

# Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC159998

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# **FCC Radio Test Report** FCC ID: 2AKBP-Q6

## **Original Grant**

Report No. TB-FCC159998

Shenzhen Hysiry Technology Co., Ltd. **Applicant** 

**Equipment Under Test (EUT)** 

**EUT Name SMART LAMP** 

Model No. Q6

Series Model No. Q3

**H**USIRU **Brand Name** 

2018-05-24 **Receipt Date** 

2018-05-25 to 2018-06-12 Test Date

Issue Date 2018-06-13

Standards FCC Part 15, Subpart C (15.247: 2017)

**Test Method** ANSI C63.10: 2013

Conclusions **PASS** 

In the configuration tested, the EUT complied with the standards specified above,

The EUT technically complies with the FCC and IC requirements

Test/Witness Engineer :

Test/Witness Engineer :

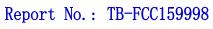
Approved& **Authorized** 



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1. 0

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# **Revision History**

Report No.	Version	Description	Issued Date
TB-FCC159998	Rev.01	Initial issue of report	2018-06-13



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# 1. General Information about EUT

# 1.1 Client Information

Applicant : Shenzhen Hysiry Technology Co., Ltd.			
Address : Room 406, Fourth floor, Buliding 1, Area D, Huameiju Decorati Materials City, Xinhu Road, Xin'an street, Bao'an District, Sher		Room 406, Fourth floor, Buliding 1, Area D, Huameiju Decoration Materials City, Xinhu Road, Xin'an street, Bao'an District, Shenzhen	
Manufacturer		Shenzhen Hysiry Technology Co., Ltd.	
Address		Room 406, Fourth floor, Buliding 1, Area D, Huameiju Decoration Materials City, Xinhu Road, Xin'an street, Bao'an District, Shenzhen	

# 1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	SMART LAMP	SMART LAMP		
Models No.	:	Q6, Q3			
Model Different	:	All models are the same PCB layout interior structure and electrical circuits, The only difference is model name for power.			
		Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz		
		Number of Channel:	802.11b/g/n(HT20):11 channels see note(3)		
		RF Output Power:	802.11b: 17.80dBm 802.11g: 16.47dBm 802.11n (HT20): 14.97dBm		
Product	:	Antenna Gain: 1dBi PCB Antenna			
Description		Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)		
		Bit Rate of Transmitter:	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps 802.11n:up to 150Mbps		
Power Supply	:	AC Voltage supplied			
Power Rating	:	Input: AC 100~250V,50/ 60Hz			
Software Version		N/A			
Hardware Version	:	N/A			
Connecting I/O Port(S)	:	Please refer to the User's Manual			



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### Note:

(1) This Test Report is FCC Part 15.247 for 802.11b/g/n, the test procedure follows the FCC KDB 558074 D01 DTS Meas Guidance v04.

(2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



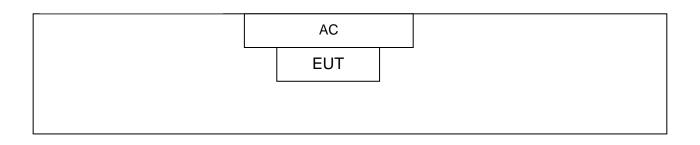
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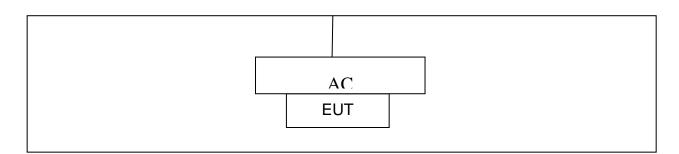
### (3) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)		
01	2412	05	2432	09	2452		
02	2417	06	2437	10	2457		
03	2422	07	2442	11	2462		
04	2427	80	2447				
Note: CH 01~CH 11 for 802.11b/g/n(HT20)							

(4) The Antenna information about the equipment is provided by the applicant.

## 1.3 Block Diagram Showing the Configuration of System Tested





# 1.4 Description of Support Units

The EUT has been tested as an independent unit.

# 1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.



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For Conducted Test			
Final Test Mode	Description		
Mode 1	Normal Working with TX B Mode		

For Radiated Test				
Final Test Mode	Description			
Mode 2	TX Mode B Mode Channel 01/06/11			
Mode 3	TX Mode G Mode Channel 01/06/11			
Mode 4	TX Mode N(HT20) Mode Channel 01/06/11			

#### Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

According to ANSI C63.10 standards, the measurements are performed at the highest, Middle, lowest available channels, and the worst case data rate as follows:

802.11b Mode: CCK (1 Mbps) 802.11g Mode: OFDM (6 Mbps)

802.11n (HT20) Mode: MCS 0 (6.5 Mbps)

- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a portable unit; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.



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### 1.6 Description of Test Software Setting

During testing channel & Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN.

Test Software Version		SecureCRT.exe	
Channel	CH 01	CH 06	CH 11
IEEE 802.11b DSSS	15	40	50
IEEE 802.11g OFDM	4	35	40
IEEE 802.11n (HT20)	252	25	30

## 1.7 Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U <sub>Lab</sub> )
	Level Accuracy:	
Conducted Emission	9kHz~150kHz	±3.42 dB
	150kHz to 30MHz	±3.42 dB
Dedicted Emission	Level Accuracy:	. 4 CO dD
Radiated Emission	9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy:	±4.40 dB
Radiated Effission	30MHz to 1000 MHz	±4.40 db
Dedicted Emission	Level Accuracy:	. 4 20 dB
Radiated Emission	Above 1000MHz	±4.20 dB



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### 1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

### **CNAS (L5813)**

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

#### A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.

### IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.



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# 2. Test Summary

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 2						
Standa	rd Section	Test Item	ludamont	Remark		
FCC	IC	rest item	Judgment Rema			
15.203	/	Antenna Requirement	PASS	N/A		
15.207	RSS-GEN 7.2.4	Conducted Emission	PASS	N/A		
15.205	RSS-GEN 7.2.2	Restricted Bands	PASS	N/A		
15.247(a)(2)	RSS 247 5.2 (1)	6dB Bandwidth	PASS	N/A		
15.247(b)	RSS 247 5.4 (4)	Peak Output Power	PASS	N/A		
15.247(e)	RSS 247 5.2 (2)	Power Spectral Density	PASS	N/A		
15.247(d)	RSS 247 5.5	Band Edge	PASS	N/A		
15.247(d)& 15.209	RSS 247 5.5	Transmitter Radiated Spurious Emission	PASS	N/A		

Note: "/" for no requirement for this test item.

N/A is an abbreviation for Not Applicable.



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# 3. Test Equipment

Conducted Emission Test							
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date		
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 20, 2017	Jul. 19, 2018		
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 20, 2017	Jul. 19, 2018		
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 20, 2017	Jul. 19, 2018		
LISN	Rohde & Schwarz	ENV216	101131	Jul. 20, 2017	Jul. 19, 2018		
Radiation Emissio	n Test						
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date		
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 20, 2017	Jul. 19, 2018		
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 20, 2017	Jul. 19, 2018		
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar.16, 2018	Mar. 15, 2019		
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar.16, 2018	Mar. 15, 2019		
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.16, 2018	Mar. 15, 2019		
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar.16, 2018	Mar. 15, 2019		
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 03, 2017	Jul. 02, 2018		
Pre-amplifier	Sonoma	310N	185903	Mar.17, 2018	Mar. 16, 2019		
Pre-amplifier	HP	8449B	3008A00849	Mar.17, 2018	Mar. 16, 2019		
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar.17, 2018	Mar. 16, 2019		
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A		
Antenna Conducte	ed Emission						
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date		
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 20, 2017	Jul. 19, 2018		
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 20, 2017	Jul. 19, 2018		
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Oct. 26, 2017	Oct. 25, 2018		
Vector Signal Generator	Agilent	N5182A	MY50141294	Oct. 26, 2017	Oct. 25, 2018		
Analog Signal Generator	Agilent	N5181A	MY50141953	Oct. 26, 2017	Oct. 25, 2018		
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Oct. 26, 2017	Oct. 25, 2018		
DE Dower Seeser	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Oct. 26, 2017	Oct. 25, 2018		
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Oct. 26, 2017	Oct. 25, 2018		
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Oct. 26, 2017	Oct. 25, 2018		



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### 4. Conducted Emission Test

### 4.1 Test Standard and Limit

4.1.1Test Standard FCC Part 15.207

### 4.1.2 Test Limit

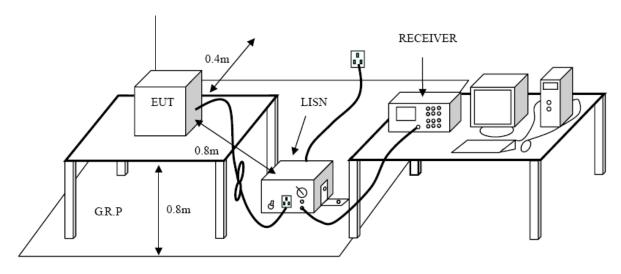
#### **Conducted Emission Test Limit**

Fraguency	Maximum RF Line Voltage (dBμV)			
Frequency	Quasi-peak Level	Average Level		
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *		
500kHz~5MHz	56	46		
5MHz~30MHz	60	50		

#### Notes:

- (1) \*Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2 Test Setup



#### 4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



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I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

# 4.4 EUT Operating Mode

Please refer to the description of test mode.

### 4.5 Test Data

Please refer to the Attachment A.



