

APPLICATION FOR CERTIFICATION

On Behalf of

Philips (China) Investment Co., Ltd.

LED Lamp

Model No. : 9290011419

Brand : Philips

FCC ID : O3M9290011419X

Prepared for

Philips (China) Investment Co., Ltd.

No. 9, Lane 888, Tian Lin Road, 200233, Shanghai, China

Prepared by

Audix Technology (Wujiang) Co., Ltd. EMC Dept.

No. 1289 Jiangxing East Road, the Part of Wujiang Economic Development Zone
Jiangsu China 215200

Tel : +86-512-63403993

Fax :+86-512-63403339

Report Number : ACWE-F1503010A

Date of Test : Oct.27~Nov.01, 2015

Date of Report : Nov.04, 2015

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TEST REPORT CERTIFICATION

Applicant : Philips (China) Investment Co., Ltd.
 Manufacturer : Philips (China) Investment Co., Ltd.
 Factory : Arts Electronics Co., Ltd.
 EUT Description : LED Lamp
 FCC ID : 03M9290011419X
 (A) Model No. : 9290011419
 (B) Brand : Philips
 (C) Power Supply : AC 110-130V, 50/60Hz
 (D) Test Voltage : AC 120V, 60Hz

Applicable Standards:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2013
ANSI C63.10: 2013
KDB 558074 D01 DTS Meas Guidance v03r02

The device described above was tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C section 15.207, 15.205, 15.209&15.247 limits.

The measurement results are contained in this test report and Audix Technology (Wujiang) Co., Ltd. EMC Dept. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Wujiang) Co., Ltd. EMC Dept.

Date of Test: Oct.27~Nov.01, 2015

Date of Report: Nov.04, 2015

Prepared by

:



(Emma Hu/Assistant Administrator)

Reviewer

:



(Danny Sun/ Section Manager)

Approved & Authorized Signer

:



(Ken Lu/Assistant General Manager)

1. DESCRIPTION OF VERSION

Edition No.	Date of Rev.	Summary	Report No.
0	Apr.30, 2015	Original Report	ACWE-F1503010
Rev.A	Nov.04, 2015	Add new MCPCB LED Board	ACWE- F1503010A

2. SUMMARY OF MEASUREMENTS AND RESULTS

The EUT has been tested according to the applicable standards and test results are referred as below.

Description of Test Item	Standard	Results	Remark
CONDUCTED EMISSION	FCC 47 CFR Part 15 Subpart C/ Section 15.207 And ANSI C63.10:2013 And KDB 558074 D01 DTS Meas Guidance v03r02	PASS	Minimum passing margin is 6.16 dB at 0.33MHz
RADIATED EMISSION	FCC 47 CFR Part 15 Subpart C/ Section 15.209 & Section 15.205 And ANSI C63.10:2013 And KDB 558074 D01 DTS Meas Guidance v03r02	PASS	Minimum passing margin is 7.95 dB at 39.7MHz
6 dB BANDWIDTH	FCC 47 CFR Part 15 Subpart C/ Section 15.247(a)(2) And ANSI C63.10:2013 And KDB 558074 D01 DTS Meas Guidance v03r02	PASS	Minimum passing margin is 142kHz at CH 26
OUTPUT POWER	FCC 47 CFR Part 15 Subpart C/ Section 15.247(b)(3) And ANSI C63.10:2013 And KDB 558074 D01 DTS Meas Guidance v03r02	PASS	Minimum passing margin is 26.39dB at CH 26
BAND EDGES	FCC 47 CFR Part 15 Subpart C/ Section 15.247(d) And ANSI C63.10:2013 And KDB 558074 D01 DTS Meas Guidance v03r02	PASS	---
POWER SPECTRAL DENSITY	FCC 47 CFR Part 15 Subpart C/ Section 15.247(e) And ANSI C63.10:2013 And KDB 558074 D01 DTS Meas Guidance v03r02	PASS	Minimum passing margin is 22.08dB at CH 26
EMISSION LIMITATIONS	FCC 47 CFR Part 15 Subpart C/ Section 15.247(d) And ANSI C63.10:2013 And KDB 558074 D01 DTS Meas Guidance v03r02	PASS	---

3. GENERAL INFORMATION

3.1. Description of Device (EUT)

Description	:	LED Lamp
Model No.	:	9290011419
FCC ID	:	O3M9290011419X
Brand	:	Philips
Applicant	:	Philips (China) Investment Co., Ltd. No. 9, Lane 888, Tian Lin Road, 200233, Shanghai, China
Manufacturer	:	Philips (China) Investment Co., Ltd. No. 9, Lane 888, Tian Lin Road, 200233, Shanghai, China
Factory	:	Arts Electronics Co., Ltd. Shangxing Lu, Shangjiao Community, Changan Town, Dongguan Guangdong523000 China
Radio Technology	:	IEEE 802.15.4 (ZigBee®)
Antenna Gain	:	-3dBi
Fundamental Range	:	2405 MHz -2480MHz
Tested Frequency	:	2405MHz (CH11) 2450MHz (CH20) 2480MHz (CH26)
Highest Working Frequency	:	2.4GHz
Power Rating	:	10W, 145mA
Modulation type	:	O-QPSK
Date of Receipt of Sample	:	Jul.01, 2015
Date of Test	:	Oct.27~Nov.01, 2015

3.2. Description of Test Facility

Name of Firm : **Audix Technology (Wujiang) Co., Ltd. EMC Dept.**

Site Location : No. 1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone Jiangsu China 215200

Test Facilities : **No.1 Conducted Shielding Enclosure**
No.1 3m Semi-anechoic Chamber
 Date of Validity: Mar.30, 2018
 FCC Registration No.: 897661
 IC Registration No.:5183D-2

RF Fully Chamber

NVLAP Lab Code : 200786-0
 Valid until on Sep.30, 2016
 (NVLAP is a signatory member of ILAC MRA)
 Remark: This report shall not be imply endorsement, certification or approval by NVLAP, NIST, or any agency of the U.S. Federal Government.

3.3. Measurement Uncertainty

Test Item	Range Frequency	Uncertainty
Conducted Disturbance Measurement	0.15MHz ~ 30MHz	± 3.30dB
Radiated Disturbance Measurement (At 3m Chamber)	Below 1GHz	± 4.50dB
Radiated Disturbance Measurement (At 3m Chamber)	Above 1GHz	± 5.15dB

Remark: Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6 dB Bandwidth	± 0.16 MHz
Maximum Peak Output Power	± 0.12dB
Band Edges	± 0.38dB
Power Spectral Density	± 0.38dB
Emission Limitations	± 0.38dB

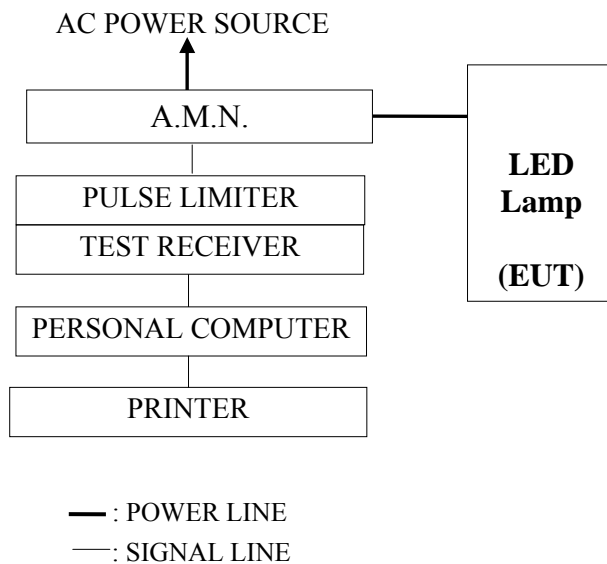
Remark: Uncertainty = $ku_c(y)$

4. CONDUCTED EMISSION MEASUREMENT

4.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCI	100839	2015-01-05	2016-01-04
2.	A.M.N	R&S	ESH2-Z5	100153	2015-05-15	2016-05-14
3.	Pulse Limiter	R&S	ESH3-Z2	100605	2015-07-03	2016-07-02
4.	RF Cable	Harbour Industries	RG400	002	2015-01-05	2016-01-04

4.2. Block Diagram of Test Setup



4.3. Power line Conducted Emission Limit

(FCC Part 15, Section 15.207, Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

Remark1: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2: The lower limit applies at the band edges.

4.4. Test Procedure

The measuring process is according to ANSI C63.10-2013 and laboratory internal procedure TKC-301-004. (For FCC Part15 Subpart C)

In the conducted emission measurement, the EUT and all peripheral devices were set up on a non-metallic table which was 0.8 meters height above the ground plane, and 0.4 meters far away from the vertical plane. The EUT (installed in PC system) was powered by AC mains through Artificial Mains Network (A.M.N), other peripheral devices were powered by AC mains through the second Line Impedance Stabilization Network (L.I.S.N). For the measurement, the A.M.N measuring port was terminated by a 50Ω measuring equipment and the second L.I.S.N measuring port was terminated by a 50Ω resistive load. All measurements were done on the phase and neutral line of the EUT’s power cord. All cables or wires placement were verified to find out the maximum emission.

The bandwidth of measuring receiver was set at 9 kHz.

The required frequency band (0.15 MHz ~ 30 MHz) was pre-scanned with peak detector, the final measurement was measured with quasi-peak detector and average detector. (If the average limit is met when using a quasi-peak detector, the average detector is necessary).

The emission level is calculated automatically by the test system which uses the following equation:

$$\text{Emission level (dB}\mu\text{V)} = \text{Reading (dB}\mu\text{V)} + \text{A.M.N factor (dB)} + \text{Cable loss (dB)}.$$

(Cable loss include pulse limiter loss)

4.5. Conducted Emission Measurement Results

For FCC Part15 Subpart C

PASSED.

EUT was performed during this section testing and all the test results are attached in next pages.

Test Date : Nov.01, 2015 Temperature : 19.1 °C Humidity : 50%

Mode	Test Condition	Reference Test Data No.	
		Neutral	Line
1	Transmitting	# 1	※# 2

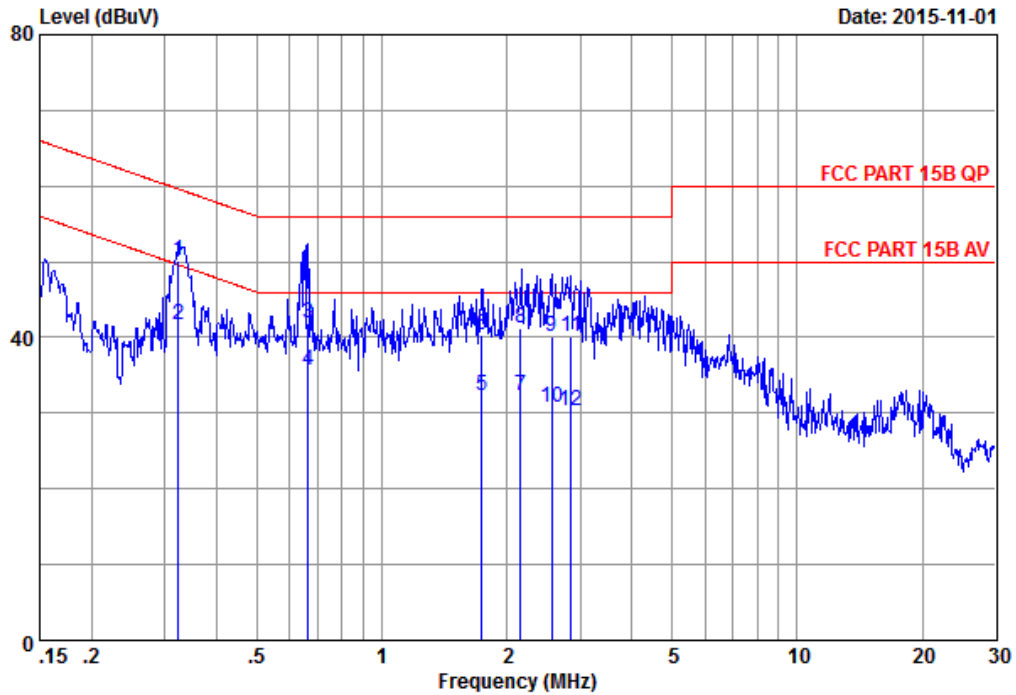
NOTE 1- ‘※’ means the worst test mode.

NOTE 2- The worst emission is detected at 0.33 MHz with emission level of 43.34 dB (μV) and with AV detector (Limit is 49.50 dB (μV)), when the Line of the EUT is connected to AMN.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang King East Road,Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel:0512-63403993 Fax:0512-63403339

Data: 1 File: F:\2015Test Data\Report\1\G1501010R1.EM6 (6)



Site no. : No.1 Conducted shielding Enclosure Data no. : 1
 AMN/LISN : ESH2-Z5-1505 Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Env. / Ins. : 19.1*C&50%/ESCI Engineer : KM.Tong
 EUT : LED Lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test mode : Transmitting
 Memo

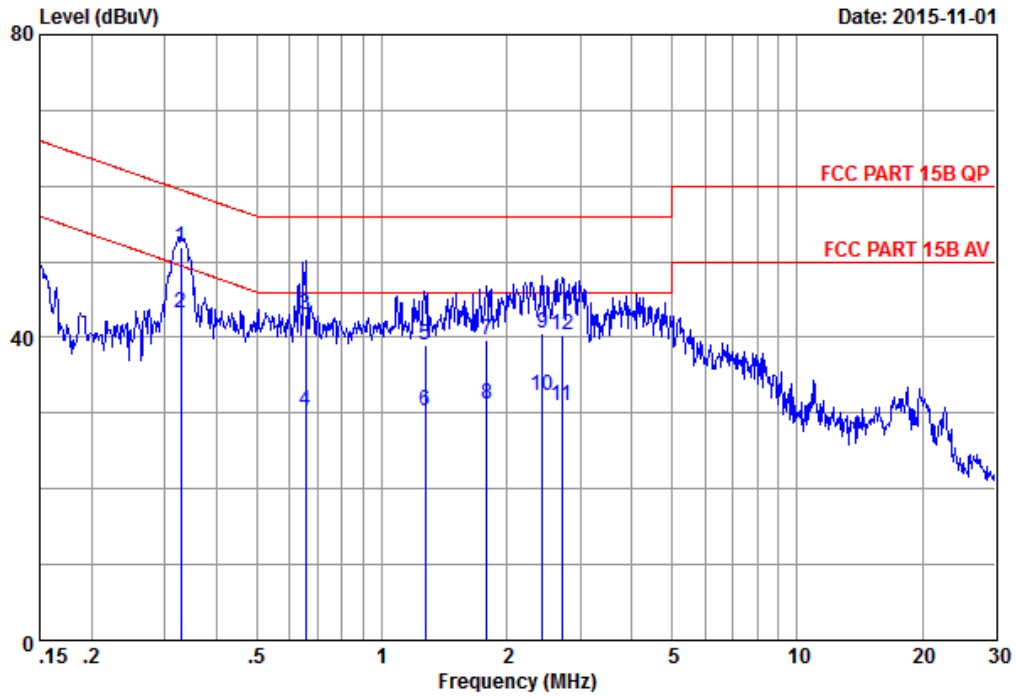
	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.32	0.15	9.88	40.20	50.23	59.63	9.40	QP
2	0.32	0.15	9.88	31.70	41.73	49.63	7.90	Average
3	0.66	0.17	9.89	31.90	41.96	56.00	14.04	QP
4	0.66	0.17	9.89	25.60	35.66	46.00	10.34	Average
5	1.74	0.20	9.92	22.20	32.32	46.00	13.68	Average
6	1.74	0.20	9.92	30.20	40.32	56.00	15.68	QP
7	2.16	0.22	9.93	22.09	32.24	46.00	13.76	Average
8	2.16	0.22	9.93	31.09	41.24	56.00	14.76	QP
9	2.56	0.23	9.94	29.89	40.06	56.00	15.94	QP
10	2.56	0.23	9.94	20.59	30.76	46.00	15.24	Average
11	2.86	0.24	9.94	29.90	40.08	56.00	15.92	QP
12	2.86	0.24	9.94	20.10	30.28	46.00	15.72	Average

Remarks:
 1.Emission Level= AMN factor + Cable loss + Reading .



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang King East Road,Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel:0512-63403993 Fax:0512-63403339

Data: 2 File: F:\2015Test Data\Report\1\G1501010R1.EM6 (6)



Date: 2015-11-01

Site no. : No.1 Conducted shielding Enclosure Data no. : 2
 AMN/LISN : ESH2-Z5-1505 Phase : LINE
 Limit : FCC PART 15B QP
 Env. / Ins. : 19.1*C&50%/ESCI Engineer : KM.Tong
 EUT : LED Lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test mode : Transmitting
 Memo

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.33	0.16	9.88	41.80	51.84	59.50	7.66	QP
2	0.33	0.16	9.88	33.30	43.34	49.50	6.16	Average
3	0.66	0.18	9.89	32.90	42.97	56.00	13.03	QP
4	0.66	0.18	9.89	20.20	30.27	46.00	15.73	Average
5	1.27	0.20	9.91	28.89	39.00	56.00	17.00	QP
6	1.27	0.20	9.91	20.19	30.30	46.00	15.70	Average
7	1.79	0.21	9.92	29.50	39.63	56.00	16.37	QP
8	1.79	0.21	9.92	21.00	31.13	46.00	14.87	Average
9	2.44	0.22	9.93	30.50	40.65	56.00	15.35	QP
10	2.44	0.22	9.93	22.20	32.35	46.00	13.65	Average
11	2.71	0.22	9.94	20.80	30.96	46.00	15.04	Average
12	2.71	0.22	9.94	30.20	40.36	56.00	15.64	QP

Remarks:

1.Emission Level= AMN factor + Cable loss + Reading .

