FCC TEST REPORT

FOR

eMoMo Technology Co., Ltd.

Stream Remote

Test Model: HX75

Prepared for	:	eMoMo Technology Co., Ltd.
Address	:	Fourth Floor, Yonghe Building, Taiwan Industrial P Shiyan, Baoan, Shenzhen,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
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Date of receipt of test sample	:	June 27, 2017
Number of tested samples	:	1
Sample number	:	Prototype
Date of Test	:	June 27, 2017~Aug 14, 2017
Date of Report	:	Aug 14, 2017

FCC TEST REPORT

FCC CFR 47 PART 15 C(15.249): 2015

Report Reference No.	**:**	**LCS170627047AE**
Date of Issue.....	:	Aug 14, 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	**:**	**eMoMo Technology Co., Ltd.**
Address.....	:	Fourth Floor, Yonghe Building, Taiwan Industrial P Shiyan, Baoan, Shenzhen,Guangdong
Test Specification		
Standard	:	FCC CFR 47 PART 15 C(15.249): 2015 / ANSI C63.10: 2013
Test Report Form No.....	:	LCSEMC-1.0
TRF Originator.....	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF.....	:	Dated 2011-03

Test Item Description.....	**:**	**Stream Remote**
Trade Mark	:	eMoMo
Test Model.....	:	HX75
Ratings.....	:	DC: 3.7V by Li-ion Battery (890mAh) Recharge Voltage: 5V/150mA
Result	**:**	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Chaz Liu	Dick Su	Gavin Liang
Chaz Liu / File administrators	Dick Su/ Technique principal	Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS170627047AE	Aug 14, 2017 Date of issue

Test Model.....	:	HX75
EUT.....	:	Stream Remote
Applicant.....	**:**	**eMoMo Technology Co., Ltd.**
Address.....	:	Fourth Floor, Yonghe Building, Taiwan Industrial P Shiyan, Baoan, Shenzhen,Guangdong
Telephone.....	:	/
Fax.....	:	/
Manufacturer.....	**:**	**eMoMo Technology Co., Ltd.**
Address.....	:	Fourth Floor, Yonghe Building, Taiwan Industrial P Shiyan, Baoan, Shenzhen,Guangdong
Telephone.....	:	/
Fax.....	:	/
Factory.....	**:**	**eMoMo Technology Co., Ltd.**
Address.....	:	Fourth Floor, Yonghe Building, Taiwan Industrial P Shiyan, Baoan, Shenzhen,Guangdong
Telephone.....	:	/
Fax.....	:	/

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	Aug 14, 2017	Initial Issue	Gavin Liang

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Stream Remote
Test Model	:	HX75
List Model No.	:	HX75
Model Declaration	:	/
Power Supply	:	DC: 3.7V by Li-ion Battery (890mAh) Recharge Voltage: 5V/150mA
Hardware Version	:	E6H6F2V3
Software Version	:	E6H6F2V1
Frequency Range	:	2402-2480 MHz
Modulation Type	:	GFSK
Antenna Description	:	Internal Antenna, 0dBi(Max.)

1.2. Support Equipment List

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

1.3. External I/O

I/O Port Description	Quantity	Cable
Micro USB Port	1	--

1.4. Description of Test Facility

CNAS Registration Number. is L4595.
FCC Registration Number. is 899208.
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

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	4.00dB	(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

The EUT operates in the unlicensed ISM band at 2.4GHz. The following operating modes were applied for the related test items.

All test modes were tested, only the result of the worst case was recorded in the report.
The EUT is considered a portable unit and was set to transmit at 100% duty cycle. It was pre-tested on the positioned of each 3 axis. The worst case was found positioned on X-plane.

Mode of Operations	Transmitting Frequency (MHz)
GFSK	2402
	2441
	2480
For Conducted Emission	
Test Mode	N/A
For Radiated Emission	
Test Mode	TX Mode

Worst-case mode and channel used for 150kHz-30 MHz power line conducted emissions was the mode and channel with the highest output power, that was determined to be TX-2402MHz.

Worst-case mode and channel used for 9kHz-1000 MHz radiated emissions was the mode and channel with the highest output power, that was determined to be TX-2402MHz.

***Note: Using a temporary antenna connector for the EUT when the conducted measurements are performed.

Channel List & Frequency:

Frequency Band	Frequency(MHz)							
2404~2478MHz	2402	2403	2404	2405	2406	2407	2408	2409
	2410	2411	2412	2413	2414	2415	2416	2417
	2418	2419	2420	2421	2422	2423	2424	2425
	2426	2427	2428	2429	2430	2431	2432	2433
	2434	2435	2436	2437	2438	2439	2440	2441
	2442	2443	2444	2445	2446	2447	2448	2449
	2450	2451	2452	2453	2454	2455	2456	2457
	2458	2459	2460	2461	2462	2463	2464	2465
	2466	2467	2468	2469	2470	2471	2472	2473
	2474	2475	2476	2477	2478	2779	2480	

2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10: 2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd..

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 15.203, 15.205, 15.207, 15.209 and 15.249 under the FCC Rules Part 15 Subpart C.

2.3. General Test Procedures

2.3.1 Conducted Emissions

According to the requirements in Section 6.2 of ANSI C63.10: 2013, AC power-line conducted emissions shall be 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 turn table and 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. CONNECTION DIAGRAM OF TEST SYSTEM

3.1. Justification

The system was configured for testing in a continuous transmit condition. Continuous transmitting was pre-programmed. it'll keep transmitting with modulated signal at the lowest channel by installing the batter. when press the "A" button, it'll move to the next channel. Repeat press "A" button, it'll transmitting at each of the channel used.

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

FCC Rules	Description Of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207(a)	Power Line Conducted Emissions	Compliant
§15.205(a), §15.209(a), §15.249(a), §15.249(c)	Radiated Emissions Measurement	Compliant
§15.205	Band Edges Measurement	Compliant
§15.249, §15.215	20 dB Bandwidth	Compliant

5. SUMMARY OF TEST EQUIPMENT

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal Date	Due Date
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	June 18,2017	June 17,2018
EMC TEST SOFTWARE	AUDIX	E3	N/A	N/A	N/A	N/A
Signal analyzer	Agilent	E4448A(External mixers to 40GHz)	US44300469	9kHz~40GHz	July 16,2017	July 15,2018
LISN	MESS Tec	NNB-2/16Z	99079	9KHz-30MHz	June 18,2017	June 17,2018
LISN (Support Unit)	EMCO	3819/2NM	9703-1839	9KHz-30MHz	June 18,2017	June 17,2018
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9KHz-30MHz	June 18,2017	June 17,2018
ISN	SCHAFFNER	ISN ST08	21653	9KHz-30MHz	June 18,2017	June 17,2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30M-1GHz 3m	June 18,2017	June 17,2018
Amplifier	SCHAFFNER	COA9231A	18667	9kHz-2GHzz	June 18,2017	June 17,2018
Amplifier	Agilent	8449B	3008A02120	1GHz-26.5GHz	July 16,2017	July 15,2018
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz-40GHz	July 16,2017	July 15,2018
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	July 16,2017	July 15,2018
MAX Signal Analyzer	Agilent	N9020A	MY50510140	20Hz~26.5GHz	Oct. 27, 2016	Oct. 26, 2017
Loop Antenna	R&S	HFH2-Z2	860004/001	9k-30MHz	June 18,2017	June 17,2018
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	30MHz-1GHz	June 10,2017	June 09,2018
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	June 10,2017	June 09,2018
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	June 10,2017	June 09,2018
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz-1GHz	June 18,2017	June 17,2018
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz-40GHz	June 18,2017	June 17,2018
Power Meter	R&S	NRVS	100444	DC-40GHz	June 18,2017	June 17,2018
Power Sensor	R&S	NRV-Z51	100458	DC-30GHz	June 18,2017	June 17,2018
Power Sensor	R&S	NRV-Z32	10057	30MHz-6GHz	June 18,2017	June 17,2018
RF CABLE-1m	JYE Bao	RG142	CB034-1m	20MHz-7GHz	June 18,2017	June 17,2018
RF CABLE-2m	JYE Bao	RG142	CB035-2m	20MHz-1GHz	June 18,2017	June 17,2018
Note: All equipment through GRGT EST calibration						

6. ANTENNA REQUIREMENT

6.1. 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. 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.