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# 5. Radiated Emission Test

### 5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.209

5.1.2 Test Limit

### Radiated Emission Limits (9 kHz~1000 MHz)

Itu	ulated Ellission Ellints ( 3 Ki iz	- 1000 Wil 12)
Frequency (MHz	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

### Radiated Emission Limit (Above 1000MHz)

Frequency	Distance of 3m	(dBuV/m)
(MHz)	Peak	Average
Above 1000	74	54

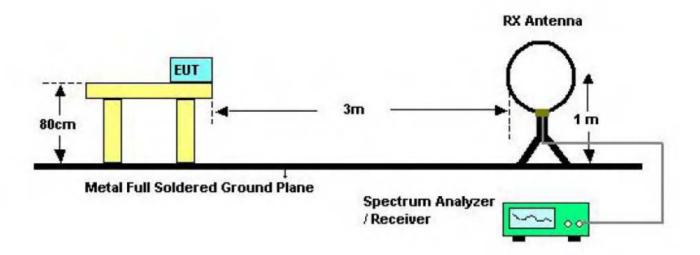
### Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)

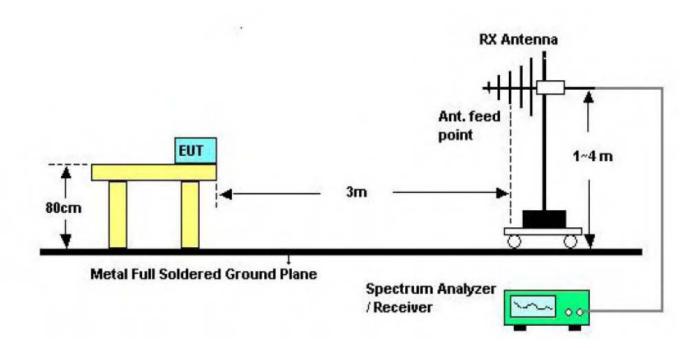


Page:

# 5.2 Test Setup



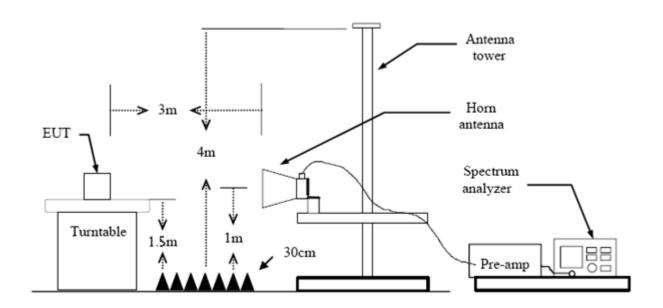
Below 30MHz Test Setup



Below 1000MHz Test Setup



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Above 1GHz Test Setup

#### 5.3 Test Procedure

- (1) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency Below 1GHz. The EUT was placed on a rotating 0.8m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.



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(8) For the actual test configuration, please see the test setup photo.

### 5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

#### 5.5 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Please refer to the Attachment B.



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# 6. Restricted Bands Requirement

### 6.1 Test Standard and Limit

6.1.1 Test Standard

FCC Part 15.247(d)

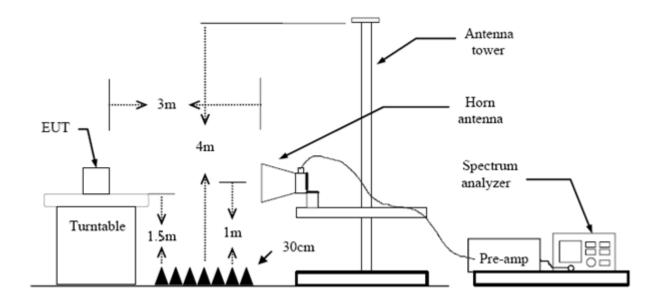
FCC Part 15.209

FCC Part 15.205

6.1.2 Test Limit

Restricted Frequency	Distance of 3	3m (dBuV/m)
Band (MHz)	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

### 6.2 Test Setup



### 6.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency Below 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.



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(3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

### 6.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

#### 6.5 Test Data

Please refer to the Attachment C.



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### 7. Bandwidth Test

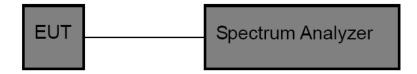
#### 7.1 Test Standard and Limit

7.1.1 Test Standard FCC Part 15.247 (a)(2)

7.1.2 Test Limit

F	CC Part 15 Subpart C(15.2	47)
Test Item	Limit	Frequency Range(MHz)
Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5

### 7.2 Test Setup



### 7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) The bandwidth is measured at an amplitude level reduced 6dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
- (3)Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:100 kHz, and Video Bandwidth:300 kHz, Detector: Peak, Sweep Time set auto.

### 7.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Digital photo framesdle and high channel for the test.

### 7.5 Test Data

Please refer to the Attachment D.



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# 8. Peak Output Power Test

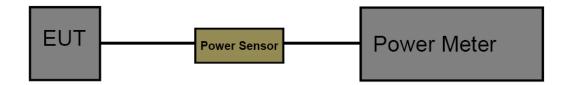
### 8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247 (b)

8.1.2 Test Limit

FCC Part 15 Subpart C(15.247)				
Test Item	Limit	Frequency Range(MHz)		
Peak Output Power	1 Watt or 30 dBm	2400~2483.5		

### 8.2 Test Setup



### 8.3 Test Procedure

The measurement is according to section 9.1.2 of KDB 558074 D01 DTS Meas Guidance v04. The EUT was connected to RF power meter via a broadband power sensor as show the block above. The power sensor video bandwidth is greater than or equal to the DTS bandwidth of the equipment.

## 8.4 EUT Operating Condition

The EUT was set to continuously transmitting in the max power during the test.

#### 8.5 Test Data

Please refer to the Attachment E.



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# 9. Power Spectral Density Test

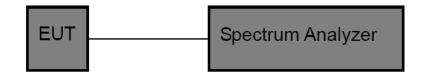
### 9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247 (e)

9.1.2 Test Limit

FC	CC Part 15 Subpart C(15.2	47)
Test Item	Limit	Frequency Range(MHz)
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5

### 9.2 Test Setup



### 9.3 Test Procedure

The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v04.

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Set analyser center frequency to DTS channel center frequency.
- (3) Set the span to 1.5 times the DTS bandwidth.
- (4) Set the RBW to: 3 kHz(5) Set the VBW to: 10 kHz
- (6) Detector: peak
- (7) Sweep time: auto
- (8) Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

### 9.4 EUT Operating Condition

The EUT was set to continuously transmitting in each mode and low, Digital photo framesdle and high channel for the test.

#### 9.5 Test Data

Please refer to the Attachment F.



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# 10. Antenna Requirement

### 10.1 Standard Requirement

10.1.1 Standard FCC Part 15.203

### 10.1.2 Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### 10.2 Antenna Connected Construction

The gains of the antenna used for transmitting is 1dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

### Result

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

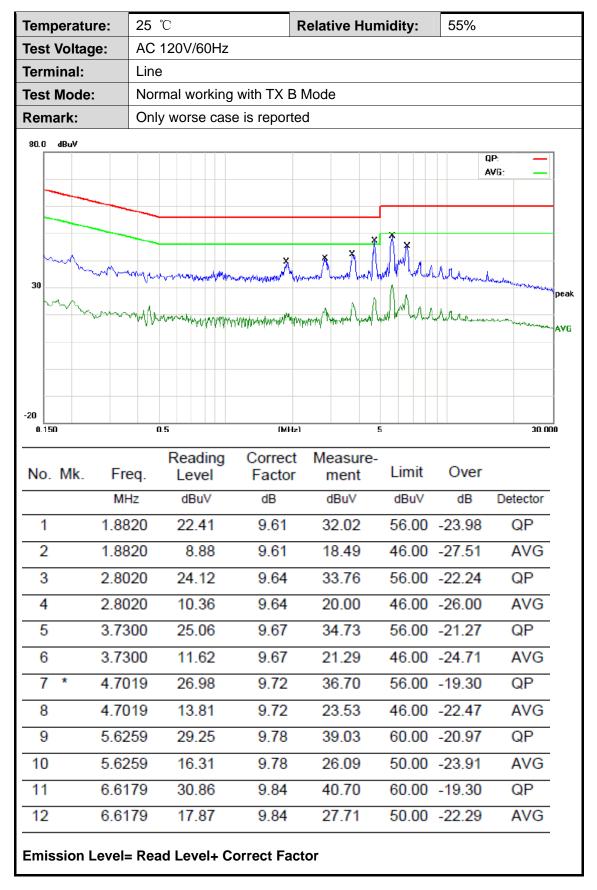
Antenna Type
□ Permanent attached antenna
Unique connector antenna
Professional installation antenna

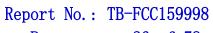




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# **Attachment A-- Conducted Emission Test Data**

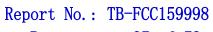






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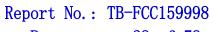
Temperature	25	$\mathbb{C}$		Relative H	lumidity:	55%	
Test Voltage	: AC	120V/60Hz					
Terminal:	Ne	utral					
Test Mode:	Nor	mal working	with TX B I	Mode			
Remark:	Onl	y worse cas	e is reporte	d			
80.0 dBuV							QP: —
30	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	war of war of the state of the	to aprima paragram Arthorna				AVG: —
	-sucol H	the of the state o	Lingshidyalkov. Liveshidd ang kayalawal	Specifit Supper Super	d tod by he saled	Adam	A Desperando
0.150		0.5	(MHz)		5		30.00
No. Mk.	Freq.	Reading Level	Correct Factor	Measure ment	:- Limit	Over	
110. 1111.	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1 2	2.8340	24.24	9.66	33.90	56.00		QP
	2.8340	11.43	9.66	21.09	46.00		AVG
	3.7580	24.78	9.71	34.49	56.00		QP
	3.7580	12.78	9.71	22.49	46.00		
	1.7380	25.85	9.86	35.71		-20.29	
	1.7380	14.41	9.86	24.27			
	5.6660	26.43	10.04	36.47	60.00		QP
	5.6660	15.72	10.04	25.76		-24.24	AVG
	6.5900	32.25	10.04	42.46		-17.54	QP
	6.5900	22.13	10.21	32.34	50.00		AVG
	9.5580	21.28	10.25	31.53		-28.47	QP
12 9	9.5580	11.79	10.25	22.04	50.00	_27 QG	AVG