5. RADIATED EMISSION MEASUREMENT

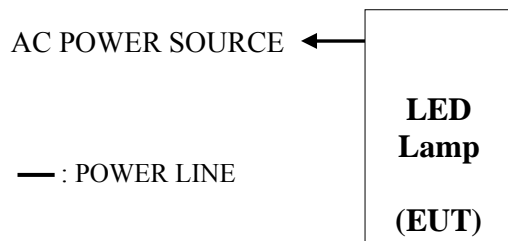
5.1. Test Equipment

The following test equipment was used during the radiated emission measurement:
At 3m Semi-Anechoic Chamber

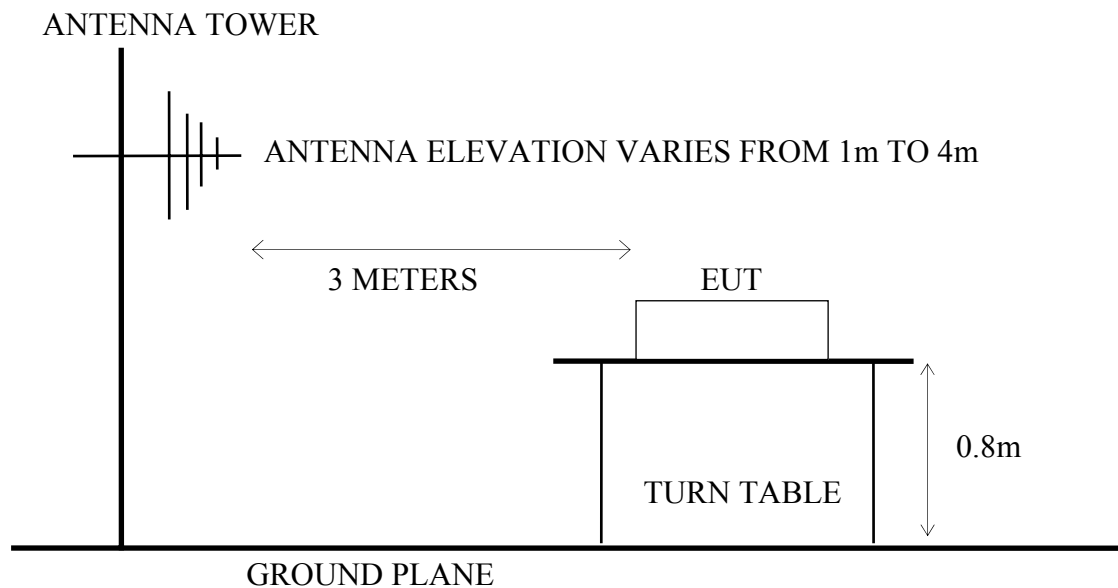
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Preamplifier	Agilent	8449B	3008A02233	2015-01-05	2016-01-04
2.	Preamplifier	Agilent	8447D	2944A10921	2015-07-03	2016-07-02
3.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22
4.	Test Receiver	R&S	ESCI	100361	2015-01-05	2016-01-04
5.	Bi-log Antenna	Schaffner	CBL6112D	22253	2015-08-05	2016-08-04
6.	Horn Antenna	EMCO	3115	62960	2015-06-30	2016-05-29
7.	RF Cable #1	Yuhang CSYH	cable-3m	001(0.5m)	2015-01-05	2016-01-04
8.	RF Cable #2	Yuhang CSYH	cable-3m	002(0.5m)	2015-01-05	2016-01-04
9.	RF Cable #3	Yuhang CSYH	cable-3m	003(3.0m)	2015-01-05	2016-01-04

5.2. Block Diagram of Test Setup

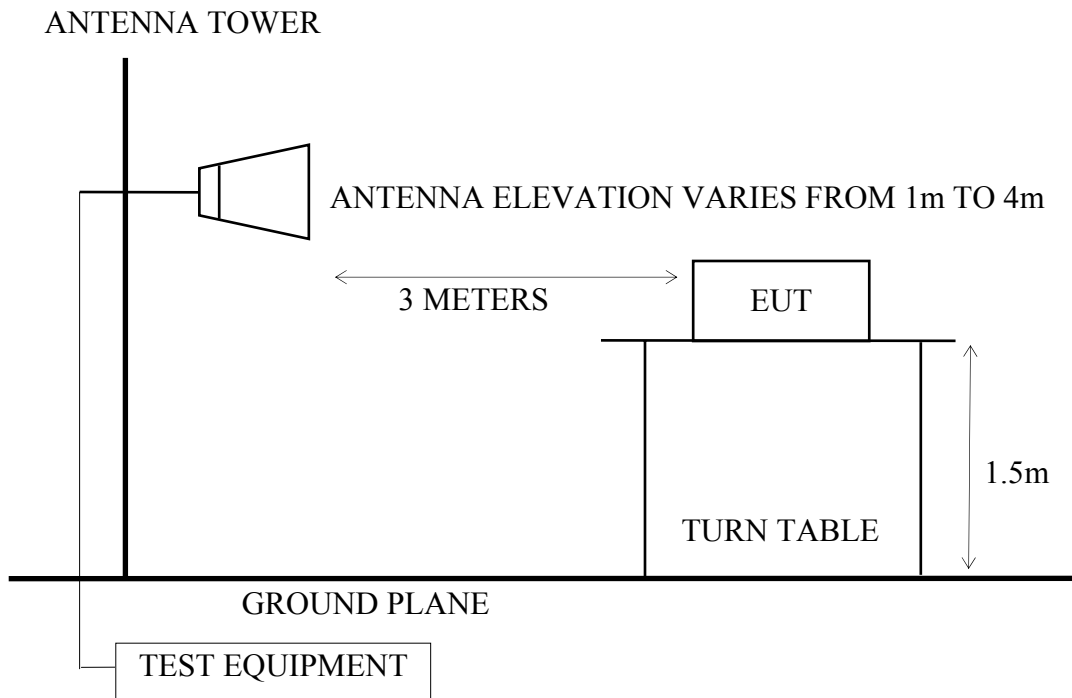
5.2.1. Block Diagram of Test Setup between EUT and simulators



5.2.2. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance:3m) for 30-1000MHz



5.2.3. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for above 1GHz



5.3. Radiated Emission Limits

Radiated Emission Limits (FCC Part15 C, section 15.209, CISPR22)

Frequency MHz	Distance Meters	Field Strengths Limits
		dB μ V/m
30 ~ 230	10	30.0
230 ~ 1000	10	37.0
Above 1000	3	74.0 dB μ V/m (Peak) 54.0 dB μ V/m (Average)

- Remark : (1) Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
 (2)The tighter limit applies at the edge between two frequency bands.

5.4. Test Procedure

The measuring process is according to ANSI C63.10-2013 and laboratory internal procedure TKC-301-001. (For FCC Part15 Subpart C)

In the radiated disturbance measurement, the EUT and all simulators were set up on a non-metallic turn table which was 0.8 (1.5) meters above the ground plane. Measurement distance between EUT and receiving antennas was set at 10 meters at 30MHz~1000MHz and 3 meters at above 1GHz. The specified distance is the distance between the antennas and the closest periphery of EUT. During the radiated measurement, the EUT was rotated 360° and receiving antennas were moved from 1 ~ 4 meters for finding maximum emission. Two receiving antennas were used for both horizontal and vertical polarization detection for 30MHz~1GHz, One receiving antennas was used for both horizontal and vertical polarization detection for above 1GHz (the absorbing material was added when testing of above 1GHz was done). All cables or wires placement were verified to find out the maximum emission.

The bandwidth of measuring receiver (or spectrum analyzer) was set to:

- RBW (120 kHz), VBW (300 kHz) for QP detector below 1GHz
- RBW (1 MHz), VBW (1MHz) for Peak detector above 1GHz
- RBW (1 MHz), VBW (10Hz) for AV detector above 1GHz

The frequency range from 30MHz to 10th harmonic(25GHz) are checked, and no any emissions were found from 18GHz to 25GHz.

The emission level is calculated automatically by the test system which uses the following equation :

1. For 30-1000MHz measurement:
Emission Level (dBµV/m) = Reading (dBµV)+Antenna Factor (dB/m)+Cable Loss (dB)
2. For Above 1GHz measurement:
Emission Level (dBµV/m) = Reading (dBµV)+Antenna Factor (dB/m)+Cable Loss(dB)
-Pre-amplifier factor (dB)

5.5. Assessment In All Three Orthogonal Planes

After assessment in all three orthogonal planes, when choosing Channell11 test in the radiation, found that XZ plan is the worst mode in Horizontal and YZ plan is the worst mode in Vertical, so in the test of radiation, all with XZ plan(in Horizontal) & YZ plan(in Vertical) model test, refer to the following specific data.

Test Mode:XY Plan

Polarization	Frequency (MHz)	Reading dB (µV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)	Remark
Horizontal	2404.48	97.21	28.49	4.38	34.94	95.14	74.00	-21.14	Peak
Vertical	2404.52	99.45	28.49	4.38	34.94	97.38	74.00	-23.38	Peak

Test Mode:XZ Plan

Polarization	Frequency (MHz)	Reading dB (µV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)	Remark
Horizontal	2404.49	102.99	28.49	4.38	34.94	100.92	74.00	-26.92	Peak
Vertical	2404.55	96.72	28.49	4.38	34.94	94.65	74.00	-20.65	Peak

Test Mode:YZ Plan

Polarization	Frequency (MHz)	Reading dB (µV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (µV/m)	Limits dB (µV/m)	Margin (dB)	Remark
Horizontal	2404.55	94.29	28.49	4.38	34.94	92.22	74.00	-18.22	Peak
Vertical	2404.55	103.25	28.49	4.38	34.94	101.18	74.00	-27.18	Peak

5.6. Measurement Results

PASSED

(All the emissions not reported below are too low against the prescribed limits.)

5.6.1. For Restricted Bands:

The EUT was tested in restricted bands and all the test results are listed in section 5.7 & 5.8. (The restricted bands defined in part 15.205(a))

For Frequency range: below 1GHz

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2405MHz (Channel 11)	# 1	# 2
2.		2450MHz (Channel 20)	# 3	# 4
3.		2480MHz (Channel 26)	# 5	# 6

For Frequency range: above 1GHz

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2405MHz (Channel 11)	# 7	# 8
2.		2450MHz (Channel 20)	# 9	# 10
3.		2480MHz (Channel 26)	# 11	# 12

5.6.2. For Band Edge Emission

The EUT was tested in restricted bands and all the test results are listed in section 5.9. The restricted bands defined in part 15.205(a))

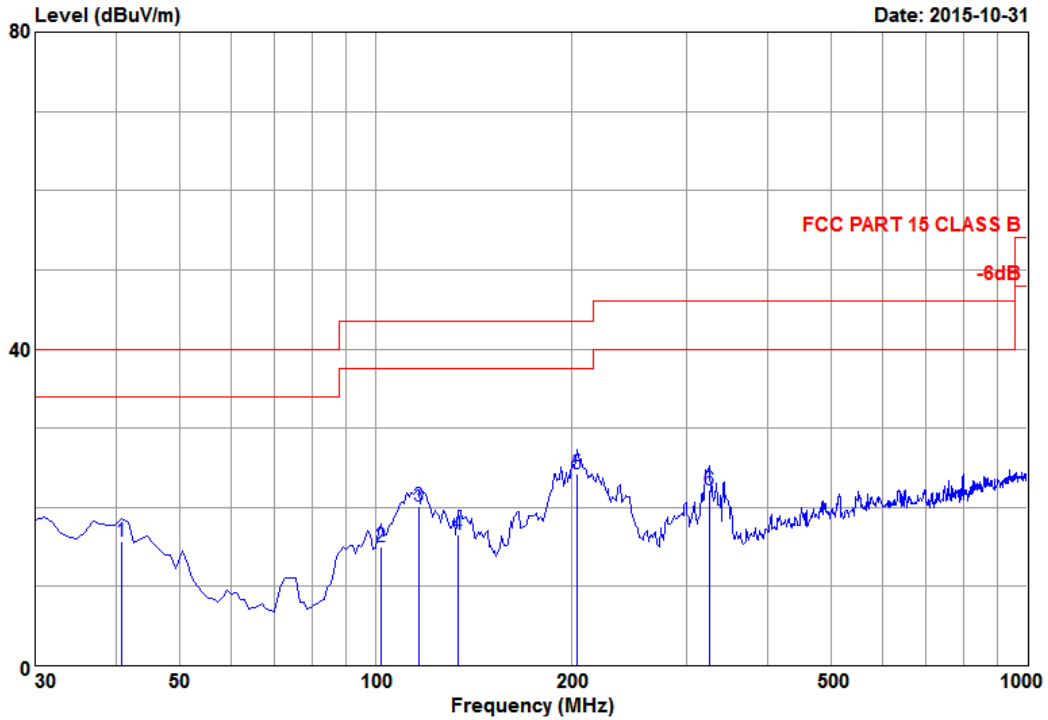
No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2405MHz (Channel 11)	# 13, # 15	# 14, # 16
2.		2480MHz (Channel 26)	# 17, # 19	# 18, # 20

5.7. Restricted Bands Measurement Results (For Below 1GHz)



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel:(0512)63403993 Fax:(0512)63403993

Data: 1 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26) Date: 2015-10-31



Site NO. : 3m chamber Data NO. :1
 Dis. / Ant. : 3m 6112D(22253)-150805 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 CLASS B
 Env. / Ins. : 20.5*C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test Mode : TX CH11 2405MHz
 Memo :

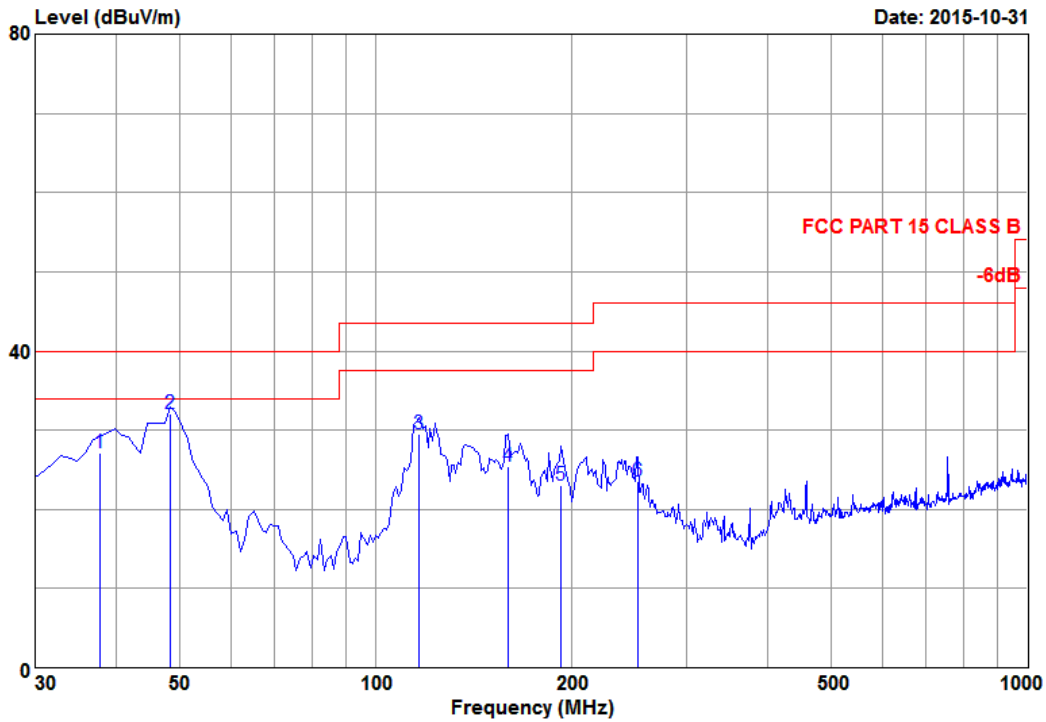
Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 40.67	13.80	0.27	28.88	15.63	40.00	24.37	QP
2 101.78	11.48	0.63	30.02	14.94	43.50	28.56	QP
3 116.33	12.84	0.74	33.72	20.17	43.50	23.33	QP
4 133.79	12.50	0.86	30.33	16.63	43.50	26.87	QP
5 203.63	10.31	1.22	39.52	24.26	43.50	19.24	QP
6 324.88	14.66	1.47	32.84	22.20	46.00	23.80	QP

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



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Data: 2 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m chamber Data NO. :2
 Dis. / Ant. : 3m 6112D(22253)-150805 Ant. pol. : VERTICAL
 Limit : FCC PART 15 CLASS B
 Env. / Ins. : 20.5°C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test Mode : TX CH11 2405MHz
 Memo :

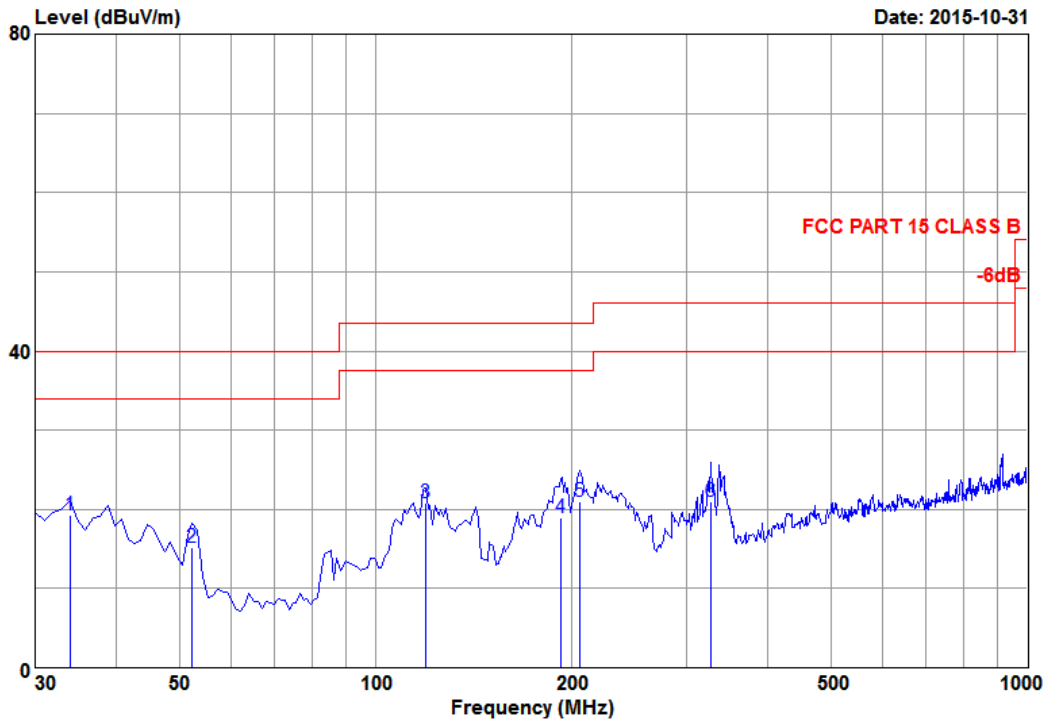
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	37.76	15.34	0.26	38.94	27.21	40.00	12.79	QP
2	48.43	9.80	0.29	49.22	32.01	40.00	7.99	QP
3	116.33	12.84	0.74	43.13	29.58	43.50	13.92	QP
4	159.98	10.90	1.02	40.53	25.49	43.50	18.01	QP
5	191.99	10.00	1.17	38.67	23.01	43.50	20.49	QP
6	253.10	13.43	1.31	35.52	23.57	46.00	22.43	QP

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



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Data: 3 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m chamber
 Dis. / Ant. : 3m 6112D(22253)-150805
 Limit : FCC PART 15 CLASS B
 Env. / Ins. : 20.5°C 55%/ESCI
 EUT : LED lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test Mode : TX CH20 2450MHz
 Memo :
 Data NO. : 3
 Ant. pol. : HORIZONTAL
 Engineer : KM Tong

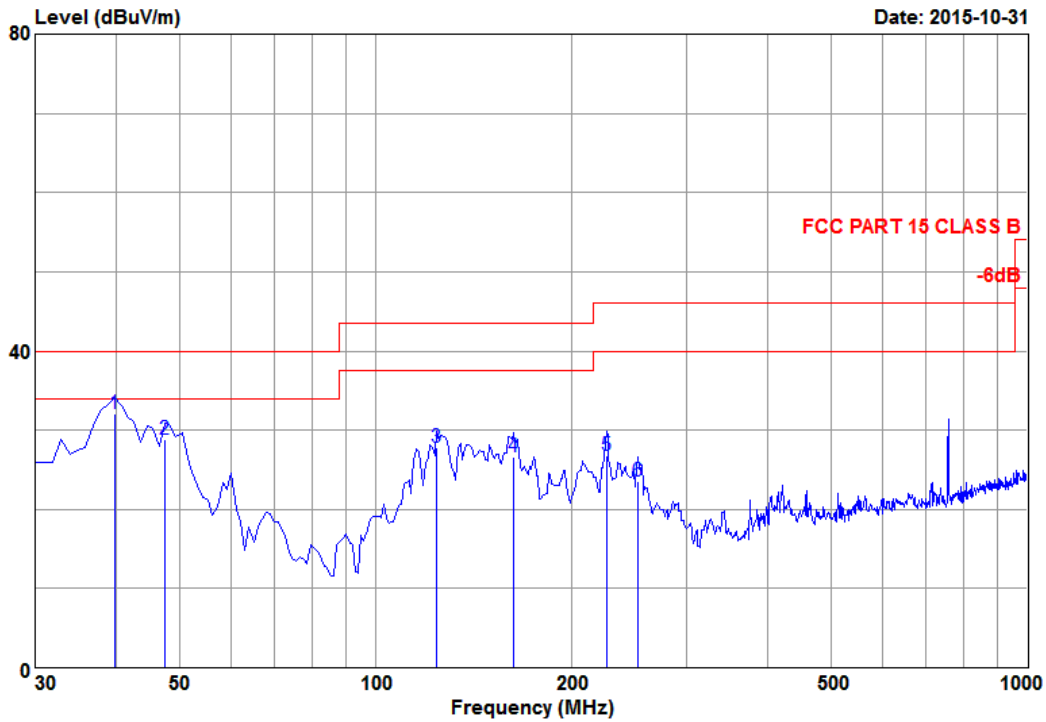
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	33.88	17.42	0.24	28.89	19.21	40.00	20.79	QP
2	52.31	8.34	0.30	33.90	15.24	40.00	24.76	QP
3	119.24	13.11	0.76	34.02	20.77	43.50	22.73	QP
4	191.99	10.00	1.17	34.63	18.97	43.50	24.53	QP
5	205.57	10.37	1.22	36.13	20.93	43.50	22.57	QP
6	326.82	14.71	1.48	31.52	20.92	46.00	25.08	QP

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



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 Economic Development Zone,JiangSu,China
 Tel:(0512)63403993 Fax:(0512)63403993

Data: 4 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m chamber
 Dis. / Ant. : 3m 6112D(22253)-150805
 Limit : FCC PART 15 CLASS B
 Env. / Ins. : 20.5°C 55%/ESCI
 EUT : LED lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test Mode : TX CH20 2450MHz
 Memo :
 Data NO. : 4
 Ant. pol. : VERTICAL
 Engineer : KM Tong

