	:	/
Test Model No.:	:	K9
Input Voltage	:	DC 3.7V by battery(1000mAh) Charging voltage: DC 5V, 0.5A
BT Function:		
Frequency Range	:	2.402-2.480GHz
Channel Number	:	79 channels
Channel frequency	:	2402.00-2480.00MHz (Channel Frequency=2402+1(K-1), K=1, 2, 3 ……79);
Channel Spacing	:	1MHz for 79 channels
Modulation Type	:	GFSK, π/4-DQPSK, 8-DPSK
Bluetooth Version	:	V4.1
Antenna Gain	:	PCB antenna, 0 dBi(Max.)
FM Function:		
Frequency Range	:	105.5~107.5MHz
Channel Number	:	3 channels
Channel frequency	:	105.5MHz; 106.5MHz; 107.5MHz
Modulation Type	:	FM
Antenna Gain	:	Integral antenna, 0 dBi(Max.)

1.2 Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Lenovo	PC	B470	--	DoC

1.3 External I/O Cable

I/O Port Description	Quantity	Cable
USB	1	0.6m, Shielded
AUX	1	0.8m, Unshielded

1.4 Description of Test Facility

Site Description EMC Lab. : CNAS Registration Number. is L4595.
FCC Registration Number. is 899208.
Industry Canada Registration Number. is 9642A-1.
VCCI Registration Number. is C-4260 and R-3804.
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

1.5 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.

1.6 Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	9KHz~30MHz	±3.10dB	(1)
		30MHz~200MHz	±2.96dB	(1)
		200MHz~1000MHz	±3.10dB	(1)
		1GHz~26.5GHz	±3.80dB	(1)
		26.5GHz~40GHz	±3.90dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)

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

1.7 Description Of Test Modes

This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.

The EUT is powered by a battery which is DC 3.7V. In the audio port give a 2.5 kHz tone at a level 16 dB higher than that required to produce a frequency deviation of +/-37.5KHz kHz and make it works in TX mode(105.5MHz, 106.5MHz and 107.5MHz).

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR PART 15C 15.207, 15.209 and 15.239.

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209, 15.239 under the FCC Rules Part 15 Subpart C and RSS-210.

2.3 General Test Procedures

2.3.1 Conducted Emissions

The EUT is directly placed on the ground. According to the requirements in Section 6.2.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turntable, which is directly placed on the ground. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 6.3 of ANSI C63.10-2013

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a continuous transmit condition.

3.2 EUT Exercise Software

N/A.

3.3 Special Accessories

N/A.

3.4 Block Diagram/Schematics

Please refer to the related document.

3.5 Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6 Test Setup

Please refer to the test setup photo.

4. SUMMARY OF TEST RESULTS

Applied Standard: FCC Part 15 Subpart C		
FCC Rules	**Description of Test**	**Result**
§15.239	20 dB Bandwidth	Compliant
§15.209, §15.239	Radiated Emissions	Compliant
§15.207(a)	Conducted Emissions	Compliant
§15.203	Antenna Requirements	Compliant

5. SUMMARY OF TEST EQUIPMENT

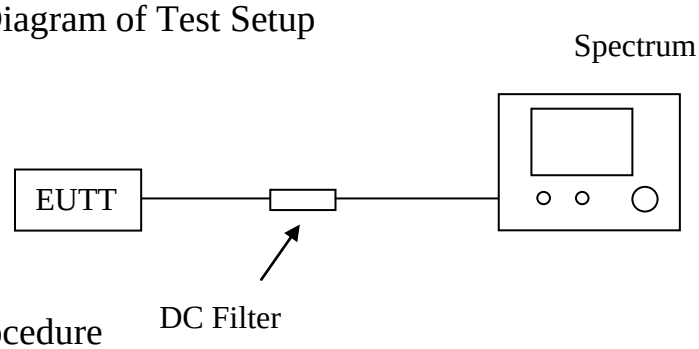
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1	Spectrum Analyzer	Agilent	N9020A	MY50510140	2015-10-27	2016-10-26
2	Signal analyzer	Agilent	E4448A(External mixers to 40GHz)	US44300469	2016-06-16	2017-06-15
3	RF Cable	Hubersuhne	Sucoflex104	FP2RX2	2016-06-18	2017-06-17
4	DC Filter	MPE	23872C	N/A	2016-06-18	2017-06-17
5	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2016-06-18	2017-06-17
6	Amplifier	SCHAFFNER	COA9231A	18667	2016-06-18	2017-06-17
7	Amplifier	Agilent	8449B	3008A02120	2016-06-16	2017-06-15
8	Amplifier	MITEQ	AMF-6F-260400	9121372	2016-06-16	2017-06-15
9	Loop Antenna	R&S	HFH2-Z2	860004/001	2016-06-18	2017-06-17
10	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2016-06-10	2017-06-09
11	Horn Antenna	EMCO	3115	6741	2016-06-10	2017-06-09
12	Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	2016-06-10	2017-06-09
13	RF Cable-R03m	Jye Bao	RG142	CB021	2016-06-18	2017-06-17
14	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2016-06-18	2017-06-17