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Temperature:	<b>25</b> ℃	Relativ	ve Humidity:	 55%
Test Voltage:	AC 240V/50Hz	Holdi	vo Hammanty.	0070
Terminal:	Line			
Test Mode:	Normal working with	ΓX B Mode		
Remark:	Only worse case is re	ported		
80.0 dBuV				
30	WWW. Walke has had help to the state of the			QP:
0.150	0.5	(MHz)	5	30.000
No. Mk. Fre	9	rect Measure ctor ment	e- Limit Ov	er
MH	łz dBuV d	3 dBuV	dBuV dE	3 Detector
1 2.85	80 23.65 9.	64 33.29	56.00 -22.7	71 QP
2 2.85	80 8.66 9.	64 18.30	46.00 -27.7	70 AVG
3 3.80	60 23.88 9.	67 33.55	56.00 -22.4	15 QP
4 3.80	9.62 9.62	67 19.29	46.00 -26.7	71 AVG
5 4.84	20 26.48 9.	73 36.21	56.00 -19.7	79 QP
6 4.84	20 10.09 9.	73 19.82	46.00 -26.1	18 AVG
7 * 6.70	20 30.44 9.	84 40.28	60.00 -19.7	72 QP
8 6.70	20 18.08 9.	84 27.92	50.00 -22.0	08 AVG
9 7.60	60 30.35 9.	90 40.25	60.00 -19.7	75 QP
10 7.60	60 18.65 9.	90 28.55	50.00 -21.4	15 AVG
11 8.62	20 26.70 9.	96 36.66	60.00 -23.3	34 QP
12 8.62	20 15.18 9.	96 25.14	50.00 -24.8	36 AVG
Emission Levels	= Read Level+ Correc	t Factor		





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emperature:	25 ℃		Relative	Humidity:	55%	
Test Voltage:	AC 240V/5	0Hz				
Terminal:	Neutral					
Test Mode:		rking with TX E				
Remark:	Only worse	case is report	ted			
30.0 dBuV 30	MANINA A SHIPMANA MANINA	AND THE WAS AND THE WAS AND	Maria Maria Andre			P: — WG: —
0.150	0.5	(MH	lz)	5		30.00
No. Mk. F	Read Freq. Leve			- Limit	Over	
-	MHz dBu	V dB	dBuV	dBuV	dB	Detector
1 1.9	9300 23.3	9.61	32.97	56.00 -	23.03	QP
2 1.	9300 7.3	9.61	16.91	46.00 -	29.09	AVG
	0440 244	5 9.71	33.86	50.00	20.44	QP
3 3.	8140 24.1		33.00	56.00 -	22.14	QI
	8140 24.1 8140 10.8		20.59	46.00 -2		AVG
4 3.		9.71	20.59		25.41	
4 3.5 5 5.7	8140 10.8	9.71 79 10.05	20.59 33.84	46.00 -2	25.41 26.16	AVG
4 3.5 5 5.7 6 5.7	8140 10.8 7460 23.7	9.71 79 10.05 53 10.05	20.59 33.84	46.00 -2 60.00 -2	25.41 26.16 27.42	AVG QP
4 3.5 5 5.7 6 5.7 7 * 6.0	8140 10.8 7460 23.7 7460 12.5	9.71 79 10.05 53 10.05 14 10.22	20.59 33.84 22.58 41.36	46.00 -2 60.00 -2 50.00 -2	25.41 26.16 27.42 18.64	AVG QP AVG
4 3.5 5 5.7 6 5.7 7 * 6.9 8 6.9	8140 10.8 7460 23.7 7460 12.5 6300 31.1	9.71 79 10.05 53 10.05 14 10.22 60 10.22	20.59 33.84 22.58 41.36 30.82	46.00 -2 60.00 -2 50.00 -2 60.00 -2	25.41 26.16 27.42 18.64 19.18	AVG QP AVG QP
4 3.5 5 5.7 6 5.7 7 * 6.9 8 6.9 9 7.9	8140 10.8 7460 23.7 7460 12.5 6300 31.1 6300 20.6	9.71 79 10.05 53 10.05 14 10.22 60 10.22 79 10.28	20.59 33.84 22.58 41.36 30.82	46.00 -2 60.00 -2 50.00 -2 50.00 -2	25.41 26.16 27.42 18.64 19.18 22.93	AVG QP AVG QP AVG
4 3.5 5 5.7 6 5.7 7 * 6.9 8 6.9 9 7.9	8140 10.8 7460 23.7 7460 12.5 6300 31.1 6300 20.6 6900 26.7	9.71 79 10.05 33 10.05 4 10.22 60 10.22 79 10.28	20.59 33.84 22.58 41.36 30.82 37.07 26.93	46.00 -2 60.00 -2 50.00 -2 60.00 -2 60.00 -2	25.41 26.16 27.42 18.64 19.18 22.93 23.07	AVG QP AVG QP AVG



Report No.: TB-FCC159998
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# **Attachment B-- Radiated Emission Test Data**

### 9KHz~30MHz

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

### 30MHz~1GHz

Temperature:	25 ℃			Relative Hu	umidity:	55%	
Test Voltage:	AC 120	0V/60HZ					
Ant. Pol.	Horizo	ntal					
Test Mode:	TXBN	/lode 2412	MHz				
Remark:	Only w	orse case	is reported				
80.0 dBuV/m							
					(RF)FCC	15C 3M Radiat	
				<b>.</b> 5. 6 .	6	Margin	-5 005
		* *	3	<u>"""</u>	MAN THE RESERVE TO TH	h	
30		7	W W	m	Mynh	$\mathbb{W}_{\mathbb{A}}$	
						Munum	way was
	J 7 7 1.						
May have my	~ \ N						
Maryan	* \ <i>\</i>						
W Mary Mary Mary Mary Mary Mary Mary Mary	* \/						
Maryan	~ \/						
.20							
20 30.000 40 50	60 70	80	(MHz)	300	400	500 600 70	0 1000.00
					400	500 600 70	0 1000.00
30.000 40 50		Reading Level	(MHz) Correct Factor	Measure- ment	400	500 600 70 Over	0 1000.00
30.000 40 50 No. Mk. Fr		Reading	Correct	Measure-			
30.000 40 50 No. Mk. Fi	eq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
No. Mk. Fr M 87.7	req.	Reading Level	Correct Factor	Measure- ment dBuV/m	Limit dBuV/m	Over	Detector
No. Mk. Fr M 1 * 87.7 2 ! 111.	req. Hz 7248	Reading Level dBuV 57.97	Correct Factor dB/m -22.10	Measure- ment dBuV/m 35.87	Limit dBuV/m 40.00	Over dB -4.13	Detector
No. Mk. From Mr. 87.7 2 ! 111.3 3 178.	req. Hz 7248 3468	Reading Level dBuV 57.97 60.62	Correct Factor dB/m -22.10 -22.42	Measure- ment dBuV/m 35.87 38.20	Limit  dBuV/m  40.00  43.50	Over dB -4.13	Detector QP QP
No. Mk. From Mr. 1 * 87.7 2 ! 111.3 3 178.4 4 252.5	req. Hz 7248 3468 1327	Reading Level dBuV 57.97 60.62 55.65	Correct Factor dB/m -22.10 -22.42 -20.24	Measure- ment dBuV/m 35.87 38.20 35.41	Limit  dBuV/m  40.00  43.50  43.50	Over dB -4.13 -5.30 -8.09	Detector QP QP QP
No. Mk. Find Mind Mind Mind Mind Mind Mind Mind M	req. Hz 7248 3468 1327 9482	Reading Level dBuV 57.97 60.62 55.65 56.33	Correct Factor dB/m -22.10 -22.42 -20.24 -17.12	Measure- ment dBuV/m 35.87 38.20 35.41 39.21	Limit  dBuV/m  40.00  43.50  43.50  46.00	Over dB -4.13 -5.30 -8.09 -6.79	Detector QP QP QP QP



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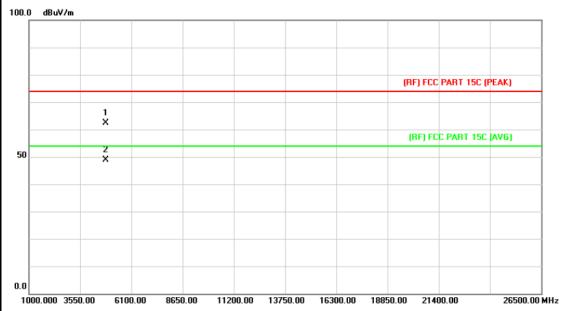
Temperature:	<b>25</b> ℃	Relative H	lumidity: 55%		
Test Voltage:	AC 120V/60HZ		,		
Ant. Pol.	Vertical				
Test Mode:	TX B Mode 2412M	ИHz			
Remark:	Only worse case is	s reported			
80.0 dBu∀/m					
			(RF)FCC 15C 3M	Radiation Margin -6 dB	
		5	s X		
	1 3 X	* * *	My My		
30		which will	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		
Mrmman.		V V	1	gh-houseman a	
	W				
30.000 40 50	60 70	(MHz)	300 400 500 6	00 700 1000.000	
	Donalis a	O			
No. Mk. Fre	Reading ( eq. Level	Correct Measur Factor ment	1.1	/er	
MI		dB/m dBuV/n		IB Detector	
1 56.0	007 56.02	-23.92 32.10	40.00 -7	.90 QP	
2 87.7	248 52.79	-22.10 30.69	40.00 -9	.31 QP	
3 112.1	305 56.83	-22.41 34.42	2 43.50 -9	.08 QP	
4 139.3	613 57.28	-22.48 34.80	43.50 -8	.70 QP	
5 247.6	819 57.28 ·	-17.31 39.97	7 46.00 -6	.03 QP	
6 * 284.9	9767 59.09 ·	-16.49 42.60	46.00 -3	.40 QP	
		_			
*:Maximum data	x:Over limit !:over margin	n			
Emission Level= Read Level+ Correct Factor					



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### **Above 1GHz**

Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ				
Ant. Pol.	Horizontal				
Test Mode:	TX B Mode 2412MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed				
	limit.				