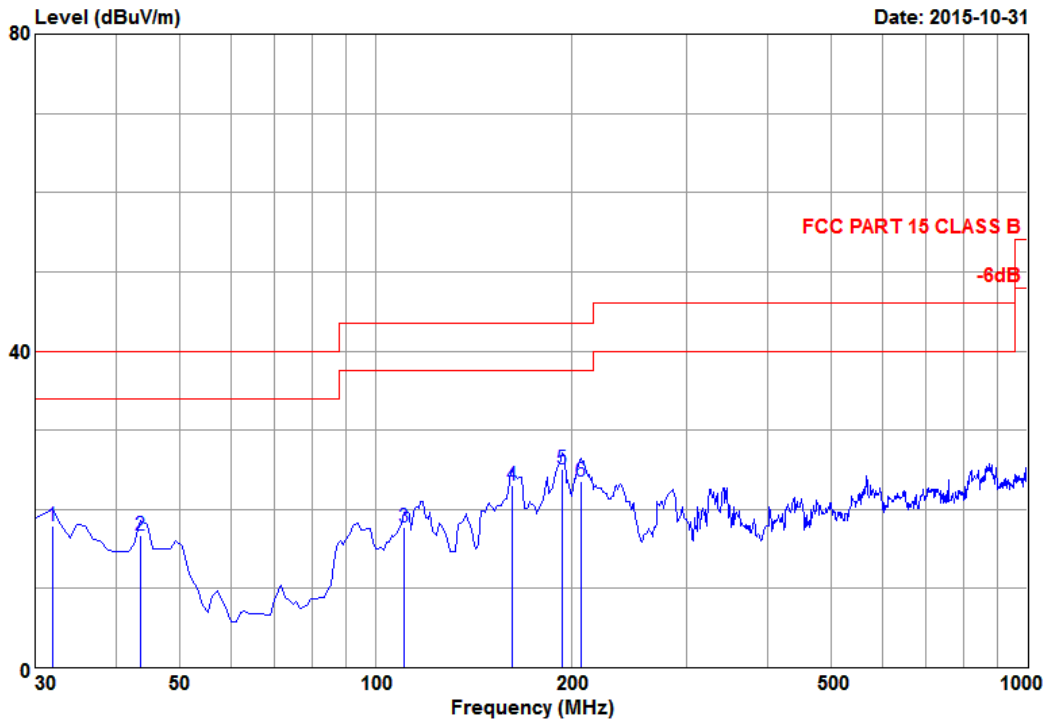
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	39.70	14.30	0.26	44.82	32.05	40.00	7.95	QP
2	47.46	10.30	0.28	45.58	28.85	40.00	11.15	QP
3	124.09	13.00	0.80	41.12	27.82	43.50	15.68	QP
4	162.89	10.73	1.03	41.81	26.62	43.50	16.88	QP
5	225.94	11.25	1.26	41.07	26.83	46.00	19.17	QP
6	253.10	13.43	1.31	35.58	23.63	46.00	22.37	QP

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



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Data: 5 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m chamber
 Dis. / Ant. : 3m 6112D(22253)-150805
 Limit : FCC PART 15 CLASS B
 Env. / Ins. : 20.5°C 55%/ESCI
 EUT : LED lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test Mode : TX CH26 2480MHz
 Memo :
 Data NO. : 5
 Ant. pol. : HORIZONTAL
 Engineer : KM Tong

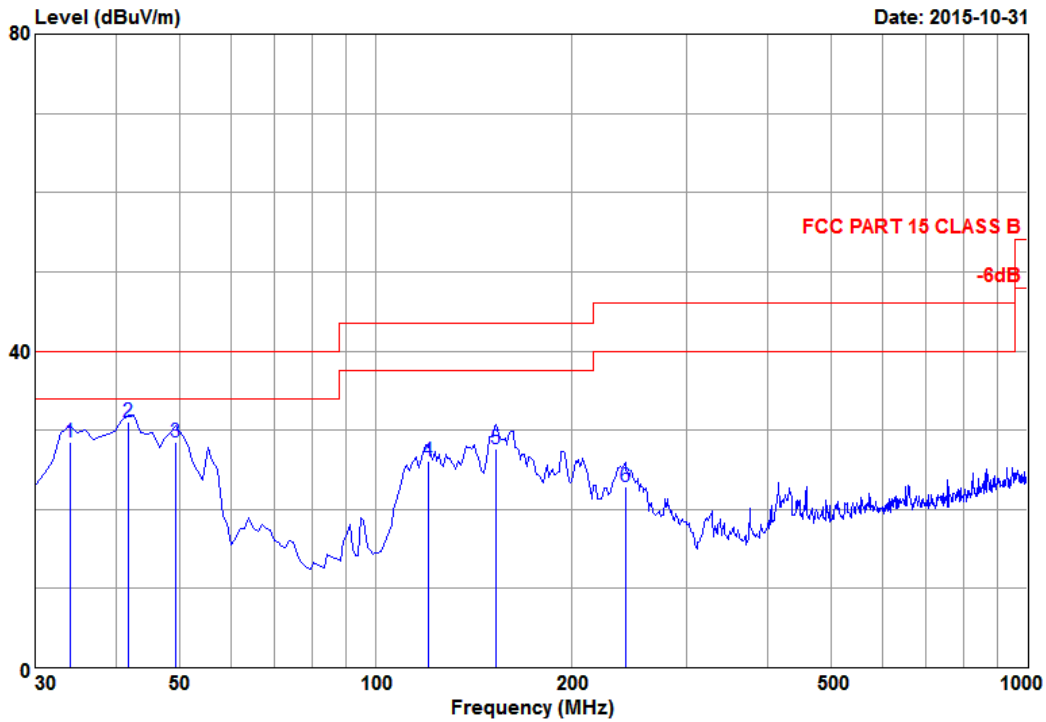
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	31.94	18.46	0.24	26.63	17.98	40.00	22.02	QP
2	43.58	12.30	0.27	31.39	16.64	40.00	23.36	QP
3	110.51	12.30	0.70	31.86	17.70	43.50	25.80	QP
4	161.92	10.79	1.03	38.22	23.09	43.50	20.41	QP
5	192.96	10.02	1.18	40.77	25.14	43.50	18.36	QP
6	206.54	10.40	1.22	38.64	23.47	43.50	20.03	QP

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



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 Economic Development Zone,JiangSu,China
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Data: 6 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m chamber
 Dis. / Ant. : 3m 6112D(22253)-150805
 Limit : FCC PART 15 CLASS B
 Env. / Ins. : 20.5°C 55%/ESCI
 EUT : LED lamp
 M/N : 9290011419
 Power Rating : 120Vac/60Hz
 Test Mode : TX CH26 2480MHz
 Memo :
 Data NO. : 6
 Ant. pol. : VERTICAL
 Engineer : KM Tong

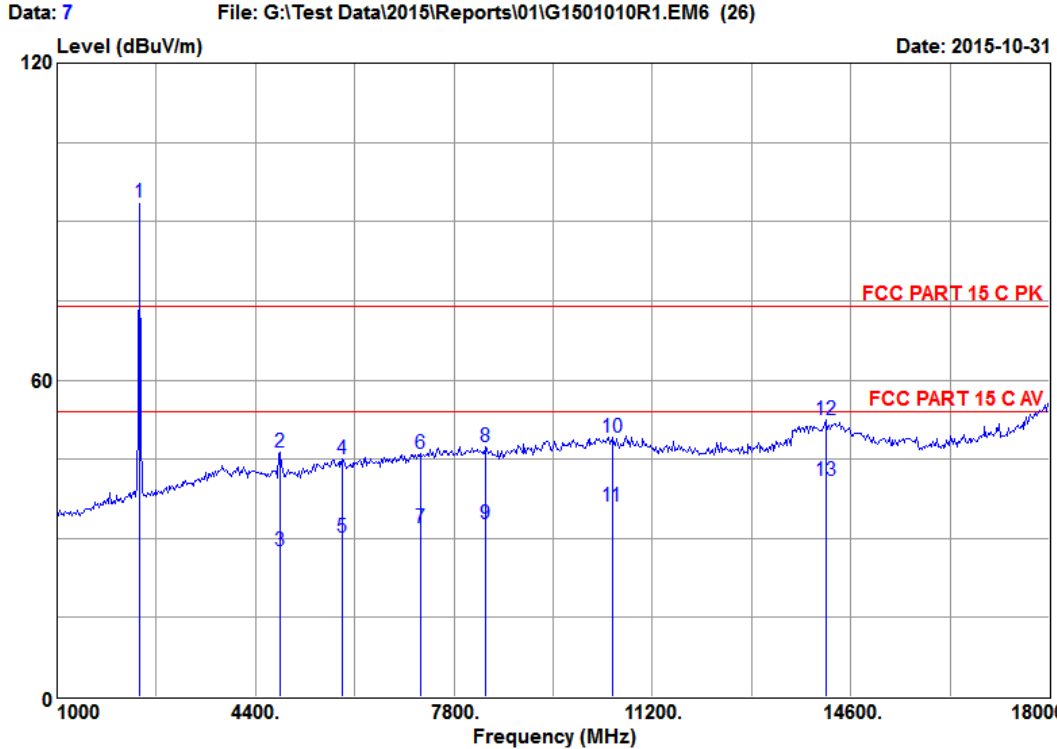
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	33.88	17.42	0.24	38.25	28.57	40.00	11.43	QP
2	41.64	13.30	0.27	44.74	30.99	40.00	9.01	QP
3	49.40	9.30	0.29	46.23	28.52	40.00	11.48	QP
4	120.21	13.20	0.77	39.33	26.18	43.50	17.32	QP
5	153.19	11.33	0.98	42.35	27.67	43.50	15.83	QP
6	241.46	12.46	1.29	35.83	22.86	46.00	23.14	QP

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

5.8. Restricted Bands Measurement Results (For Above 1GHz)



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 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993



Site NO. : 3m Semi-Anechoic Chamber Data NO. : 7
 Dis. / Ant. : 3m 3115-62960-150630 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C PK
 Env. / Ins. : 20.5*C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating: 120Vac/60Hz
 Test Mode : TX CH11 2405MHz
 Memo :

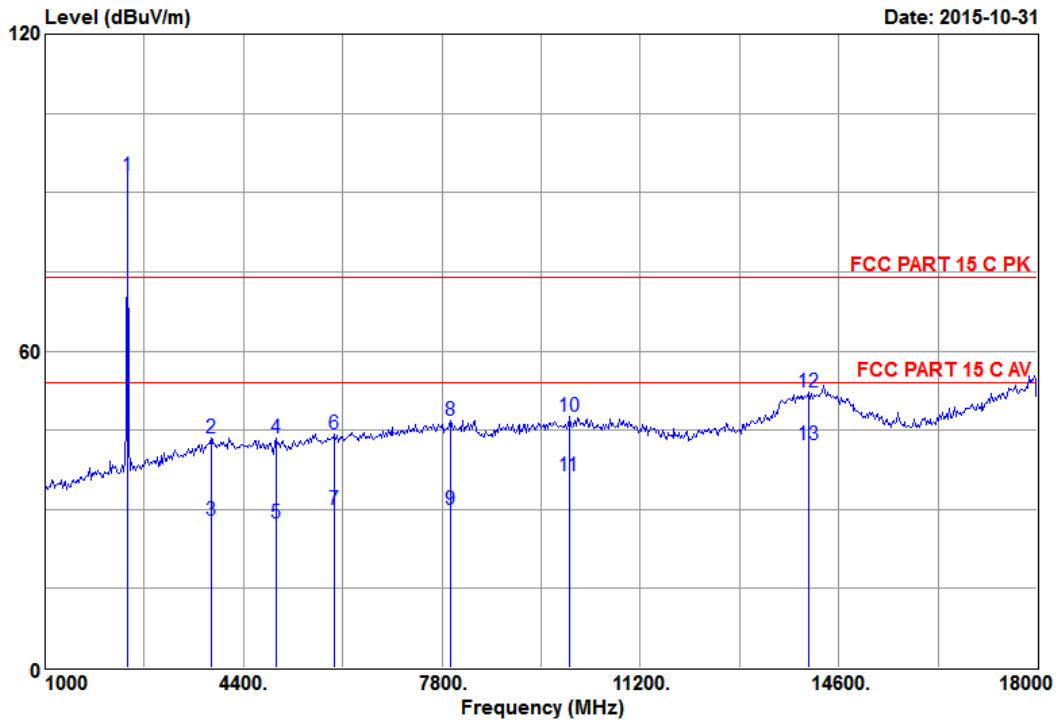
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2407.25	28.49	4.38	95.68	34.94	93.61	74.00	-19.61	Peak
2	4822.00	32.89	6.37	41.43	34.37	46.32	74.00	27.68	Peak
3	4823.25	32.89	6.37	22.80	34.37	27.69	54.00	26.31	Average
4	5893.00	34.16	7.58	37.24	34.04	44.94	74.00	29.06	Peak
5	5894.27	34.16	7.58	22.50	34.04	30.20	54.00	23.80	Average
6	7237.00	36.18	8.15	35.51	33.89	45.95	74.00	28.05	Peak
7	7237.29	36.18	8.15	21.60	33.89	32.04	54.00	21.96	Average
8	8350.00	37.41	8.89	35.96	34.82	47.44	74.00	26.56	Peak
9	8351.24	37.41	8.89	21.40	34.82	32.88	54.00	21.12	Average
10	10513.00	39.58	10.40	33.26	34.12	49.12	74.00	24.88	Peak
11	10514.25	39.58	10.40	20.20	34.12	36.06	54.00	17.94	Average
12	14167.00	42.34	12.10	29.86	31.72	52.58	74.00	21.42	Peak
13	14168.25	42.34	12.10	18.20	31.72	40.92	54.00	13.08	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 8 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber Data NO. : 8
 Dis. / Ant. : 3m 3115-62960-150630 Ant. pol. : VERTICAL
 Limit : FCC PART 15 C PK
 Env. / Ins. : 20.5*C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating: 120Vac/60Hz
 Test Mode : TX CH11 2405MHz
 Memo :

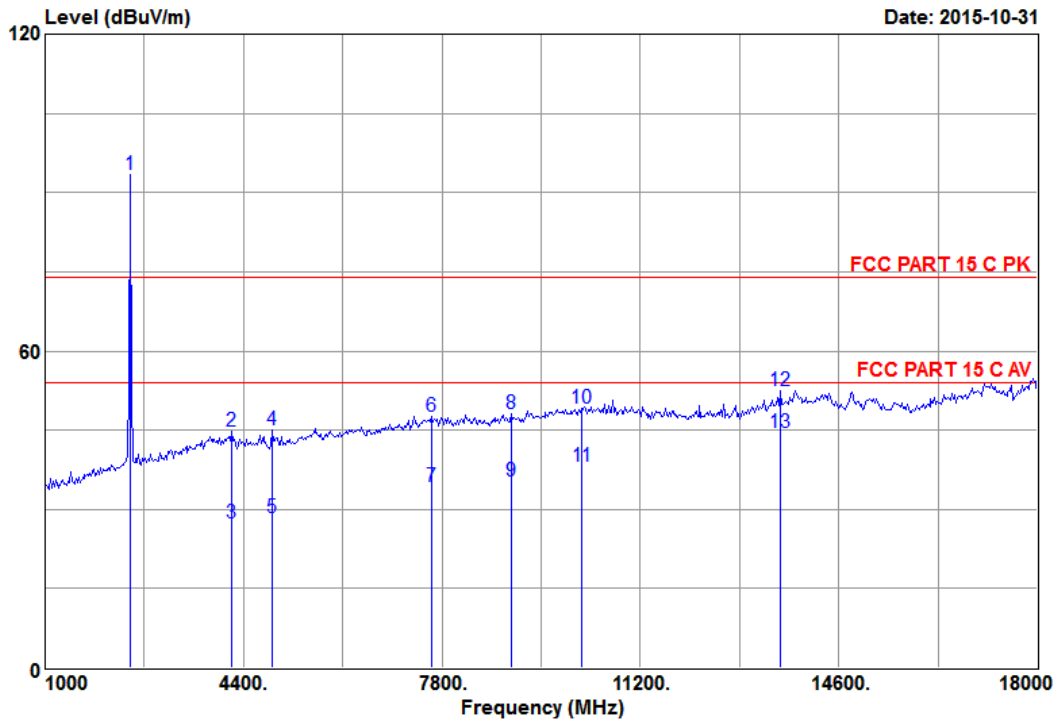
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2408.21	28.49	4.38	95.28	34.94	93.21	74.00	-19.21	Peak
2	3838.00	32.27	5.86	39.90	34.52	43.51	74.00	30.49	Peak
3	3839.21	32.27	5.86	24.20	34.52	27.81	54.00	26.19	Average
4	4960.00	33.14	6.42	38.30	34.36	43.50	74.00	30.50	Peak
5	4961.25	33.14	6.42	22.30	34.36	27.50	54.00	26.50	Average
6	5950.00	34.18	7.64	36.37	34.02	44.17	74.00	29.83	Peak
7	5951.21	34.18	7.64	22.15	34.02	29.95	54.00	24.05	Average
8	7952.00	36.98	8.78	35.67	34.69	46.74	74.00	27.26	Peak
9	7953.21	36.98	8.78	19.00	34.69	30.07	54.00	23.93	Average
10	9976.00	38.78	10.08	33.32	34.65	47.53	74.00	26.47	Peak
11	9977.14	38.78	10.08	22.20	34.65	36.41	54.00	17.59	Average
12	14090.00	42.27	12.09	29.30	31.57	52.09	74.00	21.91	Peak
13	14091.25	42.27	12.09	19.49	31.57	42.28	54.00	11.72	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 9 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber Data NO. : 9
 Dis. / Ant. : 3m 3115-62960-150630 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C PK
 Env. / Ins. : 20.5°C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating: 120Vac/60Hz
 Test Mode : TX CH20 2450MHz
 Memo :

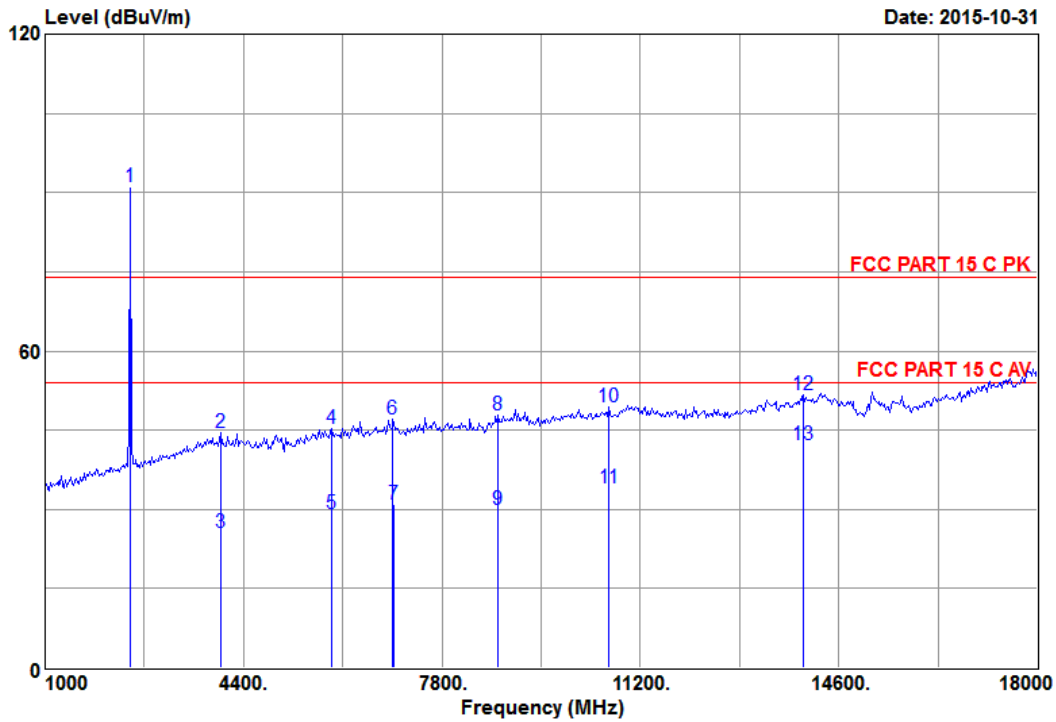
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2452.87	28.58	4.42	95.24	34.95	93.29	74.00	-19.29	Peak
2	4190.00	32.54	6.13	40.46	34.39	44.74	74.00	29.26	Peak
3	4191.25	32.54	6.13	23.20	34.39	27.48	54.00	26.52	Average
4	4894.00	33.01	6.40	39.95	34.36	45.00	74.00	29.00	Peak
5	4895.25	33.01	6.40	23.30	34.36	28.35	54.00	25.65	Average
6	7622.00	36.85	8.49	36.60	34.32	47.62	74.00	26.38	Peak
7	7623.25	36.85	8.49	23.20	34.32	34.22	54.00	19.78	Average
8	8986.00	37.99	9.01	36.10	34.96	48.14	74.00	25.86	Peak
9	8987.25	37.99	9.01	23.20	34.96	35.24	54.00	18.76	Average
10	10196.00	39.12	10.22	34.17	34.43	49.08	74.00	24.92	Peak
11	10197.25	39.12	10.22	23.20	34.43	38.11	54.00	15.89	Average
12	13606.00	41.36	11.84	31.01	31.78	52.43	74.00	21.57	Peak
13	13607.25	41.36	11.84	23.19	31.78	44.61	54.00	9.39	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 10 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber Data NO. : 10
 Dis. / Ant. : 3m 3115-62960-150630 Ant. pol. : VERTICAL
 Limit : FCC PART 15 C PK
 Env. / Ins. : 20.5°C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating: 120Vac/60Hz
 Test Mode : TX CH20 2450MHz
 Memo :