6.2. Antenna Connected Construction

The directional gains of antenna used for transmitting is 0.0dBi, and the antenna is connect to PCB board and no consideration of replacement. Please see EUT photo for details.

Result: Compliance.

7. RADIATED EMISSION MEASUREMENT

7.1. Standard Applicable

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.
20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) and 15.249 limit in the table below has to be followed.

Fundamental Frequency	Field Strength of fundamental (millivolts/meter)	Field Strength of harmonics (microvolts/meter)
902-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

7.2. Instruments Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

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

7.3. Test Procedure

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 is 1.5 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 found antenna polarisation and turntable position of the premeasurement the software maximizes the peaks by rotating the turntable position (0° to 360°). This measurement is repeated for different EUT-table positions (0° to 150° in 30°-steps). This procedure is repeated for both antenna polarisations.

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

4) **Sequence of testing above 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 1 meter.

--- The EUT was set into operation.

Premeasurement:

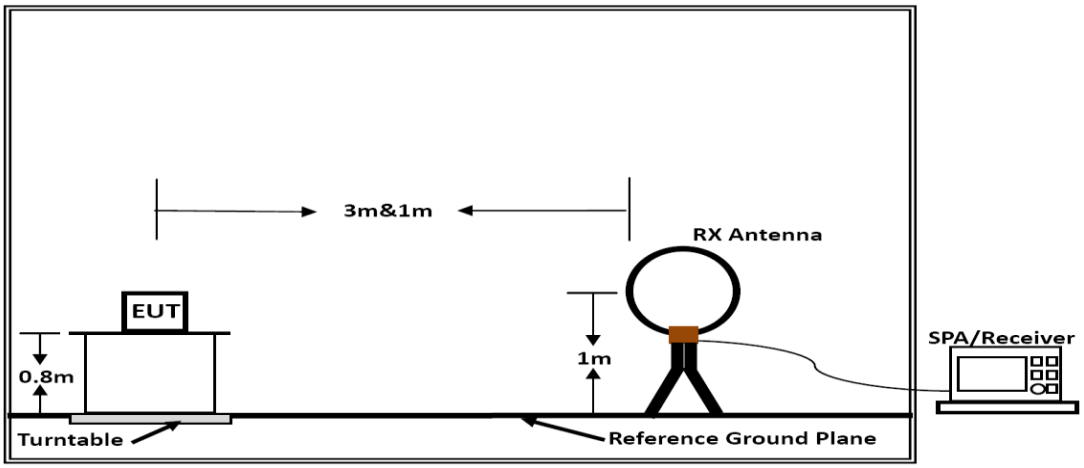
--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

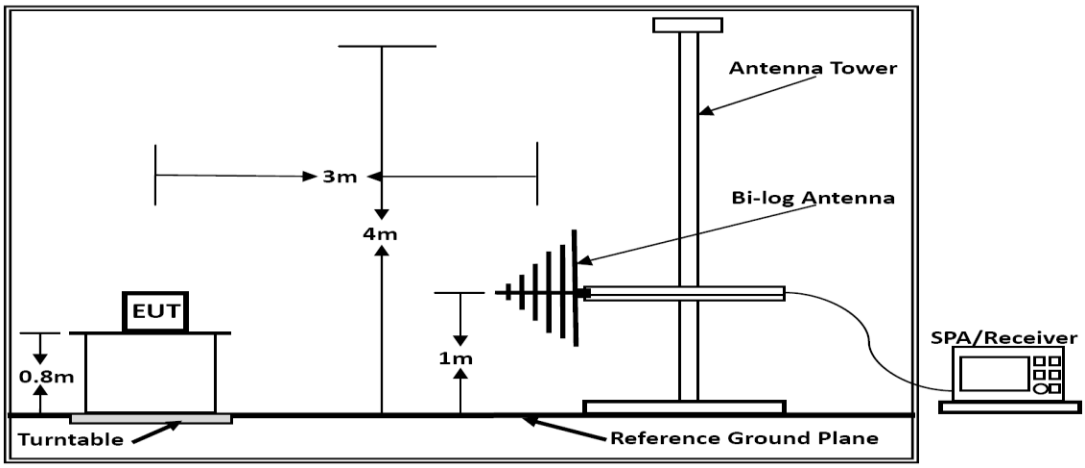
--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and RMS detector.

--- The final levels, frequency, measuring time, bandwidth, 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.

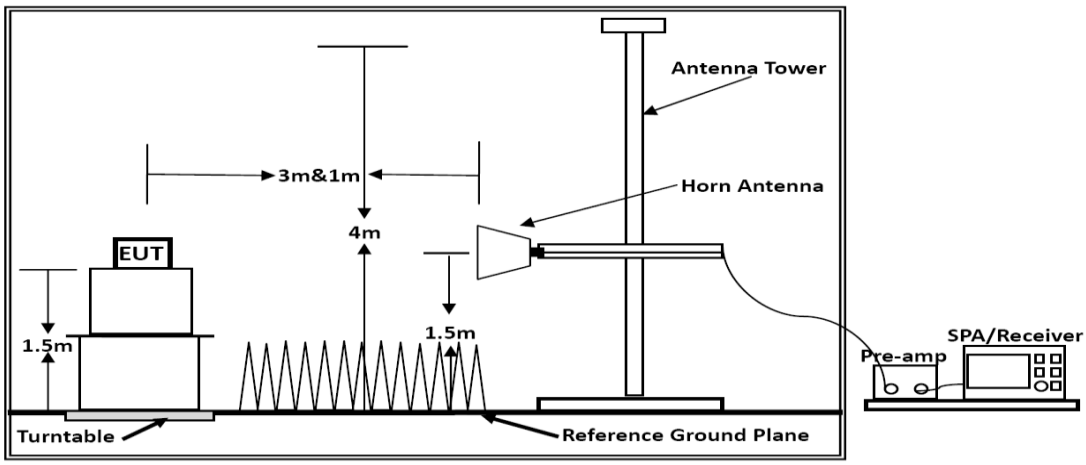
7.4. Block Diagram of Test Setup



Below 30MHz



Below 1GHz



Above 1GHz

7.5. Test Results

Results of Radiated Emissions (9kHz~30MHz)

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

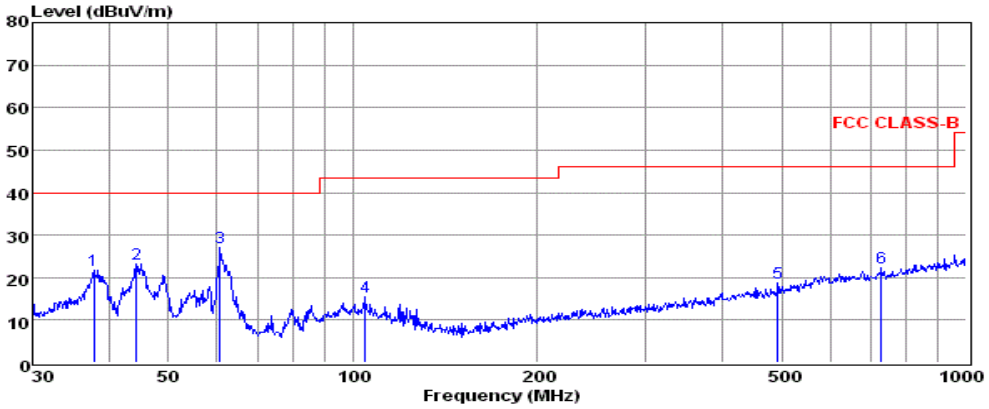
Note:

The radiated emissions from 9kHz to 30MHz are at least 20dB below the official limit and no need to report.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB); Limit line = specific limits (dBuV) + distance extrapolation factor.