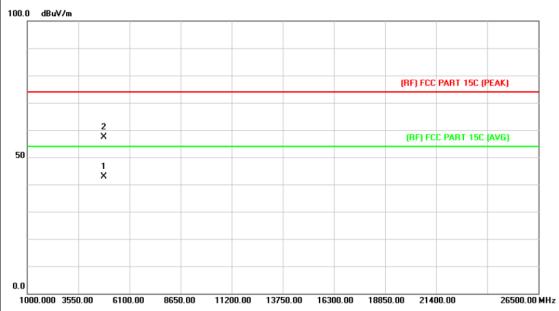


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4828.060	47.89	14.58	62.47	74.00	-11.53	peak
2	*	4828.640	34.36	14.58	48.94	54.00	-5.06	AVG



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Vertical					
Test Mode:	TX B Mode 2412MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					
	I .					



No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4826.840	28.34	14.57	42.91	54.00	-11.09	AVG
2		4827.400	42.81	14.57	57.38	74.00	-16.62	peak



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ				
Ant. Pol.	Horizontal				
Test Mode:	TX B Mode 2437MHz				
Remark: No report for the emission which more than 10 dB below the					
	prescribed limit.				

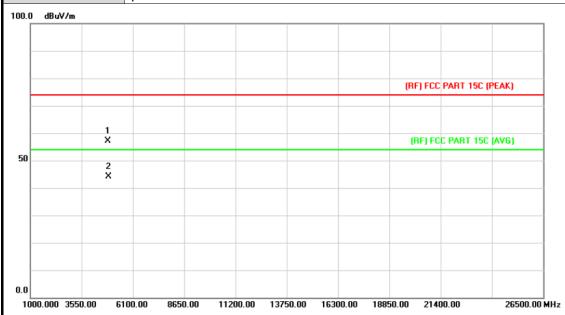


No.	Mk.	Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4871.780	47.73	14.84	62.57	74.00	-11.43	peak
2	*	4878.680	34.78	14.89	49.67	54.00	-4.33	AVG



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Vertical					
Test Mode:	TX B Mode 2437MHz					
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					

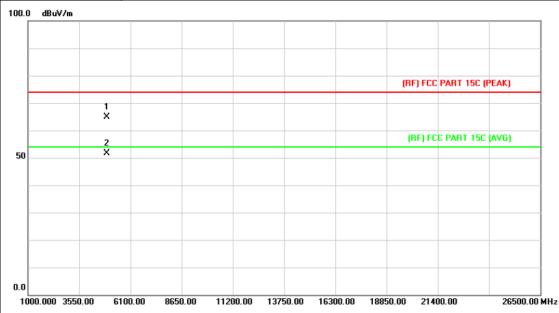


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4872.560	42.40	14.85	57.25	74.00	-16.75	peak
2	*	4878.920	29.19	14.89	44.08	54.00	-9.92	AVG



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Horizontal		
Test Mode:	TX B Mode 2462MHz		
Remark:	No report for the emission prescribed limit.	which more than 10 dE	B below the



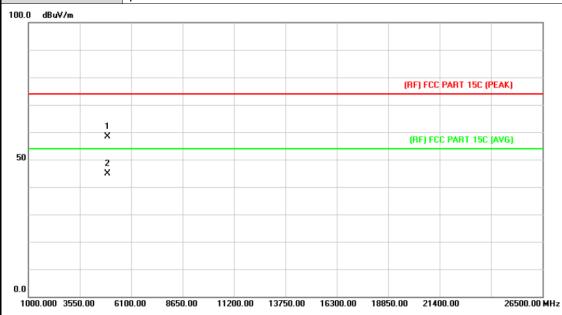
No.	Mk.	Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.160	49.61	15.17	64.78	74.00	-9.22	peak
2	*	4923.640	36.42	15.17	51.59	54.00	-2.41	AVG



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Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Vertical					
Test Mode:	TX B Mode 2462MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					
100.0 dBuV/m	100.0 dBuV/m					

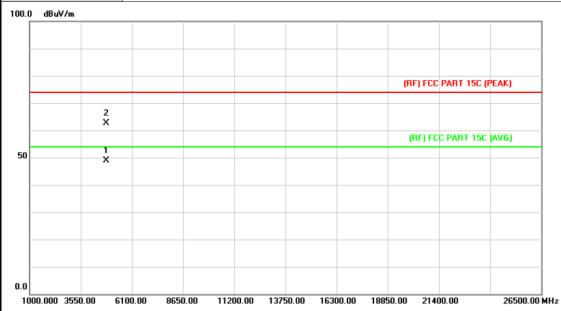


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4922.080	43.26	15.16	58.42	74.00	-15.58	peak
2	*	4928.360	29.72	15.21	44.93	54.00	-9.07	AVG



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission	which more than 10 dE	3 below the
	prescribed limit.		

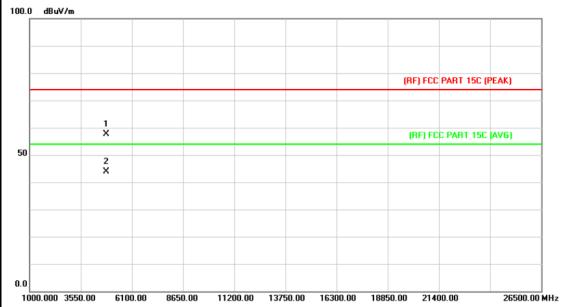


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4828.680	34.36	14.58	48.94	54.00	-5.06	AVG
2		4828.800	48.00	14.58	62.58	74.00	-11.42	peak



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2412MHz		
Remark:	No report for the emission prescribed limit.	which more than 10 dE	3 below the



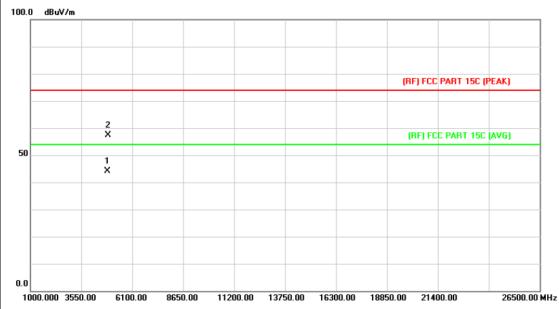
No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.740	43.00	14.55	57.55	74.00	-16.45	peak
2	*	4829.000	29.28	14.58	43.86	54.00	-10.14	AVG



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40.400\//001.17				
AC 120V/60HZ				
Horizontal				
TX G Mode 2437MHz				
No report for the emission which more than 10 dB below the				
prescribed limit.				
H T	Horizontal  X G Mode 2437MHz  No report for the emission	Horizontal  X G Mode 2437MHz  No report for the emission which more than 10 dE		



No.	Mk	. Freq.	_	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4875.700	29.14	14.87	44.01	54.00	-9.99	AVG
2		4877.500	42.57	14.88	57.45	74.00	-16.55	peak



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2437MHz		
Remark:	No report for the emission prescribed limit.	which more than 10 dE	B below the

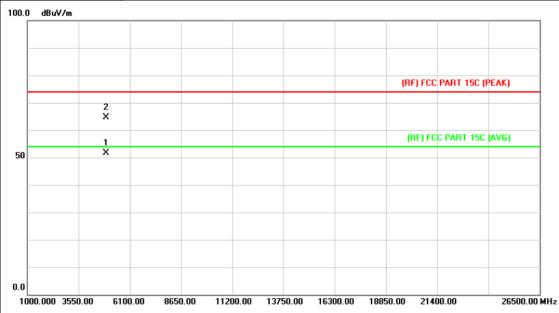


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4874.020	42.29	14.86	57.15	74.00	-16.85	peak
2	*	4878.800	29.22	14.89	44.11	54.00	-9.89	AVG



Report No.: TB-FCC159998
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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	No report for the emission prescribed limit.	which more than 10 dE	3 below the

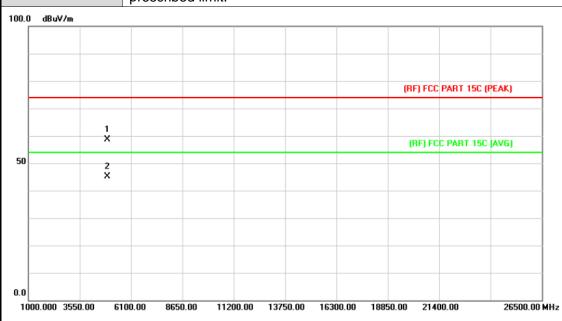


No.	Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4924.300	36.42	15.17	51.59	54.00	-2.41	AVG
2		4928.100	49.46	15.20	64.66	74.00	-9.34	peak



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=	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz		
	No report for the emission prescribed limit.	which more than 10 dE	B below the

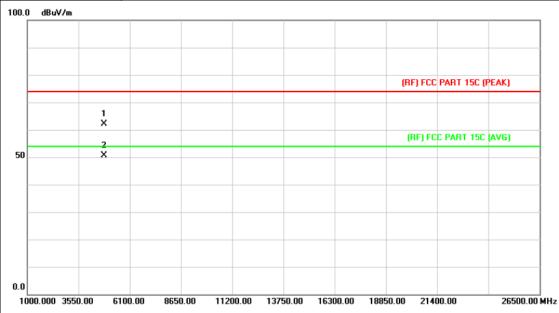


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4927.500	43.33	15.19	58.52	74.00	-15.48	peak
2	*	4928.000	29.83	15.20	45.03	54.00	-8.97	AVG



Report No.: TB-FCC159998
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25 ℃	Relative Humidity:	55%				
AC 120V/60HZ						
Horizontal						
TX N(HT20) Mode 2412MI	TX N(HT20) Mode 2412MHz					
No report for the emission which more than 10 dB below the						
prescribed limit.						
	AC 120V/60HZ Horizontal TX N(HT20) Mode 2412Ml No report for the emission	AC 120V/60HZ  Horizontal  TX N(HT20) Mode 2412MHz  No report for the emission which more than 10 dB				