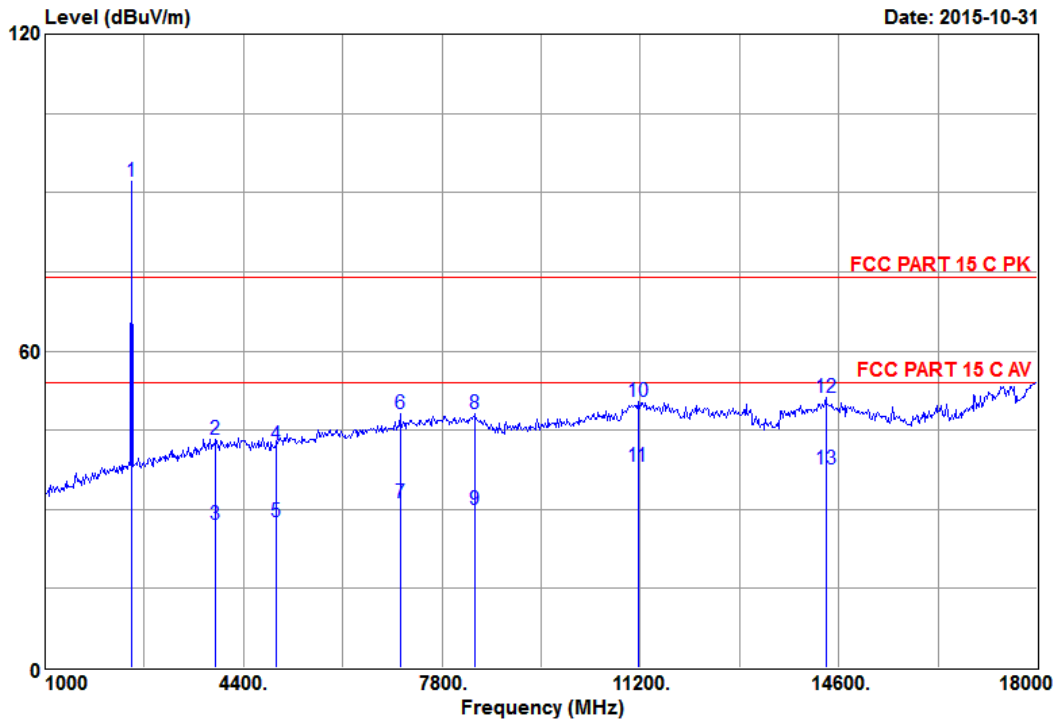
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2453.01	28.58	4.42	93.00	34.95	91.05	74.00	-17.05	Peak
2	4014.00	32.69	6.06	40.09	34.40	44.44	74.00	29.56	Peak
3	4015.21	32.69	6.06	21.20	34.40	25.55	54.00	28.45	Average
4	5906.00	34.17	7.58	37.70	34.04	45.41	74.00	28.59	Peak
5	5907.14	34.17	7.58	21.50	34.04	29.21	54.00	24.79	Average
6	6962.00	35.52	7.92	37.19	33.61	47.02	74.00	26.98	Peak
7	6963.25	35.52	7.92	21.11	33.61	30.94	54.00	23.06	Average
8	8766.00	37.81	8.97	36.06	34.92	47.92	74.00	26.08	Peak
9	8767.21	37.81	8.97	18.21	34.92	30.07	54.00	23.93	Average
10	10658.00	39.44	10.48	33.54	33.97	49.49	74.00	24.51	Peak
11	10659.20	39.44	10.48	18.21	33.97	34.16	54.00	19.84	Average
12	14002.00	42.20	12.07	28.91	31.43	51.75	74.00	22.25	Peak
13	14003.20	42.20	12.07	19.30	31.43	42.14	54.00	11.86	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 11 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber Data NO. : 11
 Dis. / Ant. : 3m 3115-62960-150630 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C PK
 Env. / Ins. : 20.5°C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating: 120Vac/60Hz
 Test Mode : TX CH26 2480MHz
 Memo :

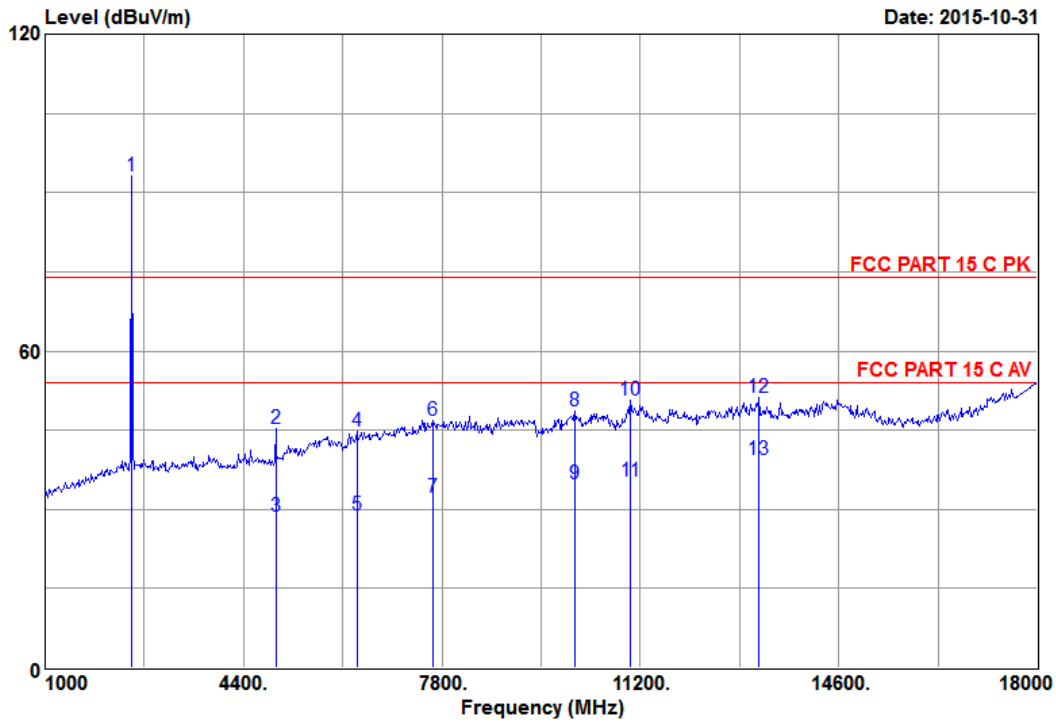
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2482.00	28.66	4.44	93.92	34.96	92.06	74.00	-18.06	Peak
2	3926.00	32.51	5.97	39.21	34.45	43.24	74.00	30.76	Peak
3	3927.21	32.51	5.97	23.20	34.45	27.23	54.00	26.77	Average
4	4960.00	33.14	6.42	36.99	34.36	42.19	74.00	31.81	Peak
5	4961.25	33.14	6.42	22.50	34.36	27.70	54.00	26.30	Average
6	7080.00	35.81	8.00	37.88	33.69	48.00	74.00	26.00	Peak
7	7081.25	35.81	8.00	21.10	33.69	31.22	54.00	22.78	Average
8	8372.00	37.46	8.89	36.54	34.83	48.06	74.00	25.94	Peak
9	8373.25	37.46	8.89	18.50	34.83	30.02	54.00	23.98	Average
10	11165.00	39.20	10.65	34.25	33.74	50.36	74.00	23.64	Peak
11	11166.28	39.20	10.65	22.10	33.74	38.21	54.00	15.79	Average
12	14376.00	42.50	12.15	28.59	32.15	51.09	74.00	22.91	Peak
13	14377.25	42.50	12.15	15.00	32.15	37.50	54.00	16.50	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
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 Economic Development Zone,JiangSu,China
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Data: 12 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber Data NO. : 12
 Dis. / Ant. : 3m 3115-62960-150630 Ant. pol. : VERTICAL
 Limit : FCC PART 15 C PK
 Env. / Ins. : 20.5°C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating: 120Vac/60Hz
 Test Mode : TX CH26 2480MHz
 Memo :

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2482.00	28.66	4.44	95.09	34.96	93.23	74.00	-19.23	Peak
2	4952.00	33.11	6.42	40.06	34.36	45.23	74.00	28.77	Peak
3	4953.25	33.14	6.42	23.50	34.36	28.70	54.00	25.30	Average
4	6339.00	34.40	7.78	36.44	33.87	44.75	74.00	29.25	Peak
5	6339.25	34.40	7.78	20.51	33.87	28.82	54.00	25.18	Average
6	7650.00	36.86	8.51	35.81	34.35	46.83	74.00	27.17	Peak
7	7651.14	36.86	8.51	21.20	34.35	32.22	54.00	21.78	Average
8	10082.00	38.93	10.15	34.23	34.56	48.75	74.00	25.25	Peak
9	10083.20	38.93	10.15	20.20	34.56	34.72	54.00	19.28	Average
10	11032.00	39.12	10.67	34.47	33.65	50.61	74.00	23.39	Peak
11	11033.21	39.12	10.67	19.14	33.65	35.28	54.00	18.72	Average
12	13236.00	40.48	11.63	31.26	32.09	51.28	74.00	22.72	Peak
13	13237.14	40.48	11.63	19.50	32.09	39.52	54.00	14.48	Average

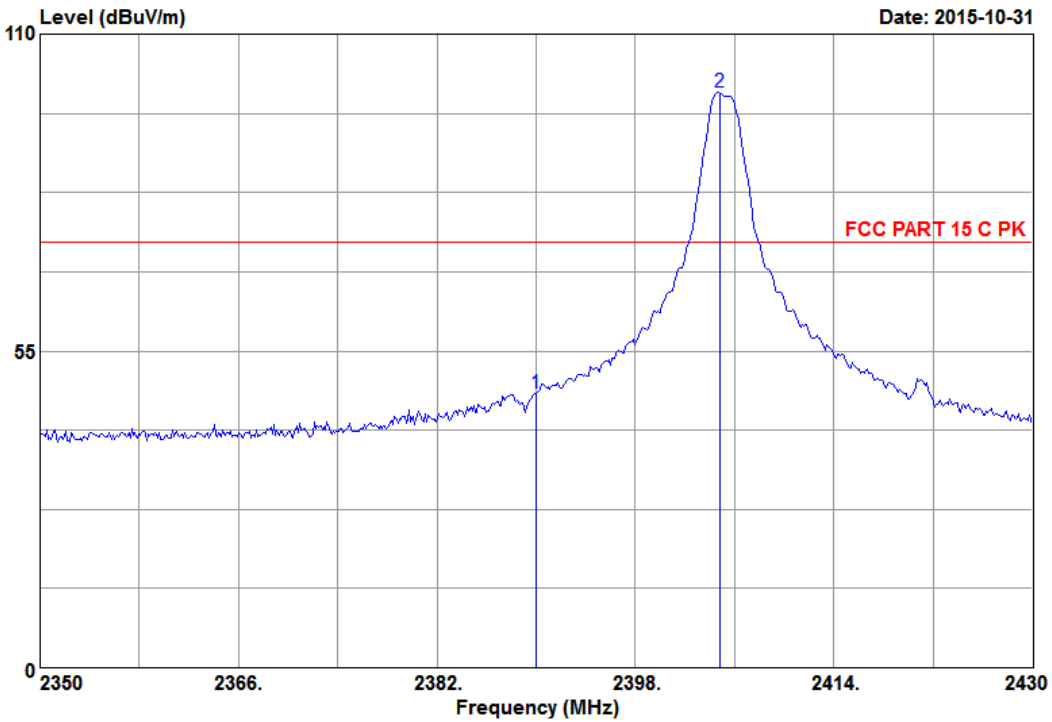
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.

5.9. Spurious Emission Measurement Results in Band Edge Emission (FCC Part 15, 15.205)



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 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel:(0512)63403993 Fax:(0512)63403993

Data: 13 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26) Date: 2015-10-31



Site NO. : 3m Semi-Anechoic Chamber Data NO. : 13
 Dis. / Ant. : 3m 3115-62960-150630 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C PK
 Env. / Ins. : 20.5°C 55%/ESCI Engineer : KM Tong
 EUT : LED lamp
 M/N : 9290011419
 Power Rating: 120Vac/60Hz
 Test Mode : TX CH11 2405MHz
 Memo :

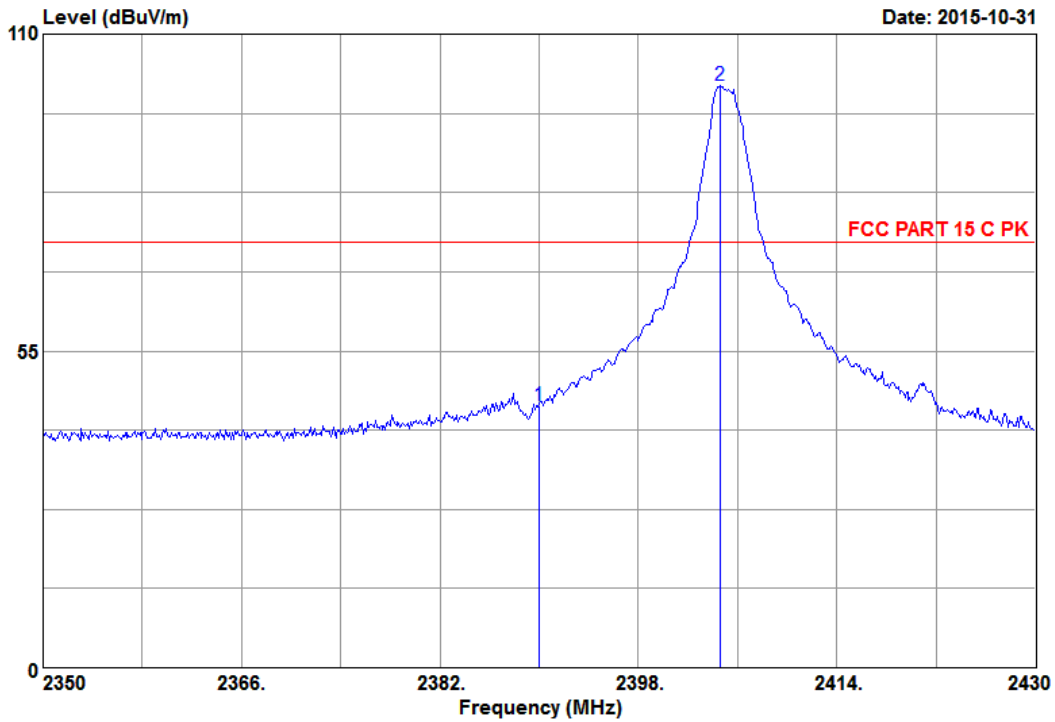
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.45	4.38	49.62	34.94	47.51	74.00	26.49	Peak
2	2404.87	28.49	4.38	101.98	34.94	99.91	74.00	-25.91	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



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 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 14 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 14
Dis. / Ant. : 3m 3115-62960-150630	Ant. pol. : VERTICAL
Limit : FCC PART 15 C PK	Engineer : KM Tong
Env. / Ins. : 20.5°C 55%/ESCI	
EUT : LED lamp	
M/N : 9290011419	
Power Rating: 120Vac/60Hz	
Test Mode : TX CH11 2405MHz	
Memo :	

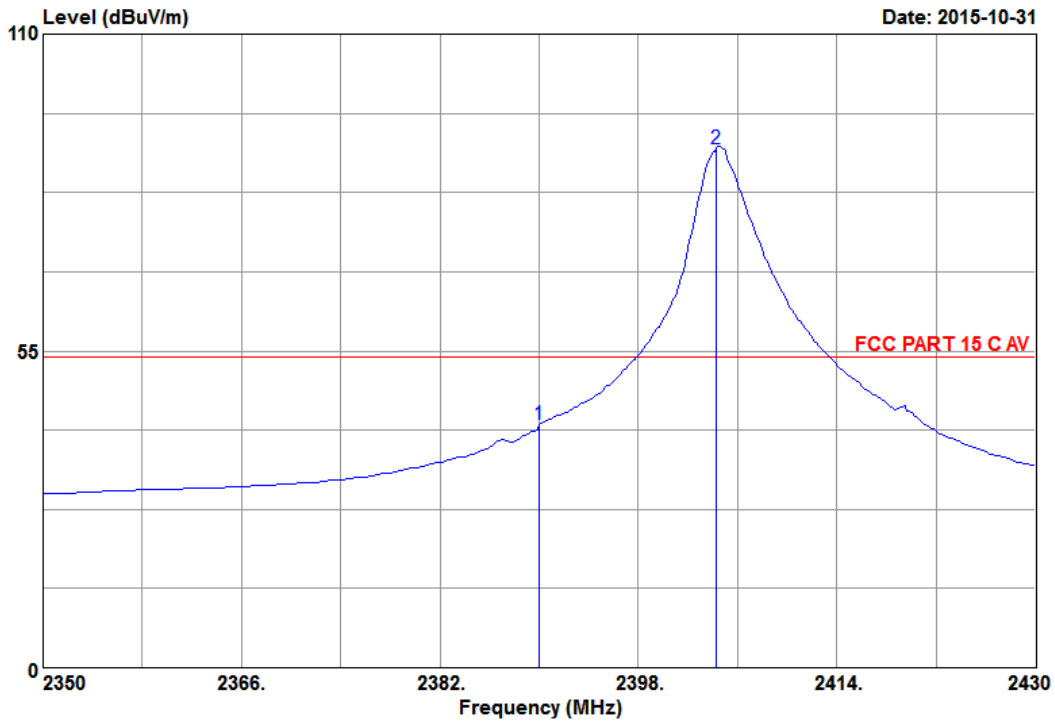
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.45	4.38	47.58	34.94	45.47	74.00	28.53	Peak
2	2404.56	28.49	4.38	103.28	34.94	101.21	74.00	-27.21	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 15 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 15
Dis. / Ant. : 3m 3115-62960-150630	Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C AV	Engineer : KM Tong
Env. / Ins. : 20.5*C 55%/ESCI	
EUT : LED lamp	
M/N : 9290011419	
Power Rating: 120Vac/60Hz	
Test Mode : TX CH11 2405MHz	
Memo :	

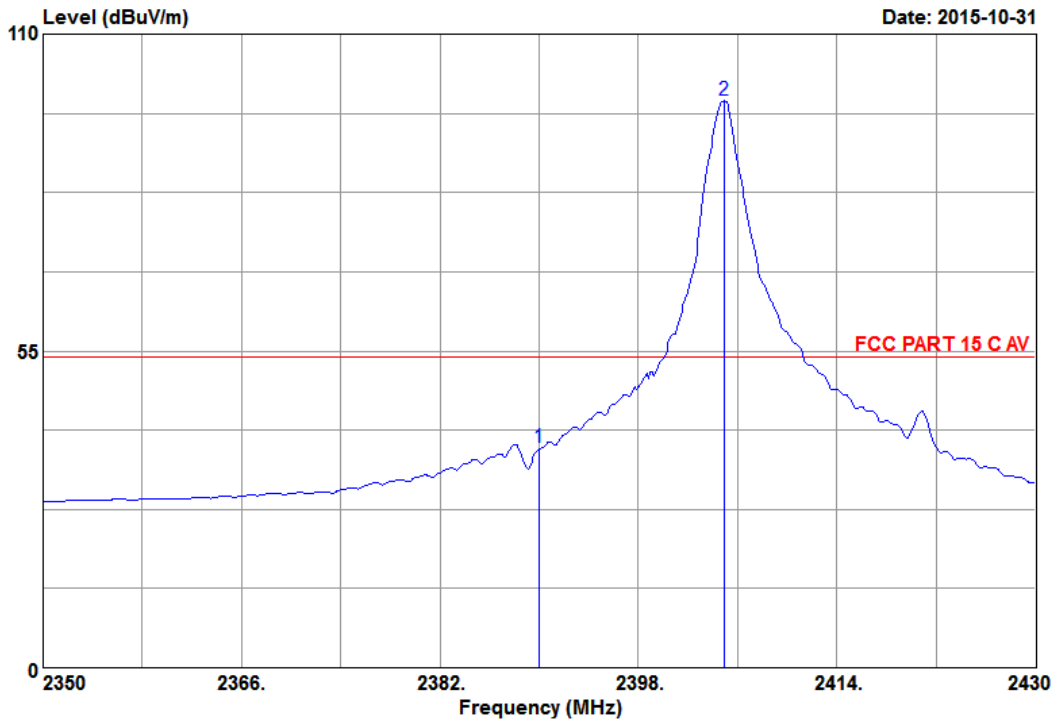
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.45	4.38	44.38	34.94	42.27	54.00	11.73	Average
2	2404.32	28.49	4.38	92.25	34.94	90.18	54.00	-36.18	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 16 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 16
Dis. / Ant. : 3m 3115-62960-150630	Ant. pol. : VERTICAL
Limit : FCC PART 15 C AV	Engineer : KM Tong
Env. / Ins. : 20.5*C 55%/ESCI	
EUT : LED lamp	
M/N : 9290011419	
Power Rating: 120Vac/60Hz	
Test Mode : TX CH11 2405MHz	
Memo :	