Results of Radiated Emissions (30MHz~1000MHz)

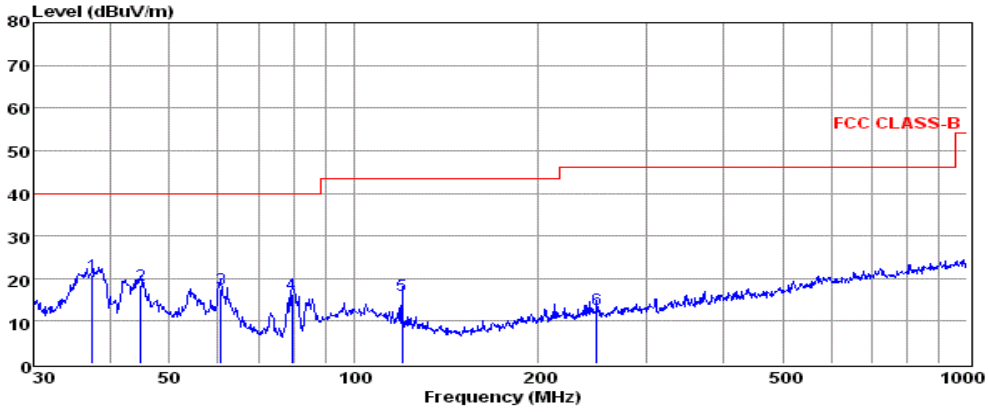
Temperature	25.6℃	Humidity	50.4%
Test Engineer	Chaz Liu	Test Date	June 13, 2017
Test Mode	TX-2402MHz		



pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	37.81	8.29	0.38	13.02	21.69	40.00	-18.31	QP
2	44.28	9.15	0.41	13.55	23.11	40.00	-16.89	QP
3	60.70	14.13	0.49	12.41	27.03	40.00	-12.97	QP
4	104.54	2.08	0.61	12.75	15.44	43.50	-28.06	QP
5	492.47	0.73	1.50	16.39	18.62	46.00	-27.38	QP
6	726.81	1.55	1.70	19.15	22.40	46.00	-23.60	QP

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



pol: HORIZONTAL

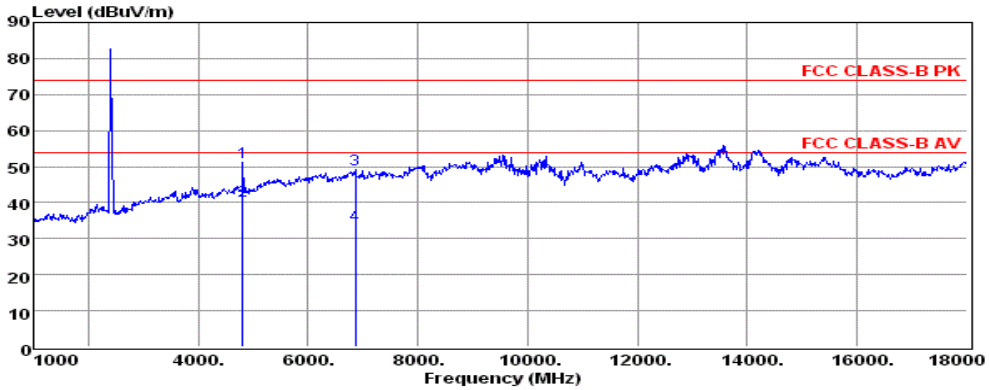
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	37.42	7.49	0.41	12.92	20.82	40.00	-19.18	QP
2	44.90	4.46	0.41	13.55	18.42	40.00	-21.58	QP
3	60.70	4.79	0.49	12.41	17.69	40.00	-22.31	QP
4	79.24	7.24	0.65	8.43	16.32	40.00	-23.68	QP
5	119.86	4.88	0.64	10.51	16.03	43.50	-27.47	QP
6	248.55	-0.26	1.02	12.07	12.83	46.00	-33.17	QP

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

Notes: Only record the worst case.

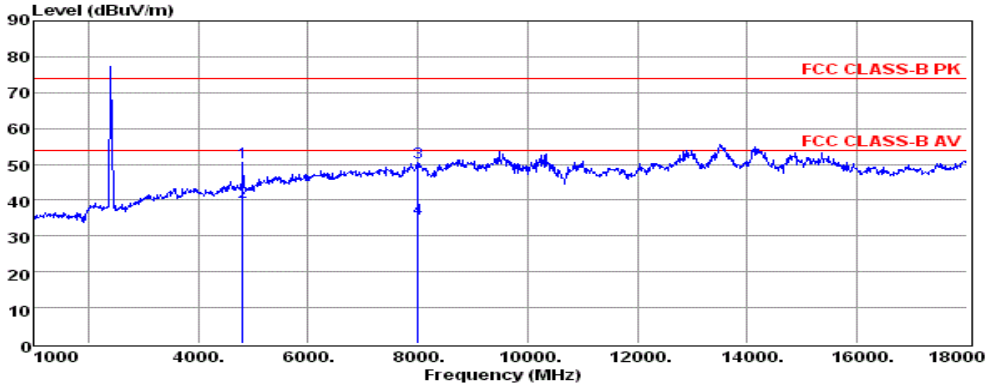
7.6. Results for Radiated Emissions (Above 1GHz)

Field Strength Of Fundamental (TX-2402MHz)						
Frequency (MHz)	Pol.	Measure Result (PK, dBuV/m)	Measure Result (AVG, dBuV/m)	Peak Limit (dBuV/m)	AVG Limit (dBuV/m)	Result
2402.00	H	83.26	--	114	94	Pass
2402.00	V	79.38	--	114	94	Pass