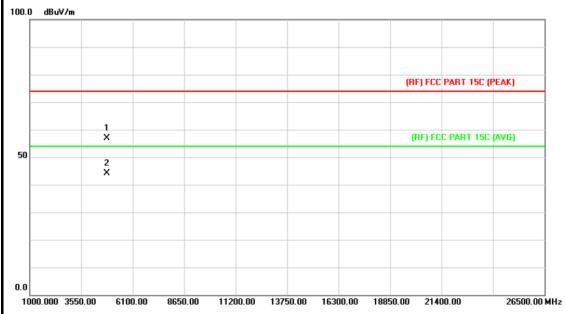
No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4820.780	47.52	14.53	62.05	74.00	-11.95	peak
2	*	4824.560	36.15	14.55	50.70	54.00	-3.30	AVG



Report No.: TB-FCC159998

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	Relative Humidity:	55%			
AC 120V/60HZ					
Vertical					
TX N(HT20) Mode 2412MHz					
No report for the emission prescribed limit.	which more than 10 dE	below the			
	Vertical TX N(HT20) Mode 2412Ml No report for the emission	Vertical TX N(HT20) Mode 2412MHz No report for the emission which more than 10 dB			



No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4826.760	42.26	14.57	56.83	74.00	-17.17	peak
2	*	4828.800	29.44	14.58	44.02	54.00	-9.98	AVG





Temperature:

**Test Voltage:** 

1000.000 3550.00

Ant. Pol.

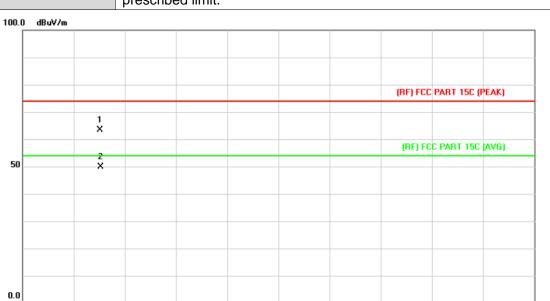
**Relative Humidity:** 55%

Horizontal **Test Mode:** TX N(HT20) Mode 2437MHz

AC 120V/60HZ

25 ℃

Remark: No report for the emission which more than 10 dB below the prescribed limit.



No.	N	lk.	Freq.	_	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4	1875.180	48.39	14.87	63.26	54.00	9.26	AVG
2		4	876.880	34.90	14.88	49.78	74.00	-24.22	peak

13750.00

16300.00

18850.00

21400.00

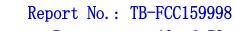
**Emission Level= Read Level+ Correct Factor** 

8650.00

11200.00

6100.00

26500.00 MHz





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Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Vertical						
Test Mode:	TX N(HT20) Mode 2437Ml	TX N(HT20) Mode 2437MHz					
Remark:	No report for the emission prescribed limit.	which more than 10 dE	3 below the				



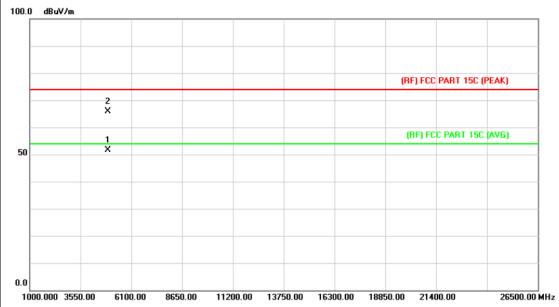
No.	Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4869.040	29.11	14.82	43.93	54.00	-10.07	AVG
2		4873.200	41.92	14.86	56.78	74.00	-17.22	peak



Report No.: TB-FCC159998

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Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Horizontal						
Test Mode:	TX N(HT20) Mode 2462MH	TX N(HT20) Mode 2462MHz					
Remark:	No report for the emission was prescribed limit.	hich more than 10 dB	below the				

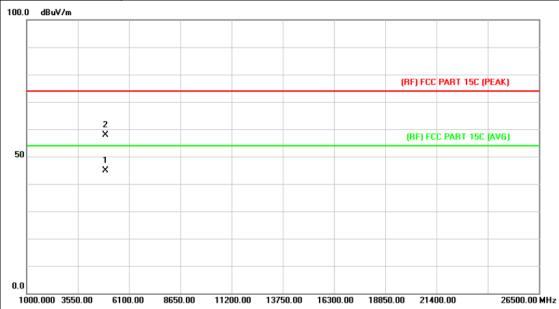


No.	Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4924.240			51.63	54.00	-2.37	AVG
2		4924.540	50.82	15.17	65.99	74.00	-8.01	peak

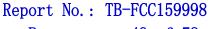


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Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Vertical	'ertical					
Test Mode:	TX N(HT20) Mode 2462MH	TX N(HT20) Mode 2462MHz					
Remark:	No report for the emission w	hich more than 10 dB	below the				
	prescribed limit.						



No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4919.840	29.80	15.15	44.95	54.00	-9.05	AVG
2		4924.400	42.74	15.17	57.91	74.00	-16.09	peak

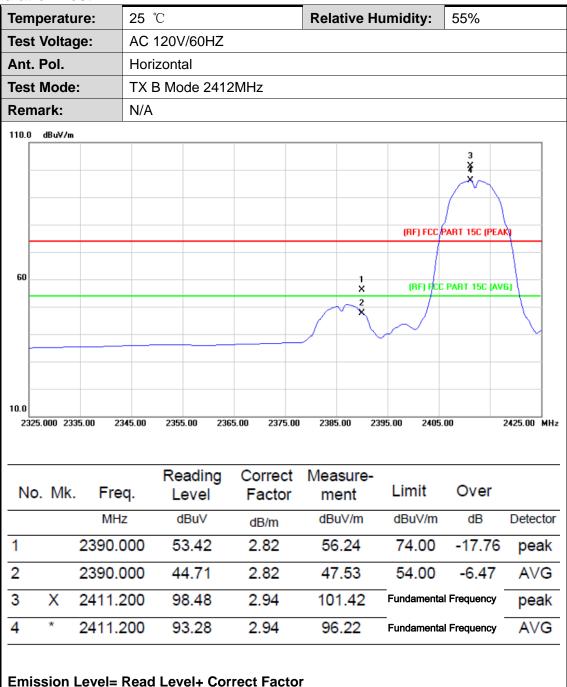


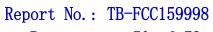


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## **Attachment C-- Restricted Bands Requirement Test Data**

### (1) Radiation Test

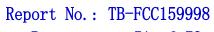






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Temp	eratu	ıre:	25 °	C		Relati	ive Hu	ımidity:	55%	
Test \	Volta	ge:	AC	120V/60HZ						
Ant. F	Pol.		Vert	ical						
Test I	Mode	:	TX B Mode 2412MHz							
Rema	ark:		N/A							
110.0	dBuV/m									
									3 1 ×	
									~~	
								(RF) FCC	PART 15C (PEA	K)
60							4			
_							X 2	(RF) FCC	PART 15C (AV	G) \
							×			
						/				$\neg$
10.0										
2325.	.000 23	35.00 23	345.00		365.00 2375.0			2395.00 2405.	.00	2425.00 Mi
Ma	NAI.	Гил		Reading	Correct		sure-	Limit	Over	
NO.	Mk.			Level	Factor		ent			
		MH		dBuV	dB/m		uV/m	dBuV/m	dB	Detecto
1	X	2411.	200	93.44	2.94	96	38.	Fundamental	Frequency	AVG
2		2390.0	000	45.27	2.82	48	3.09	54.00	-25.91	AVG
2		2413.2	200	98.64	2.95	10	1.59	— Fundamental	Frequency	peak
3	*	2410.2								





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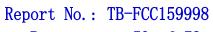
Test \		ıre:	25 °	C			Relat	tive Hu	umidity:	55%	
	Volta	ge:	AC ·	120V/60	OHZ						
Ant. I	Pol.		Hori	zontal							
Test l	Mode	:	TX E	3 Mode	2462M	Hz					
Rema	ark:		N/A								
120.0	dBuV/π	1									
70		1 Y X			3 × 4 ×					CC PART 15C (F	
20.0	).000 2 <b>4</b>	60.00 24	170.00	2480.00	2490.0	0 2500.	00 251	10.00	2520.00 2	530.00	2550.00 MH
				Read	ing (	Correct	Mea	asure-			
No.	Mk.	Free	q.	Leve	_	Factor	m	ent	Limit	Over	
		MHz	2	dBu\	V	dB/m	dB	uV/m	dBuV/i	m dB	Detector
1	Χ	2461.0	000	102.	15	3.26	10	5.41	Fundame	ental Frequenc	y peak
2	*	2461.0	000	97.0	0	3.26	10	0.26	 Fundame	ental Frequenc	y AVG
3		2483.5	00	47.6	9	3.41	51	1.10	74.00	0 -22.9	0 peak
4		2483.5	500	37.7	6	3.41	4	1.17	54.00	0 -12.8	3 AVG





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16111b	eratu	re:	25 °	.C				R	elati	ive H	umic	lity:	55	%		
Test V	oltag/	e:	AC 1	120V	/60H	Z										
Ant. P	ol.		Verti	ical												
Test N	/lode:		TX E	3 Мо	de 24	62N	ЛHz									
Rema	rk:		N/A													
120.0	dBuV/m															
70		1 %2 X		\\\\	333							(RF) FC		T 15C (F		
20.0	000 245	7.00	67.00	2477		2487.0	00 24	97.00	2507		2517.0	257	27.00		25	647.00
2447.	000 243	7.00 240	77.00	24//	.00	2407.0	00 24	37.00	2307	.00	2317.0	232	27.00		23	47.00
				Re	ading	g	Corre	ct	Mea	sure						
No.	Mk.	Free	1-		adin evel	g	Corre Fact			sure ent		imit		Ove	r	
No.	Mk.	Free	-	Le		g		or	m		l	_imit dBuV/r		Ove		Detec
			!	L(	evel		Fact	or	m dB	ent	L		n	dB		Detect pea
1	*	MHz	00	10	evel BuV		Fact dB/m	or	dB 10	ent uV/m	Fun	dBuV/r	n al Fre	dB quency	,	
No. 1 2	*	MHz 2460.6	000	10 99	evel BuV 03.08		dB/m	or n	m dB 10	ent uV/m 6.34	Fun	dBuV/r	n al Fre al Fre	dB quency	<i>,</i>	pea