6. 20 DB BANDWIDTH

6.1 Limit

According to §15.239 (a) Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

6.2 Block Diagram of Test Setup



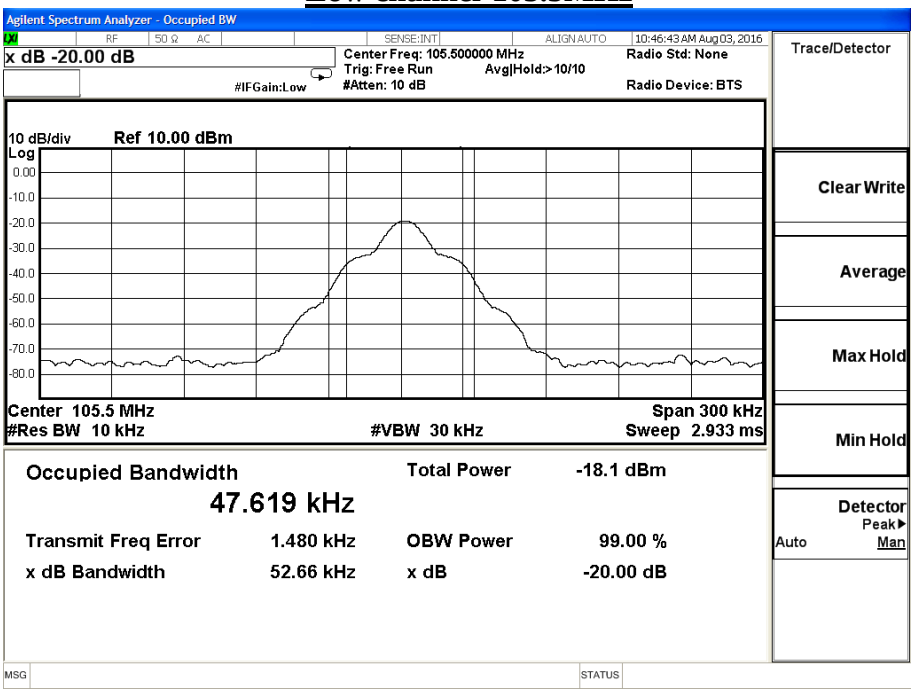
6.3 Test Procedure

A. Span = approximately 2 to 3 times the 20dB bandwidth, centered on a transmit channel.
B. RBW ⩾1% of the 20dB bandwidth, VBW ⩾RBW.
C. Detector function = peak.
D. Trace = max hold.

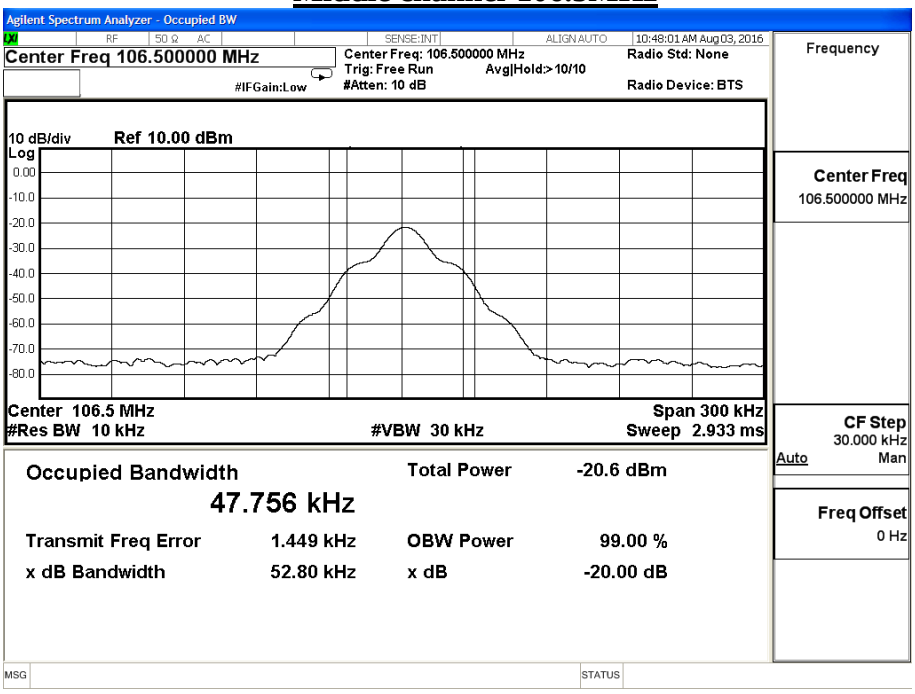
6.4 Test Results

Frequency (MHz)	Bandwidth (KHz)	Limit (KHz)	Conclusion
105.5	52.66	200	Pass
106.5	52.80	200	Pass
107.5	52.74	200	Pass