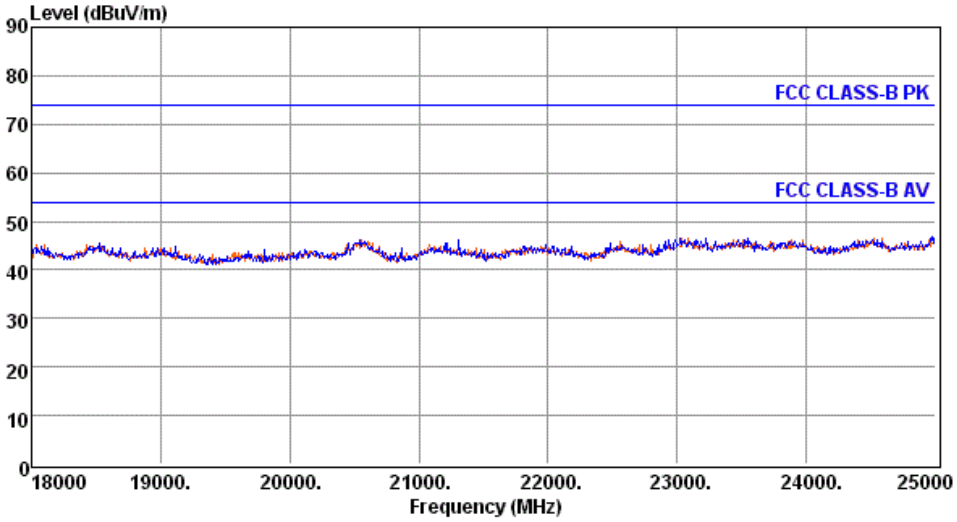
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4804.00	46.52	7.68	33.31	51.07	74.00	-22.93	Peak
2	4804.00	35.79	7.68	33.31	40.34	54.00	-13.66	Average
3	6865.00	39.09	9.20	36.71	49.16	74.00	-24.84	Peak
4	6865.00	23.71	9.20	36.71	33.78	54.00	-20.22	Average



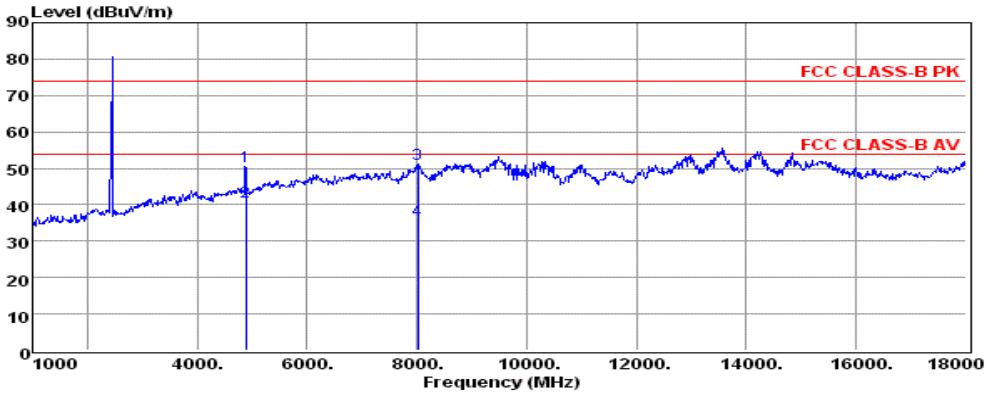
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4804.00	46.03	7.68	33.31	50.58	74.00	-23.42	Peak
2	4804.00	34.87	7.68	33.31	39.42	54.00	-14.58	Average
3	8004.00	38.40	9.60	37.25	50.67	74.00	-23.33	Peak
4	8004.00	22.69	9.60	37.25	34.96	54.00	-19.04	Average



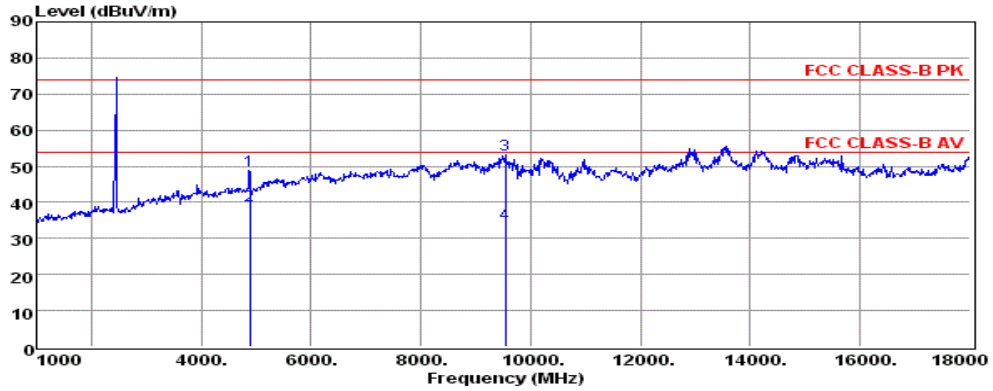
Notes: 18000-25000MHz Vertiacl &Hrizontal

Field Strength Of Fundamental (TX-2441MHz)						
Frequency (MHz)	Pol.	Measure Result (PK, dBuV/m)	Measure Result (AVG, dBuV/m)	Peak Limit (dBuV/m)	AVG Limit (dBuV/m)	Result
2441.00	H	81.02	--	114	94	Pass
2441.00	V	78.14	--	114	94	Pass



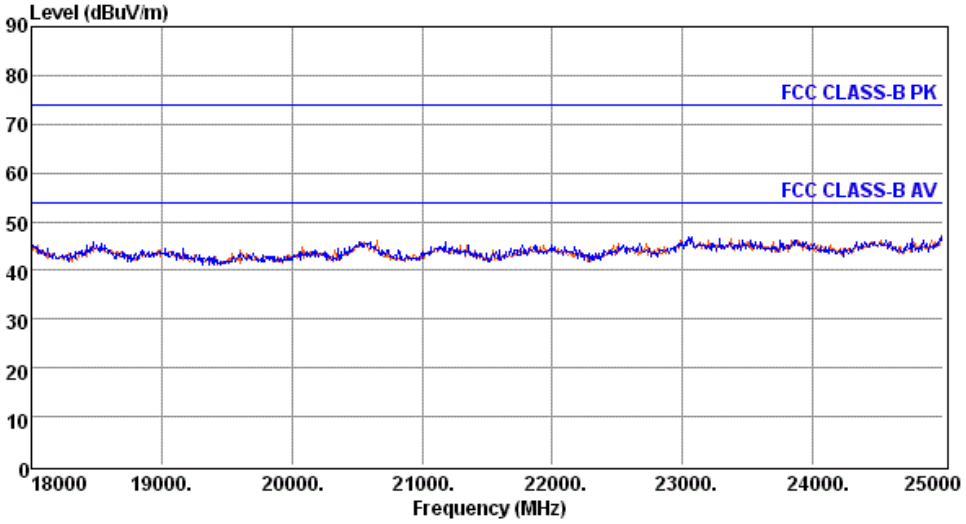
pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4882.00	45.54	7.73	33.51	50.36	74.00	-23.64	Peak
2	4882.00	35.83	7.73	33.51	40.65	54.00	-13.35	Average
3	8021.00	38.74	9.60	37.26	51.03	74.00	-22.97	Peak
4	8021.00	23.36	9.60	37.26	35.65	54.00	-18.35	Average



pol: VERTICAL

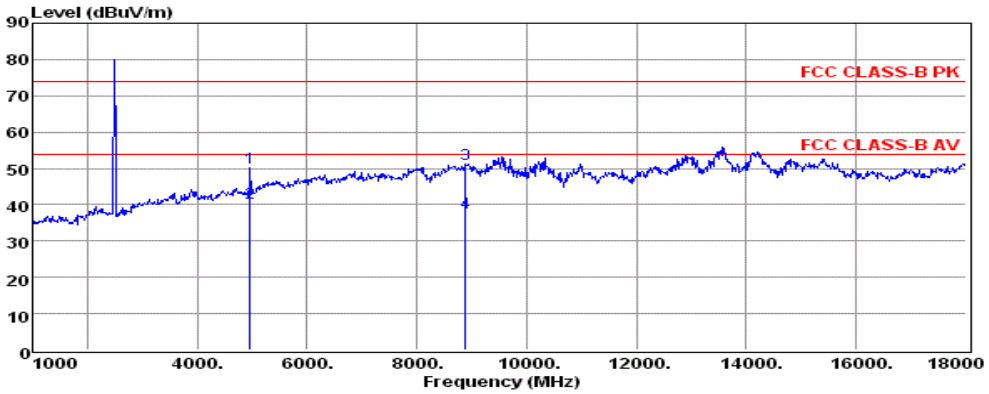
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4882.00	43.95	7.73	33.51	48.77	74.00	-25.23	Peak
2	4882.00	34.45	7.73	33.51	39.27	54.00	-14.73	Average
3	9534.00	40.56	9.96	37.98	53.11	74.00	-20.89	Peak
4	9534.00	21.59	9.96	37.98	34.14	54.00	-19.86	Average