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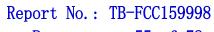
Ten	nperat	ure:	25 °	C			Relat	ive H	umidity:	55%	
Tes	t Volta	age:	AC	120V/6	30HZ						
Ant	. Pol.		Hori	zontal							
Tes	t Mod	e:	TX (	G Mod	e 241	2MHz					
Ren	nark:		N/A								
100.0	dBuV/	m									
									3 X		
									(RF) FC	C PART 15C (P	EAK)
									4		
							1 X		X. (BE) E	CC PART 15C	AVG)
50									1 (11)	CC PART 15C	Avai
							2		_/		
							^_×				
0.0	31.000 2		351.00	2361.0		71.00 2381	.00 2391		2401.00 241	11.00	2431.00 MH
No	o. Mk	. Fre	a.	Read		Correct	t Mea	sure-		Over	
		MHz		dBı		dB/m		ı∨/m	dBuV/m	n dB	Detector
		2390.0		56.		2.82		.31	74.00		
1											
		2390.0	000	35.	48	2.82	38	.30	54.00	-15.7	0 AVG
1 2 3	*			35. 91.		2.82 2.90		.30	_	-15.7	





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eratı	ıre:	25	°C		Relative I	Humidity:	55%	
/olta	ge:	AC	120V/60HZ	•				
Pol.		Vert	ical					
Mode	<b>)</b> :	TX (	G Mode 24	12MHz				
ırk:		N/A						
dBuV/m	1							
							4 ×	
							3	
						(RF) FCC	PART 15C (PE	AK)
					1 *			
						(RF) FC	C PART 15C (A	<u>(4e)</u>
					2 /			
		_						
000 23	40.00 2	350.00	2360.00 2	370.00 2380.00	2390.00	2400.00 2410	.00	2430.00 MI
	_		Reading	Correct			0	
Mk.	. Fre	q.	Level	Factor	ment	Limit	Over	
	MH	Z	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
	2390.0	000	56.69	2.82	59.51	74.00	-14.49	peak
	2390.0	000	37.59	2.82	40.41	54.00	-13.59	AVG
*	2413.4	400	76.72	2.95	79.67	Fundamental I	Frequency	AVG
Χ	2415.4	400	91.11	2.96	94.07	– Fundamental I	- Ereguency	peak
	/olta Pol. Mode ark: dBuV/m	Mode:  urk:  dBuV/m  000 2340.00 2  Mk. Fre  MH  2390.0	/oltage: AC / Vert / Ve	### AC 120V/60HZ  Pol. Vertical  TX G Mode 24*  Irk: N/A  #### N/A  ###################################	### AC 120V/60HZ   Vertical	### AC 120V/60HZ  Pol. Vertical  ### Mode: TX G Mode 2412MHz  ### N/A  #### MBuV/m    Reading Correct Measure—   Mk. Freq. Level Factor ment	### AC 120V/60HZ  **Pol. Vertical  **Mode: TX G Mode 2412MHz  **Irk: N/A  **MBuV/m**  **TRE: N/A  **MBuV/m**  **TRE: N/A  **MBuV/m**  **TRE: N/A  **TR	/oltage: AC 120V/60HZ /ol. Vertical  //ode: TX G Mode 2412MHz //ork: N/A //dbuv/m  //ode: TX G Mode 2412MHz //ork: N/A //dbuv/m  //ode: TX G Mode 2412MHz //ode: TX G Mode 2410MHz //ode: TX G Mode 2412MHz //ode: TX G Mode





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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		
Remark:	N/A		
110.0 dBuV/m	3 X		C PART 15C (PEAK)

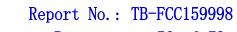
No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2459.600	97.17	3.26	100.43	Fundamental	Frequency	peak
2	*	2459.600	83.26	3.26	86.52	 Fundamental	Frequency	AVG
3		2483.500	57.54	3.41	60.95	74.00	-13.05	peak
4		2483.500	34.49	3.41	37.90	54.00	-16.10	AVG

**Emission Level= Read Level+ Correct Factor** 

2465.00

2445.000 2455.00

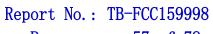
2545.00 MHz





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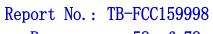
Ten	perat	ure:	25	$^{\circ}$ C				Rela	ative	Humic	lity:	55%		
Tes	t Volta	ge:	AC	120V/6	0HZ									
Ant	. Pol.		Vert	ical										
Tes	t Mode	<b>9</b> :	TX	G Mode	246	2MH	Z							
Rer	nark:		N/A											
110.0	dBuV/π	1												_
			2 X											
														1
-										O	RF) FCC F	PART 15C (PEA	AK)	1
		1 X				3 X								1
60		+/-		$\rightarrow$							(DE) ECC	PART 15C (A)	/G)	-
											(NF) FCC	PART 15C (A	, a j	
	/				1	4								
						×		_						-
10.0   24	<b>\$</b> 1.000 24	51.00 24	161.00	2471.00	248	31.00	2491.00	250	1.00	2511.00	2521.	00	2541.00	_ MH₂
				Read	•		rrect		sure		.,			
No	o. Mk	. Fre	q.	Lev	el	Fa	actor	m	ent	LII	nit	Over		
		MH	Z	dBu	V	dE	3/m	dB	uV/m	dB	uV/m	dB	Dete	ctor
1	Χ	2455.6	600	63.6	60	3.	.23	66	6.83	Fund	amental	Frequency	ΑV	′G
2	*	2462.2	200	98.2	21	3.	.27	10	1.48	Fund	amental	Frequency	pea	ak
3		2483.5	500	63.1	0	3.	41	66	5.51	74	1.00	-7.49	pea	ak
4		2483.5	500	35.5	57	3.	.41	38	3.98	54	4.00	-15.02	. AV	'G





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Tem	perat	ure:	25	$^{\circ}$ C				Rela	tive H	lumidity:	55%	
Test	Volta	ige:	AC	120V	/60HZ	•						
Ant.	Pol.		Hor	izonta	ıl							
Test	Mod	e:	TX	N(HT	20) Mo	ode 241	2MHz					
Rem	ark:		N/A	ı								
100.0	dBuV/n	n										
										×		
										(RF) FCC	PART 15C (PE	AK)
										4		
							_	1 X		(BE) EC	C PART 15C (A	VG)
50										1,.	1	
								2		1		
								×				
2331	1.000 23	841 00 23	351.00	2361.	<u> </u>	371.00 2	381.00	2391	NN 2	401.00 241	1 00	2431.00 M
No	. Mk	. Fre	<b>q</b> .		iding vel	Corre		Meas me	sure-	Limit	Over	
		MH	Z	dE	BuV	dB/n	1	dBu	V/m	dBuV/m	dB	Detecto
1		2390.0	000	55	.99	2.82	2	58.	.81	74.00	-15.19	peak
1						2.82	)	38.	.37	54.00	-15.63	AVG
		2390.0	000	35	.oo	2.02	_					
2	*	2390.0 2406.2			.08	2.90		94.	.98	Fundamenta	I Frequency	peak





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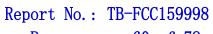
Tem	perat	ure:	25	$^{\circ}$ C			Rel	lative	Humidity:	55%	
Test	Volta	ige:	AC	120V/6	30HZ		·				
Ant.	Pol.		Vert	ical							
Test	Mod	e:	TX	N(HT2	0) Mo	de 2412N	ЛHz				
Rem	nark:		N/A								
100.0	dBu∀/ı	n									
										X	
									(RF) FC	C PART 15C (F	PEAK)
										4	
-								×	(BE) E	CC PART 15C	IAVG1
50											
								2			
$\perp$						+					
0.0	30.000 2	240.00 23	350.00	2360.0	0 22	70.00 238	n nn -	2390.00	2400.00 241	10.00	2430.00 MF
No	o. Mk	. Fre	<b>q</b> .	Read		Correc		easur ment	e- Limit	Over	
		MH	<u>.                                    </u>	dBı	١V	dB/m	(	dBuV/n	n dBuV/n	n dB	Detecto
		2222	200	56.	96	2.82		59.78	74.00	-14.2	2 peak
1		2390.0	JUU	50.	-						
		2390.0		36.		2.82		38.85		-15.1	5 AVG
1 2 3	*		000		03	2.82		38.85 94.81	54.00		



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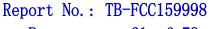
Temp	eratu	ıre:	25 ℃			Relative H	lumidity:	55%	
Test V	olta(	ge:	AC 12	20V/60HZ					
Ant. P	ol.		Horizo	ontal					
Test N	lode	:	TX N(	HT20) M	ode 2462MF	lz			
Rema	rk:		N/A						
110.0	ßuV/m								
		2 X							
		×							
		1 X							
				$\overline{}$			(RF) FCC	PART 15C (PEA	K)
60					3 3				
	$\overline{}$						(RF) FCC	PART 15C (AV	G)
	/				4				
					4 ×			_	
10.0	000 24	52.00 24	62.00	2472.00 2	482.00 2492.0	0 2502.00 2	2512.00 2522	nn	2542.00 MI
				Reading	Correct	Measure-			
No.	Mk.	Fre		Level	Factor	ment	Limit	Over	
		MH	Z	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detecto
1	*	2459.4	100	81.59	3.25	84.84	— Fundamental	Frequency	AVG
2	X	2459.8	300	96.26	3.26	99.52	Fundamenta	l Frequency	peak
		2483.5	500	56.38	3.41	59.79	74.00	-14.21	peak
3		2400.0	,00						