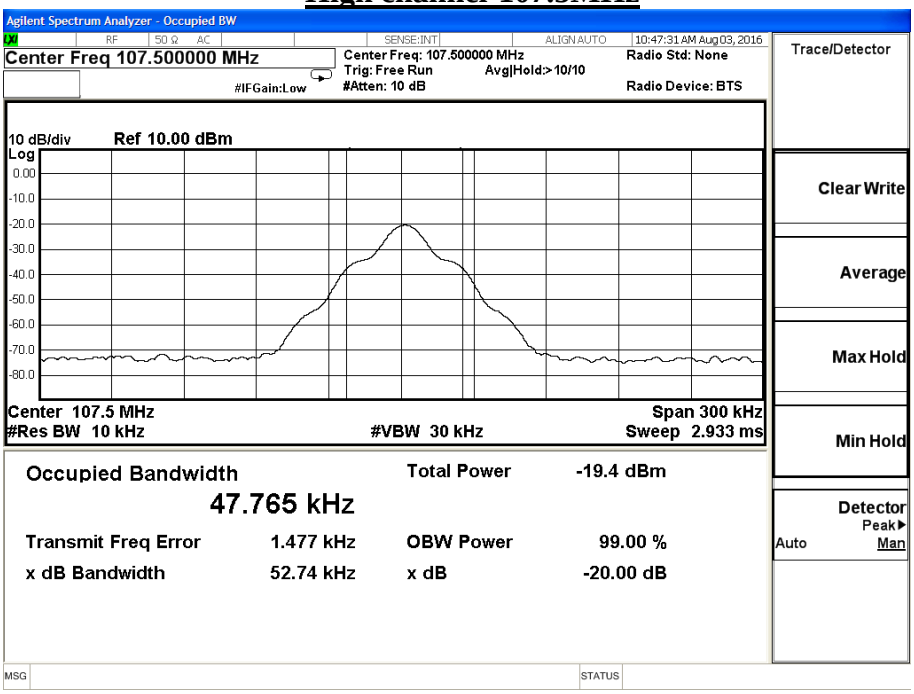
Low channel-105.5MHz



Middle channel-106.5MHz

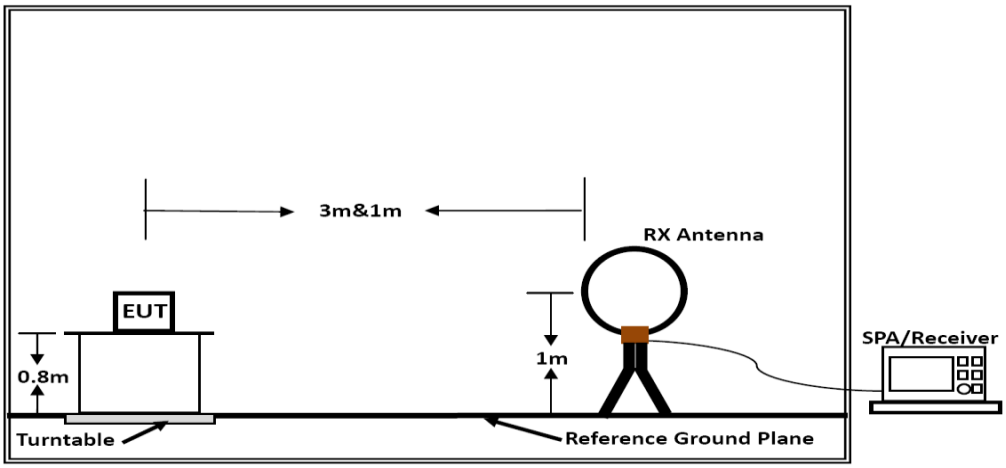


High channel-107.5MHz

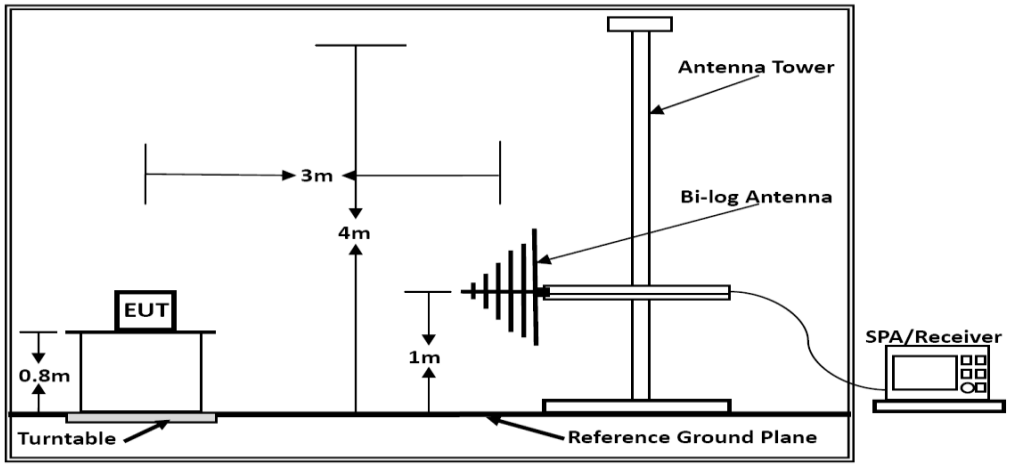


7. RADIATED MEASUREMENT

7.1 Block Diagram of Test Setup



Below 30MHz



Below 1GHz

7.2 Radiated Emission Limit

15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
\1\ 0.495-0.505	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	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	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			

\1\ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

\2\ Above 38.6

Part 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector.

Frequency (MHz)	Distances (Meters)	Field Strength LiMIT	
		μ V/m	dB(μ V)/m
30~88	3	100	40.0(QP)
88~108		250	48.0(Average) 68.0(Peak)
108~216		150	43.5 (QP)
216~960		200	46.0 (QP)
960~1000		500	54.0 (QP)

Remark：

(1) Emission level dB μ V = 20 log Emission level μ 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.

7.3 Instruments Setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	1000 MHz
RB / VB (Emission in restricted band)	120KHz / 1MHz for Peak, 120 KHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	120KHz / 1MHz for Peak, 120 KHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

7.4 Test Procedures

1) **Sequence of testing 9 kHz to 30 MHz**

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna height is 0.8 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the premeasurement the software maximizes by rotating the turntable position (0 °to 360 °) and by rotating the elevation axes (0 °to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

2) **Sequence of testing 30 MHz to 1 GHz**

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (±45 °) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) **Sequence of testing 1 GHz to 18 GHz**

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (±45 °) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

