APPLICATION FOR CERTIFICATION

On Behalf of

Philips Lighting(China) Investment Co., Ltd.

LED Lamp

Model No. : 9290011998A

Brand : Philips

FCC ID : 2AGBW9290011998AX

Prepared for

Philips Lighting(China) Investment Co., Ltd.

Building 9, Lane 888, Tian Lin Road, Minhang district, 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

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Report Number : ACWE-F1608003

Date of Test : Jul.30~Aug.02, 2016

Date of Report : Aug.11, 2016

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TEST REPORT CERTIFICATION

Philips Lighting(China) Investment Co., Ltd. Applicant

Manufacturer Philips Lighting(China) Investment Co., Ltd.

EUT Description LED Lamp

FCC ID 2AGBW9290011998AX

(A) Model No. 9290011998A

(B) Brand **Philips**

AC 110-130V, 60Hz (C) Power Supply

(D) Test Voltage AC 120V, 60Hz

Applicable Standards:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2015 ANSI C63.10: 2013

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, 15.209&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 test report shows that the EUT to be technically compliant with the FCC limits.

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

Date of Test: Jul.30~Aug.02, 2016 Date of Report: Aug.11, 2016

Prepared by

(Emma Hu/Assistant Administrator)

Reviewer (Danny Sun/ Section Manager)

(Ken Lu/Assistant General Manager)

Approved & Authorized Signer

1. 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	PASS	Minimum passing margin is 11.44 dB at 0.15 MHz
RADIATED EMISSION	FCC 47 CFR Part 15 Subpart C/ Section 15.209& Section 15.205 And ANSI C63.10:2013	PASS	Minimum passing margin is 6.20 dB at 33.30 MHz
6 dB BANDWIDTH	FCC 47 CFR Part 15 Subpart C/ Section 15.247(a)(2) And ANSI C63.10:2013	PASS	> 500kHz
OUTPUT POWER	FCC 47 CFR Part 15 Subpart C/ Section 15.247(b)(3) And ANSI C63.10:2013	PASS	Minimum passing margin is 27.72 dB at CH 11
BAND EDGES	FCC 47 CFR Part 15 Subpart C/ Section 15.247(d) And ANSI C63.10:2013	PASS	
POWER SPECTRAL DENSITY	FCC 47 CFR Part 15 Subpart C/ Section 15.247(e) And ANSI C63.10:2013	PASS	Minimum passing margin is 8.282 dB at CH 26
EMISSION LIMITATIONS	FCC 47 CFR Part 15 Subpart C/ Section 15.247(d) And ANSI C63.10:2013	PASS	

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description : LED Lamp

Model No. : 9290011998A

FCC ID : 2AGBW9290011998AX

Brand : Philips

Applicant : Philips Lighting(China) Investment Co., Ltd.

Building 9, Lane 888, Tian Lin Road, Minhang district,

Shanghai, China

Manufacturer : Philips Lighting(China) Investment Co., Ltd.

Building 9, Lane 888, Tian Lin Road, Minhang district,

Shanghai, China

Radio Technology : IEEE 802.15.4 (ZigBee®)

Antenna Gain : 1.65dBi

Fundamental Range : 2405 MHz -2480MHz

Tested Frequency : 2405MHz (CH11)

2450MHz (CH20) 2480MHz (CH26)

Channel Setting Method : Channel is changed according to EUT's power on or

power off.

Highest Working

Frequency

2.4GHz

Modulation type : O-QPSK

Date of Receipt of Sample : Jul.26, 2016

Date of Test : Jul.30~Aug.02, 2016

2.2. 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.

2.3. Measurement Uncertainty

Test Item	Range Frequency	Uncertainty
No.1 Conducted Disturbance Measurement	0.15MHz ~ 30MHz	± 2.65dB
Radiated Disturbance Measurement	30MHz ~ 300MHz	± 3.18dB
(At 3m Chamber)	300MHz ~ 1GHz	± 3.12dB
Radiated Disturbance Measurement	1GHz ~ 6GHz	± 4.56dB
(At 3m Chamber)	6GHz ~ 18GHz	± 5.03dB

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

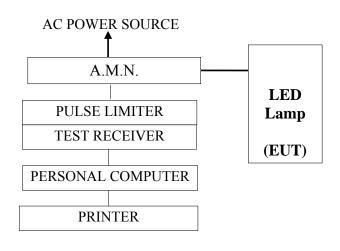
Remark: Uncertainty = $ku_c(y)$

3. CONDUCTED EMISSION MEASUREMET

3.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCI	100839	2016-01-05	2017-01-04
2.	A.M.N	R&S	ESH2-Z5	100153	2016-05-15	2017-05-14
3.	Pulse Limiter	R&S	ESH3-Z2	100605	2016-01-05	2017-01-04
4.	RF Cable	Harbour Industries	RG400	002	2016-01-05	2017-01-04
5.	Software	Audix/e3(6.7.0313)				

3.2. Block Diagram of Test Setup



—: POWER LINE
—: SIGNAL LINE

3.3. 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 dBμV	56 ~ 46 dBμV	
500kHz ~ 5MHz	56 dBμV	46 dBμV	
5MHz ~ 30MHz	60 dBμV	50 dBμV	

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.

3.4. 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 meter height above the ground plane, and 0.4 meter far away from the vertical plane. The mains cable of the EUT connected to one Artificial Main Network(AMN). All other unit of the EUT and AE connected to a second Line Impedance Stabilization Network(L.I.S.N.). The telecommunication cable connected to the AE through a Impedance Stabilization Network(ISN) which terminated a 50Ω resistor. 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 terminator. All measurements were done between the phase lead and the reference ground, and between the neutral lead and the reference ground. 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 \sim 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 unnecessary).

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

Emission level ($dB\mu V$) = Reading ($dB\mu V$) + A.M.N factor (dB) + Cable loss (dB). (Cable loss includes pulse limiter loss)

3.5. 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.

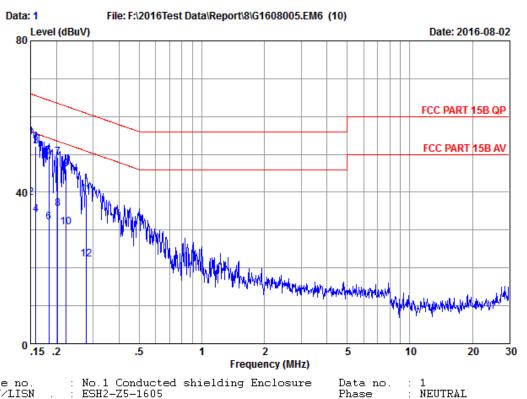
Test Date: Aug.02, 2016 Temperature: 23.2 Humidity: 59%

M - 1 -	T4 C 1'4'	Reference Test Data No.			
Mode	Test Condition	Neutral	Line		
1	TX CH11 2405MHz	# 1	# 2		
2	TX CH20 2450MHz	# 3	# 4		
3	TX CH26 2480MHz	# 5	# 6		

NOTE 1- 'means the worst test mode.

NOTE 2- The worst emission is detected at 0.15 MHz with emission level of 54.54 dB (μ V) and with QP detector (Limit is 65.98 dB (μ V)), when the Neutral of the EUT is connected to AMN.





Phase

Engineer

: KM.Tong

Site no. AMN/LISN Limit Env. / Ins. EUT

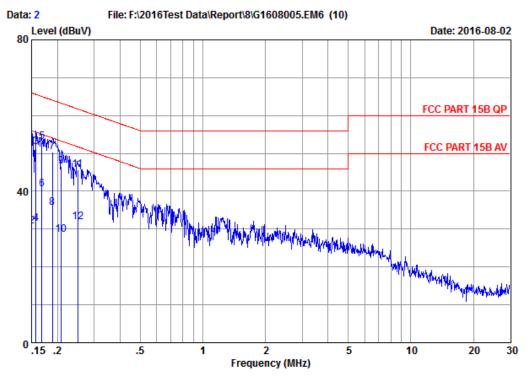
M/N Power Rating Test mode Memo

No.1 Conducted shielding Enclosure ESH2-Z5-1605 FCC PART 15B QP 23.2C&59%/ESCI LED Lamp 9290011998A 120Vac/60Hz TX CH11 2405MHz

	Freq.	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1 2 3 4 5 6 7 8 9 10 11	0.15 0.15 0.16 0.16 0.18 0.20 0.20 0.22 0.22 0.22	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.89	44.50 28.50 42.20 24.00 39.50 22.00 39.10 25.60 36.10 20.80 29.51 12.21	54.54 38.54 52.24 34.04 49.54 32.04 49.14 35.64 46.14 30.84 39.55 22.25	65.98 55.98 65.50 55.50 64.32 54.32 63.51 53.51 52.74 52.74 60.89 50.89	11.44 17.44 13.26 21.46 14.78 22.28 14.37 17.87 16.60 21.90 21.34 28.64	QP Average QP Average QP Average QP Average QP Average QP Average

^{1.}Emission Level= AMN factor + Cable loss(Include Pulse Att) + Reading .





Site no. AMN/LISN Limit Env. / Ins. No.1 Conducted shielding Enclosure ESH2-Z5-1605 FCC PART 15B QP 23.2C&59%/ESCI LED Lamp 9290011998A

M∠N Power Rating Test mode Memo

AMN

(dB)

Factor

0.16

0.16

0.16

0.16

0.16

0.16

0.16

0.16

0.16

0.16

0.16

Cable

Loss

(dB)

9.89

9.89

9.89

9.89

9.89

9.89

9.89

9.89

9.89

9.89

9.89

9.89

120Vac/60Hz TX CH11 2405MHz

Reading

42.60

20.80 41.60

21.40 42.90

30.40

40.30 25.70

36.50

18.50 35.71 21.71

(dBuV)

: 2 : LINE Data no. Phase Engineer : KM.Tong

Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
52.65 30.85 51.65 31.45 52.95 40.45 50.35 35.75 46.55 28.55 46.76	66.00 56.00 65.58 55.58 65.05 64.07 54.07 53.25 53.25	13.35 25.15 13.93 24.13 12.10 14.60 13.72 18.32 16.70 24.70 15.97	QP Average QP Average QP Average QP Average QP Average QP Average

19.97

Äverage

0.25 Remarks

Freq

(MHz)

0.15

0.15

0.16

0.16

0.17

0.17

0.19

0.19

0.21 0.21 0.25

1 2 3

8

9 10

11

12

31.76

51.73

^{1.} Emission Level= AMN factor + Cable loss(Include Pulse Att) + Reading .

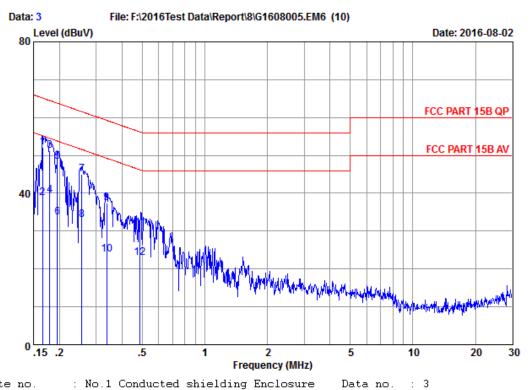


: NEUTRAL

: KM.Tong

Phase

Engineer



Site no. AMN/LISN Limit Env. / Ins. EUT

M/N Power Rating Test mode Memo

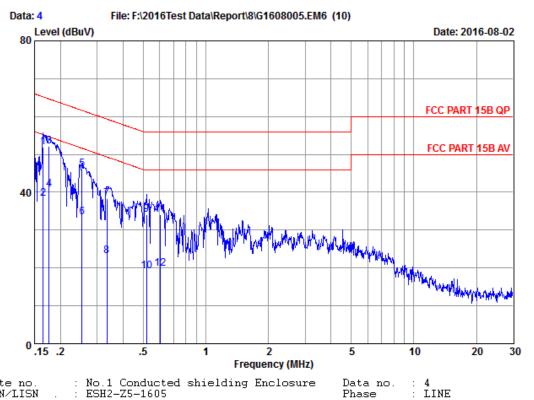
No.1 Conducted shielding Enclosure ESH2-Z5-1605 FCC PART 15B QP 23.2C&59%/ESCI LED Lamp 9290011998A 120Vac/60Hz TX CH20 2450MHz

	Freq.	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1 2 3 4 5 6 7 8 9 10 11 12	0.17 0.17 0.18 0.18 0.20 0.20 0.26 0.26 0.34 0.34 0.49	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15	9.89 9.89 9.89 9.89 9.89 9.89 9.90 9.90	42 10 28 80 41 10 29 50 38 40 23 70 35 01 23 01 27 39 13 89 20 80 12 80	52.14 38.84 51.14 39.54 48.44 45.05 33.05 37.45 23.95 30.86 22.86	65.15 55.15 64.50 54.50 63.81 53.81 61.55 59.25 49.25 46.21	13.01 16.31 13.36 14.96 15.37 20.07 16.50 18.50 21.80 25.30 25.35 23.35	QP Average

Remarks:

1.Emission Level= AMN factor + Cable loss(Include Pulse Att) + Reading .