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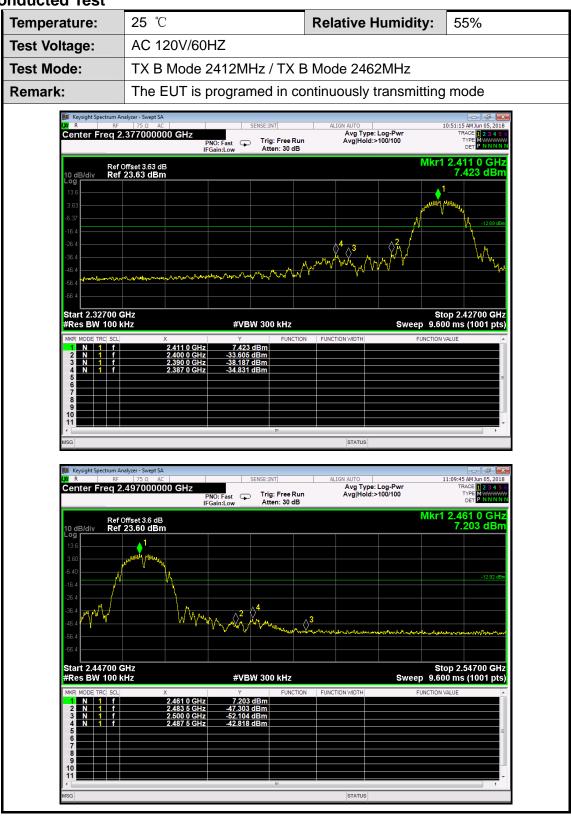
Temperature:	<b>25</b> ℃		Relative Hu	midity:	55%	
Гest Voltage:	AC 120V/60H	Z				
Ant. Pol.	Vertical					
Test Mode:	TX N(HT20) M	1ode 2462MH	łz			
Remark:	N/A					
00.0 dBuV/m 2						
_ <del>\</del>	<b>——</b>					
<i></i>				(RF) FCC	PART 15C (PEA	g
		3 X				
	+	^		(DE) E(	C DADT 15C (AV)	2)
50	+			(NF) FC	C PART 15C (AV	"
		4 ×				
		^			-	
0.0						
2442.000 2452.00 24	462.00 2472.00	2482.00 2492.00	2502.00 25	12.00 252	2.00	2542.00 MI
	Reading	Correct	Measure-			
No. Mk. Fre	q. Level	Factor	ment	Limit	Over	
MH	z dBuV	dB/m	dBuV/m	dBuV/m	n dB	Detecto
1 * 2455.6	81.96	3.23	85.19	Fundamen	tal Frequency	AVG
2 X 2458.2	200 96.82	3.24	100.06		tal Frequency	peal
3 2483.5	500 61.79	3.41	65.20	74.00	-8.80	peal
4 2483.5	500 37.04	3.41	40.45	54.00	-13.55	AVG
4 2483.5	500 37.04	3.41	40.45	54.00	-13.55	A





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### (2) Conducted Test







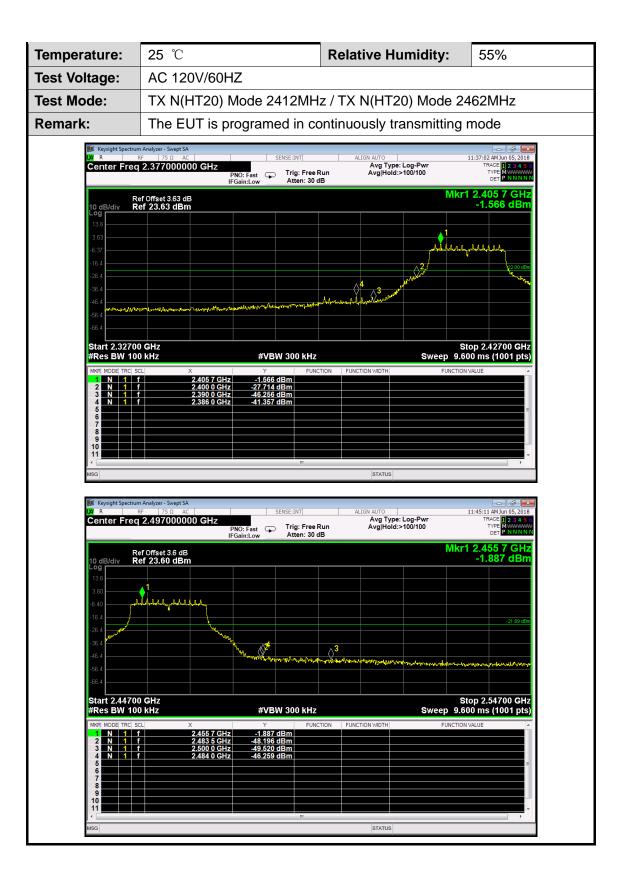
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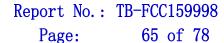
## **Attachment D-- Bandwidth Test Data**

Temperature:	25	$^{\circ}$ C	Relative Humidity:	55%
Test Voltage:	AC	120V/60HZ		
Test Mode:	TX	802.11B Mode		
Channel frequence	су	6dB Bandwidth	99% Bandwidth	Limit
(MHz)		(MHz)	(MHz)	(MHz)
(MHz) 2412		<b>(MHz)</b> 8.104	(MHz) 11.700	(MHz)
, ,		` ,	,	(MHz) >=0.5
2412		8.104	11.700	

#### 802.11B Mode

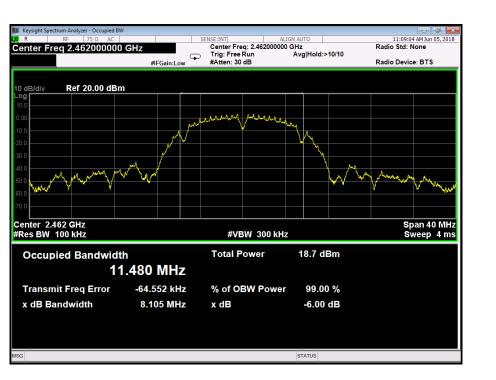
### 2412 MHz

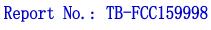






802.11B Mode 2437 MHz Center Freq 2.437000000 GHz Radio Device: BTS #IFGain:Low Ref 20.00 dBm Center 2.437 GHz #Res BW 100 kHz Span 40 MHz Sweep 4 ms #VBW 300 kHz **Total Power** 19.3 dBm **Occupied Bandwidth** 11.692 MHz **Transmit Freq Error** -39.260 kHz % of OBW Power 99.00 % 8.545 MHz x dB Bandwidth x dB -6.00 dB 802.11B Mode 2462 MHz

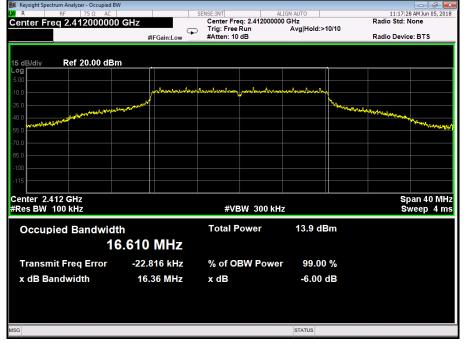


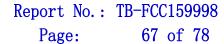




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Temperature:	<b>25</b> ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ						
Test Mode:	TX 802.11G Mode	TX 802.11G Mode					
Channel frequency 6dB Bandwidth 99% Bandwidth Limit							
(MHz)	(MHz)	(MHz)	(MHz)				
2412	16.36	16.610					
2437	16.33	16.557	>=0.5				
2462	16.34	16.568					
802.11G Mode							
	2412	MHz					
Keysight Spectrum A	·	ALYCH AUTO					
Center Freq 2	75 Ω AC   SENSE:INT   .412000000 GHz	req: 2.412000000 GHz Radio e Run Avg Hold:>10/10	11:17:28 AM Jun 05, 2018 Std: None Device: BTS				

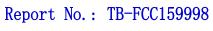






802.11G Mode 2437 MHz SENSE:INT| ALIGN AUTO
Center Freq: 2.437000000 GHz
Trig: Free Run Avg|Hold:>10/10
#Atten: 10 dB Center Freq 2.437000000 GHz Radio Device: BTS #IFGain:Low Ref 20.00 dBm Center 2.437 GHz #Res BW 100 kHz Span 40 MHz Sweep 4 ms #VBW 300 kHz **Total Power** 13.0 dBm **Occupied Bandwidth** 16.557 MHz **Transmit Freq Error** -18.913 kHz % of OBW Power 99.00 % 16.33 MHz x dB Bandwidth x dB -6.00 dB 802.11G Mode 2462 MHz 11:28:57 AM Jun 05, 2018 Radio Std: None SENSE:INT ALIGN AUTO
Center Freq: 2.462000000 GHz
Trig: Free Run Avg|Hold:>10/10
#Atten: 10 dB Center Freq 2.462000000 GHz Radio Device: BTS #IFGain:Low Ref 20.00 dBm