7.5 Results for Fundamental Frequency Field and Bandedge Emissions

Freq. MHz	Reading Level dBuV	Ant. Fac. dB/m	Cab. Loss dB	Measured dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol.
105.5	35.98	12.66	0.61	49.25	68.00	-18.75	Peak	Horizontal
105.5	31.05	12.66	0.61	44.32	48.00	-3.68	Average	Horizontal
106.5	33.10	12.57	0.68	46.35	68.00	-21.65	Peak	Horizontal
106.5	29.96	12.57	0.68	43.21	48.00	-4.79	Average	Horizontal
107.5	34.60	12.48	0.68	47.76	68.00	-20.24	Peak	Horizontal
107.5	30.76	12.48	0.68	43.92	48.00	-4.08	Average	Horizontal
88.0	8.14	12.55	0.54	21.23	40.00	-18.77	Peak	Horizontal
88.0	4.03	12.55	0.54	17.12	40.00	-22.88	Average	Horizontal
108.0	27.05	12.43	0.68	40.16	43.50	-3.34	Peak	Horizontal
108.0	20.94	12.43	0.68	34.05	43.50	-9.45	Average	Horizontal
105.5	36.39	12.66	0.61	49.66	68.00	-18.34	Peak	Vertical
105.5	32.31	12.66	0.61	45.58	48.00	-2.42	Average	Vertical
106.5	36.32	12.57	0.68	49.57	68.00	-18.43	Peak	Vertical
106.5	31.70	12.57	0.68	44.95	48.00	-3.05	Average	Vertical
107.5	34.25	12.48	0.68	47.41	68.00	-20.59	Peak	Vertical
107.5	30.56	12.48	0.68	43.72	48.00	-4.28	Average	Vertical
88.0	10.33	12.55	0.54	23.42	40.00	-16.58	Peak	Vertical
88.0	3.23	12.55	0.54	16.32	40.00	-23.68	Average	Vertical
108.0	28.12	12.43	0.68	41.23	43.50	-2.27	Peak	Vertical
108.0	21.99	12.43	0.68	35.10	43.50	-8.40	Average	Vertical

7.5 Results for Radiated Emissions

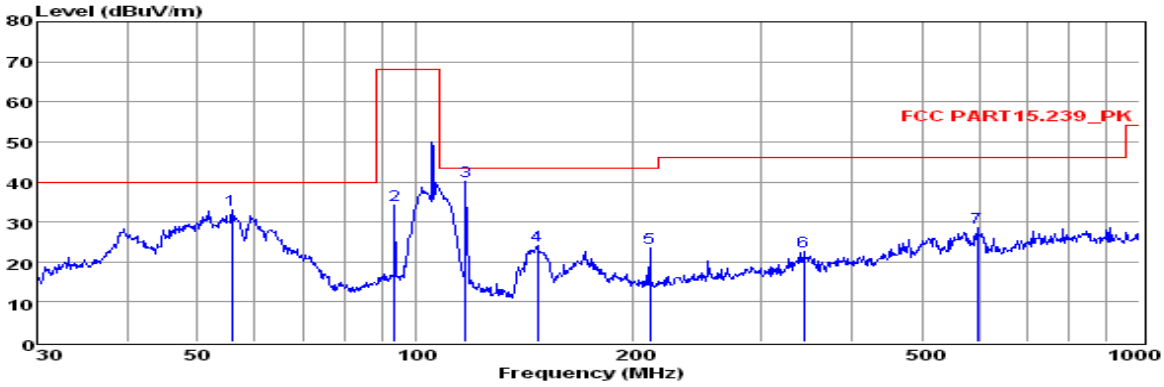
PASS.

Only record the worst test result in this report.

The test data please refer to following page:

Below 1GHz

Test Plot of 105.5MHz



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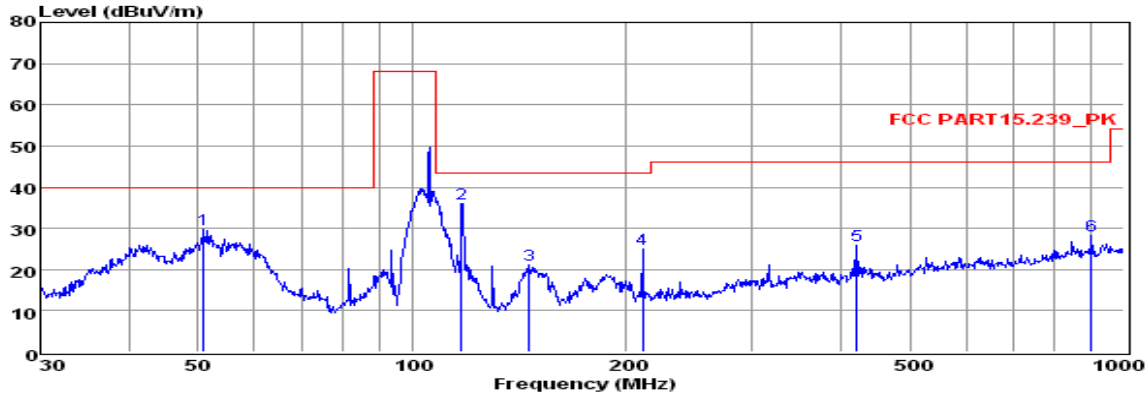
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	55.80	19.56	0.47	12.97	33.00	40.00	-7.00	Peak
2	93.44	21.14	0.56	12.55	34.25	68.00	-33.75	Peak
3	117.36	28.60	0.68	10.95	40.23	43.50	-3.27	Peak
4	147.40	14.88	0.86	8.24	23.98	43.50	-19.52	Peak
5	210.79	11.64	0.93	10.91	23.48	43.50	-20.02	Peak
6	343.18	7.20	1.12	14.17	22.49	46.00	-23.51	Peak
7	597.22	8.71	1.50	18.40	28.61	46.00	-17.39	Peak