Notes: 18000-25000MHz Vertiacl &Hrizontal

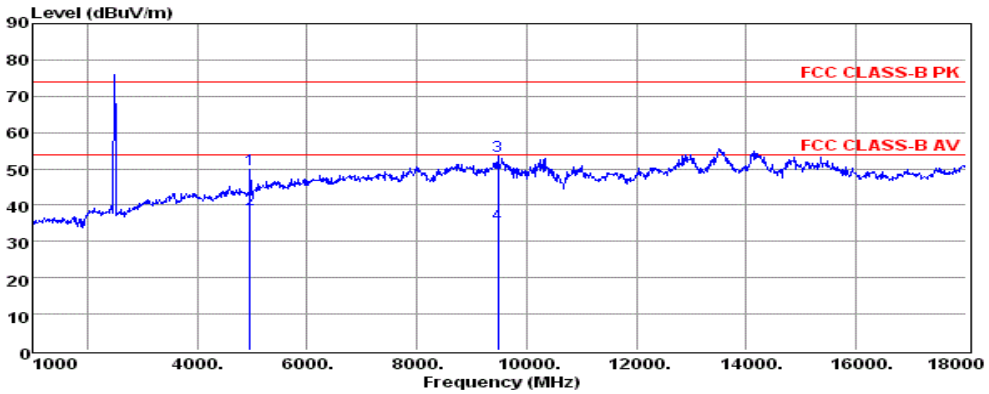
Field Strength Of Fundamental (TX-2480MHz)

Frequency (MHz)	Pol.	Measure Result (PK, dBuV/m)	Measure Result (AVG, dBuV/m)	Peak Limit (dBuV/m)	AVG Limit (dBuV/m)	Result
2480.00	H	79.86	--	114	94	Pass
2480.00	V	75.89	--	114	94	Pass



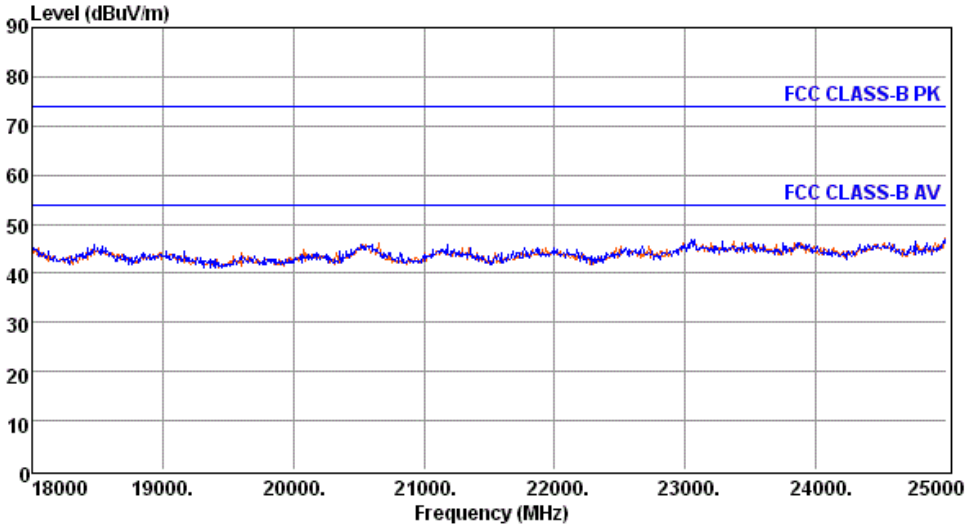
pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4960.00	45.27	7.78	33.70	50.35	74.00	-23.65	Peak
2	4960.00	35.25	7.78	33.70	40.33	54.00	-13.67	Average
3	8888.00	39.45	9.78	37.67	51.18	74.00	-22.82	Peak
4	8888.00	25.93	9.78	37.67	37.66	54.00	-16.34	Average



pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	4960.00	44.90	7.78	33.70	49.98	74.00	-24.02	Peak
2	4960.00	33.58	7.78	33.70	38.66	54.00	-15.34	Average
3	9483.00	40.92	9.94	37.95	53.37	74.00	-20.63	Peak
4	9483.00	22.40	9.94	37.95	34.85	54.00	-19.15	Average



Notes: 18000-25000MHz Vertiacl &Hrizontal

Notes: Only record the worst case.

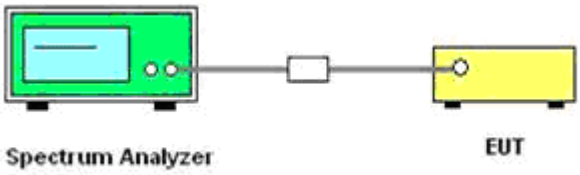
1. *Measuring frequencies from 9k~10th harmonic (ex. 26GHz), No emission found between lowest internal used/generated frequency to 30MHz.*
2. *Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 26GHz) were made with an instrument using Peak detector mode.*
3. *All reading above 1GHz are peak values.*
4. *Measured(above 1GHz)=Reading + Antenna Factor + Cable Loss + Pre-AMP*

7.7. Results for Band edge Testing (Conducted)

7.7.1 Standard Applicable

Per the requirement of ANSI C63.10:2013 §6.10.5, Restricted-band band-edge tests shall be performed as radiated measurements, however, §12.7.2 that allowed a converted method from conducted measurement function, for conducted measurements above 1000 MHz, EIRP shall be computed as specified in §12.7.4.2, and then field strength shall be computed as follows:
1) E[dBuV/m] = EIRP[dBm] − 20 log (d[m]) + 104.77, where E is field strength and d is distance at which the field strength limit is specified in the applicable requirements.
2) E[dBuV/m] = EIRP[dBm] + 95.2, for d = 3 m.
Then the radiated field strength E can be calculated as
E=EIRP[dBm] + 95.2

7.7.2 Block Diagram of Test Setup



7.7.3 Measuring Instruments and Setting

Please refer to section 6 of equipment list in this report. The following table is the setting of Spectrum Analyzer.