Phase

Engineer : KM.Tong

Site no. AMN/LISN Limit Env. / Ins. EUT

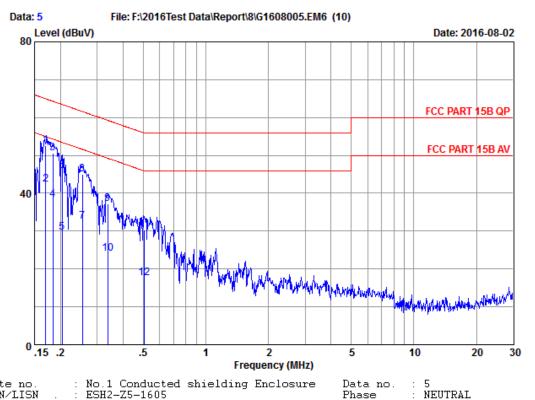
M/N Power Rating : Test mode Memo

No.1 Conducted shielding Enclosure ESH2-Z5-1605 FCC PART 15B QP 23.2C&59%/ESCI LED Lamp 9290011998A 120Vac/60Hz TX CH20 2450MHz

Freq.	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1 0.17 2 0.17 3 0.18 4 0.18 5 0.25 7 0.33 8 0.33 9 0.52 10 0.52 11 0.60 12 0.60	0.16 0.16 0.16 0.16 0.16 0.16 0.16 0.17 0.17 0.18 0.18	9.89 9.89 9.89 9.89 9.89 9.90 9.90 9.90	41.90 28.20 42.00 30.70 36.01 23.31 28.30 13.10 24.00 9.20 24.00 9.70	51.95 38.25 52.05 40.75 46.06 33.36 38.36 23.16 34.07 19.27 34.08 19.78	65.19 55.19 64.65 54.65 51.62 59.36 49.36 46.00 56.00 46.00	13.24 16.94 12.60 13.90 15.56 18.26 21.00 26.20 21.93 21.93 21.92 26.22	QP Average

^{1.}Emission Level= AMN factor + Cable loss(Include Pulse Att) + Reading .





Phase

Engineer

: KM.Tong

Site no. AMN/LISN Limit Env. / Ins. EUT

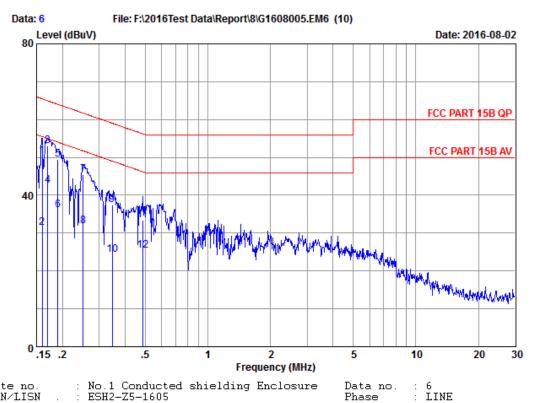
M/N Power Rating Test mode Memo

No.1 Conducted shielding Enclosure ESH2-Z5-1605 FCC PART 15B QP 23.2C&59%/ESCI LED Lamp 9290011998A 120Vac/60Hz TX CH26 2480MHz

_	Freq.	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1 2 3 4 5 6 7 8 9 10 11	0.17 0.17 0.18 0.18 0.20 0.20 0.25 0.34 0.34 0.51	0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.16 0.16 0.16	9.89 9.89 9.89 9.89 9.89 9.89 9.90 9.90	42.50 32.30 40.50 28.20 19.70 35.90 22.51 35.01 27.19 14.09 20.30 7.50	52.54 42.34 50.54 38.24 29.74 45.94 32.55 45.05 37.25 24.15 30.36 17.56	64.97 54.97 64.31 54.31 53.44 63.44 51.60 61.60 49.26 49.26 56.00 46.00	12.43 12.63 13.77 16.07 23.70 17.50 19.05 16.55 22.01 25.11 25.64 28.44	QP Average QP Average QP Average QP Average QP QP QP Average QP Average

^{1.}Emission Level= AMN factor + Cable loss(Include Pulse Att) + Reading .





Phase

Engineer : KM.Tong

Site no. : AMN/LISN : : Limit : Site no. Limit Env. / Ins. EUT

No.1 Conducted shielding Enclosure ESH2-Z5-1605 FCC PART 15B QP 23.2C&59%/ESCI LED Lamp 9290011998A 120Vac/60Hz TX CH26 2480MHz

M/N Power Rating : Test mode : Test mode Memo

	Freq.	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1 2 3 4 5 6 7 8 9 10 11	0.16 0.17 0.17 0.17 0.19 0.25 0.25 0.35 0.35 0.49	0.16 0.16 0.16 0.16 0.16 0.16 0.16 0.16	9.89 9.89 9.89 9.89 9.89 9.89 9.90 9.90	40.20 21.30 43.00 32.40 39.50 26.00 35.41 21.91 27.40 14.20 23.30 15.30	50.25 31.35 53.05 42.45 49.55 36.05 45.46 31.96 37.46 24.26 33.37 25.37	65.48 55.48 64.99 54.99 64.05 51.73 59.02 49.02 56.25 46.25	15.23 24.13 11.94 12.54 14.50 18.00 16.27 19.77 21.56 24.76 22.88 20.88	QP Average

^{1.}Emission Level= AMN factor + Cable loss(Include Pulse Att) + Reading .

4. RADIATED EMISSION MEASUREMENT

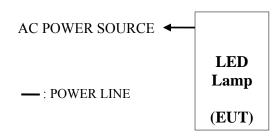
4.1. Test Equipment

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

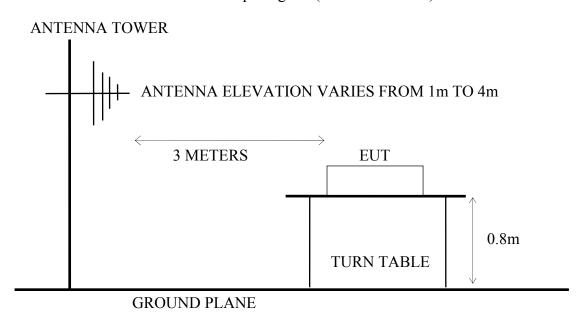
Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Preamplifier	Agilent	8449B	3008A02233	2016-01-05	2017-01-04
2.	Preamplifier	Agilent	8447D	2944A10921	2016-07-03	2017-07-02
3.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2016-05-15	2017-05-14
4.	Test Receiver	R&S	ESCI	100361	2016-01-05	2017-01-04
5.	Bi-log Antenna	Schaffner	CBL6112D	22250	2015-09-02	2016-09-01
6.	Horn Antenna	EMCO	3115	62961	2015-09-23	2016-09-22
7.	RF Cable #1	Yuhang CSYH	cable-3m	001(0.5m)	2016-01-05	2017-01-04
8.	RF Cable #2	Yuhang CSYH	cable-3m	002(0.5m)	2016-01-05	2017-01-04
9.	RF Cable #3	Yuhang CSYH	cable-3m	003(3.0m)	2016-01-05	2017-01-04
10.	Software		Au	dix/e3(6.7.0313)		

4.2. Block Diagram of Test Setup

4.2.1. Block Diagram of Test Setup between EUT and simulators

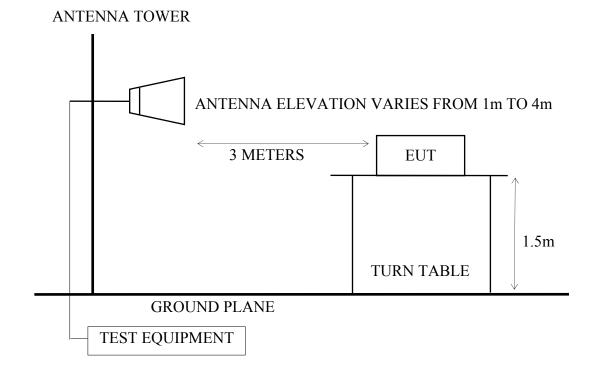


4.2.2. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance:3m) for 30-1000MHz



Audix Technology (Wujiang)Co., Ltd. EMC Dept. Report No.: ACWE-F1608003

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



4.3. Radiated Emission Limits

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

Frequency	Distance Meters	Field Strengths Limits		
MHz	Distance Meters	dBμV/m		
30 ~ 88	3	40		
88 ~ 216	3	43.5		
216 ~ 960	3	46		
Above 960	3	54		
Above 1000	2	74 (Peak)		
AUUVC 1000	3	54 (Average)		

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

(2) The tighter limit applies at the edge between two frequency bands.

4.4. 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 meter above the ground plane. Measurement distance between EUT and receiving antennas was set at 10 meters at 30MHz~1GHz and 3 meters at 1GHz~6GHz. The measurement distance is the shortest horizontal distance between an imaginary circular periphery which consists of EUT periphery and cables and the reference point of the antenna. 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 1GHz~6GHz (the absorbing material was added when testing of 1GHz~6GHz 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 30MHz-1GHz measurement: Emission Level ($dB\mu V/m$) = Reading ($dB\mu V$)+Antenna Factor (dB/m)+Cable Loss (dB)
- 2. For Above 1GHz measurement: Emission Level (dB μ V/m) = Reading (dB μ V)+Antenna Factor (dB/m)+Cable Loss(dB) -Pre-amplifier factor (dB)

The three orthogonal planes have been all tested, and the data of the worst mode XZ plan(in Horizontal) & XY plan(in Vertical) is shown in the report.

4.5. Measurement Results

PASSED

4.5.1. 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

NI	T 4 M 1	Reference Test Data No.		
No.	Test Mode a	nd Frequency	Horizontal	Vertical
1.		2405MHz (Channel 11)	# 7	# 8
2.	Transmitting	2450MHz (Channel 20)	# 9	# 10
3.		2480MHz (Channel 26)	# 11	# 12

For Frequency range: above 1GHz

Ma	T4 M- 1	Reference Test Data No.		
No.	Test Mode a	Horizontal	Vertical	
1.		2405MHz (Channel 11)	# 13	# 14
2.	Transmitting	2450MHz (Channel 20)	# 15	# 16
3.		2480MHz (Channel 26)	# 17	# 18

4.5.2. 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)

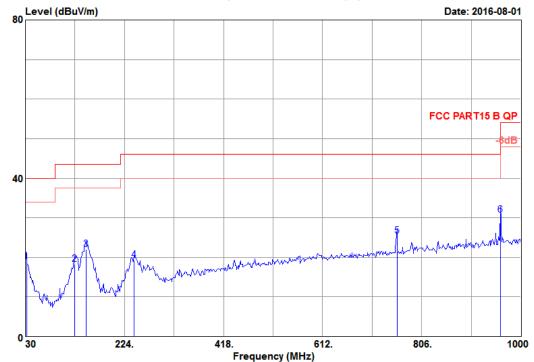
			Reference T	est Data No.
No.	Test Mode an	nd Frequency	Horizontal	Vertical
1.		2405MHz (Channel 11)	# 19, # 21	# 20, # 22
2.	Transmitting	2480MHz (Channel 26)	# 23, # 25	# 24, # 26

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



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

File: G:\Test Data\2016\Reports\08\G1608005.EM6 (52) Data: 7



Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22250)-1510
Limit : FCC PART15 B QP Env. / Ins. : 20.3*C&42%/ESCI EUT : LED lamp

M/N : 9290011998A Power Rating : 120Vac/60Hz : TX CH11 2405MHz Test Mode Memo

Data NO.:7 Ant.pol.:HORIZONTAL

Engineer : Mickey

	Freq. (MHz)	Factor (dB/m)	Loss (dB)	Reading (dBuV)	Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 2 3 4 5	31.94 126.03 148.34 242.43 757.50 960.23	20.20 13.21 12.14 12.53 20.52 22.12	0.48 0.96 1.05 1.40 2.72 3.22	25.61 31.27 35.88 32.06 29.78 32.38	18.94 18.34 22.06 19.27 25.34 30.70	40.00 43.50 43.50 46.00 46.00 54.00	21.06 25.16 21.44 26.73 20.66 23.30	QP QP QP QP QP QP

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

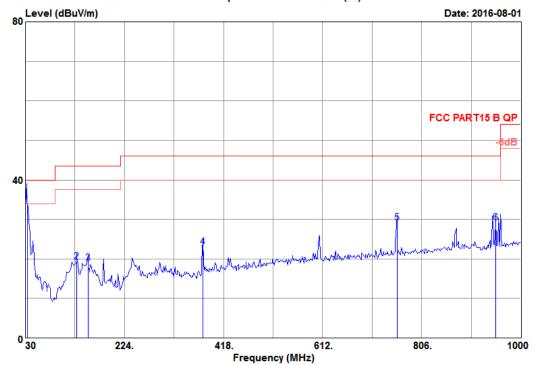
Data NO.:8 Ant.pol.:VERTICAL

Engineer : Mickey



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No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang Economic Development Zone,JiangSu,China
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File: G:\Test Data\2016\Reports\08\G1608005.EM6 (52)



Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22250)-1510
Limit : FCC PART15 B QP
Env. / Ins. : 20.3*C&42%/ESCI
EUT : LED lamp

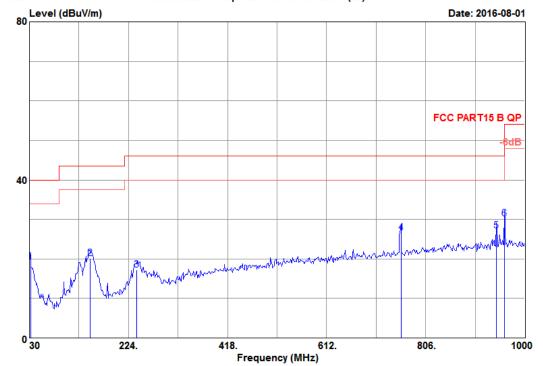
EUT : LED lamp
M/N : 9290011998A
Power Rating : 120Vac/60Hz
Test Mode : TX CH11 2405MHz
Memo :

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1 33.30	19.65	0.49	41.00	33.80	40.00	6.20	QP
2 129.91	13.15	0.98	32.25	19.30	43.50	24.20	QP
3 152.22	11.76	1.07	33.12	18.96	43.50	24.54	QP
4 377.26	16.15	1.81	32.30	23.12	46.00	22.88	QP
5 757.50	20.52	2.72	33.54	29.10	46.00	16.90	QP
6 951.50	22.06	3.19	31.05	29.26	46.00	16.74	QP

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



File: G:\Test Data\2016\Reports\08\G1608005.EM6 (52)



Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22250)-1510
Limit : FCC PART15 B QP
Env. / Ins. : 20.3*C&42%/ESCI
EUT : LED lamp

EUT : LED lamp
M/N : 9290011998A
Power Rating : 120Vac/60Hz
Test Mode : TX CH20 2450MHz
Memo :

Engineer : Mickey

Data NO. :9 Ant. pol. : HORIZONTAL

1 31.94 20.20 0.48 25.88 19.21 40.00 20.79 QP 2 148.34 12.14 1.05 33.96 20.14 43.50 23.36 QP 3 240.49 12.38 1.39 30.20 17.25 46.00 28.75 QP 4 757.50 20.52 2.72 31.05 26.61 46.00 19.39 QP 5 944.71 22.01 3.17 29.06 27.18 46.00 18.82 QP 6 960.23 22.12 3.22 31.85 30.17 54.00 23.83 QP		Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
	3 4 5	148.34 240.49 757.50 944.71	12.14 12.38 20.52 22.01	1.05 1.39 2.72 3.17	33.96 30.20 31.05 29.06	20.14 17.25 26.61 27.18	43.50 46.00 46.00 46.00	23.36 28.75 19.39 18.82	QP QP QP QP

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

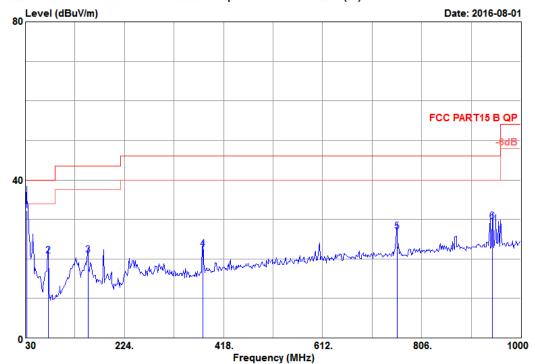
Data NO. :10 Ant. pol. : VERTICAL

Engineer : Mickey



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File: G:\Test Data\2016\Reports\08\G1608005.EM6 (52)



Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22250)-1510
Limit : FCC PART15 B QP
Env. / Ins. : 20.3*C&42%/ESCI
EUT : LED lamp

EUT : LED lamp
M/N : 9290011998A
Power Rating : 120Vac/60Hz
Test Mode : TX CH20 2450MHz
Memo :

1 32.40 20.20 0.48 38.90 32.24 40.00 7.76 QP 2 74.62 8.63 0.74 38.77 20.89 40.00 19.11 QP 3 152.22 11.76 1.07 35.07 20.91 43.50 22.59 QP 4 377.26 16.15 1.81 31.67 22.49 46.00 23.51 QP 5 757.50 20.52 2.72 31.47 27.03 46.00 18.97 QP		Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
6 944.71 22.01 3.17 31.48 29.60 46.00 16.40 QP	4	74.62 152.22 377.26	8.63 11.76 16.15	0.74 1.07 1.81	38.77 35.07 31.67	20.89 20.91 22.49	40.00 43.50 46.00	19.11 22.59 23.51	QР QР QР

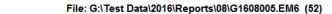
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

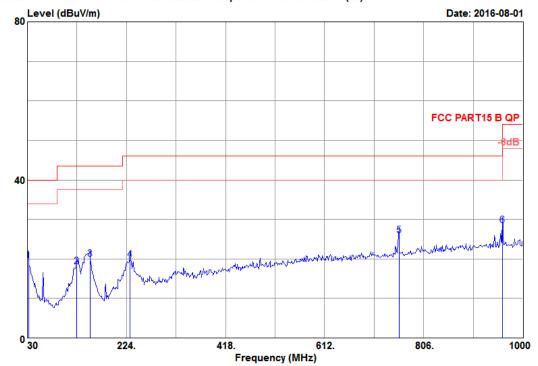
Data NO. :11 Ant. pol. : HORIZONTAL

Engineer : Mickey



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Site NO. Dis. / Ant. Limit : 3m chamber : 3m 6112D(22250)-1510 : FCC PART15 B QP : 20.3*C&42%/ESCI

Env. / Ins.

: LED lamp : 9290011998A EUT M/N Power Rating : 120Vac/60Hz Test Mode : TX CH26 2480MHz

Memo

1 31.94 20.20 0.48 26.27 19.60 40.00 20.40 QP 2 126.03 13.21 0.96 30.99 18.06 43.50 25.44 QP 3 152.22 11.76 1.07 34.19 20.03 43.50 23.47 QP		Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
4 230.79 11.58 1.36 33.65 19.85 46.00 26.15 QP 5 757.50 20.52 2.72 30.35 25.91 46.00 20.09 QP 6 960.23 22.12 3.22 30.22 28.54 54.00 25.46 QP	5	126.03 152.22 230.79 757.50	13.21 11.76 11.58 20.52	0.96 1.07 1.36 2.72	30.99 34.19 33.65 30.35	18.06 20.03 19.85 25.91	43.50 43.50 46.00 46.00	25.44 23.47 26.15 20.09	QP QP QP QP

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

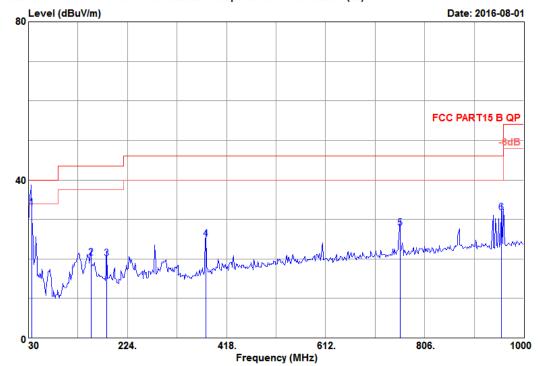
Data NO. :12 Ant. pol. : VERTICAL

Engineer : Mickey



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Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22250)-1510
Limit : FCC PART15 B QP
Env. / Ins. : 20.3*C&42%/ESCI
EUT : LED lamp

EUT : LED lamp
M/N : 9290011998A
Power Rating : 120Vac/60Hz
Test Mode : TX CH26 2480MHz
Memo :

20.52

22.09

2.72

3.21

5

757.50

956.35

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	35.94	18.00	0.51	41.80	32.98	40.00	7.02	QP
2	152.22	11.76	1.07	34.55	20.39	43.50	23.11	QP
3	183.26	10.09	1.19	35.66	20.07	43.50	23.43	QΡ
4	377.26	16.15	1.81	34.25	25.07	46.00	20.93	QP

27.83

31.81

46.00

46.00

18.17

14.19

QР

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

32.27

33.54

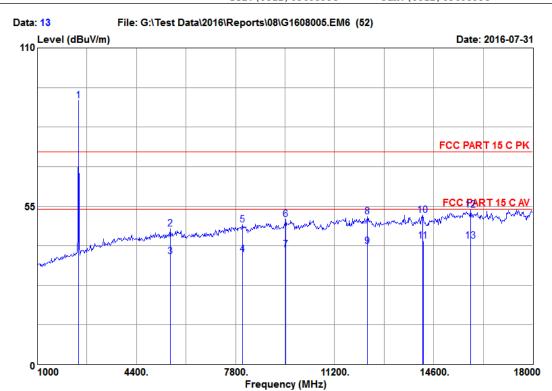
4.7. Restricted Bands Measurement Results (For Above 1GHz)



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Data NO. : 13 Ant. pol. : HORIZONTAL

Engineer : Mickey



Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C PK Env. / Ins. : 20.3*C&42%/N9030A

EUT : LED Lamp M/N : 9290011998A Power Rating: 120Vac/60Hz Test Mode : TX CH11 2405MHz

Memo

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)		on Limits (dBuV/m)	Margin (dB)	Remark
1 2 3 4 5 6 7 8	2407.00 5557.00 5558.25 8030.25 8035.00 9526.00 9528.36 12319.00 12325.45	28.11 34.13 34.13 36.84 36.84 38.25 38.25 39.21 39.21	5.09 8.06 8.06 9.60 9.60 10.43 10.43 11.77	93.06 38.86 29.25 25.92 36.29 36.21 25.75 33.84 23.48	34.50 33.90 33.90 34.12 34.12 34.45 34.45 33.37 33.37	91.76 47.15 37.54 38.24 48.61 50.44 39.98 51.45 41.09	74.00 74.00 54.00 54.00 74.00 74.00 54.00 74.00 54.00	-17.76 26.85 16.46 15.76 25.39 23.56 14.02 22.55 12.91	Peak Peak Average Average Peak Peak Average Peak Average Average
	14230.00 14235.75 15868.00 15870.38	41.82 41.84 37.67 37.67	12.92 12.92 14.30 14.30	29.00 20.16 35.50 24.85	31.92 31.92 33.85 33.85	51.82 43.00 53.62 42.97	74.00 54.00 74.00 54.00	22.18 11.00 20.38 11.03	Peak Average Peak Average

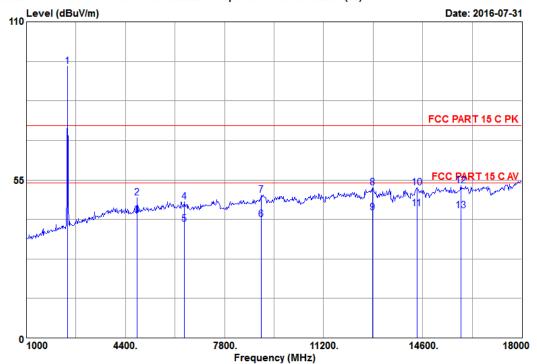
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor. The emission levels that are 20dB below the official limit are not reported.



Data NO. : 14 Ant. pol. : VERTICAL

Engineer : Mickey





Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62961 1509
Limit : FCC PART 15 C PK
Env. / Ins. : 20.3*C&42%/N9030A

EUT : LED Lamp

M/N : 9290011998A

Power Pating: 120Vac/60Hz

Power Rating: 120Vac/60Hz Test Mode : TX CH11 2405MHz

Memo :

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)		on Limits (dBuV/m)	Margin (dB)	Remark
1	2407.00	28.11	5.09	95.93	34.50	94.63	74.00	-20.63	Peak
2	4801.00	32.86	7.32	42.59	33.95	48.82	74.00	25.18	Peak
3	4805.95	32.86	7.32	36.45	33.95	42.68	54.00	11.32	Average
4	6418.00	34.48	8.66	38.24	33.94	47.44	74.00	26.56	Peak
5	6420.57	34.48	8.67	30.46	33.95	39.66	54.00	14.34	Average
6	9060.25	37.93	10.03	27.75	34.42	41.29	54.00	12.71	Average
7	9064.00	37.93	10.03	36.21	34.42	49.75	74.00	24.25	Peak
8	12886.00	39.54	12.21	33.08	32.63	52.20	74.00	21.80	Peak
9	12890.35	39.54	12.21	24.60	32.63	43.72	54.00	10.28	Average
10	14398.00	42.00	12.97	29.42	32.13	52.26	74.00	21.74	Peak
11	14402.75	42.00	12.98	22.25	32.17	45.06	54.00	8.94	Average
12	15910.00	37.65	14.37	34.87	33.90	52.99	74.00	21.01	Peak
13	15915.95	37.65	14.37	26.25	33.90	44.37	54.00	9.63	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.