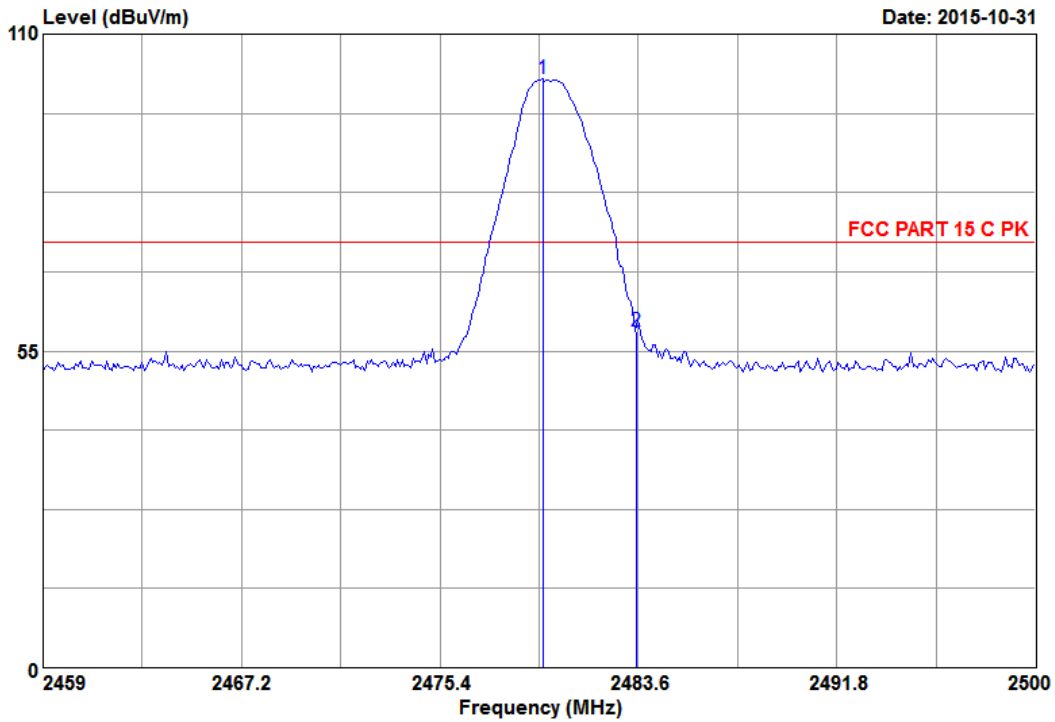
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.45	4.38	40.27	34.94	38.16	54.00	15.84	Average
2	2404.90	28.49	4.38	100.68	34.94	98.61	54.00	-44.61	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 17 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 17
Dis. / Ant. : 3m 3115-62960-150630	Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C PK	Engineer : KM Tong
Env. / Ins. : 20.5°C 55%/ESCI	
EUT : LED lamp	
M/N : 9290011419	
Power Rating: 120Vac/60Hz	
Test Mode : TX CH26 2480MHz	
Memo :	

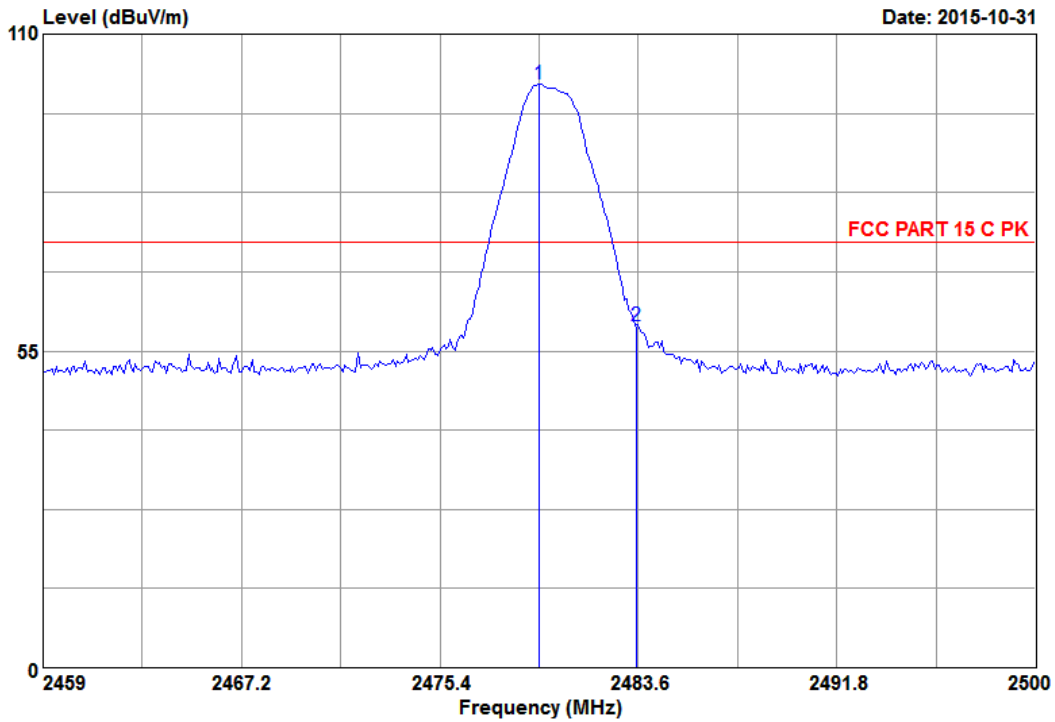
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.66	28.66	4.44	104.05	34.96	102.19	74.00	-28.19	Peak
2	2483.50	28.66	4.44	60.19	34.96	58.33	74.00	15.67	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 18 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 18
Dis. / Ant. : 3m 3115-62960-150630	Ant. pol. : VERTICAL
Limit : FCC PART 15 C PK	Engineer : KM Tong
Env. / Ins. : 20.5°C 55%/ESCI	
EUT : LED lamp	
M/N : 9290011419	
Power Rating: 120Vac/60Hz	
Test Mode : TX CH26 2480MHz	
Memo :	

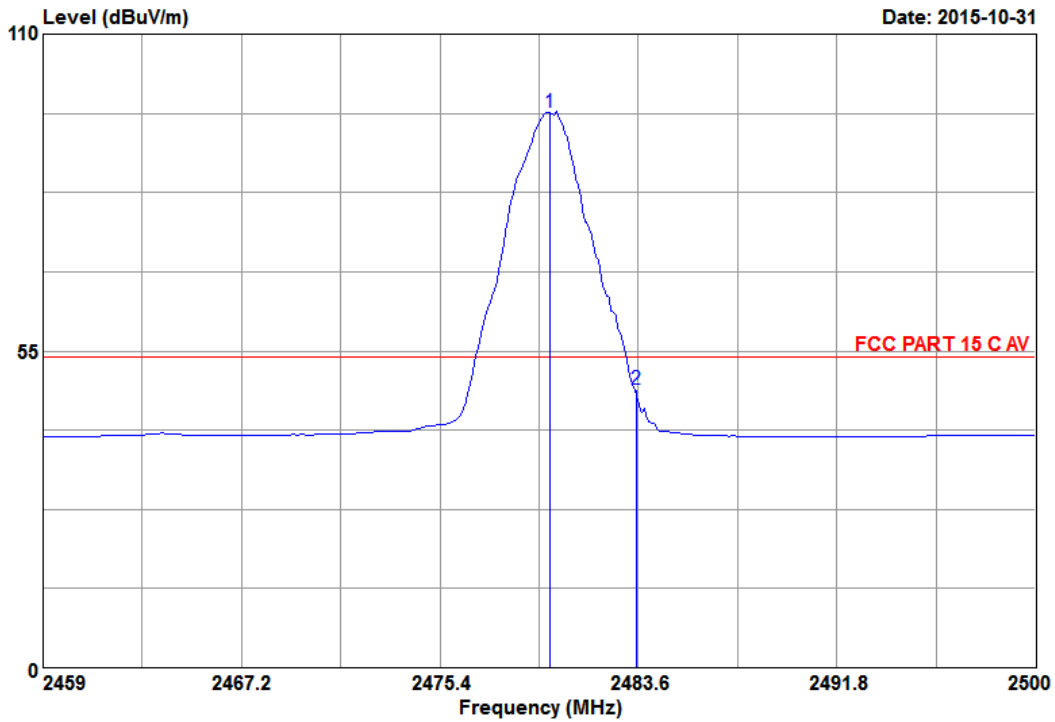
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.48	28.66	4.44	103.13	34.96	101.27	74.00	-27.27	Peak
2	2483.50	28.66	4.44	61.10	34.96	59.24	74.00	14.76	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 19 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 19
Dis. / Ant. : 3m 3115-62960-150630	Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C AV	Engineer : KM Tong
Env. / Ins. : 20.5°C 55%/ESCI	
EUT : LED lamp	
M/N : 9290011419	
Power Rating: 120Vac/60Hz	
Test Mode : TX CH26 2480MHz	
Memo :	

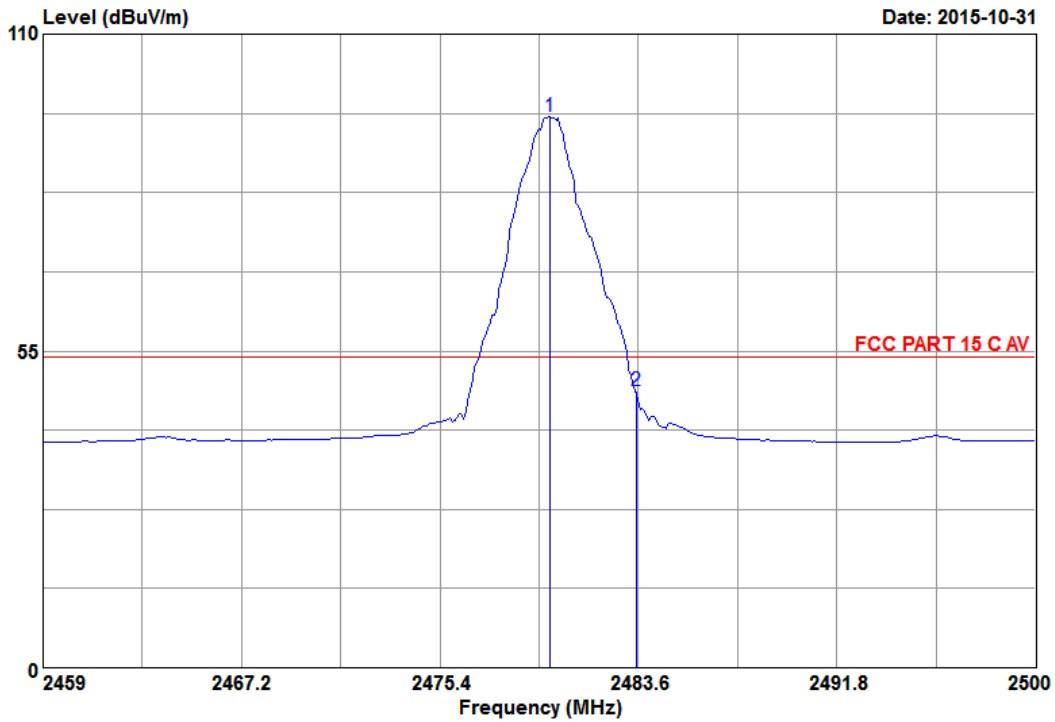
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.93	28.66	4.44	98.18	34.96	96.32	54.00	-42.32	Average
2	2483.50	28.66	4.44	50.16	34.96	48.30	54.00	5.70	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,JiangSu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 20 File: G:\Test Data\2015\Reports\01\G1501010R1.EM6 (26)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 20
Dis. / Ant. : 3m 3115-62960-150630	Ant. pol. : VERTICAL
Limit : FCC PART 15 C AV	Engineer : KM Tong
Env. / Ins. : 20.5°C 55%/ESCI	
EUT : LED lamp	
M/N : 9290011419	
Power Rating: 120Vac/60Hz	
Test Mode : TX CH26 2480MHz	
Memo :	

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.93	28.66	4.44	97.46	34.96	95.60	54.00	-41.60	Average
2	2483.50	28.66	4.44	49.86	34.96	48.00	54.00	6.00	Average

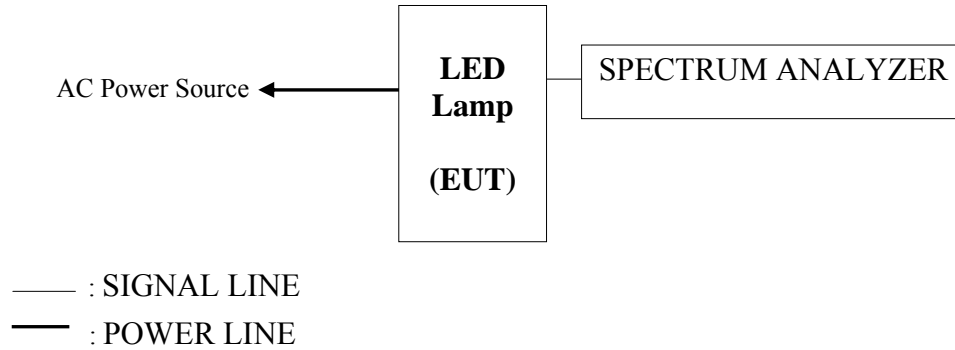
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.

6. 6 dB BANDWIDTH MEASUREMENT

6.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22

6.2. Block Diagram of Test Setup



6.3. Specification Limits (§15.247(a)(2))

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500kHz.

6.4. Test Procedure

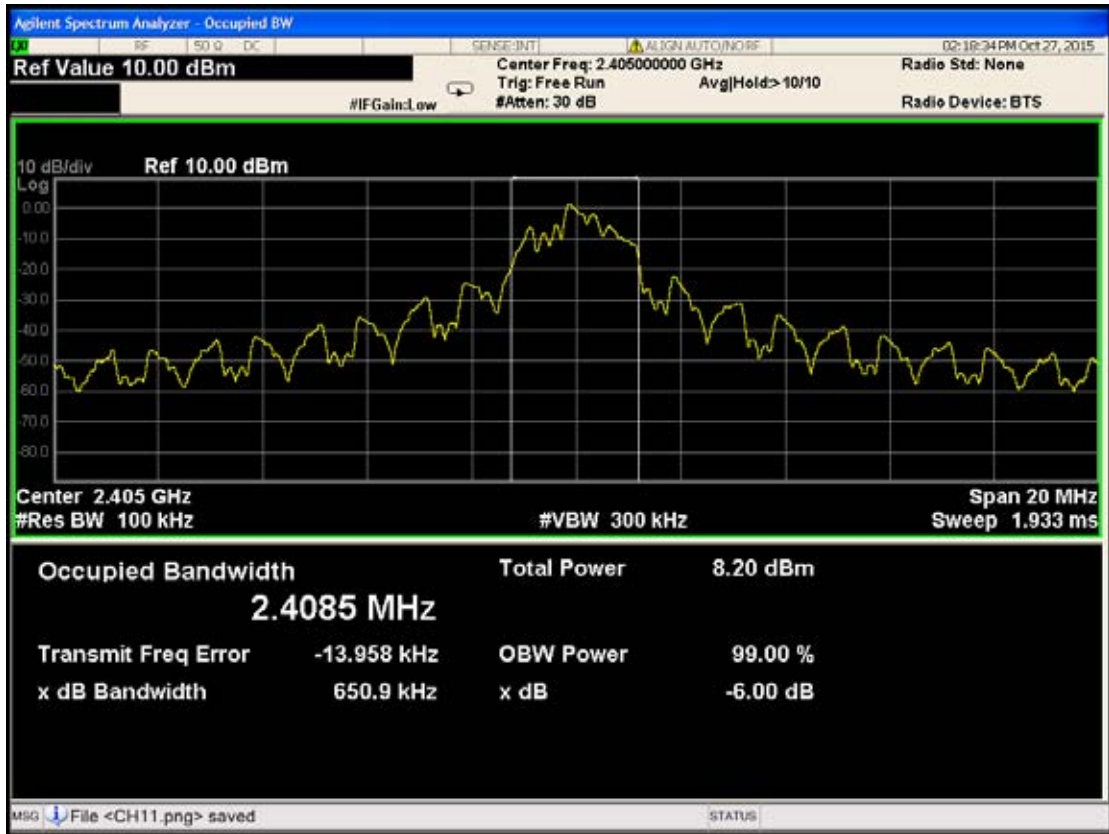
The transmitter output was connected to the test receiver / spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB. The measurement guideline was according to KDB558074 v03r02.

6.5. Test Results

PASSED. All the test results are attached in next pages.

Channel	Center Frequency(MHz)	6 dB Bandwidth(kHz)
11	2405	650.9
20	2450	649.1
26	2480	642.0

CH 11



CH 20



CH 26

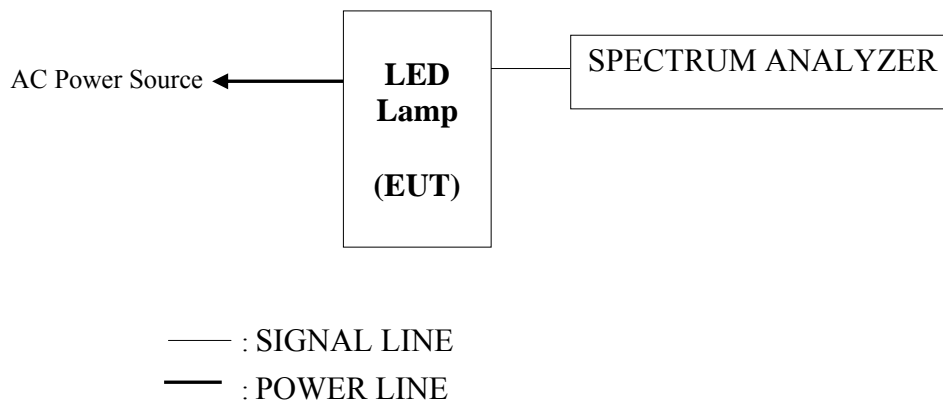


7. OUTPUT POWER MEASUREMENT

7.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22

7.2. Block Diagram of Test Setup



7.3. Specification Limits (§15.247(b)(3))

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

7.4. Test Procedure

- a) Set span to at least 1.5 times the OBW.
- b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
- c) Set VBW $\geq 3 \times$ RBW.
- d) Number of points in sweep $\geq 2 \times$ span / RBW. (This gives bin-to-bin spacing \leq RBW/2, so that narrowband signals are not lost between frequency bins.)
- e) Sweep time = auto.
- f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- g) If transmit duty cycle $< 98 \%$, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq 98 \%$, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
- h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- i) Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

7.5. Test Results

PASSED. All the test results are attached in next pages.

Channel	Frequency	Power(dBm)	Limit(dBm)
11	2405	3.44	30
20	2450	3.43	30
26	2480	3.61	30

8. BAND EDGES MEASUREMENT

8.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22

8.2. Block Diagram of Test Setup

The same as section 5.2.