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported

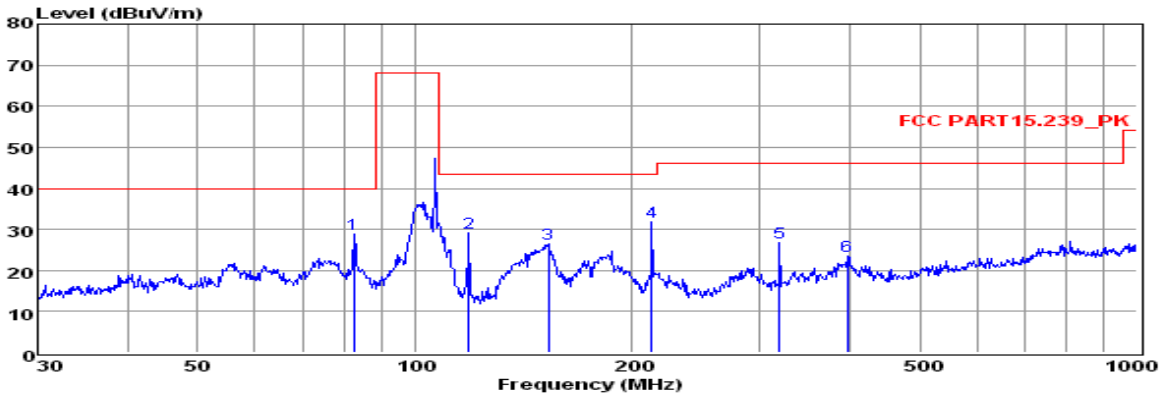


Env./Ins: 24℃/56%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	50.94	15.97	0.54	13.21	29.72	40.00	-10.28	Peak
2	117.36	24.42	0.68	10.95	36.05	43.50	-7.45	Peak
3	145.86	12.12	0.77	8.23	21.12	43.50	-22.38	Peak
4	210.79	13.27	0.93	10.91	25.11	43.50	-18.39	Peak
5	422.06	9.04	1.33	15.48	25.85	46.00	-20.15	Peak
6	900.15	5.31	1.88	21.09	28.28	46.00	-17.72	Peak

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported

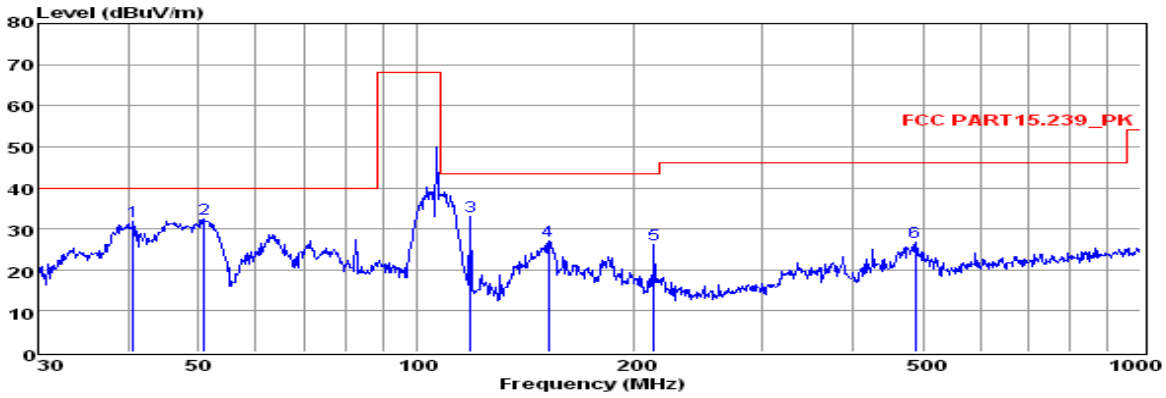
Test Plot of 106.5MHz



Env./Ins: 24℃/56%
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	82.36	19.02	0.54	9.38	28.94	40.00	-11.06	Peak
2	118.60	17.91	0.64	10.73	29.28	43.50	-14.22	Peak
3	153.20	17.35	0.73	8.39	26.47	43.50	-17.03	Peak
4	213.02	19.78	0.95	10.98	31.71	43.50	-11.79	Peak
5	319.94	12.17	1.16	13.33	26.66	46.00	-19.34	Peak
6	397.63	7.24	1.22	15.00	23.46	46.00	-22.54	Peak

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported

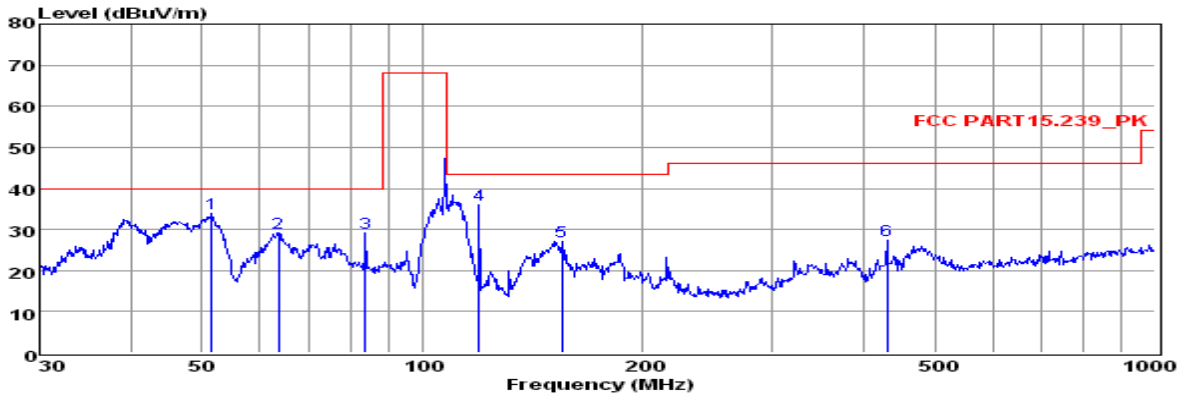


Env./Ins: 24℃/56%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	40.56	17.82	0.50	13.58	31.90	40.00	-8.10	Peak
2	50.94	18.63	0.54	13.21	32.38	40.00	-7.62	Peak
3	118.60	21.73	0.64	10.73	33.10	43.50	-10.40	Peak
4	152.13	17.96	0.73	8.35	27.04	43.50	-16.46	Peak
5	213.02	14.35	0.95	10.98	26.28	43.50	-17.22	Peak
6	489.03	9.10	1.32	16.30	26.72	46.00	-19.28	Peak