7.7.4. Test Procedures

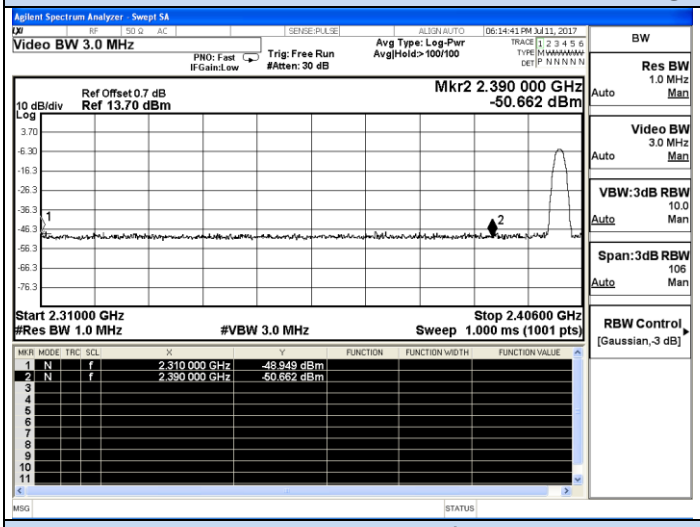
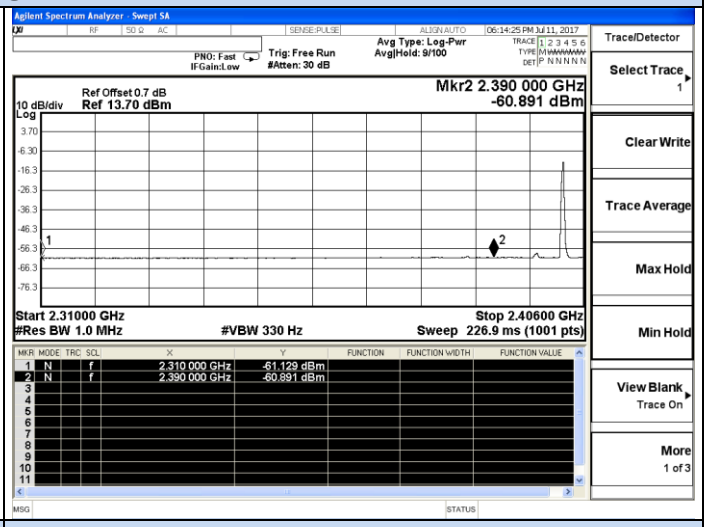
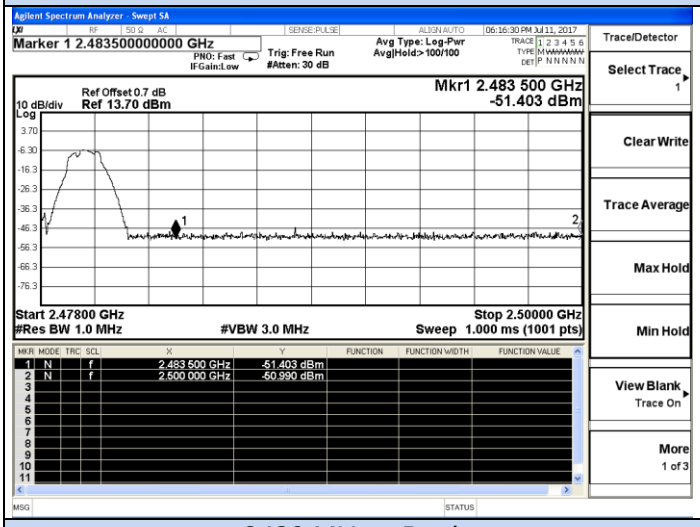
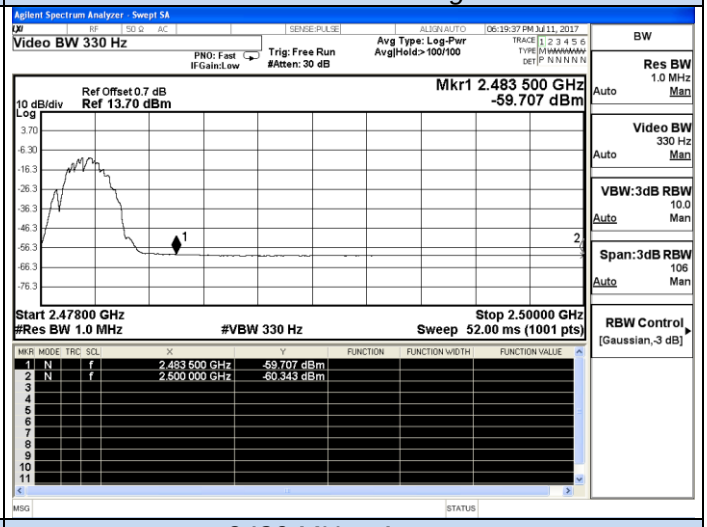
1. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
2. Repeat above procedures until all measured frequencies were complete.
3. Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
4. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)
5. Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
6. For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
7. Compare the resultant electric field strength level to the applicable regulatory limit.
8. Perform radiated spurious emission test duress until all measured frequencies were complete.
9. Spectrum analyzer setup:
   Resolution bandwidth: 1MHz
   Video bandwidth: 3 × RBW
   Detector: Peak and average above 1 GHz

Temperature	25.6℃	Humidity	50.4%
Test Engineer	Chaz Liu	Test Date	June 13, 2017

Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
GFSK-Low channel							
2310.000	-48.945	2.0	0.0	48.255	Peak	74.00	PASS
2310.000	-61.129	2.0	0.0	36.071	AV	54.00	PASS
2390.000	-50.662	2.0	0.0	46.538	Peak	74.00	PASS
2390.000	-60.891	2.0	0.0	36.309	AV	54.00	PASS
GFSK-High channel							
2483.500	-51.403	2.0	0.0	45.797	Peak	74.00	PASS
2483.500	-59.707	2.0	0.0	37.493	AV	54.00	PASS
2500.000	-50.990	2.0	0.0	46.210	Peak	74.00	PASS
2500.000	-60.343	2.0	0.0	36.857	AV	54.00	PASS

Remark:

1. *If all peak measurement results satisfy the average limit, then average measurements are not required.*
2. *Detector AV is setting spectrum/receiver. RBW=1MHz/VBW=330KHz/Sweep time=Auto/Detector=Peak;*
3. *Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.*
4. *Please refer to following test plots;*

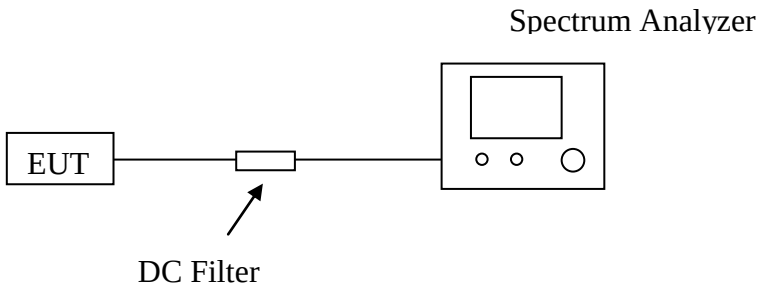
Band-edge measurements for conducted emissions	
GFSK	
	
2402 MHz – Peak	*2402 MHz –Average*
	
2480 MHz – Peak	*2480 MHz –Average*

8. 20 DB BANDWIDTH MEASUREMENT

8.1. Standard Applicable

According to §15.215

8.2. Block Diagram of Test Setup



8.3. Test Procedure

Use the following spectrum analyzer settings:

Span = 3MHz

RBW = 30KHz

VBW = 100KHz

Sweep = auto

Detector function = peak

Trace = max hold

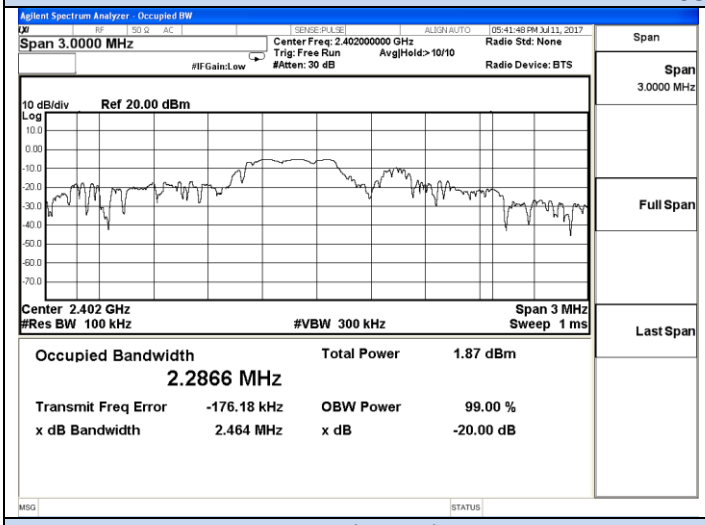
The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth of the emission. If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