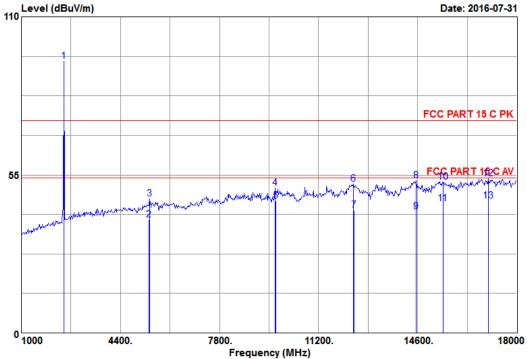
Data NO. : 15 Ant. pol. : HORIZONTAL

Engineer : Mickey



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Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C PK Env. / Ins. : 20.3*C&42%/N9030A

EUT

: LED Lamp : 9290011998A M/N Power Rating: 120Vac/60Hz Test Mode : TX CH20 2450MHz

Memo

Freq. Factor Loss Reading Factor Loss (MHz) (dB) (dB) (dBuV) (dB) (dBuV)	V∕m (dBuV∕m) (dB)
2 5385.63 33.89 7.85 31.66 33.91 39 3 5389.00 33.89 7.85 38.82 33.91 46 4 9715.00 38.51 10.61 35.77 34.46 50 5 9720.33 38.51 10.61 31.21 34.46 45 6 12403.00 39.10 11.83 34.19 33.27 51 7 12405.75 39.10 11.83 24.95 33.27 42 8 14545.00 41.94 13.02 30.33 32.35 52 9 14545.69 41.94 13.02 19.69 32.35 42 10 15469.00 38.08 13.77 34.11 33.45 52 11 15470.25 38.08 13.77 26.70 33.45 45 12 17023.00 40.83 13.92 31.90 32.82 53	.63 74.00 -20.63 Peak .49 54.00 14.51 Average .65 74.00 27.35 Peak .43 74.00 23.57 Peak .87 54.00 8.13 Average .85 74.00 22.15 Peak .61 54.00 11.39 Average .94 74.00 21.06 Peak .30 54.00 11.70 Average .51 74.00 21.49 Peak .51 74.00 8.90 Average .83 74.00 20.17 Peak .83 74.00 20.17 Peak .08 54.00 7.92 Average

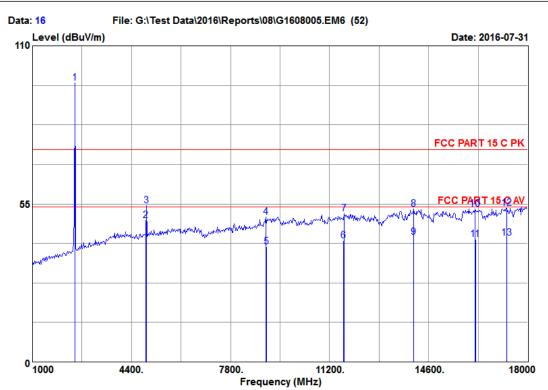
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.

^{2.} The emission levels that are 20dB below the official



Data NO. : 16 Ant. pol. : VERTICAL

Engineer : Mickey



Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C PK Env. / Ins. : 20.3*C&42%/N9030A

EUT

: LED Lamp : 9290011998A M/N Power Rating: 120Vac/60Hz Test Mode : TX CH20 2450MHz

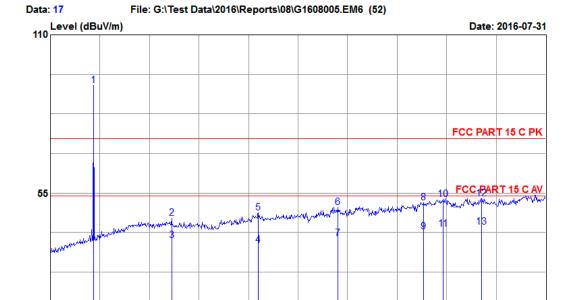
Memo

		Ant.	Cable	!	Preamp	Emissio	on		
	Freq.	Factor	Loss	Reading	Factor	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dBuV)	(dB)	(dBuV∕m	(dBuV∕m)	(dB)	
1	2449.00	28.19	5.15	98.18	34.50	97.02	74.00	-23.02	Peak
2	4899.60	33.01	7.37	42.90	33.94	49.34	54.00	4.66	Average
3	4906.00	33.04	7.37	47.93	33.94	54.40	74.00	19.60	Peak
4	9022.00	37.91	10.01	36.89	34.42	50.39	74.00	23.61	Peak
5	9025.36	37.91	10.01	26.59	34.42	40.09	54.00	13.91	Average
_	11685.42	39.41	11.46	25.19	33.76	42.30	54.00	11.70	Average
	11689.00	39.41	11.46	34.48	33.76	51.59	74.00	22.41	Peak
_	14083.00	41.69	12.87	30.44	31.70	53.30	74.00	20.70	Peak
_	14085.26	41.69	12.87	20.47	31.70	43.33	54.00	10.67	Average
10	16204.00	37.92	14.36	34.76	33.74	53.30	74.00	20.70	Peak
11	16205.38	37.92	14.36	24.17	33.74	42.71	54.00	11.29	Average
	17275.00	42.47	13.88	30.01	32.85	53.51	74.00	20.49	Peak
13	17275.14	42.47	13.88	19.62	32.85	43.12	54.00	10.88	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.





11200.

14600.

Data NO. : 17 Ant. pol. : HORIZONTAL

Engineer : Mickey

18000

Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C PK Env. / Ins. : 20.3*C&42%/N9030A

4400.

: LED Lamp : 9290011998A EUT M/N

Power Rating: 120Vac/60Hz Test Mode : TX CH26 2480MHz

Memo

⁰1000

_	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)		on Limits (dBuV/m)	Margin (dB)	Remark
8 9 10 11 12	2470.00 5158.00 5160.28 8138.63 8140.00 10870.00 10875.82 13810.00 13812.17 14482.00 14485.67 15805.00	28.22 33.50 33.50 36.97 36.97 39.00 41.20 41.20 42.08 42.08 37.71	5.18 7.59 7.59 9.64 9.64 11.28 11.28 12.74 12.74 13.01 13.01 14.24	93.46 39.07 31.26 24.47 35.62 33.54 22.75 29.52 19.26 30.06 19.72 34.79 24.92	34.49 33.92 33.92 34.15 34.15 33.75 33.75 31.77 31.77 32.28 32.28 33.80 33.80	92.37 46.24 38.43 36.93 48.08 50.07 39.28 51.69 41.43 52.87 42.53 52.94	74.00 74.00 54.00 54.00 74.00 74.00 54.00 74.00 54.00 74.00 54.00	-18.37 27.76 15.57 17.07 25.92 23.93 14.72 22.31 12.57 21.13 11.47 21.06	Peak Peak Average Peak Peak Average Peak Average Peak Average Peak Average Average
							000	50	

7800.

Frequency (MHz)

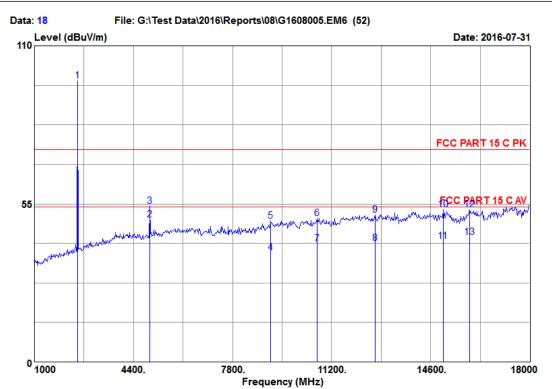
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.

^{2.} The emission levels that are 20dB below the official limit are not reported.



Data NO. : 18 Ant. pol. : VERTICAL

Engineer : Mickey



Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C PK Env. / Ins. : 20.3*C&42%/N9030A

: LED Lamp : 9290011998A EUT M/N Power Rating: 120Vac/60Hz Test Mode : TX CH26 2480MHz

Memo

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)		on Limits (dBuV∕m)	Margin (dB)	Remark
8 9 10	10.00.00	28.22 33.14 33.14 37.96 37.96 39.00 39.28 39.28 40.41 40.41	5.18 7.39 7.41 10.08 11.19 11.20 12.07 12.07 13.20	98.97 42.85 47.49 24.48 35.37 33.62 24.72 22.75 32.70 32.34 21.50	34.49 33.93 33.92 34.43 34.43 33.90 33.87 32.86 32.86 33.03	97.88 49.45 54.12 38.09 48.98 49.91 41.05 41.24 51.19 52.92 42.08	74.00 54.00 74.00 54.00 74.00 74.00 54.00 54.00 74.00 74.00	-23.88 4.55 19.88 15.91 25.02 24.09 12.95 12.76 22.81 21.08 11.92	Peak Average Peak Average Peak Average Average Peak Peak Average
	15931.00 15935.16	37.64 37.63	14.40 14.40	35.00 25.29	33.93 33.93	53.11 43.39	74.00 54.00	20.89 10.61	Peak Average

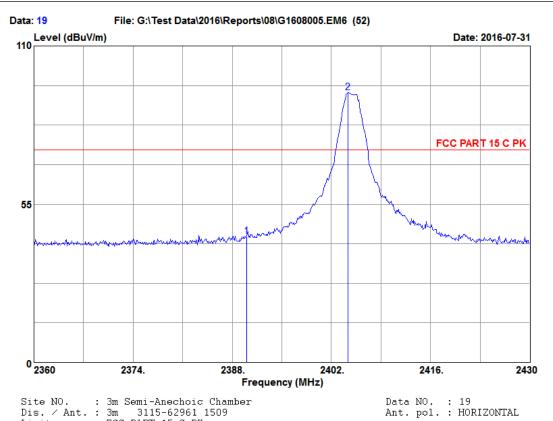
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor. 2. The emission levels that are 20dB below the official

limit are not reported.

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



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Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62961 1509
Limit : FCC PART 15 C PK
Env. / Ins. : 20.3*C&42%/N9030A EUT

M/N: 9290011998A Power Rating: 120Vac/60Hz Test Mode : TX CH11 2405MHz Memo

Engineer : Mickey : LED Lamp

	Freq.	Ant. Factor (dB)		Reading	Factor			Margin (dB)	Remark
_	2390.00	28.07	5.09	45.21	34.50	43.87	74.00	30.13	Peak
	2404.37	28.11	5.09	95.11	34.50	93.81	74.00	-19.81	Peak

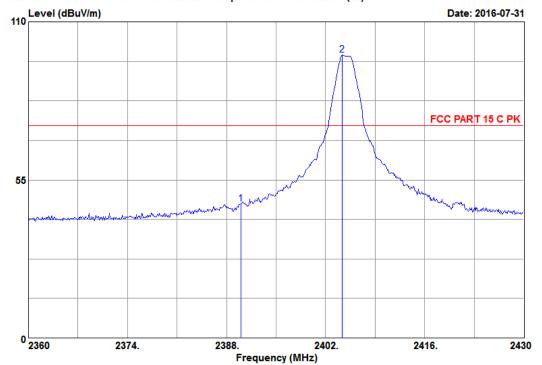
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor. 2. The emission levels that are 20dB below the official limit are not reported.



Data NO. : 20 Ant. pol. : VERTICAL

Engineer : Mickey





Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62961 1509
Limit : FCC PART 15 C PK
Env. / Ins. : 20.3*C&42%/N9030A

EUT : LED Lamp
M/N : 9290011998A
Power Rating: 120Vac/60Hz
Test Mode : TX CH11 2405MHz

Memo :

	Freq. (MHz)	Ant. Factor (dB)		Reading	Factor			Margin (dB)	Remark
_	2390.00 2404.37		5.09 5.09	48.02 99.77	34.50 34.50	46.68 98.47	74.00 74.00	27.32 -24.47	Peak 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.