8.3. Specification Limits (§15.247(d))

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

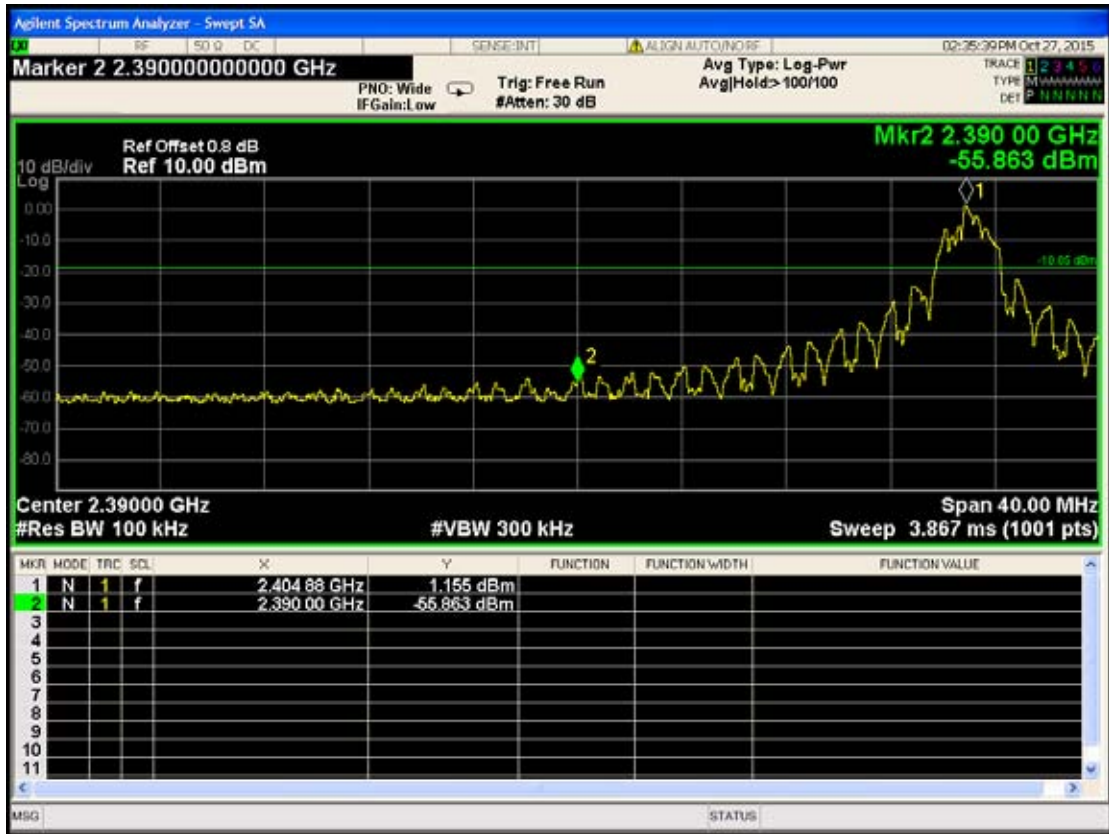
8.4. Test Procedure

The transmitter output was connected to the test receiver / spectrum analyzer. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz with suitable frequency span including 100kHz bandwidth from band edge.

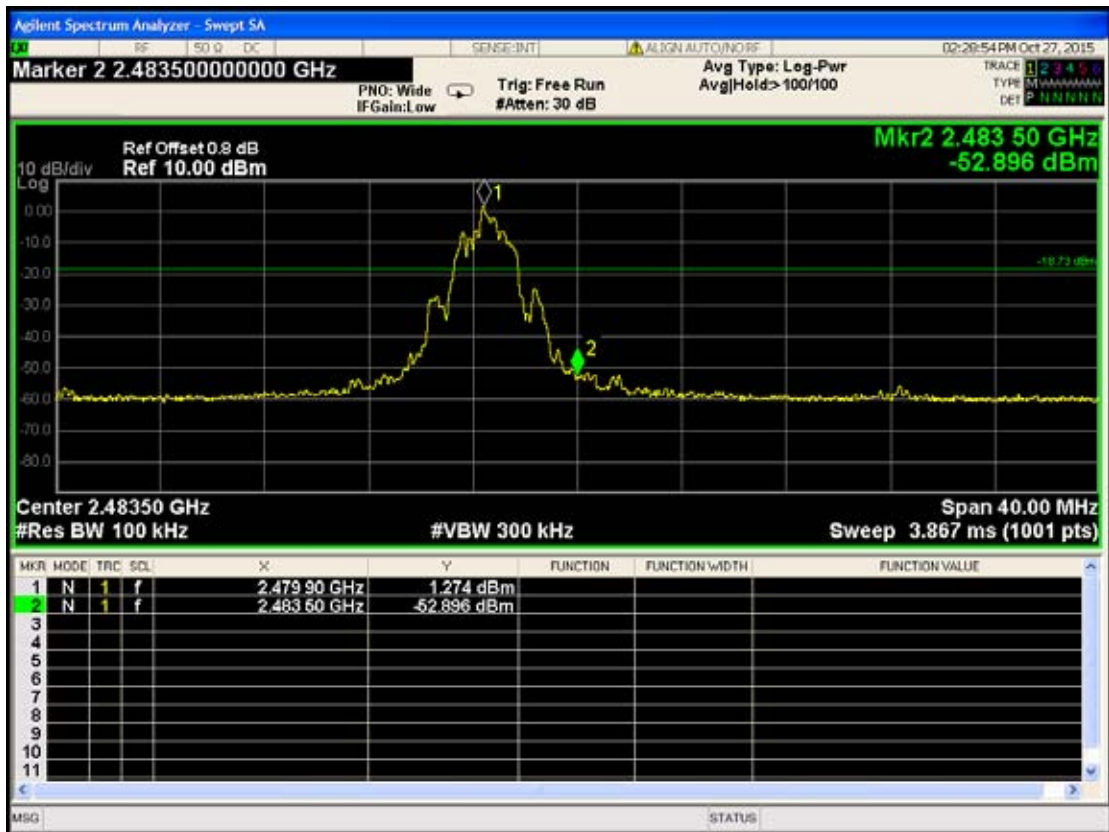
8.5. Test Results

PASSED. The testing data was attached in the next pages.

CH11



CH26



9. POWER SPECTRAL DENSITY MEASUREMENT

9.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22

9.2. Block Diagram of Test Setup

The same as section 5.2.

9.3. Specification Limits (§15.247(e))

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

9.4. Test Results

PASSED. All the test results are attached in next page.

Channel	Frequency(GHz)	Value(dBm/100kHz)	Value(dBm/3kHz)
11	2.404875	1.084	-14.116
20	2.449870	0.867	-14.333
26	2.479875	1.120	-14.08

CH 11



CH 20



CH 26



10.EMISSION LIMITATIONS MEASUREMENT

10.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22

10.2. Block Diagram of Test Setup

The same as section 5.2.

10.3. Specification Limits (§15.247(d))

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

10.4. Test Procedure

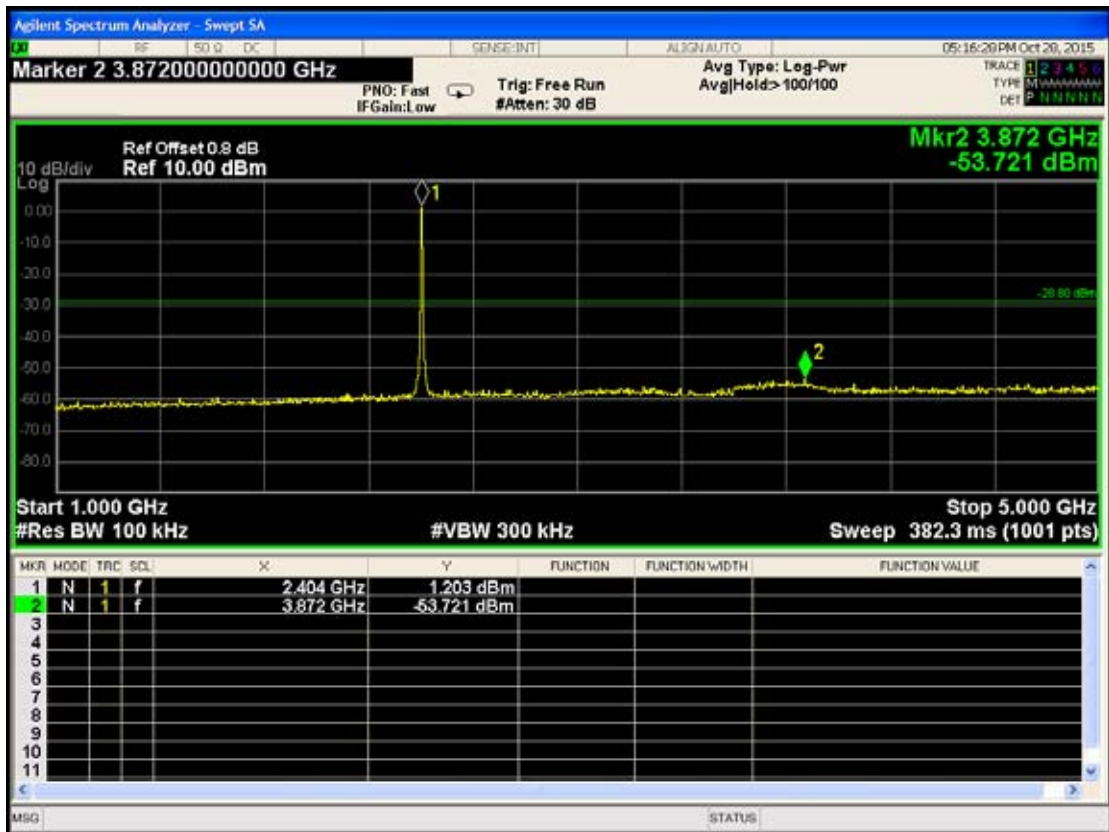
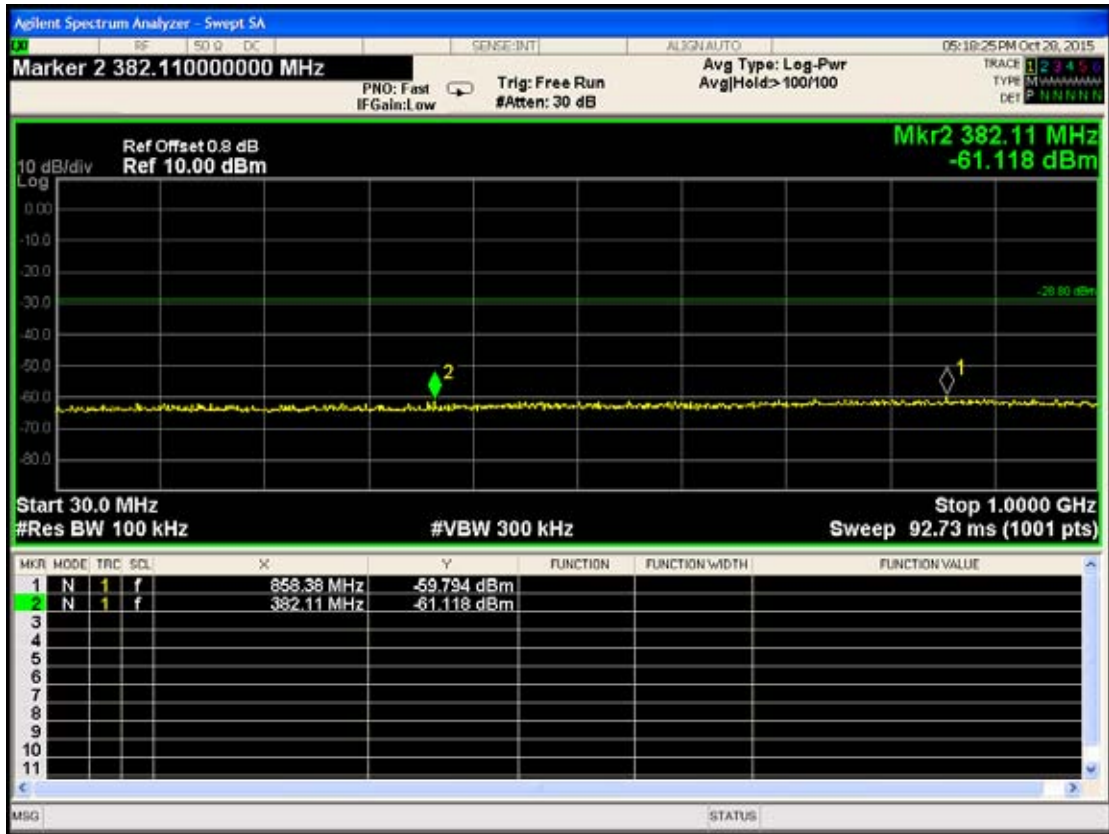
The transmitter output was connected to the spectrum analyzer. Set RBW = 100kHz, VBW \geq 300 kHz, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The measurement guideline was according to KDB558074 v03r02.

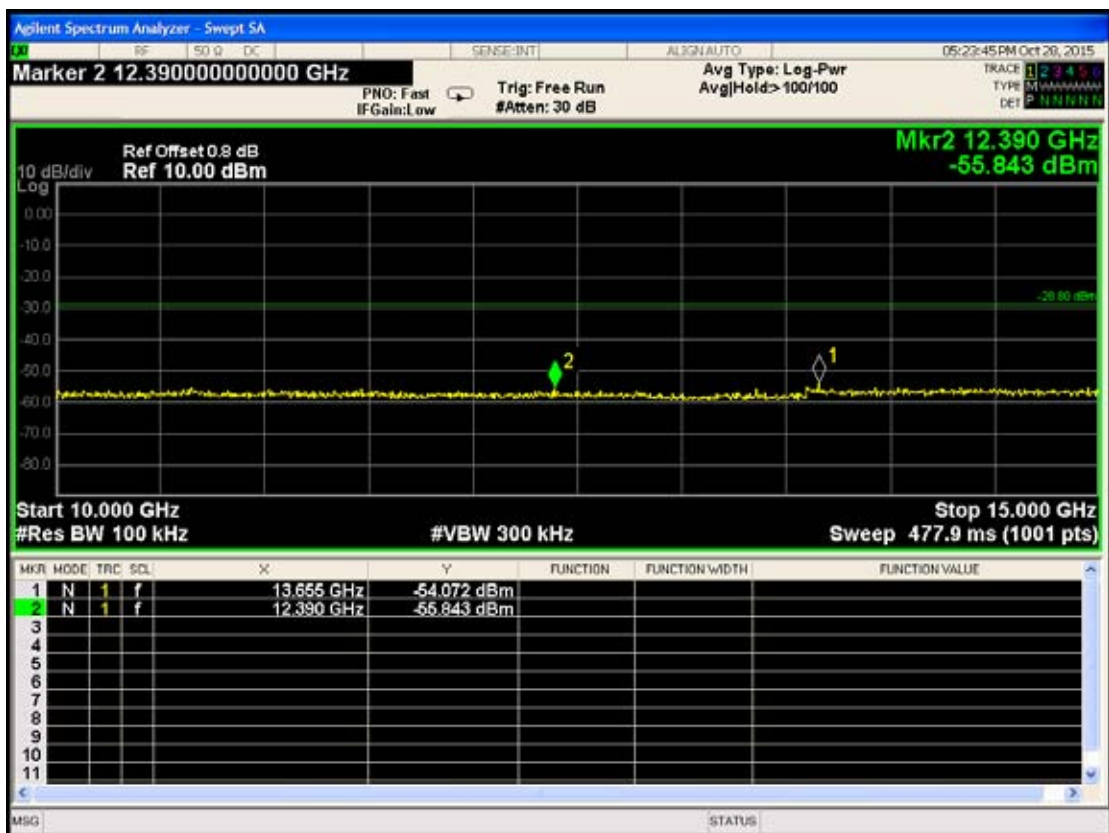
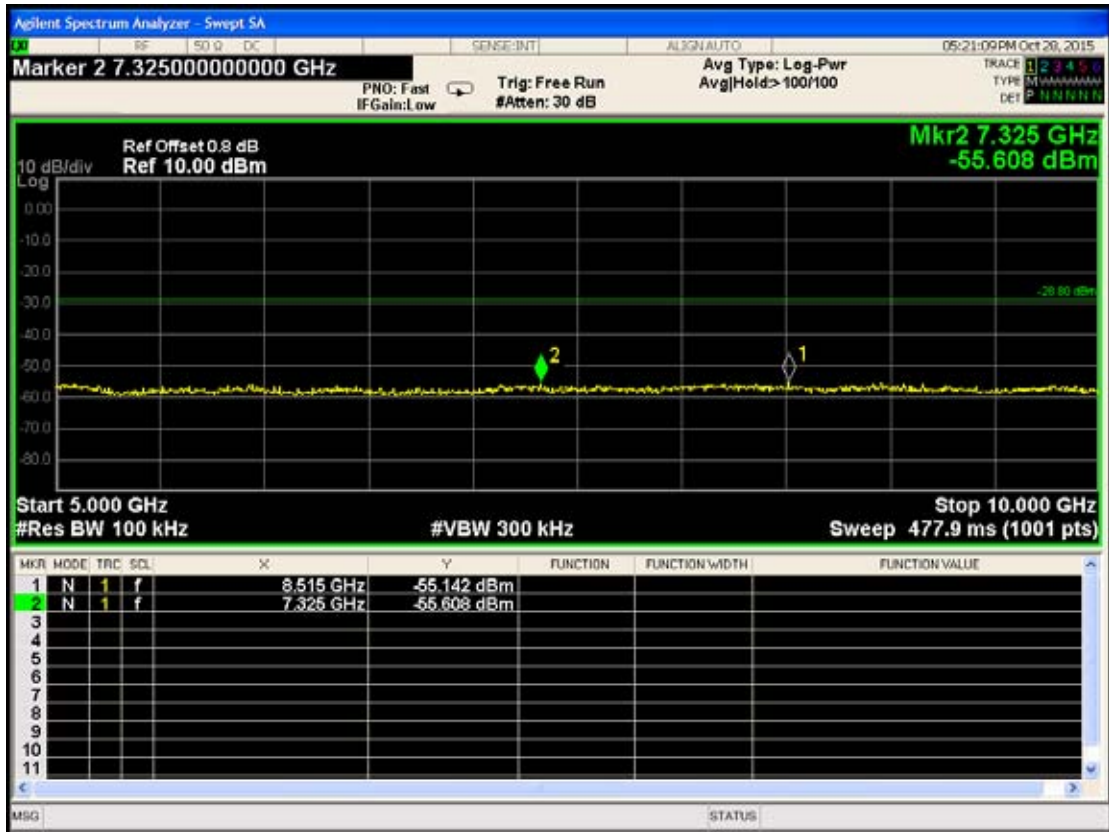
10.5. Test Results

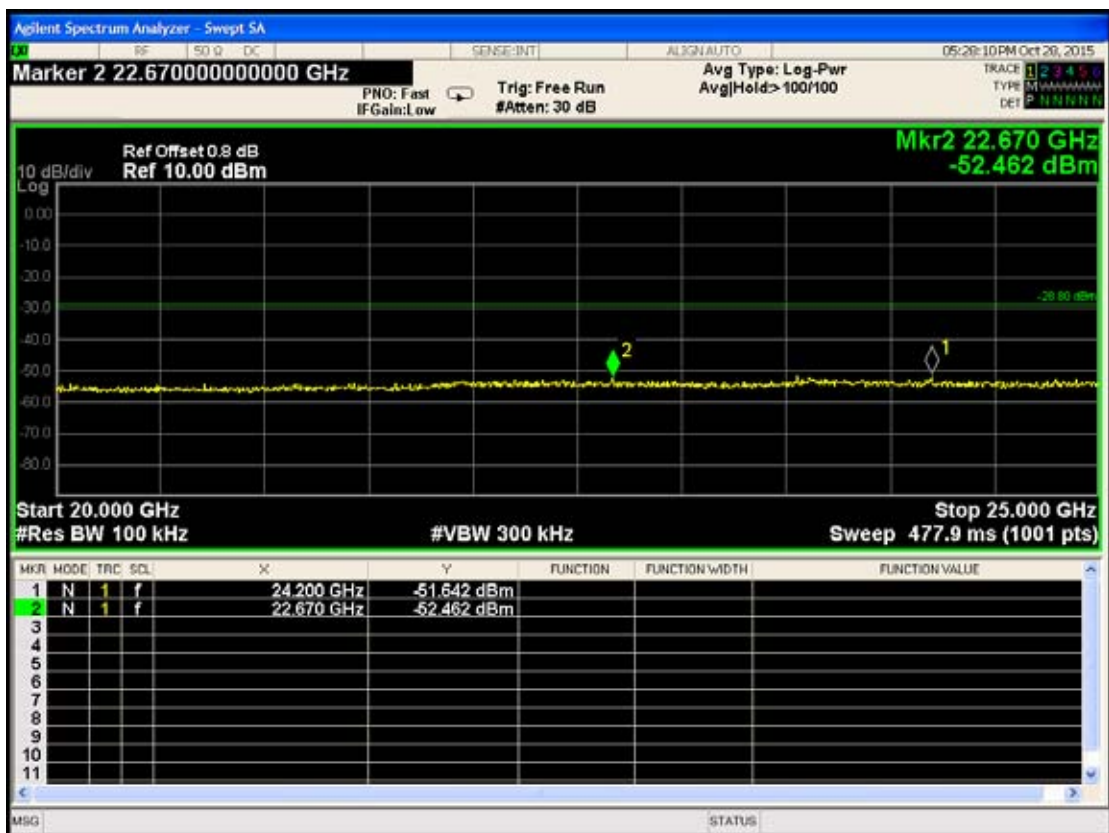
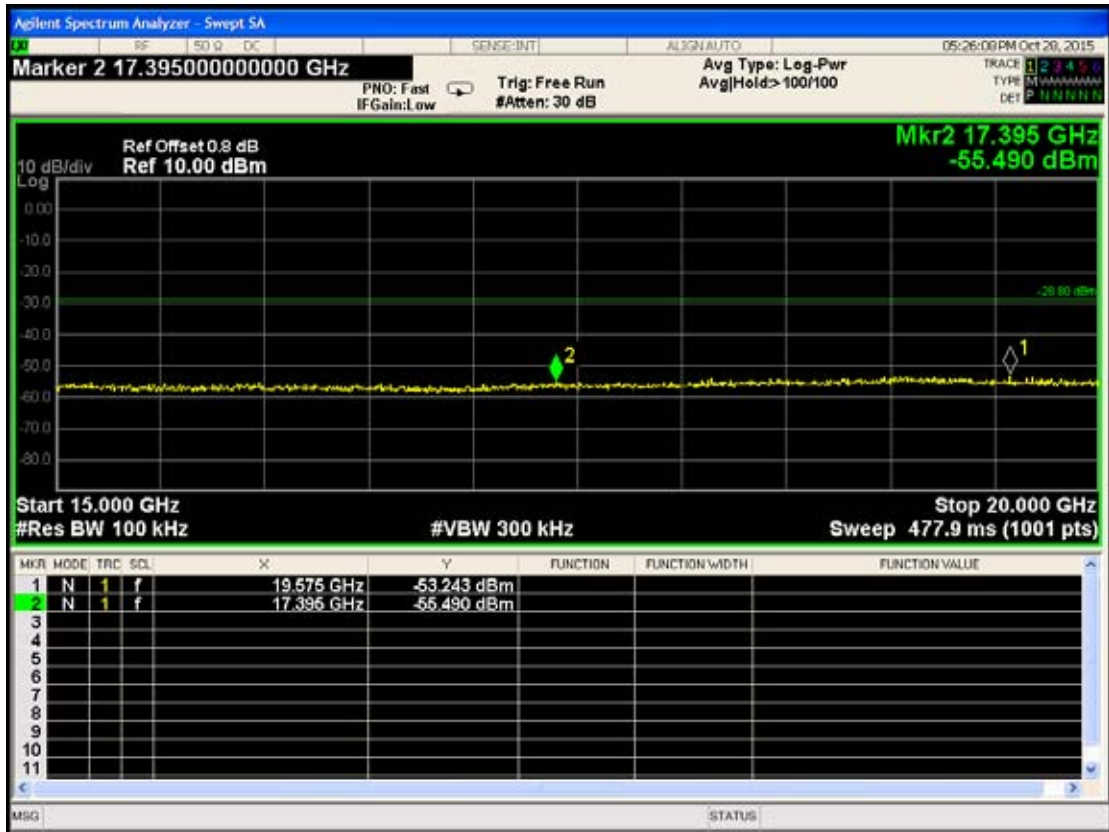
PASSED. All the test results are attached in next pages.