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported

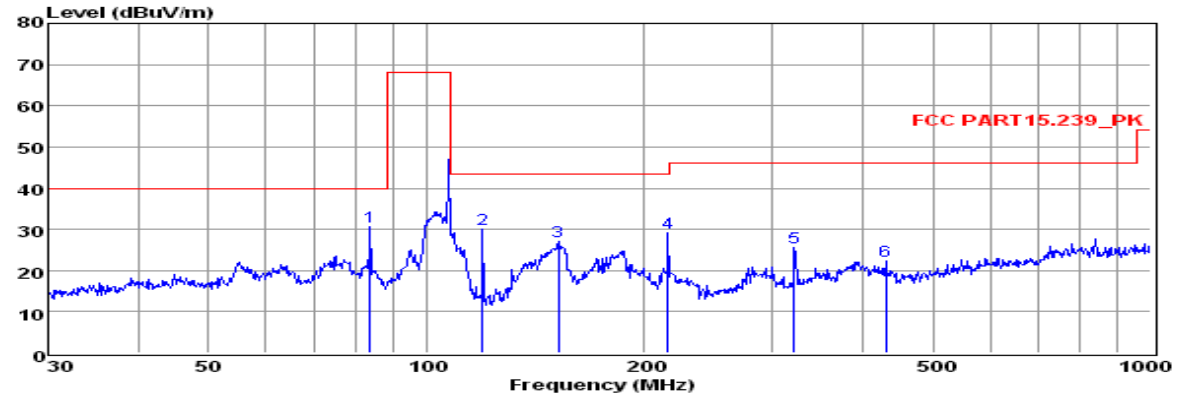
Test Plot of 107.5MHz



Env./Ins: 24℃/56%
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	51.48	20.18	0.54	13.18	33.90	40.00	-6.10	Peak
2	63.54	17.48	0.48	11.29	29.25	40.00	-10.75	Peak
3	83.52	18.88	0.54	9.79	29.21	40.00	-10.79	Peak
4	119.44	24.78	0.64	10.58	36.00	43.50	-7.50	Peak
5	154.82	17.99	0.76	8.46	27.21	43.50	-16.29	Peak
6	431.03	10.61	1.28	15.52	27.41	46.00	-18.59	Peak

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported



Env./Ins: 24℃/56%
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	83.52	20.16	0.54	9.79	30.49	40.00	-9.51	Peak
2	119.44	18.96	0.64	10.58	30.18	43.50	-13.32	Peak
3	152.13	18.08	0.73	8.35	27.16	43.50	-16.34	Peak
4	215.27	17.18	0.95	11.05	29.18	43.50	-14.32	Peak
5	322.19	10.95	1.16	13.42	25.53	46.00	-20.47	Peak
6	431.03	5.52	1.28	15.52	22.32	46.00	-23.68	Peak

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that ate 20db blow the offficial limit are not reported

1. *Measuring frequencies from 9k~10th harmonic (ex. 2GHz), No emission found between lowest internal used/generated frequency to 30 MHz.*
2. *Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 2GHz) were made with an instrument using Peak detector mode.*