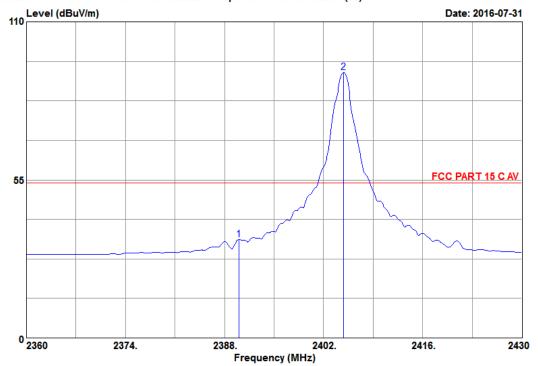
Data NO. : 21 Ant. pol. : HORIZONTAL

Engineer : Mickey



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Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C AV Env. / Ins. : 20.3*C&42%/N9030A

: LED Lamp : 9290011998A EUT

Power Rating: 120Vac/60Hz Test Mode : TX CH11 2405MHz

Memo

	Freq. (MHz)	Ant. Factor (dB)			Factor	Emissic Level (dBuV/m	Limits	Margin (dB)	Remark
_	2390.00	28.07	5.09	35.56	34.50	34.22	54.00	19.78	Average
	2404.82	28.11	5.09	93.64	34.50	92.34	54.00	-38.34	Average

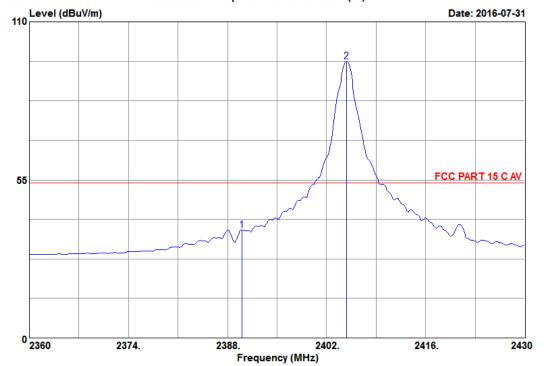
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Data NO. : 22 Ant. pol. : VERTICAL

Engineer : Mickey





Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C AV Env. / Ins. : 20.3*C&42%/N9030A

EUT : LED Lamp
M/N : 9290011998A
Power Rating: 120Vac/60Hz
Test Mode : TX CH11 2405MHz

Memo :

	Freq. (MHz)	Ant. Factor (dB)			Factor			Margin (dB)	Remark
_	2390.00	28.07	5.09	38.89	34.50	37.55	54.00	16.45	Average
	2404.82	28.11	5.09	97.48	34.50	96.18	54.00	-42.18	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.

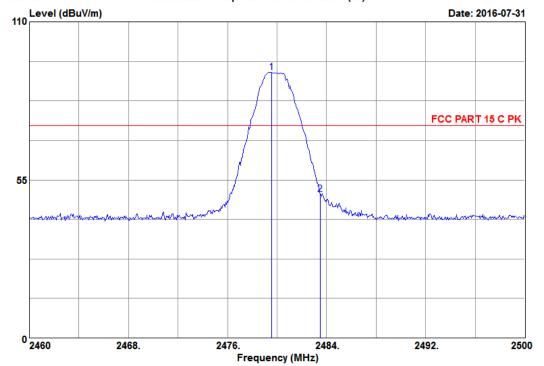
Data NO. : 23 Ant. pol. : HORIZONTAL

Engineer : Mickey



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Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62961 1509
Limit : FCC PART 15 C PK
Env. / Ins. : 20.3*C&42%/N9030A

ENV. / Ins. : 20.3*C&42%/N90 EUT : LED Lamp M/N : 9290011998A Power Rating: 120Vac/60Hz

Test Mode: TX CH26 2480MHz

Memo :

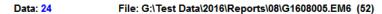
		Ant.	Cable		Preamp	Emissio	on		
	Freq.	Factor	Loss	Reading	Factor	Level	Limits	Margin	Remark
	(MHz)	(dB)	(dB)	(dBuV)	(dB)	(dBuV∕m	(dBuV/m)	(dB)	
_									
1	2479.56	28.26	5.18	93.50	34.49	92.45	74.00	-18.45	Peak
2	2483.50	28.26	5.18	50.94	34.49	49.89	74.00	24.11	Peak

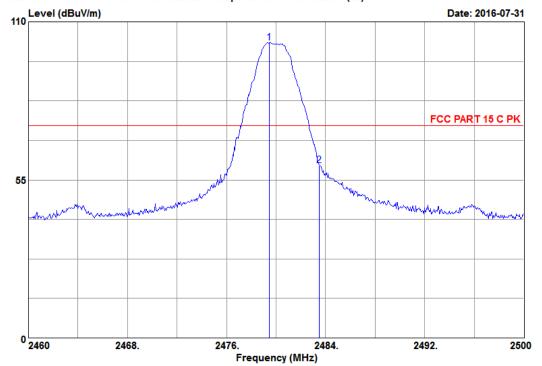
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



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Data NO. : 24 Ant. pol. : VERTICAL





Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62961 1509
Limit : FCC PART 15 C PK
Env. / Ins. : 20.3*C&42%/N9030A

EUT M/N Powe: Test

Memo

. / Ins.	:	20.3*C&42%/N9030A	Engineer	: Mickey
	:	LED Lamp		
	:	9290011998A		
er Rating	ſ:	120Vac/60Hz		
Mode	:	TX CH26 2480MHz		
1	:			

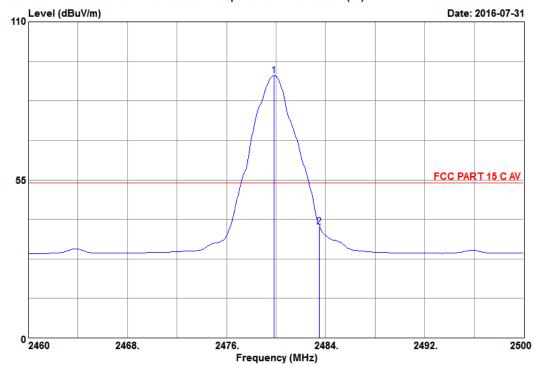
		Ant.	Cable	2	Preamp	Emissic	n			
	Freq.	Factor	Loss	Reading	Factor	Level	Limits	Margin	Remark	
	(MHz)	(dB)	(dB)	(dBuV)	(dB)	(dBuV∕m	(dBuV/m)	(dB)		
_										
1	2479.44	28.26	5.18	103.70	34.49	102.65	74.00	-28.65	Peak	
2	2483.50	28.26	5.18	61.03	34.49	59.98	74.00	14.02	Peak	

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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Site NO. : 3m Semi-Anechoic Chamber Dis. / Ant. : 3m 3115-62961 1509 Limit : FCC PART 15 C AV Env. / Ins. : 20.3*C&42%/N9030A

: LED Lamp : 9290011998A EUT M/N Power Rating: 120Vac/60Hz Test Mode : TX CH26 2480MHz

Memo

Data NO. : 25 Ant. pol. : HORIZONTAL

Engineer : Mickey

	Freq.	Ant. Factor (dB)			_	Emissio Level (dBuV/m		Margin (dB)	Remark
_	2479.86	28.26	5.18	92.32	34.49	91.27	54.00	-37.27	Average
	2483.50	28.26	5.18	39.75	34.49	38.70	54.00	15.30	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.

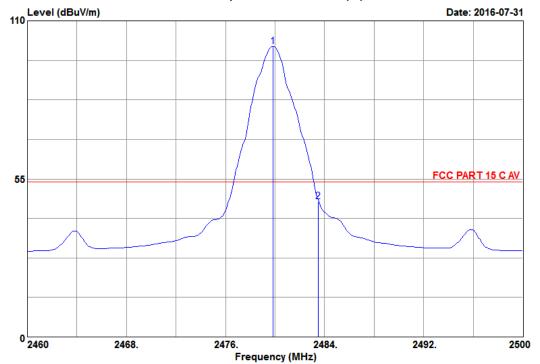


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Tel:(0512)63403993 Fax:(0512)63403993

Data NO. : 26 Ant. pol. : VERTICAL

Engineer : Mickey





Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62961 1509
Limit : FCC PART 15 C AV
Env. / Ins. : 20.3*C&42%/N9030A

EUT : LED Lamp
M/N : 9290011998A
Power Rating: 120Vac/60Hz
Test Mode : TX CH26 2480MHz

Memo :

	Freq. (MHz)	Ant. Factor (dB)			Factor		on Limits (dBuV/m)	Margin (dB)	Remark
_	2479.86	28.26	5.18	102.12	34.49	101.07	54.00	-47.07	Average
	2483.50	28.26	5.18	48.17	34.49	47.12	54.00	6.88	Average

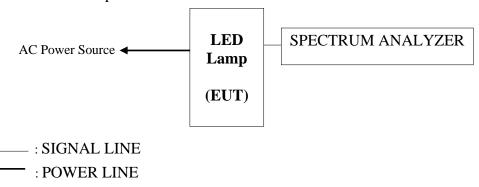
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.

5. 6 dB BANDWIDTH MEASUREMENT

5.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2016-05-15	2017-05-14

5.2. Block Diagram of Test Setup



5.3. 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.

5.4. Test Procedure

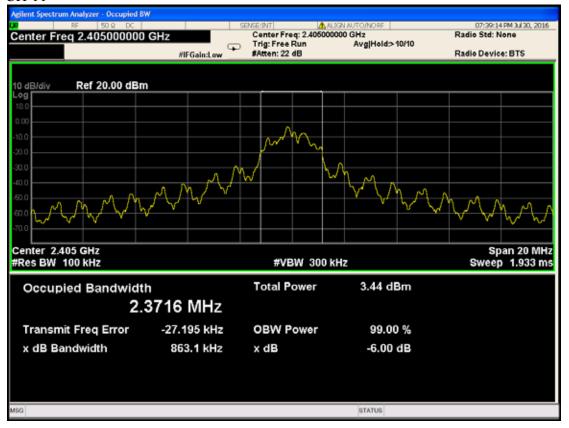
The steps for the first option are as bellow:

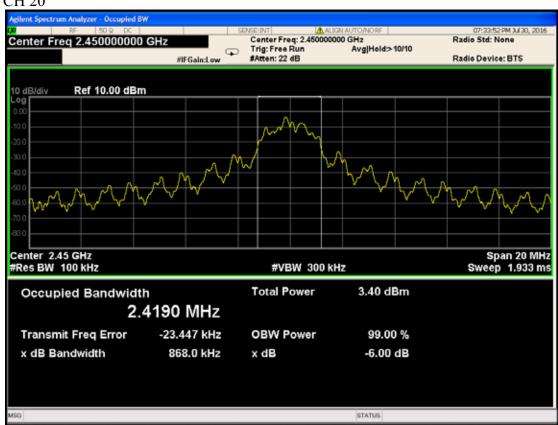
- a) Set RBW = 100 kHz.
- b) Set the VBW $[3 \times RBW]$.
- c) Detector = peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

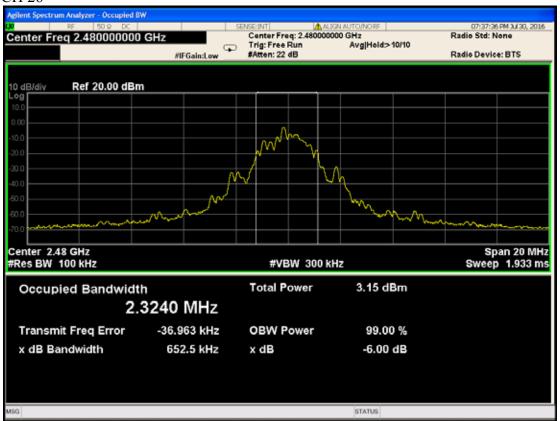
5.5. Test Results

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

Channel	Center Frequency(MHz)	6 dB Bandwidth(kHz)
11	2405	863.1
20	2450	868.0
26	2480	652.5





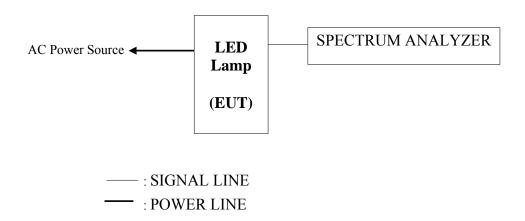


6. OUTPUT POWER MEASUREMENT

6.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2016-05-15	2017-05-14

6.2. Block Diagram of Test Setup



6.3. 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.

6.4. 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 x RBW.
- d) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This gives bin-to-bin spacing $\leq \text{RBW}/2$, 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 $\ge 98\%$, 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.

6.5. Test Results

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

Channel	Frequency	Power(dBm)	Limit(dBm)
11	2405	2.28	30
20	2450	2.11	30
26	2480	2.28	30

7. BAND EDGES MEASUREMENT

7.1. Test Equipment

Item	Туре	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2016-05-15	2017-05-14

7.2. Block Diagram of Test Setup

The same as section 5.2.

7.3. Specification Limits (§15.247(d))

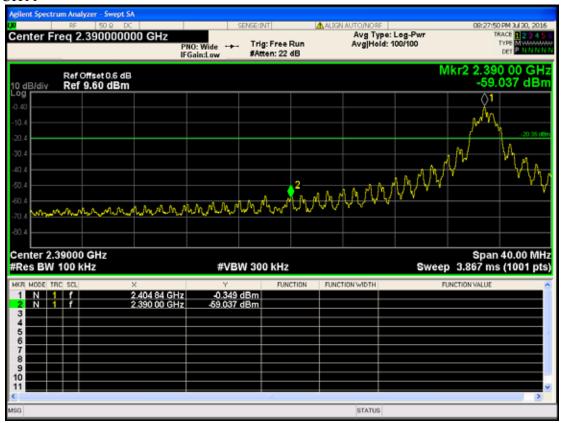
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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)).