Channel	Frequency(MHz)	Amplitude(dBm)
11	858.38	-59.794
	382.11	-61.118
	2404.00	1.203
	3872.00	-53.721
	8515.00	-55.142
	7325.00	-55.608
	13655.00	-54.072
	12390.00	-55.843
	19575.00	-53.243
	17395.00	-55.490
	24200.00	-51.642
	22670.00	-52.462
20	831.22	-60.058
	380.17	-62.367
	2448.00	0.847
	3804.00	-54.381
	7235.00	-54.729
	8260.00	-55.580
	14000.00	-54.440
	13670.00	-54.458
	19275.00	-53.332
	17800.00	-53.733
	22765.00	-52.852
	21640.00	-54.046
26	875.84	-60.603
	545.07	-60.640
	2480.00	1.560
	3780.00	-54.816
	5095.00	-55.076
	7180.00	-55.183
	14555.00	-55.051
	11425.00	-55.788
	19585.00	-53.115
	15715.00	-54.768
	23555.00	-52.199
	22740.00	-52.324

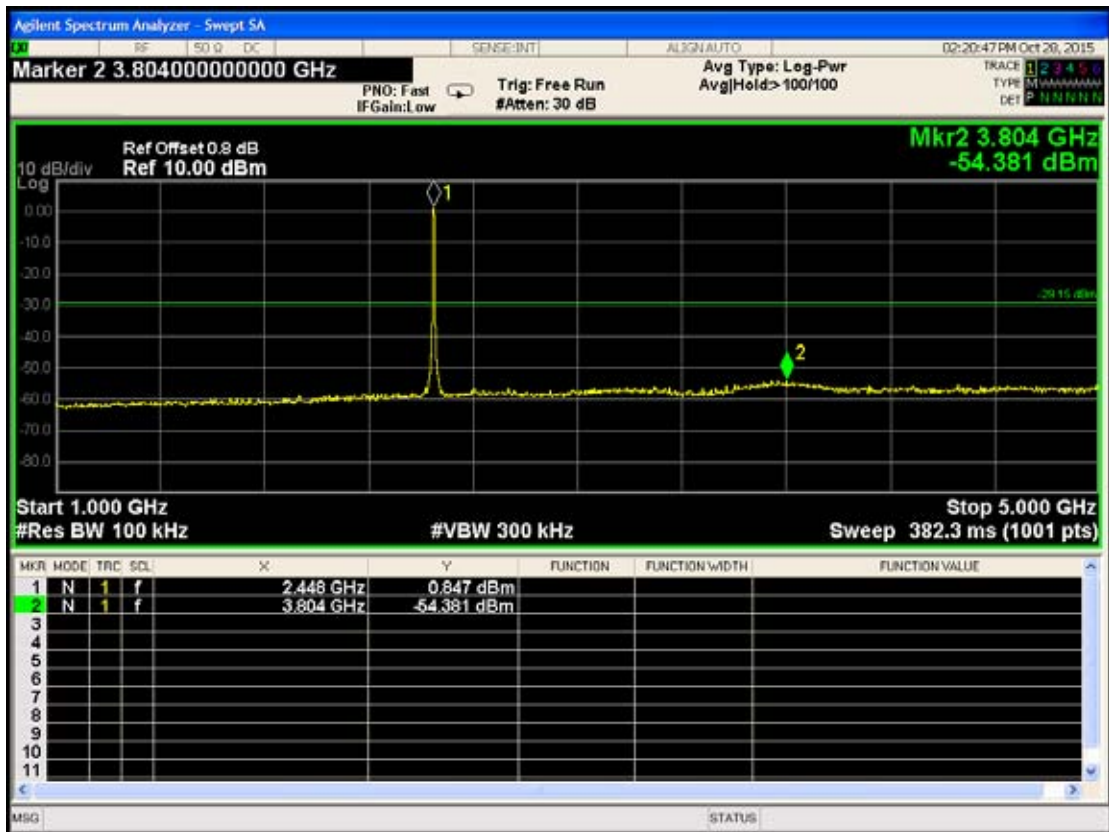
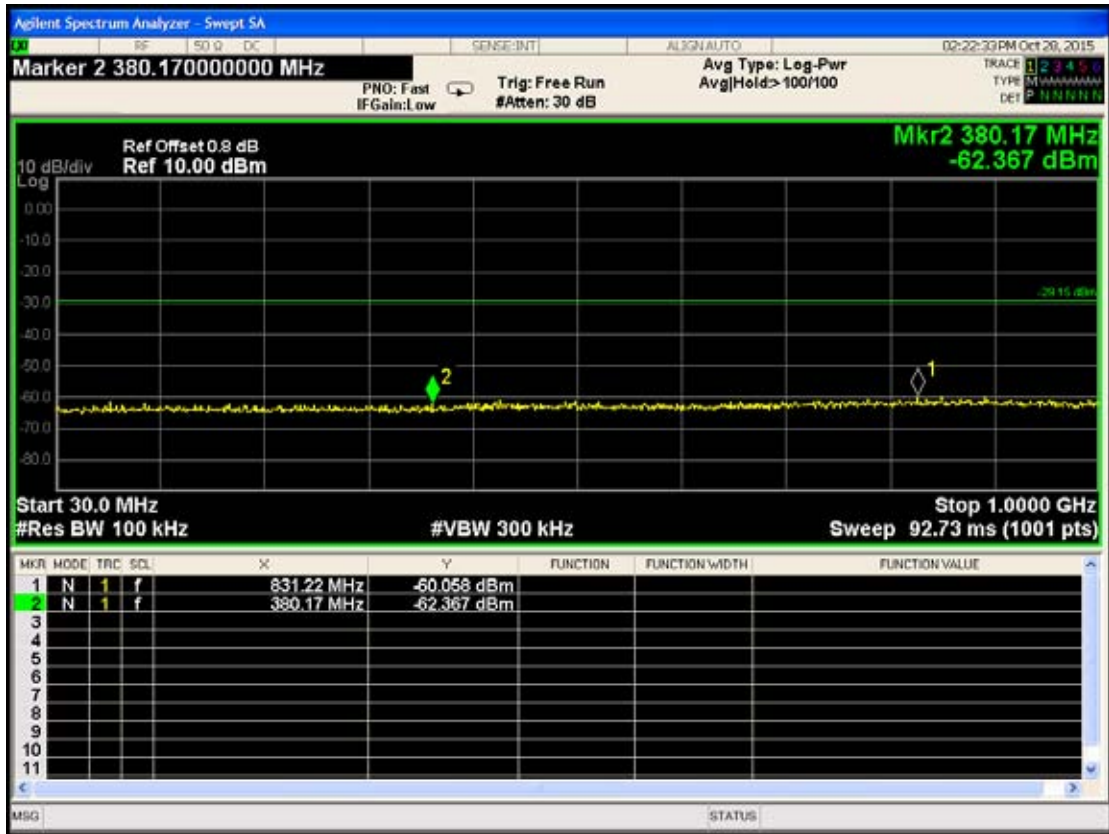
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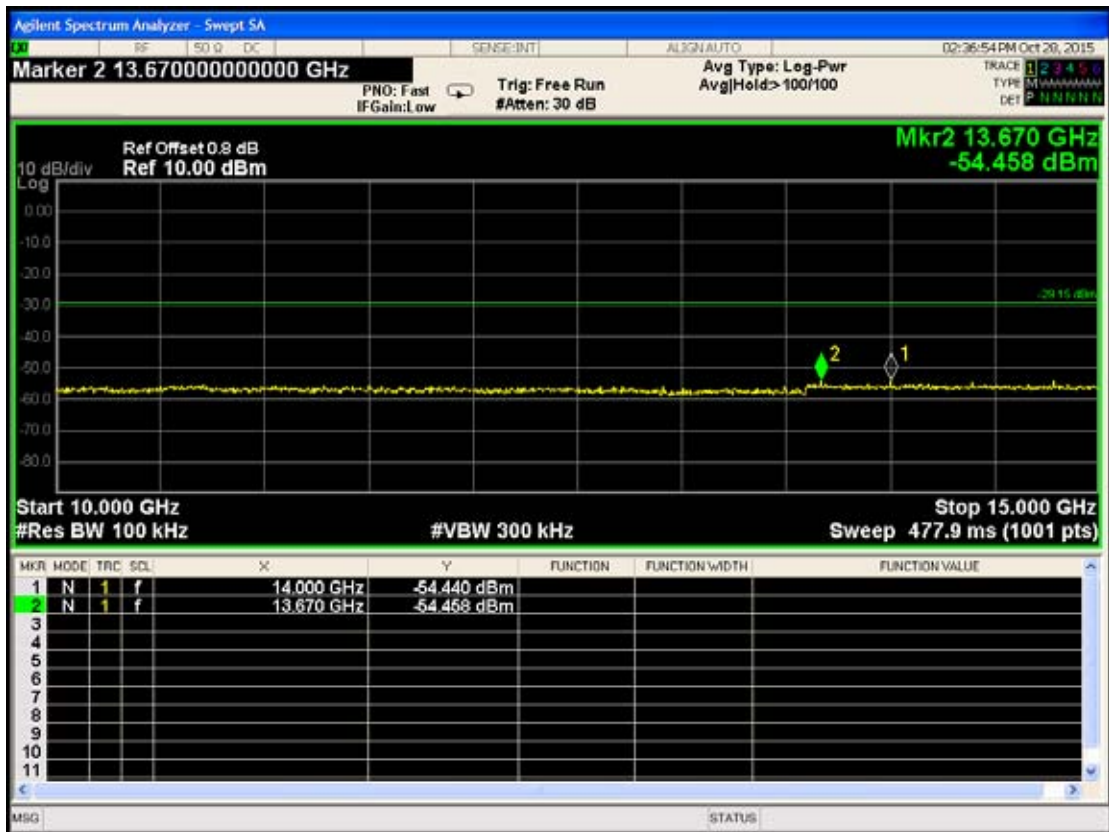
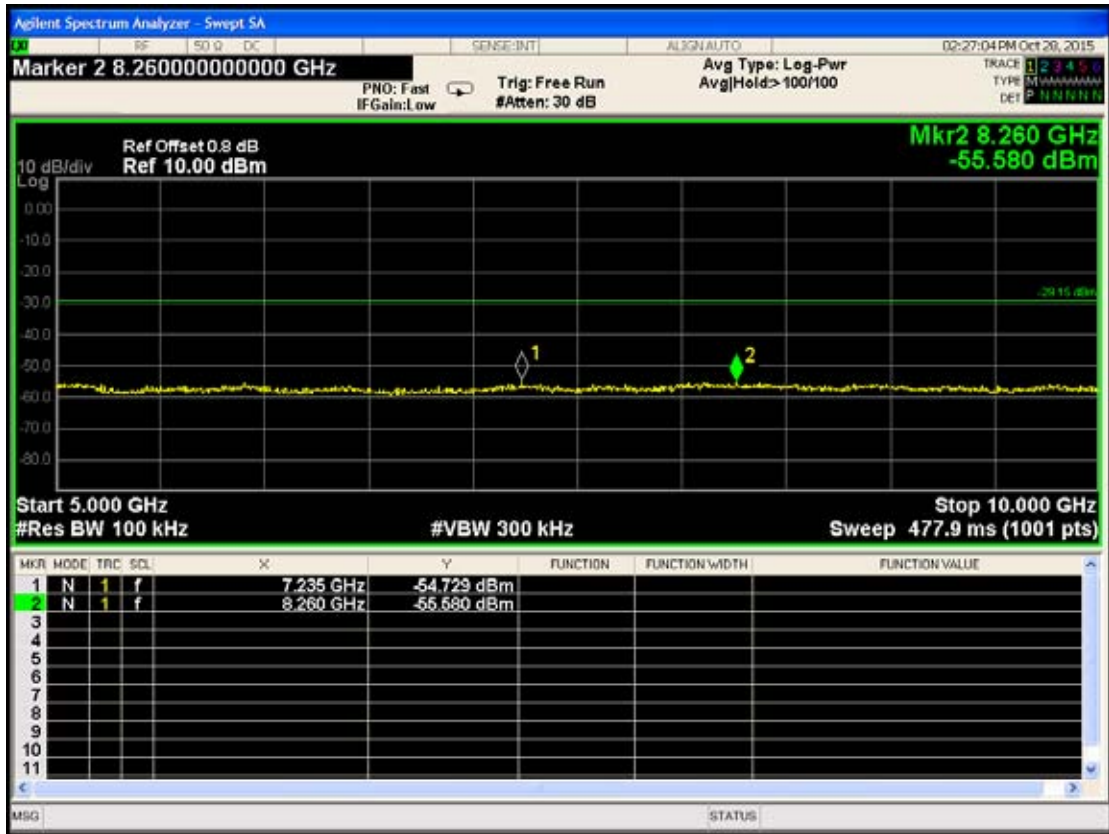


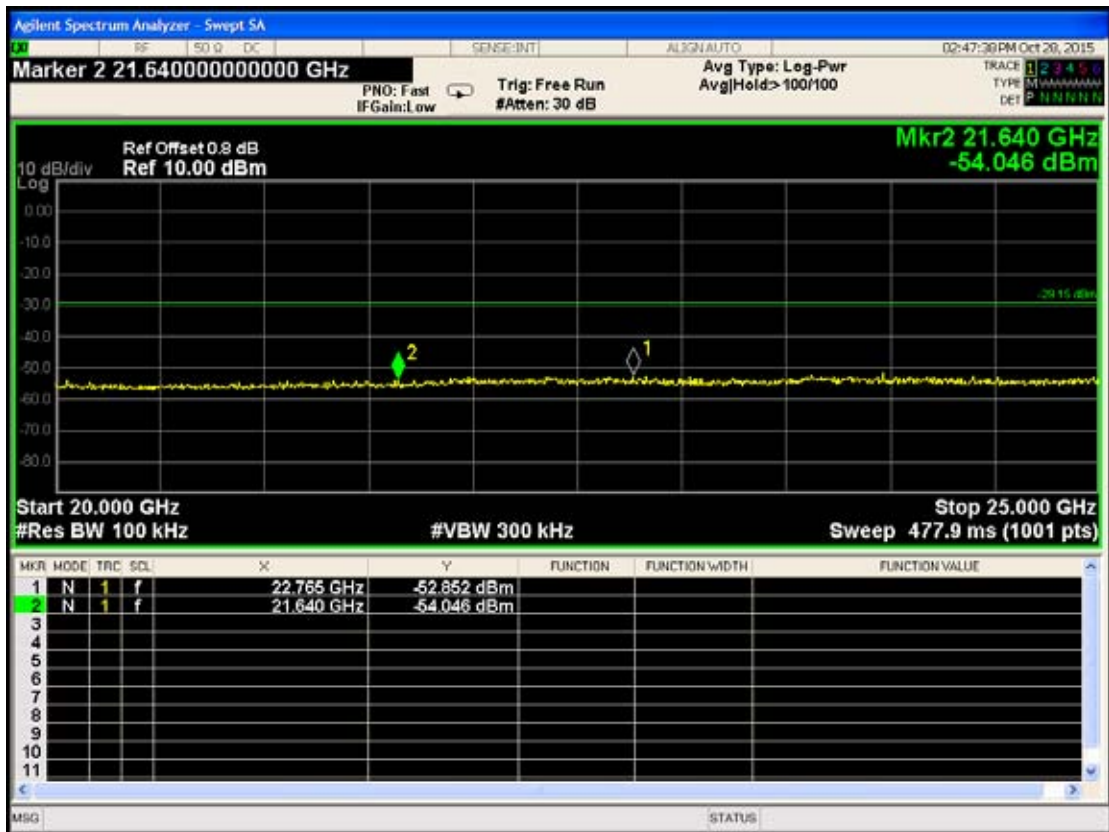
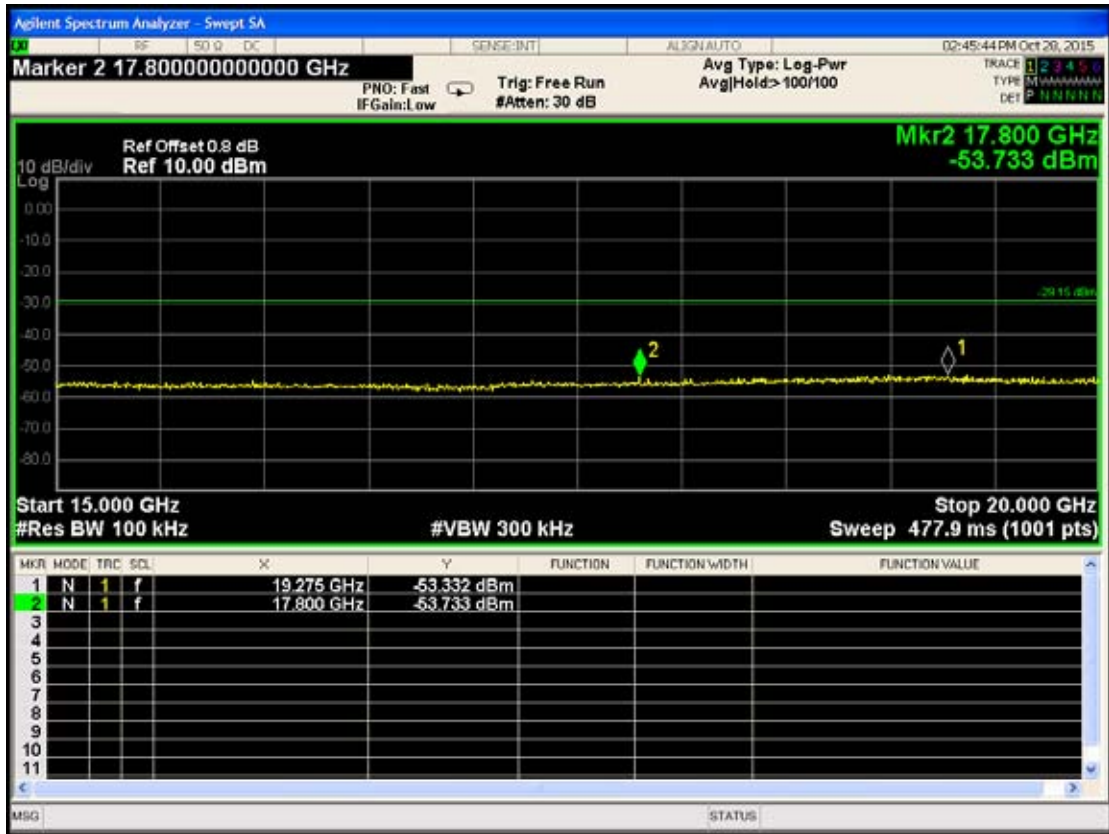