8.4. Test Results

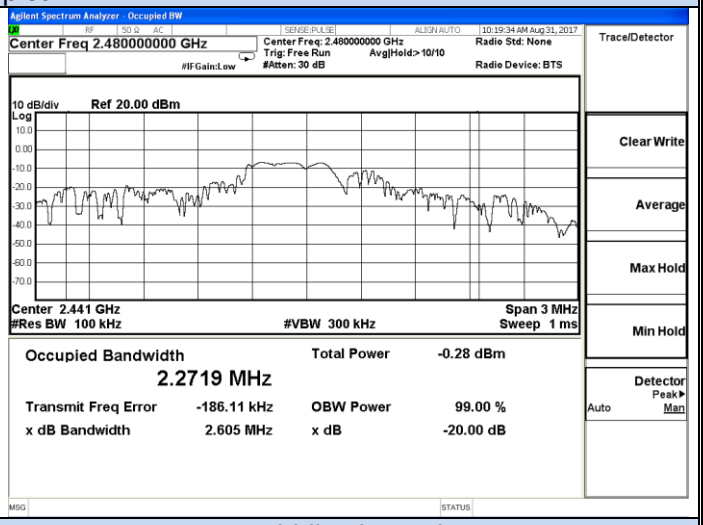
Temperature	25.6℃	Humidity	50.4%
Test Engineer	Chaz Liu	Test Date	June 13, 2017

Test Result Of 20dB Bandwidth Measurement		
Test Frequency (MHz)	20dB Bandwidth (MHz)	Limit (MHz)
2402	2.464	Non-Specified
2441	2.605	Non-Specified
2480	2.578	Non-Specified

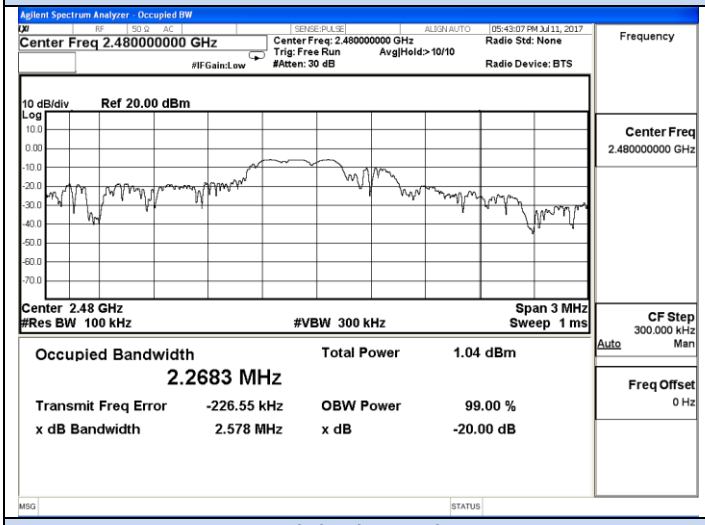
Test plot



Low channel



Middle channel



High channel

9. AC POWER LINE CONDUCTED EMISSIONS

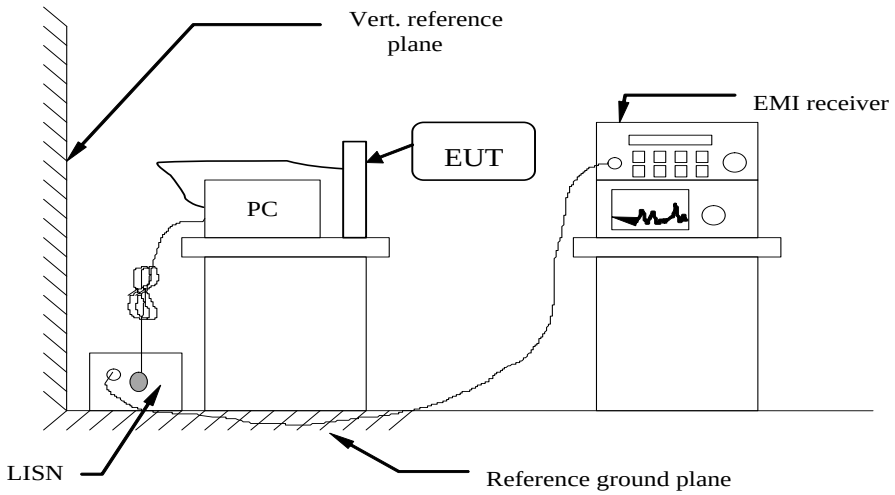
9.1 Standard Applicable

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

* Decreasing linearly with the logarithm of the frequency

9.2 Block Diagram of Test Setup

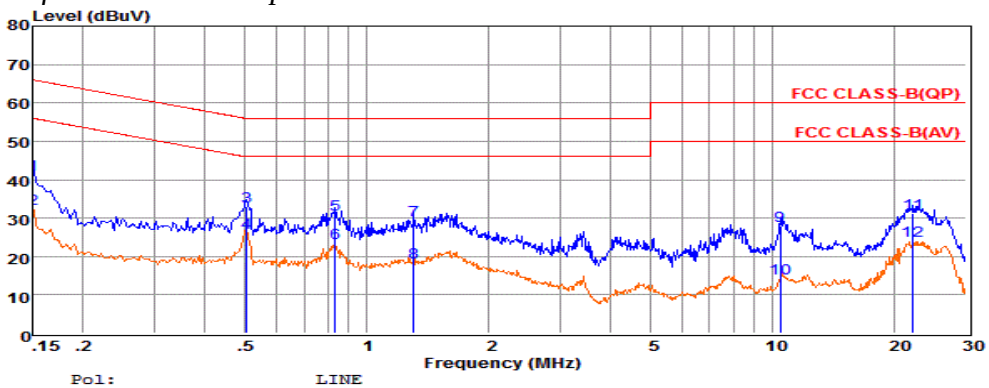


9.3 Test Results

PASS.

The test data please refer to following page.

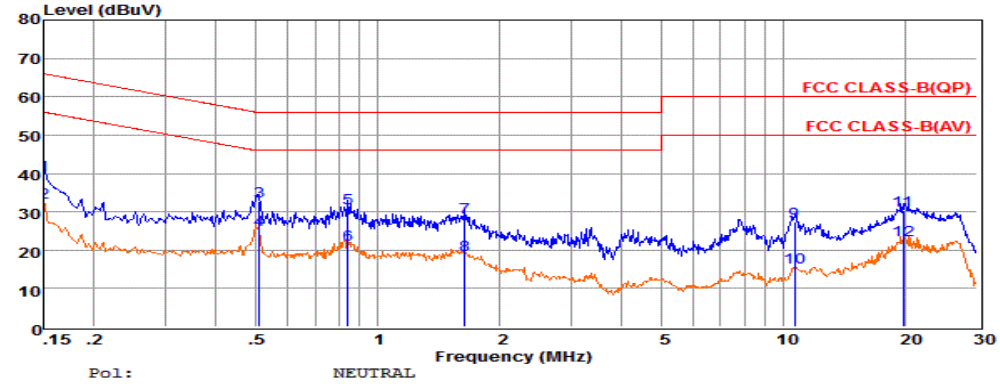
Test Result for Line Power Input AC 120V/60Hz