7.4. 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.

7.5. Test Results

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





8. POWER SPECTRAL DENSITY MEASUREMENT

8.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2016-05-15	2017-05-14

8.2. Block Diagram of Test Setup

The same as section 5.2.

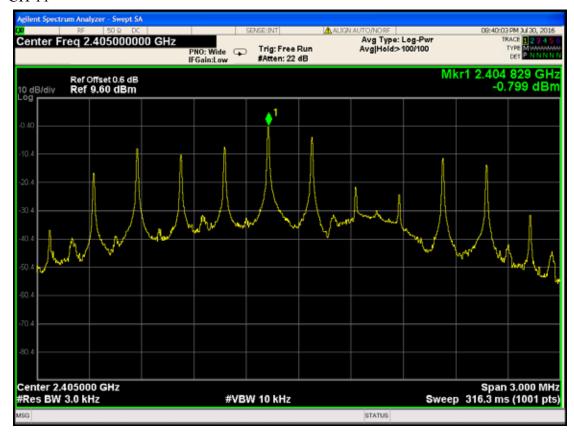
8.3. Specification Limits (§15.247(e))

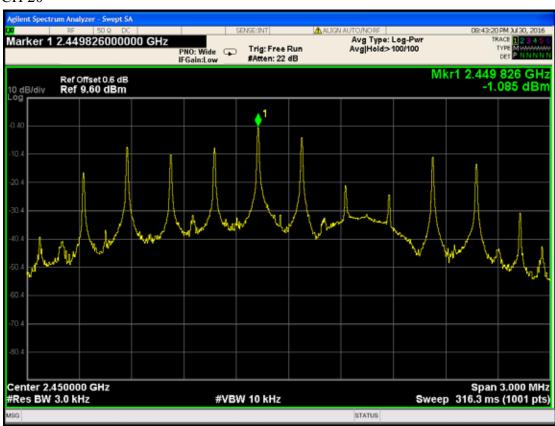
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

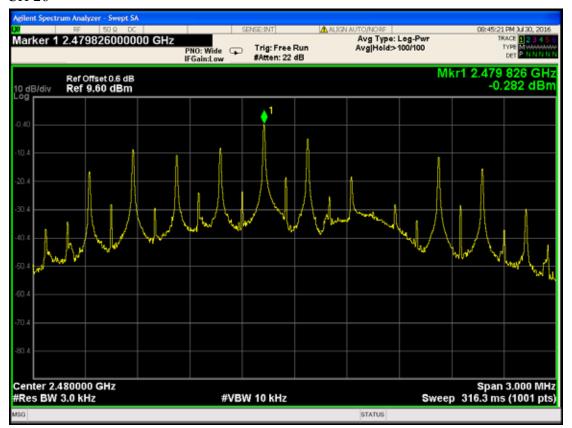
8.4. Test Results

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

Channel	Frequency(GHz)	Value(dBm/3kHz)
11	2.405	-0.799
20	2.450	-1.085
26	2.480	-0.282







9. EMISSION LIMITATIONS MEASUREMENT

9.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-05-15	2017-05-14

9.2. Block Diagram of Test Setup

The same as section 5.2.

9.3. 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)).

9.4. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set RBW = 100 kHz, VBW $\geq 300 \text{kHz}$, scan up through 10 th harmonic. All harmonics/spurs must be at least 30 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 v03r05.

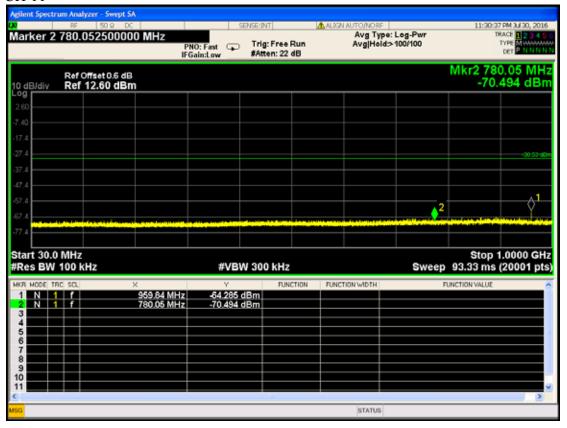
9.5. Test Results

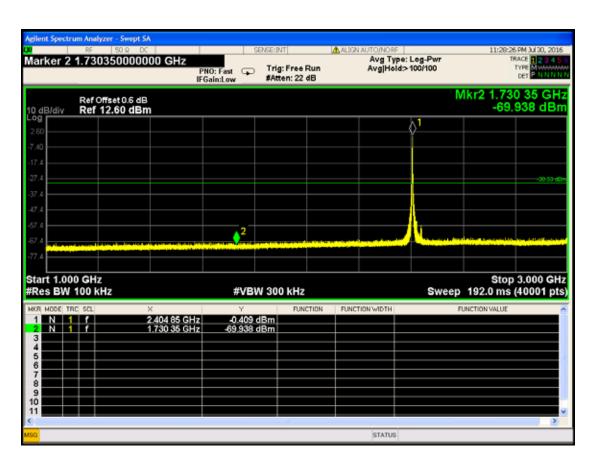
PASSED. All the test results are attached in next pages.

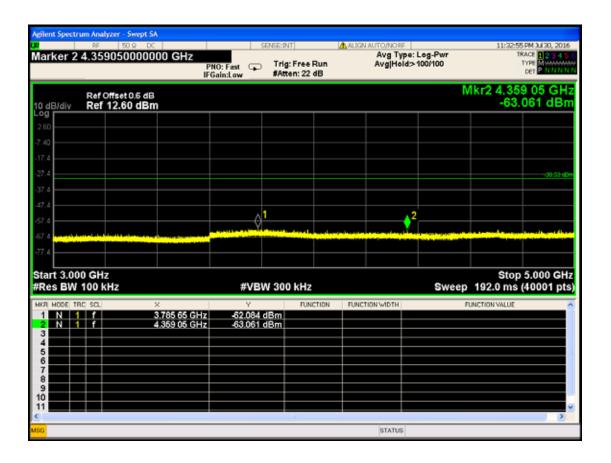
Channel	Frequency(MHz)	Amplitude(dBm)		
	959.84	-64.285		
	780.05	-70.494		
	2404.85	-0.409		
	1730.35	-69.938		
	3785.65	-62.084		
	4359.05	-63.061		
	5086.25	-62.565		
	5211.00	-63.998		
	8167.10	-63.214		
	8771.85	-63.237		
	10691.70	-63.045		
	10576.50	-63.233		
11	12022.60	-62.193		
11	11856.80	-63.753		
	14092.45	-62.002		
	13635.90	-62.391		
	15076.85	-61.558		
	15899.20	-62.453		
	18863.35	-60.954		
	18138.60	-61.831		
	19273.05	-60.736		
	19876.55	-61.423		
	22250.60	-59.798		
	21646.85	-60.325		
	24884.10	-59.246		
	24321.65	-59.472		
	959.84	-64.387		
	207.12	-69.722		
20	2449.85	-0.596		
20	2370.05	-66.428		
	3837.25	-61.940		
	4342.95	-63.817		

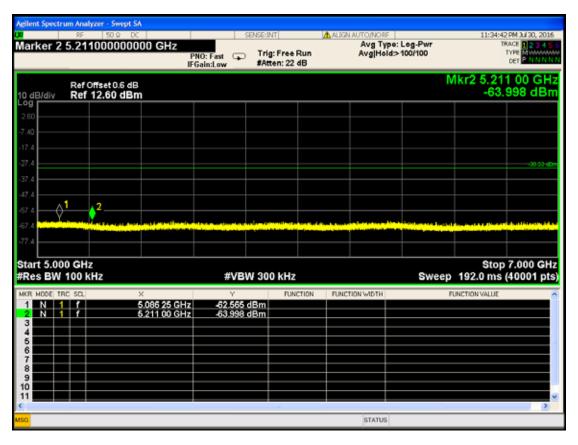
	5141.55	-62.242
	5718.10	-66.018
	8152.95	-62.105
	7572.15	-63.476
	10731.70	-62.587
	9647.10	-63.227
	12190.00	-62.590
	11960.25	-64.078
	14950.70	-62.515
	14226.60	-62.383
	15228.80	-62.339
	15740.60	-62.354
	18934.60	-61.502
	17863.00	-62.402
	19459.80	-60.462
	19815.45	-61.288
	22251.40	-59.531
	21827.40	-60.536
	23760.30	-59.672
	23605.75	-59.979
	959.84	-64.005
	169.29	-69.274
	2479.85	0.332
	2000.00	-68.521
	3912.80	-62.628
	3832.05	-62.274
	5029.55	-63.473
	5582.35	-63.742
26	8112.15	-62.607
	7743.15	-64.007
	10140.10	-62.462
	9919.20	-63.216
	11971.15	-63.932
	11443.20	-63.345
	14803.15	-61.866
	13605.60	-62.577
	15340.00	-61.830
L	ı	1

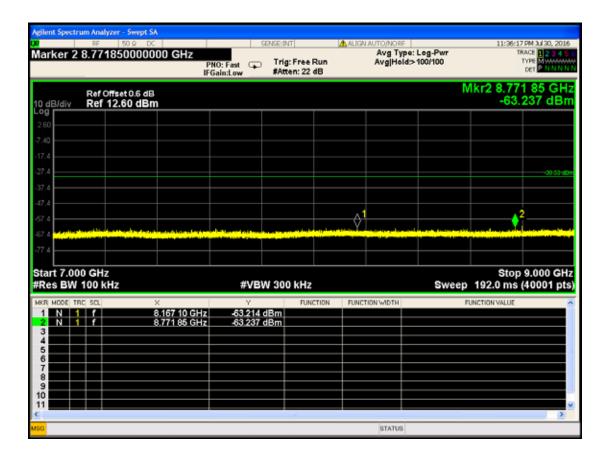
15767.70	-62.704
18859.60	-60.999
17733.20	-62.027
20669.85	-61.251
19161.95	-60.209
22296.30	-60.339
22189.30	-59.040
24442.55	-59.577
24202.35	-58.678