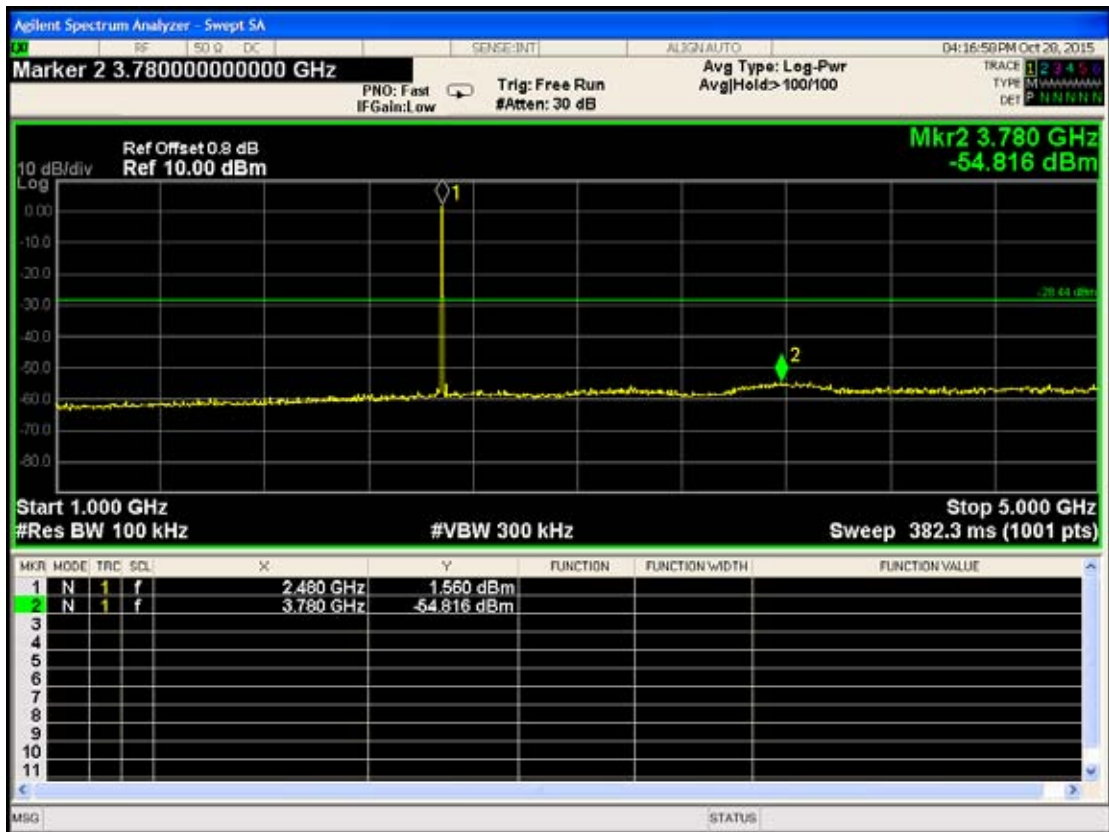
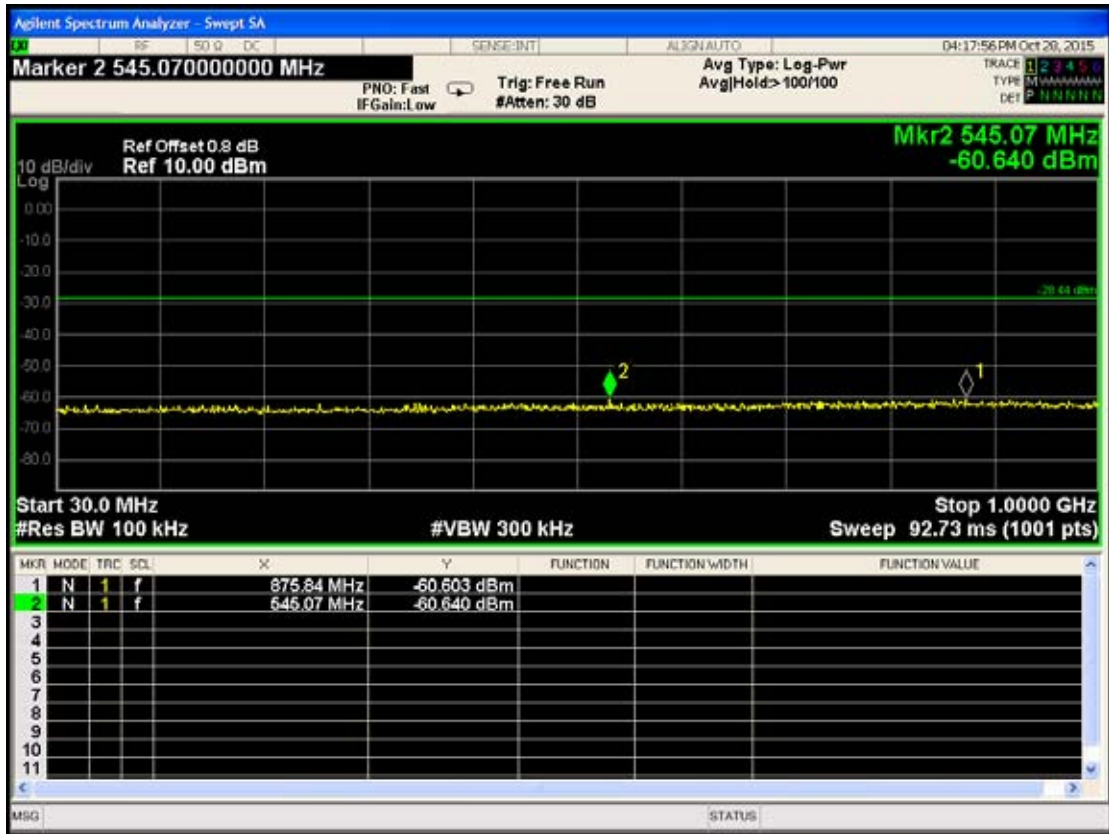
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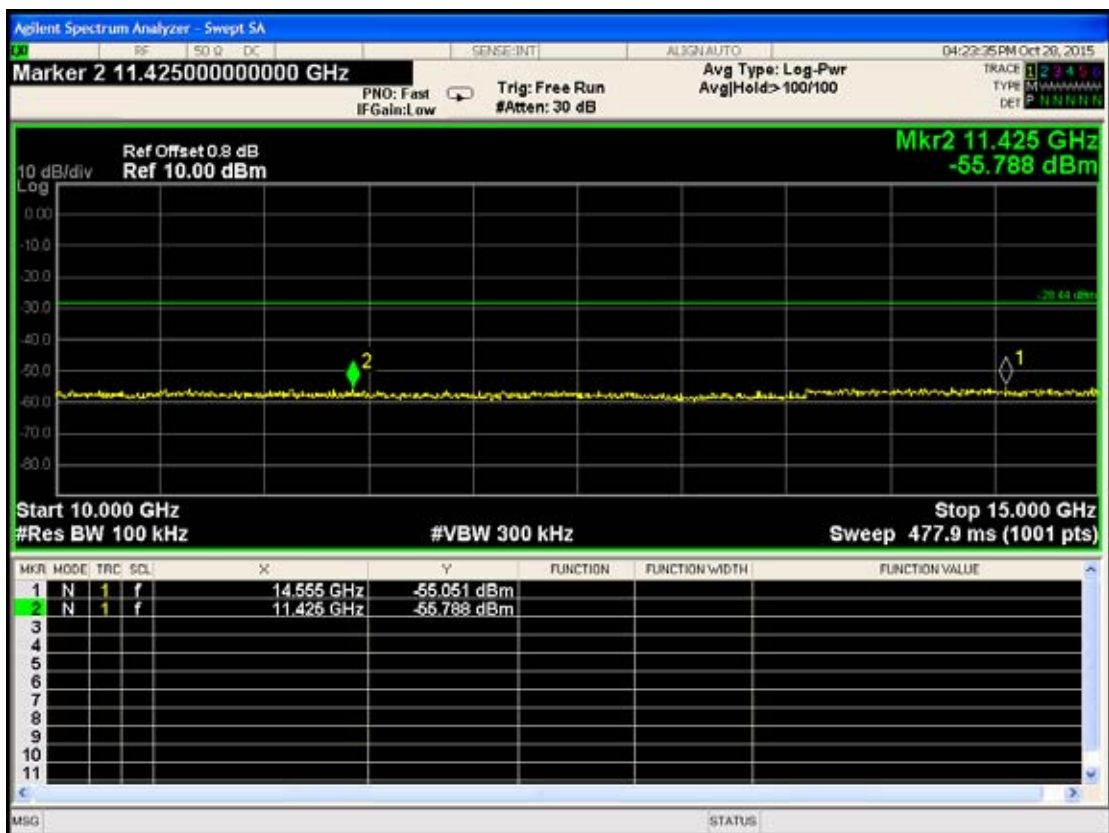
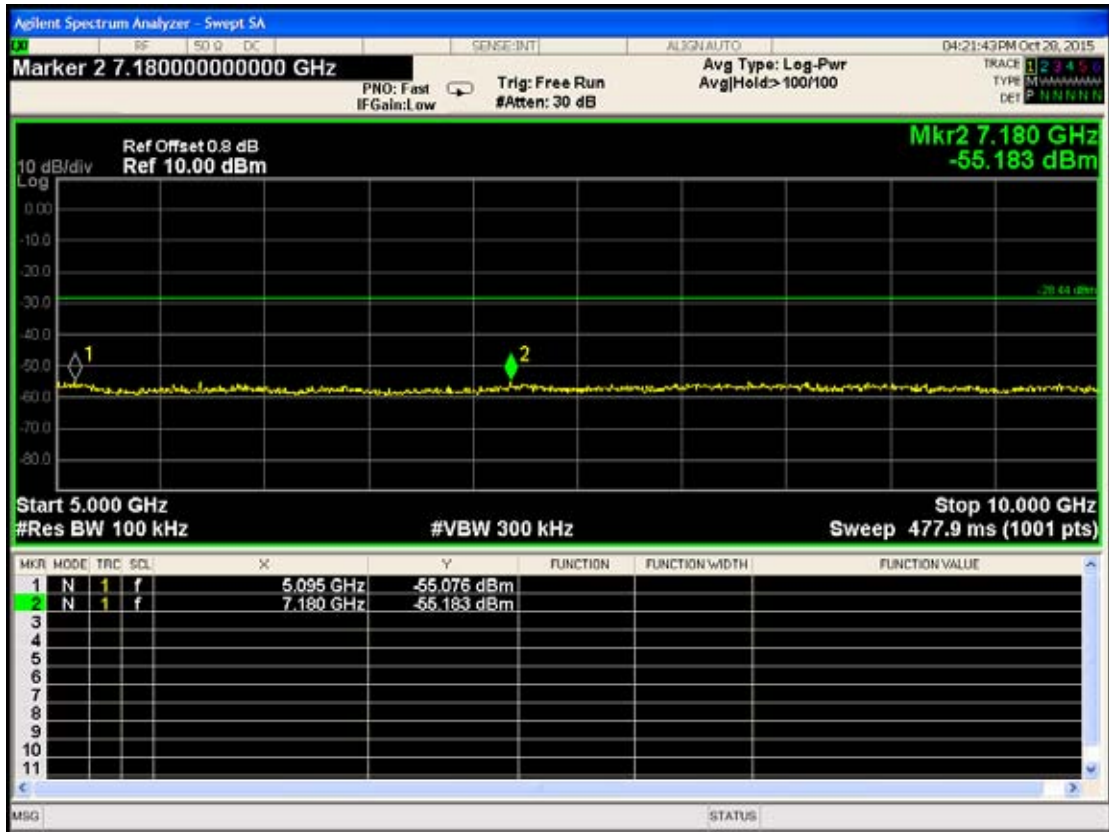


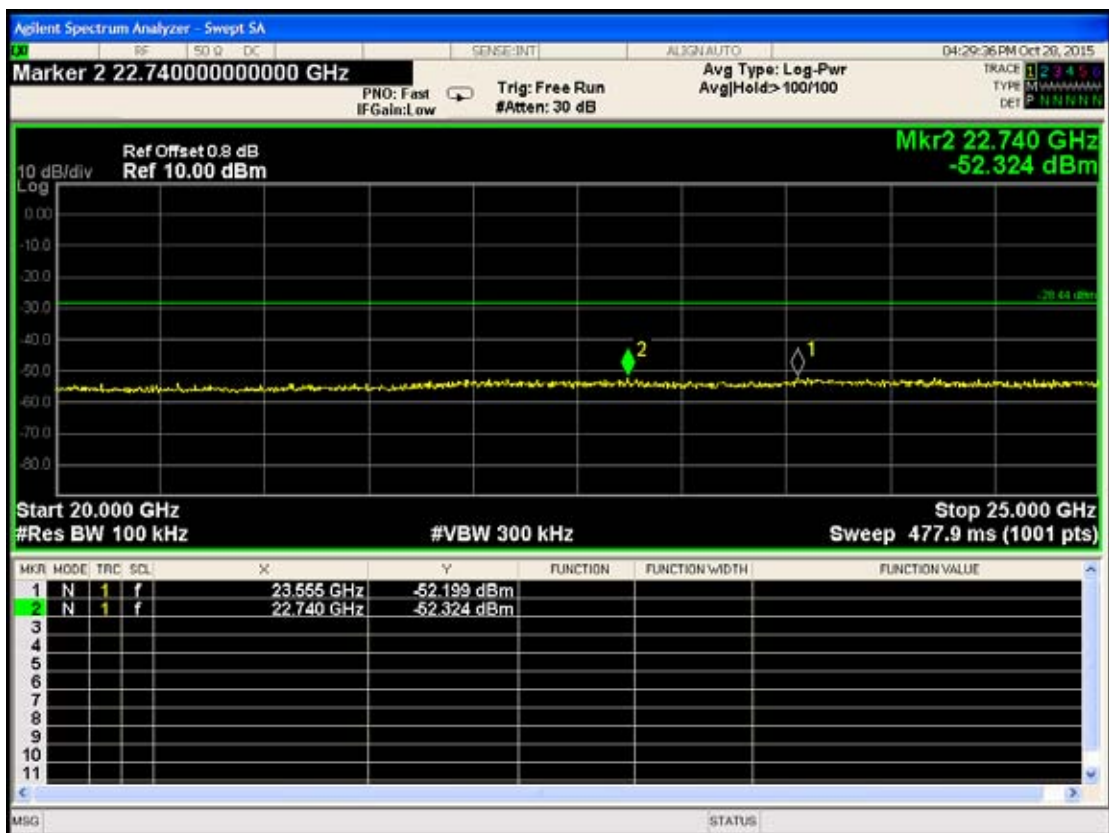
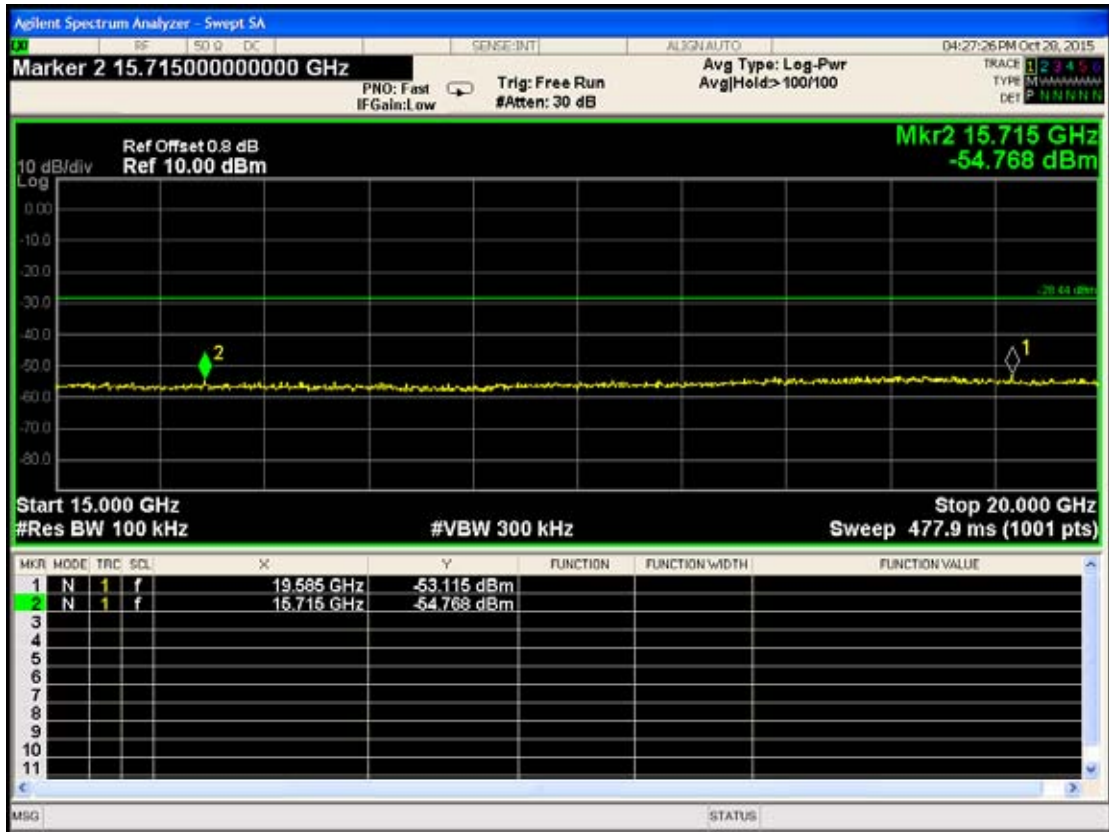




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11.DUTY CYCLE

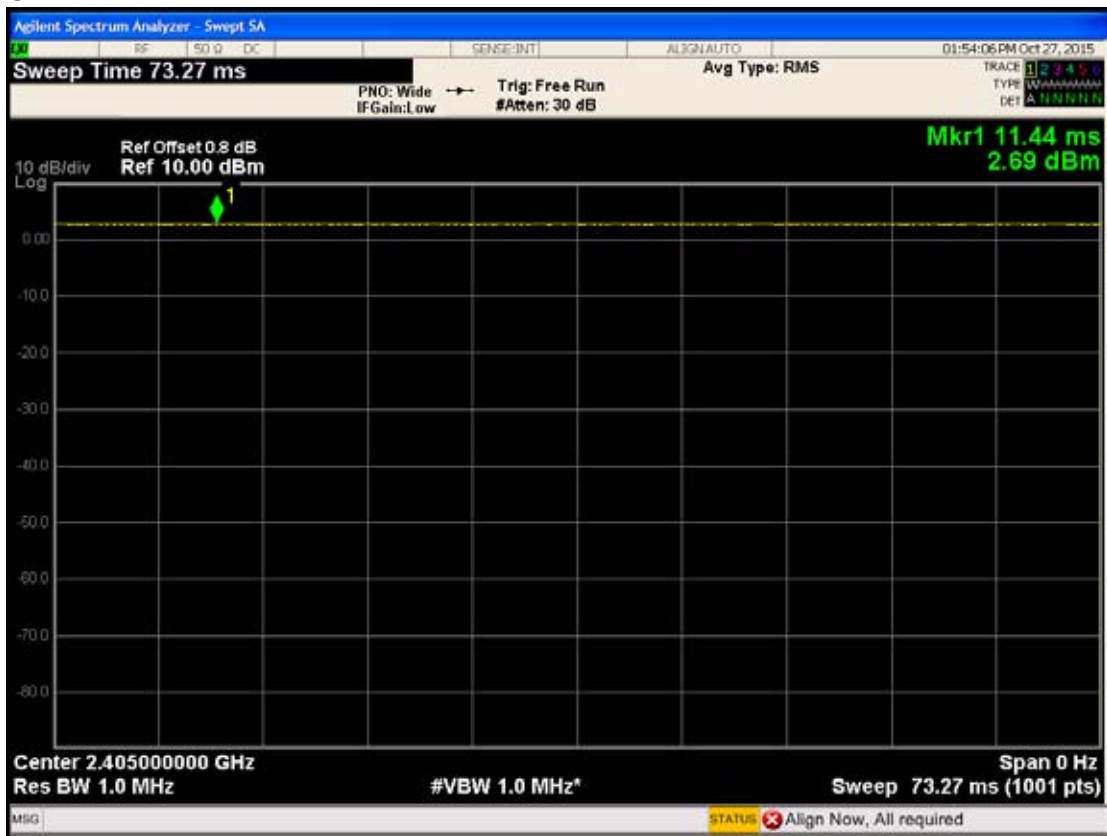
11.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22

11.2. Test Results

The measurement of duty cycle is 100%.

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12.DEVIATION TO TEST SPECIFICATIONS

【NONE】