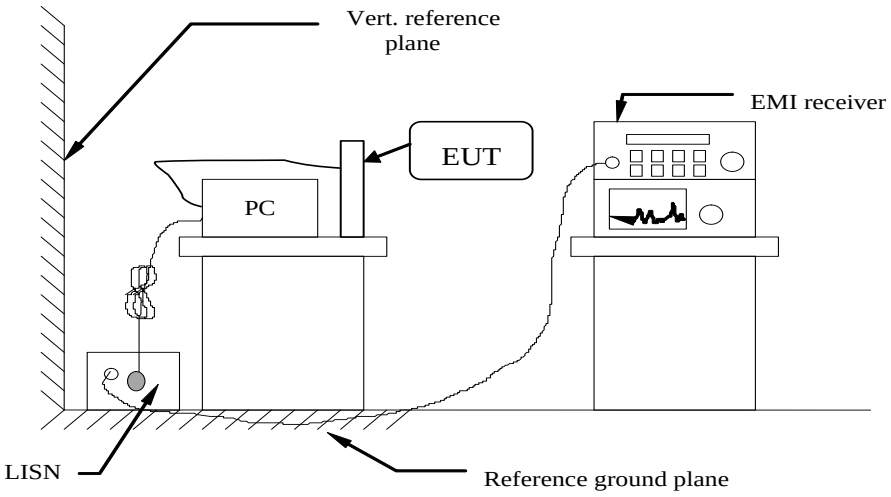
8. POWER LINE CONDUCTED EMISSIONS

8.1 Standard Applicable

According to §15.207 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

8.2 Block Diagram of Test Setup

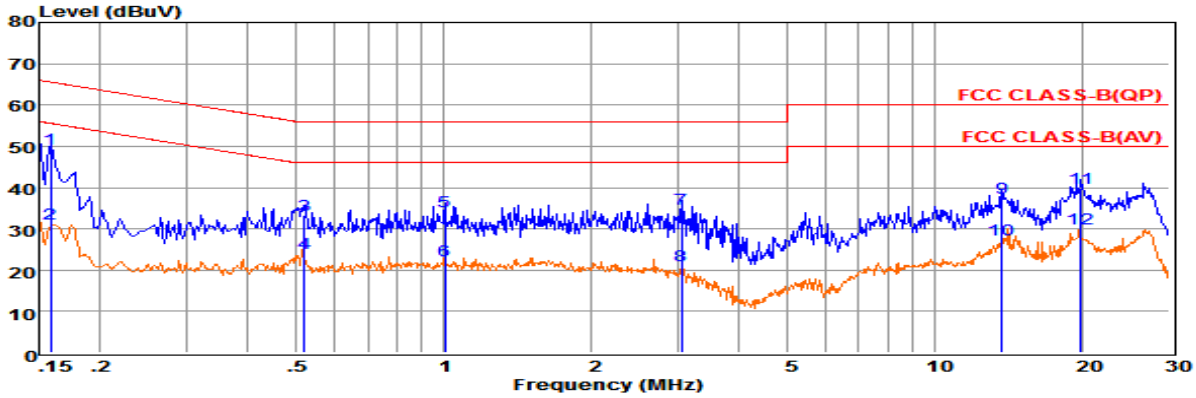


8.3 Test Results

PASS.

The test data please refer to following page.

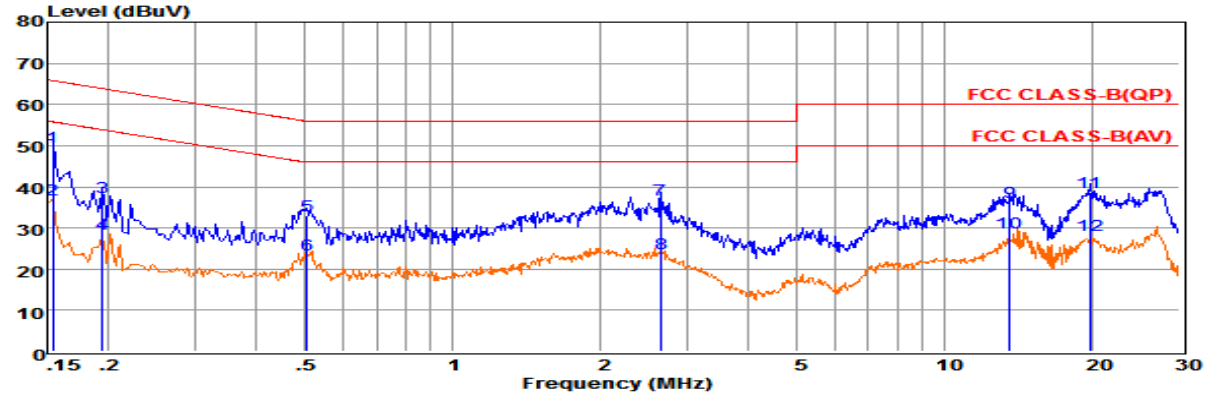
Test result for GFSK-AC 120V



Env. Ins: 24*/56%
Pol: NEUTRAL

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15816	29.52	9.68	0.02	10.00	49.22	65.56	-16.34	QP
2	0.15826	11.42	9.68	0.02	10.00	31.12	55.55	-24.43	Average
3	0.52099	13.68	9.62	0.04	10.00	33.34	56.00	-22.66	QP
4	0.52109	4.51	9.62	0.04	10.00	24.17	46.00	-21.83	Average
5	1.00499	14.57	9.63	0.05	10.00	34.25	56.00	-21.75	QP
6	1.00599	2.71	9.63	0.05	10.00	22.39	46.00	-23.61	Average
7	3.04142	15.04	9.64	0.06	10.00	34.74	56.00	-21.26	QP
8	3.04242	1.38	9.64	0.06	10.00	21.08	46.00	-24.92	Average
	913.69521	17.64	9.74	0.10	10.00	37.48	60.00	-22.52	QP
	1013.69621	7.40	9.74	0.10	10.00	27.24	50.00	-22.76	Average
	1119.84453	19.95	9.88	0.12	10.00	39.95	60.00	-20.05	QP
	1219.84553	9.94	9.88	0.12	10.00	29.94	50.00	-20.06	Average