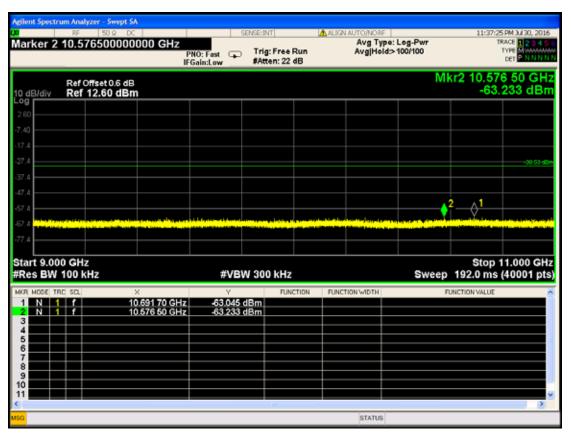


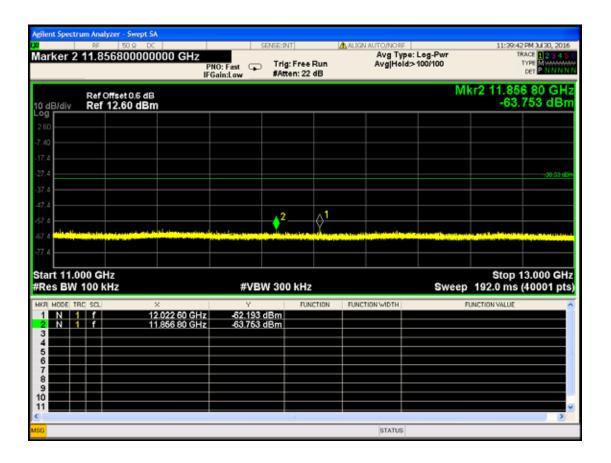


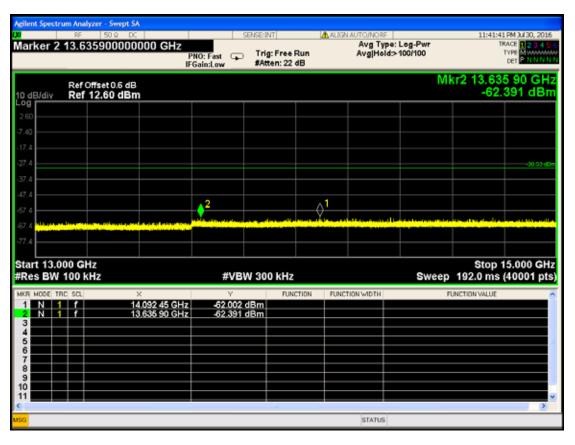




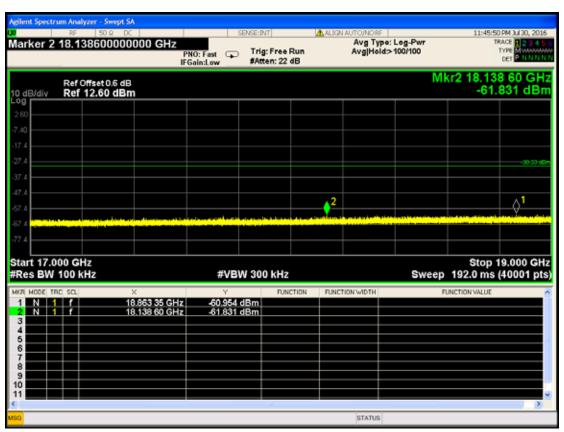


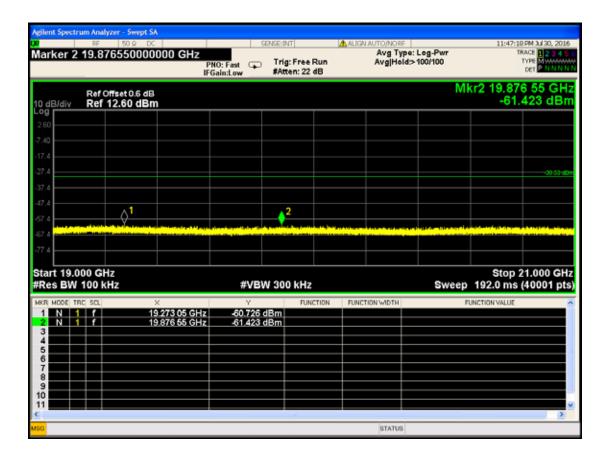


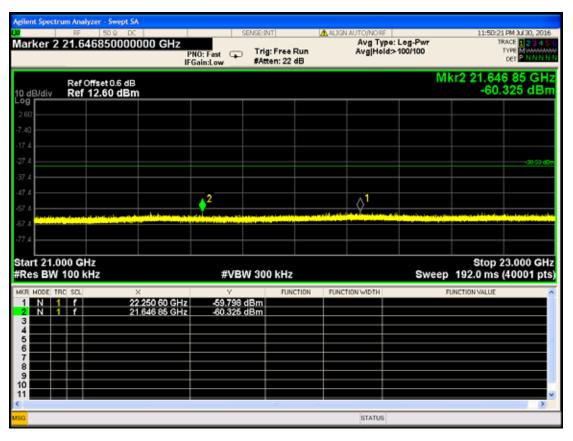


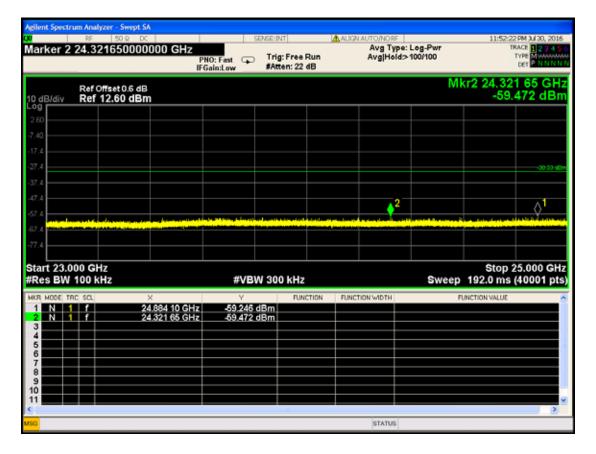


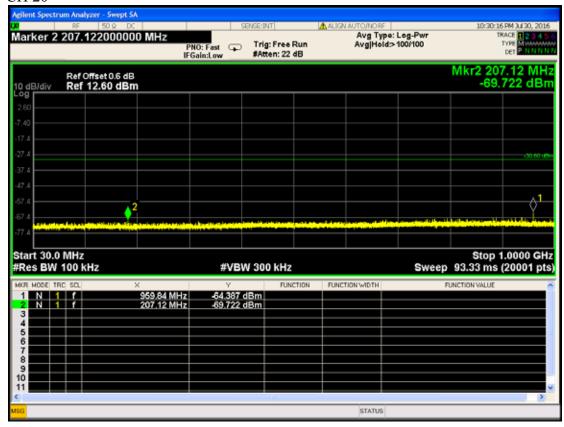


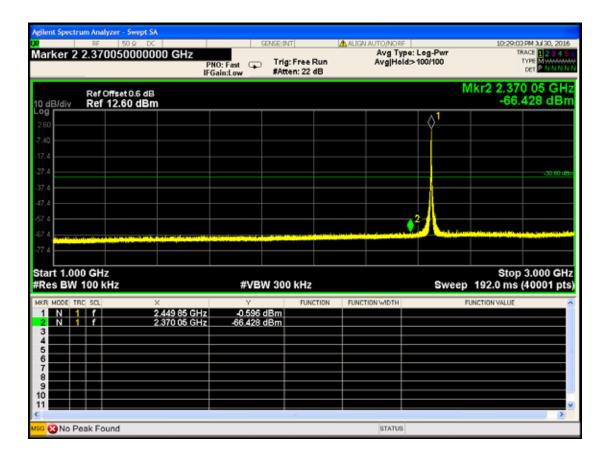


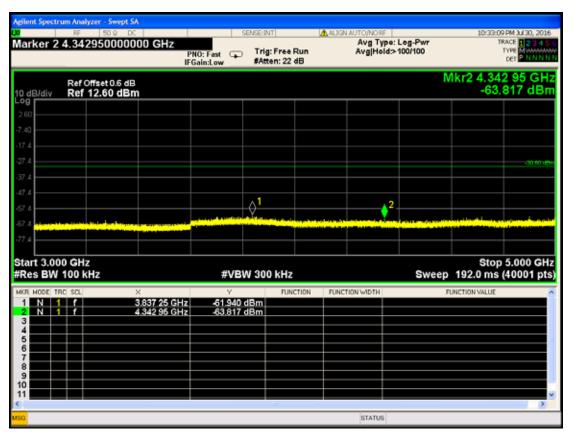


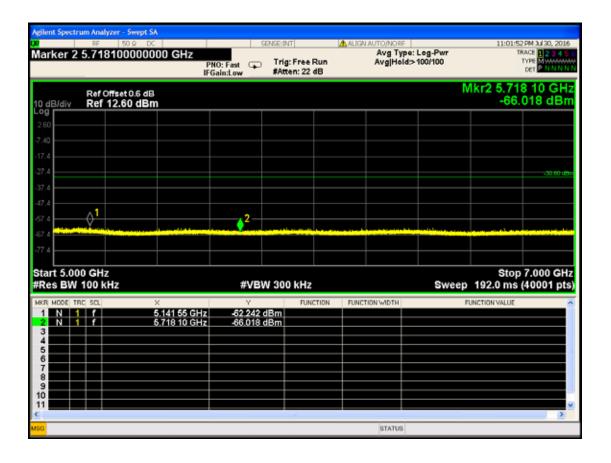


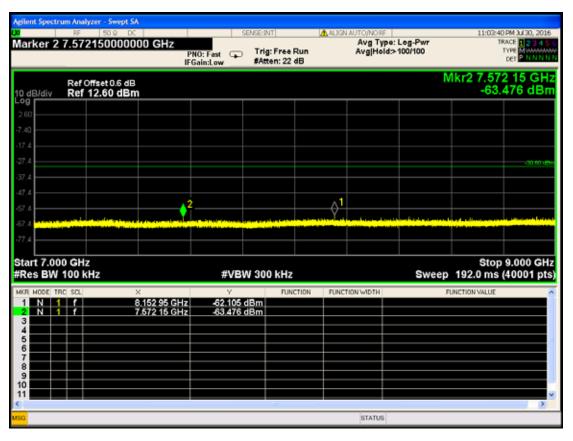


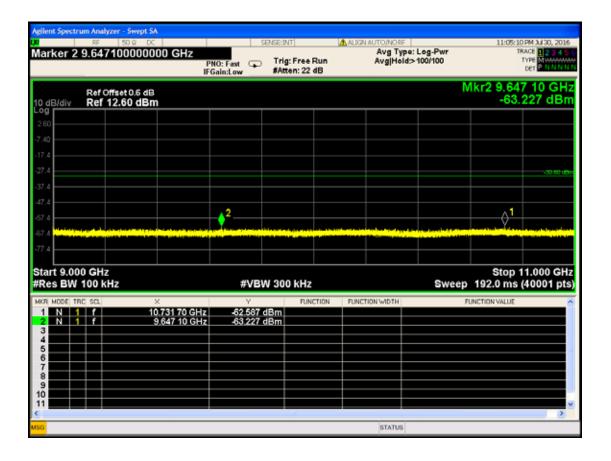


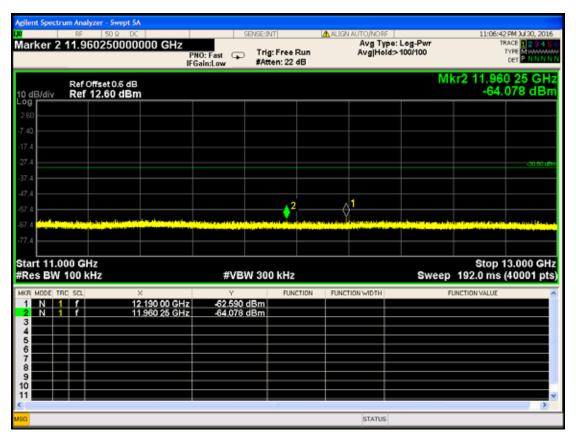




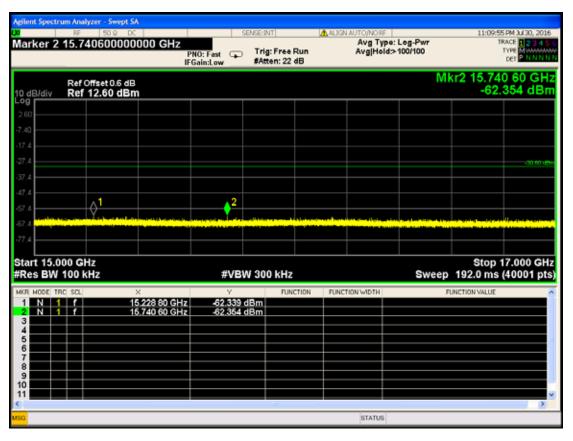


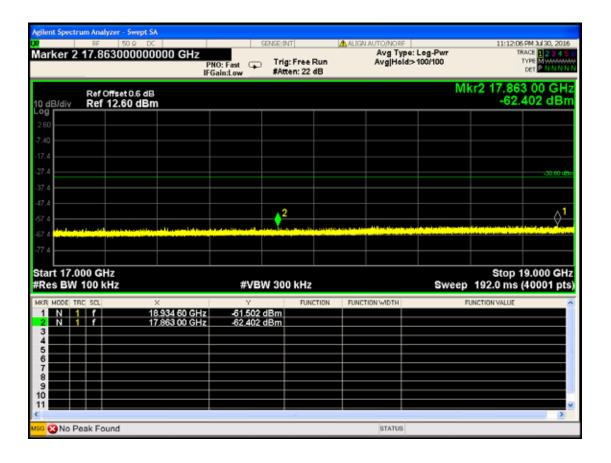


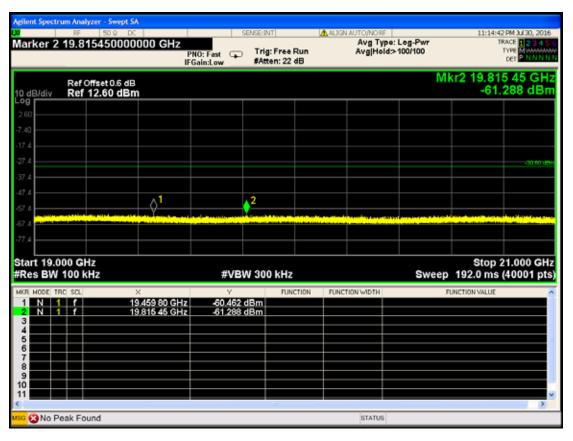


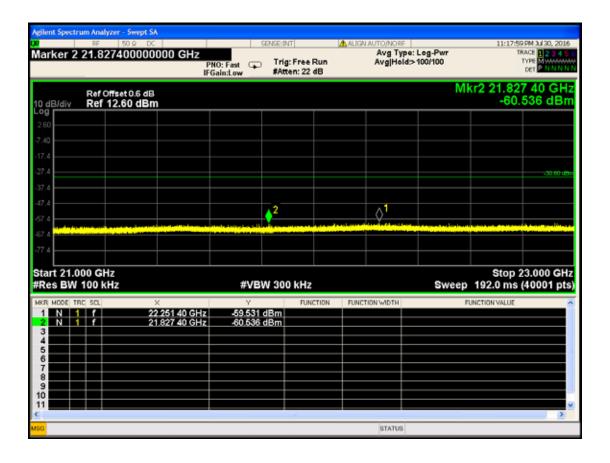