Pol: LINE

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.15	21.66	9.57	0.02	10.00	41.25	66.00	-24.75	QP
2	0.15	12.95	9.57	0.02	10.00	32.54	55.99	-23.45	Average
3	0.50	13.21	9.62	0.04	10.00	32.87	56.00	-23.13	QP
4	0.50	6.45	9.62	0.04	10.00	26.11	46.00	-19.89	Average
5	0.83	11.11	9.64	0.04	10.00	30.79	56.00	-25.21	QP
6	0.83	3.78	9.64	0.04	10.00	23.46	46.00	-22.54	Average
7	1.30	9.70	9.63	0.05	10.00	29.38	56.00	-26.62	QP
8	1.30	-1.17	9.63	0.05	10.00	18.51	46.00	-27.49	Average
9	10.45	8.30	9.69	0.08	10.00	28.07	60.00	-31.93	QP
10	10.45	-5.58	9.69	0.08	10.00	14.19	50.00	-35.81	Average
11	22.18	11.47	9.71	0.12	10.00	31.30	60.00	-28.70	QP
12	22.18	4.14	9.71	0.12	10.00	23.97	50.00	-26.03	Average

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

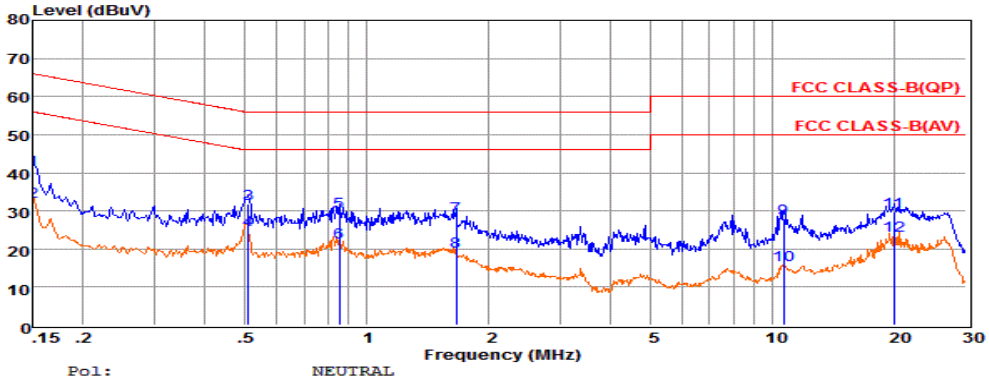


Pol: NEUTRAL

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.15	19.82	9.70	0.02	10.00	39.54	66.00	-26.46	QP
2	0.15	12.82	9.70	0.02	10.00	32.54	55.99	-23.45	Average
3	0.51	12.92	9.62	0.04	10.00	32.58	56.00	-23.42	QP
4	0.51	5.59	9.62	0.04	10.00	25.25	46.00	-20.75	Average
5	0.84	11.34	9.63	0.04	10.00	31.01	56.00	-24.99	QP
6	0.84	1.75	9.63	0.04	10.00	21.42	46.00	-24.58	Average
7	1.64	8.87	9.63	0.05	10.00	28.55	56.00	-27.45	QP
8	1.64	-1.00	9.63	0.05	10.00	18.68	46.00	-27.32	Average
9	10.68	7.60	9.72	0.08	10.00	27.40	60.00	-32.60	QP
10	10.68	-4.27	9.72	0.08	10.00	15.53	50.00	-34.47	Average
11	19.74	10.24	9.88	0.12	10.00	30.24	60.00	-29.76	QP
12	19.74	2.49	9.88	0.12	10.00	22.49	50.00	-27.51	Average

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

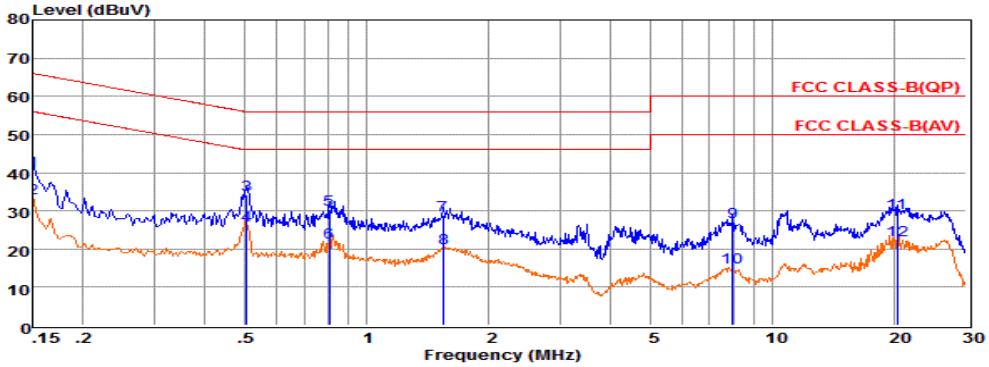
Test Result for Line Power Input AC 240V/60Hz



Pol: NEUTRAL

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.15	20.94	9.70	0.02	10.00	40.66	66.00	-25.34	QP
2	0.15	12.84	9.70	0.02	10.00	32.56	55.99	-23.43	Average
3	0.51	12.17	9.62	0.04	10.00	31.83	56.00	-24.17	QP
4	0.51	5.39	9.62	0.04	10.00	25.05	46.00	-20.95	Average
5	0.86	10.22	9.63	0.04	10.00	29.89	56.00	-26.11	QP
6	0.86	2.18	9.63	0.04	10.00	21.85	46.00	-24.15	Average
7	1.66	9.00	9.63	0.05	10.00	28.68	56.00	-27.32	QP
8	1.66	-0.29	9.63	0.05	10.00	19.39	46.00	-26.61	Average
9	10.68	8.21	9.72	0.08	10.00	28.01	60.00	-31.99	QP
10	10.68	-4.00	9.72	0.08	10.00	15.80	50.00	-34.20	Average
11	19.95	9.87	9.89	0.12	10.00	29.88	60.00	-30.12	QP
12	19.95	3.63	9.89	0.12	10.00	23.64	50.00	-26.36	Average

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



Pol: LINE

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dB	dBuV	dBuV	dB
1	0.15	20.82	9.57	0.02	10.00	40.41	66.00	-25.59	QP
2	0.15	13.71	9.57	0.02	10.00	33.30	55.99	-22.69	Average
3	0.50	14.61	9.62	0.04	10.00	34.27	56.00	-21.73	QP
4	0.50	6.56	9.62	0.04	10.00	26.22	46.00	-19.78	Average
5	0.81	10.79	9.64	0.04	10.00	30.47	56.00	-25.53	QP
6	0.81	1.95	9.64	0.04	10.00	21.63	46.00	-24.37	Average
7	1.54	9.23	9.64	0.05	10.00	28.92	56.00	-27.08	QP
8	1.54	0.49	9.64	0.05	10.00	20.18	46.00	-25.82	Average
9	7.98	7.44	9.68	0.07	10.00	27.19	60.00	-32.81	QP
10	7.98	-4.45	9.68	0.07	10.00	15.30	50.00	-34.70	Average
11	20.27	9.56	9.75	0.12	10.00	29.43	60.00	-30.57	QP
12	20.27	2.41	9.75	0.12	10.00	22.28	50.00	-27.72	Average

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

10. TEST SETUP PHOTOGRAPHS

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

11. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Please refer to separated files for External Photos & Internal Photos of the EUT.

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