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

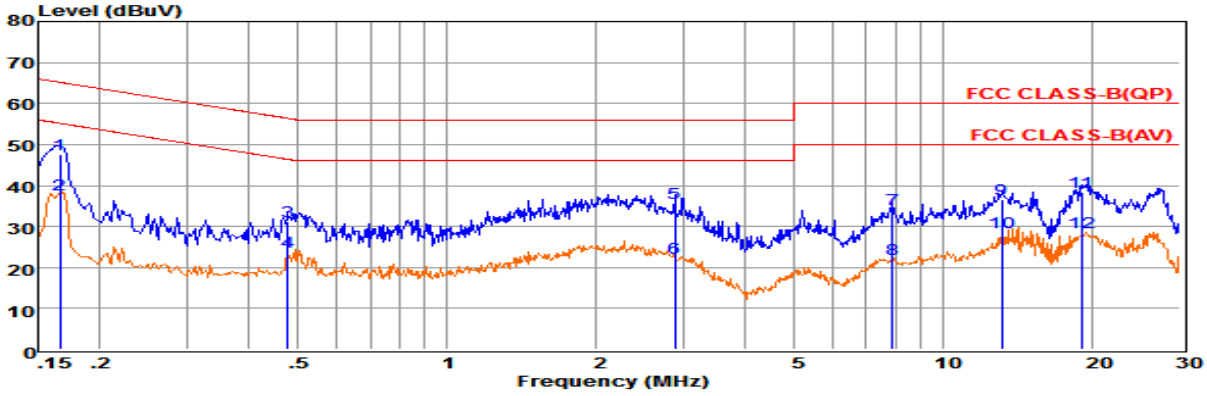


Env. Ins: 24*/56%
Pol: LINE

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15403	29.97	9.58	0.02	10.00	49.57	65.78	-16.21	QP
2	0.15413	17.21	9.58	0.02	10.00	36.81	55.77	-18.96	Average
3	0.19447	17.80	9.62	0.02	10.00	37.44	63.84	-26.40	QP
4	0.19457	9.05	9.62	0.02	10.00	28.69	53.84	-25.15	Average
5	0.50469	13.28	9.62	0.04	10.00	32.94	56.00	-23.06	QP
6	0.50479	3.76	9.62	0.04	10.00	23.42	46.00	-22.58	Average
7	2.65002	17.07	9.64	0.05	10.00	36.76	56.00	-19.24	QP
8	2.65102	4.24	9.64	0.05	10.00	23.93	46.00	-22.07	Average
	913.55086	16.55	9.71	0.10	10.00	36.36	60.00	-23.64	QP
	1013.55186	8.90	9.71	0.10	10.00	28.71	50.00	-21.29	Average
	1119.73967	18.90	9.76	0.12	10.00	38.78	60.00	-21.22	QP
	1219.74067	8.43	9.76	0.12	10.00	28.31	50.00	-21.69	Average

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

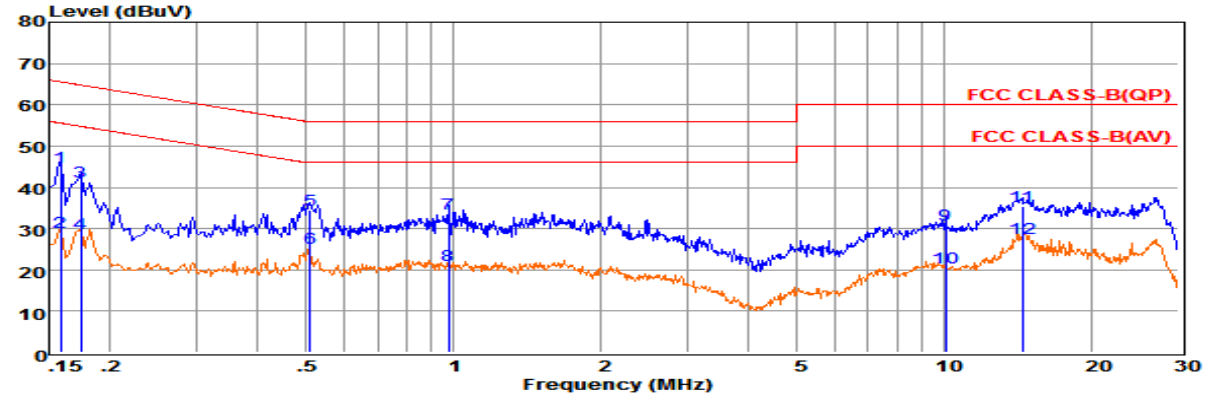
Test result for GFSK-AC 240V



Env. Ins: 24*/56%
Pol: LINE

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.16589	27.93	9.59	0.02	10.00	47.54	65.16	-17.62	QP
2	0.16599	18.24	9.59	0.02	10.00	37.85	55.16	-17.31	Average
3	0.47865	11.69	9.62	0.04	10.00	31.35	56.36	-25.01	QP
4	0.47875	4.24	9.62	0.04	10.00	23.90	46.36	-22.46	Average
5	2.88447	16.11	9.64	0.06	10.00	35.81	56.00	-20.19	QP
6	2.88547	2.61	9.64	0.06	10.00	22.31	46.00	-23.69	Average
7	7.89336	14.55	9.68	0.07	10.00	34.30	60.00	-25.70	QP
8	7.89436	2.39	9.68	0.07	10.00	22.14	50.00	-27.86	Average
	913.12685	16.78	9.70	0.09	10.00	36.57	60.00	-23.43	QP
	1013.12785	8.64	9.70	0.09	10.00	28.43	50.00	-21.57	Average
	1119.02097	18.42	9.75	0.12	10.00	38.29	60.00	-21.71	QP
	1219.02197	8.77	9.75	0.12	10.00	28.64	50.00	-21.36	Average

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



Env. Ins: 24*/56%
Pol: NEUTRAL

	Freq	Reading	LisnFac	CabLos	Atten_Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15816	25.11	9.68	0.02	10.00	44.81	65.56	-20.75	QP
2	0.15826	9.54	9.68	0.02	10.00	29.24	55.55	-26.31	Average
3	0.17399	21.70	9.64	0.02	10.00	41.36	64.77	-23.41	QP
4	0.17409	9.19	9.64	0.02	10.00	28.85	54.76	-25.91	Average
5	0.51007	14.74	9.62	0.04	10.00	34.40	56.00	-21.60	QP
6	0.51017	5.65	9.62	0.04	10.00	25.31	46.00	-20.69	Average
7	0.97871	13.86	9.63	0.05	10.00	33.54	56.00	-22.46	QP
8	0.97881	1.48	9.63	0.05	10.00	21.16	46.00	-24.84	Average
	910.07185	11.20	9.72	0.08	10.00	31.00	60.00	-29.00	QP
	1010.07285	0.69	9.72	0.08	10.00	20.49	50.00	-29.51	Average
	1114.44040	15.58	9.74	0.10	10.00	35.42	60.00	-24.58	QP
	1214.44140	7.72	9.74	0.10	10.00	27.56	50.00	-22.44	Average

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

9. ANTENNA REQUIREMENT

9.1 Standard Applicable

According to antenna requirement of §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 re-placed 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 Sections 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 Section 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.

9.2 Antenna Connected Construction

9.2.1. Standard Applicable

According to §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.

9.2.2. Antenna Connector Construction

The integral antenna (which max. gain is 0dBi) is no consideration of replacement. Please see EUT photo for details.

9.2.3. Results: Compliance.

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