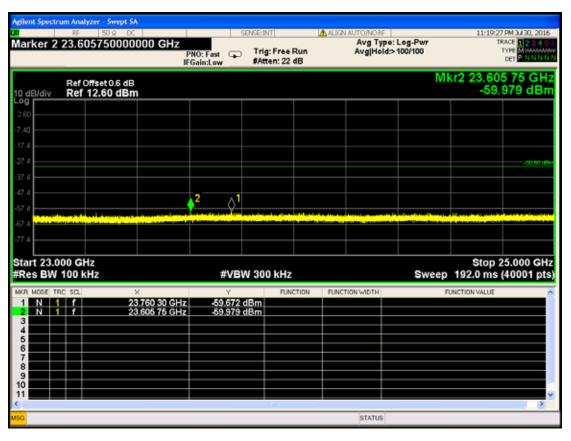


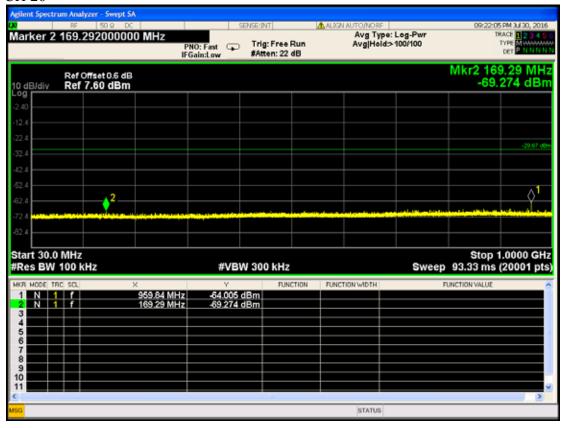


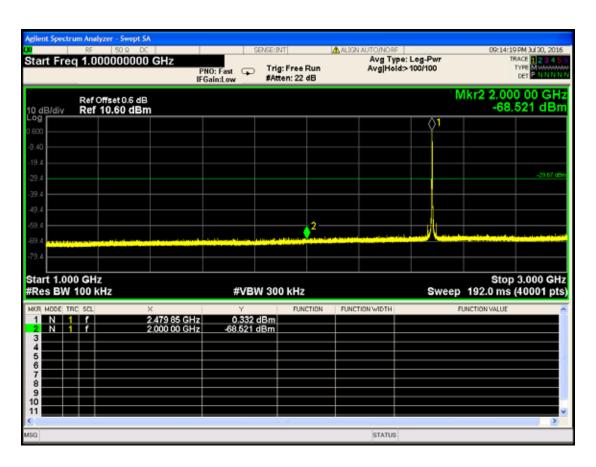


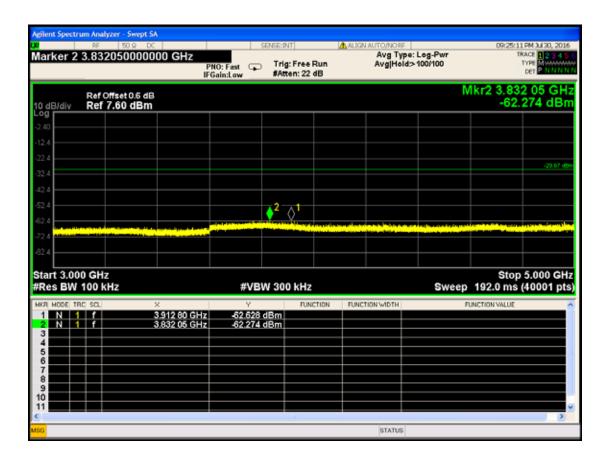


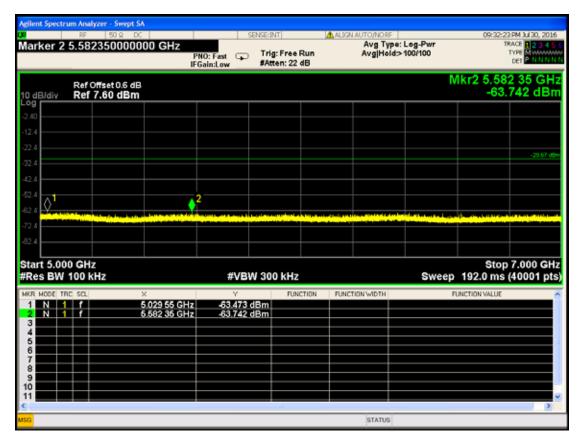


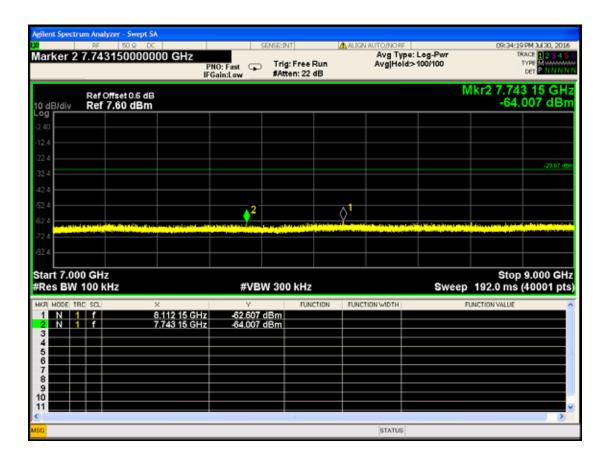


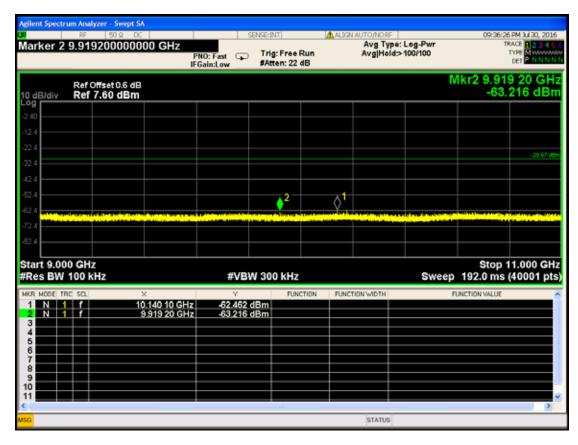


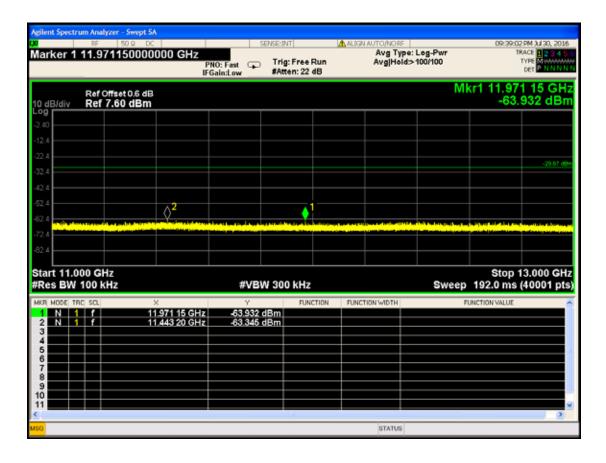


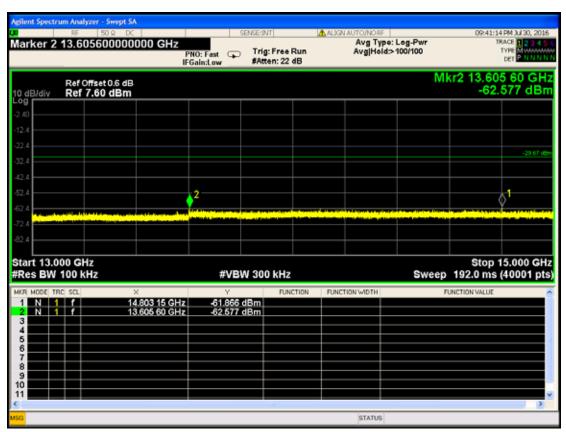


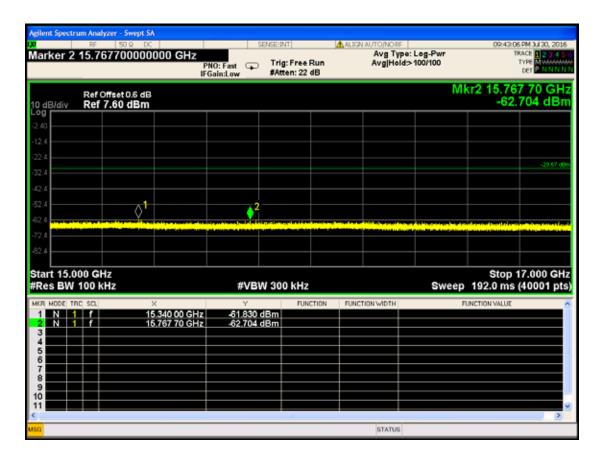


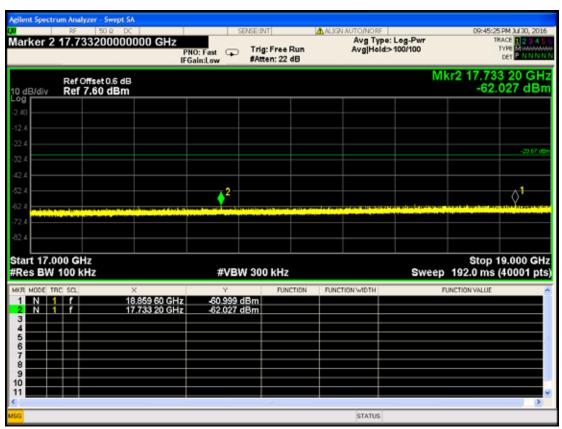


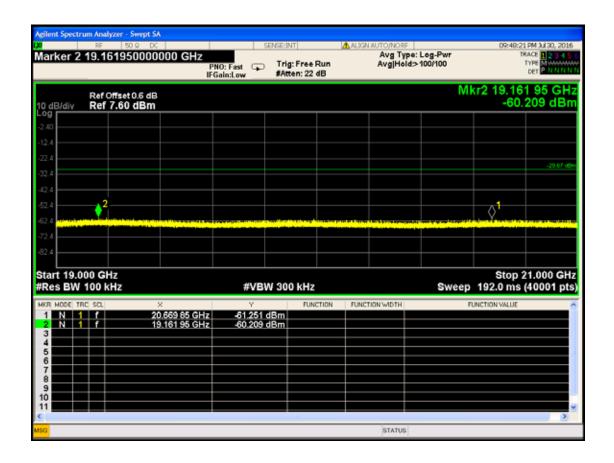


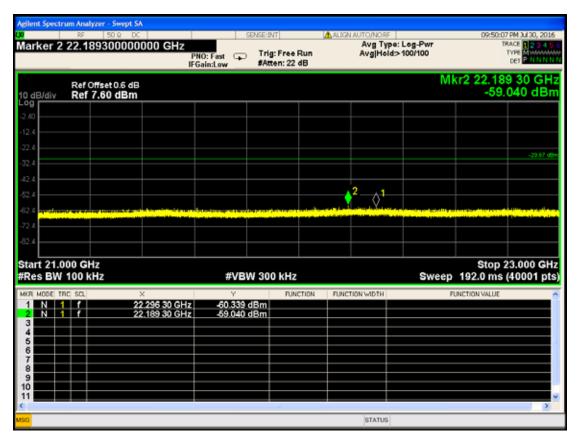


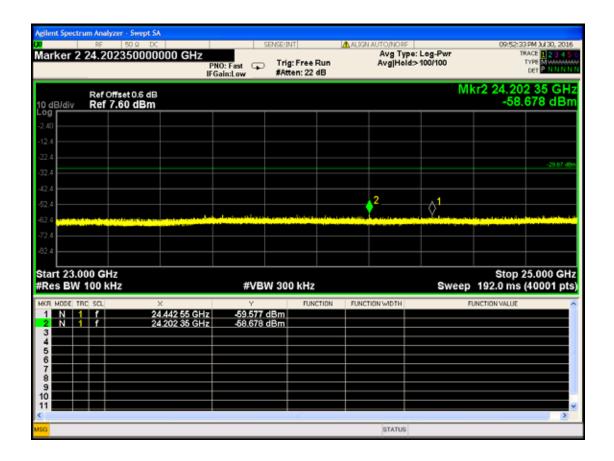












10.DUTY CYCLE

10.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2016-05-15	2017-05-14

10.2. Test Results

The measurement of duty cycle is 100%.



11.DEVIATION TO TEST SPECIFICATIONS

NONE