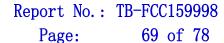
### 





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emperature:	25 ℃		Relat	tive Humidity:	55%	
est Voltage:	AC 12	20V/60HZ		-		
est Mode:	TX 80	2.11N(HT20) Mod	de			
hannel frequer	су	6dB Bandwidth	999	% Bandwidth	Limit	
(MHz)		(MHz)		(MHz)	(MHz	
2412		17.58		17.823	>=0.5	
2437		17.59		17.790		
2462		17.58		17.782		
	"	802.11N(	HT20) Mod	le	1	
		241	2 MHz			
Center Freq		O GHz SENSE:IN' HFGain:Low SENSE:IN' ##FGain:Low HAtte	er Freq: 2.412000000 G	Hz Radio Avg Hold:>10/10	11:36:15 AM Jun 05, 2018 Std: None Device: BTS	
Center Freq	75 Ω AC 2.412000000 Ref 20.00 dB	O GHz SENSE:IN' HFGain:Low SENSE:IN' ##FGain:Low HAtte	er Freq: 2.412000000 G Free Run en: 10 dB	Hz Radio Avg Hold:>10/10 Radio	11:36:15 AM Jun 05, 2018 Std: None Device: BTS	
Center Freq	2.412000000	O GHz SENSE:IN Cent Trig: #Atte	er Freq: 2.412000000 G Free Run en: 10 dB	Hz Radio Avg Hold:>10/10	11:36:15 AM Jun 05, 2018 Std: None Device: BTS	
10 dB/div	2.412000000 Ref 20.00 dB	O GHz SENSE:IN Cent Trig: #Atte	er Freq: 2.412000000 G Free Run en: 10 dB	Hz Radio Avg Hold:>10/10 Radio	11:36:15 AM Jun 05, 2018 Std: None Device: BTS	
10 dB/div Log 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.	2.412000000 Ref 20.00 dB	m SENSE:IN Cent Trig: #Atte	er Free; 2.412000000 G Free Run n: 10 dB	Hz Radio Avg Hold:>10/10 Radio	Std: None Device: BTS  Span 40 MHz	
10 dB/div Log 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.	2.412000000 Ref 20.00 dB	th Tot 7.823 MHz	#VBW 300 kHz	Hz Radio Avg Hold:>10/10 Radio	Std: None Device: BTS  Span 40 MHz	





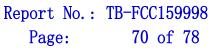
2437 MHz NSE:INT| ALIGN AUTO

Center Freq: 2.437000000 GHz

Trig: Free Run Avg|Hold:>10/10

#Atten: 10 dB Center Freq 2.437000000 GHz Radio Device: BTS #IFGain:Low Ref 20.00 dBm Center 2.437 GHz #Res BW 100 kHz Span 40 MHz Sweep 4 ms #VBW 300 kHz **Total Power** 12.0 dBm **Occupied Bandwidth** 17.790 MHz **Transmit Freq Error** -15.296 kHz % of OBW Power 99.00 % 17.59 MHz x dB Bandwidth x dB -6.00 dB 802.11N(HT20) Mode 2462 MHz 11:43:09 AM Jun 05, 2018 Radio Std: None Center Freq 2.462000000 GHz Radio Device: BTS #IFGain:Low Ref 20.00 dBm

802.11N(HT20) Mode





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# **Attachment E-- Peak Output Power Test Data**

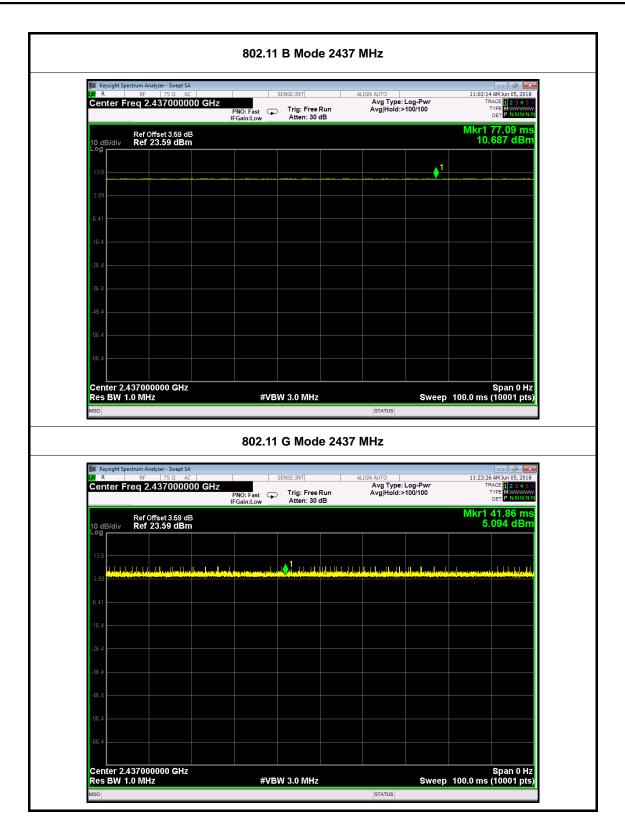
Test Condition	is:	Continuous transmitting Mode				
Temperature:		25 °C Relative Humidit		: 55%		
Test Voltage:		AC 120V/60HZ				
Mode	С	hannel frequency (MHz)	Tes	t Result (dBm)	Limit (dBm)	
		2412		17.80		
802.11b		2437		17.72		
		2462		17.19		
		2412	16.47			
802.11g		2437		15.91	30	
		2462		15.53		
802.11n (HT20)		2412		14.76		
		2437		14.97		
		<b>2462</b> 14.49				
		Resu	ılt: F	PASS		
			<del>-</del> -			

Duty Cycle				
Mode	Channel frequency (MHz)	Test Result		
	2412			
802.11b	2437			
	2462			
	2412			
802.11g	2437	>98%		
	2462			
000.44	2412			
802.11n (HT20)	2437			
	2462			



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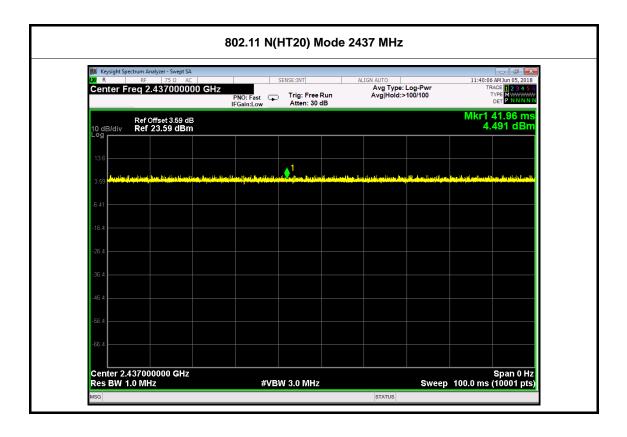








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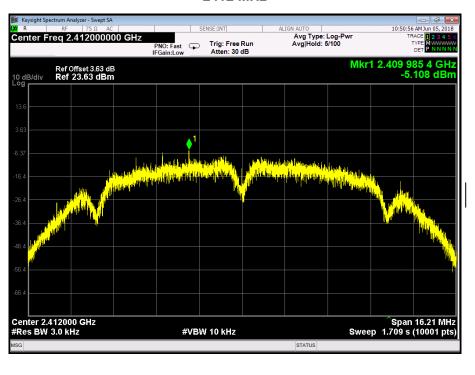


# **Attachment F-- Power Spectral Density Test Data**

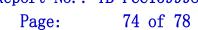
Temperature:	25 ℃		Relative Humidity:		55%	
Test Voltage:	AC 120V/	60HZ				
Test Mode:	TX 802.1	TX 802.11B Mode				
Channel Frequency	uency Power Density Limit				Limit	
(MHz)		(dBm/3 kHz)		(dBm/3kHz)		
2412		-5.108				
2437		-5.049		8		
2462		-5.077				
802.11B Mode						

### 802.11B Mode

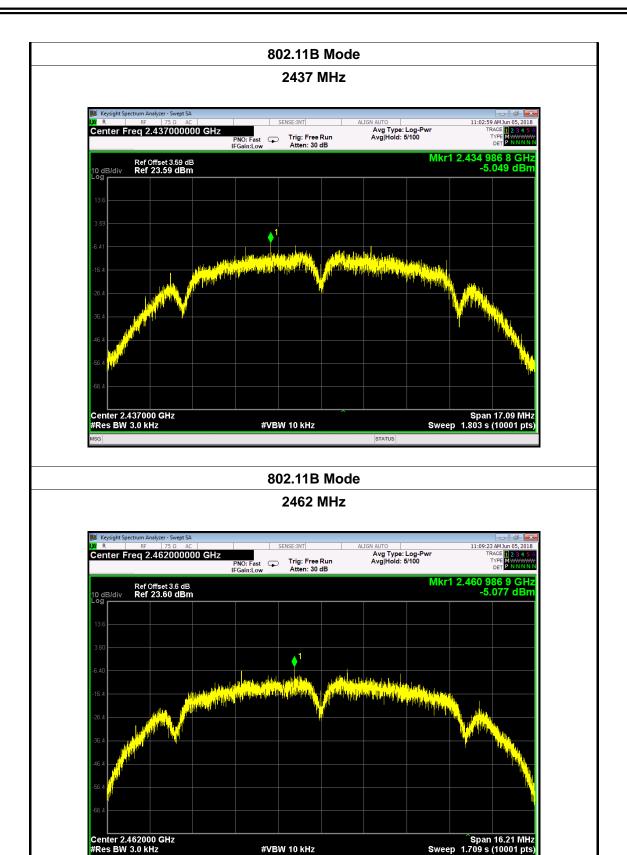
### 2412 MHz













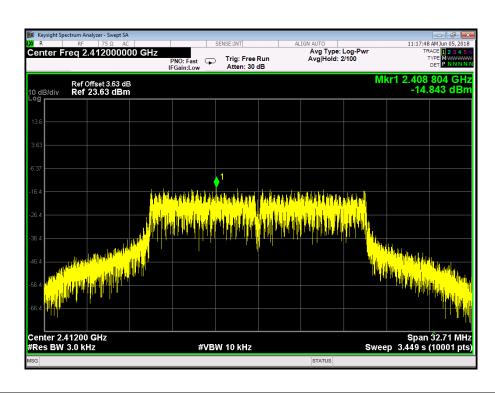
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Temperature:	25 ℃		Temperature:	25 ℃	
Test Voltage:	AC 120V/60HZ				
Test Mode:	TX 802.11G Mode				
Channel Frequency	uency Power Density Limit				
(MHz)		(dBm/3 kHz)		(dBm/3kHz)	
2412		-14.843			
2437		-15.511		8	
2462		-15.918	-15.918		

### 802.11G Mode

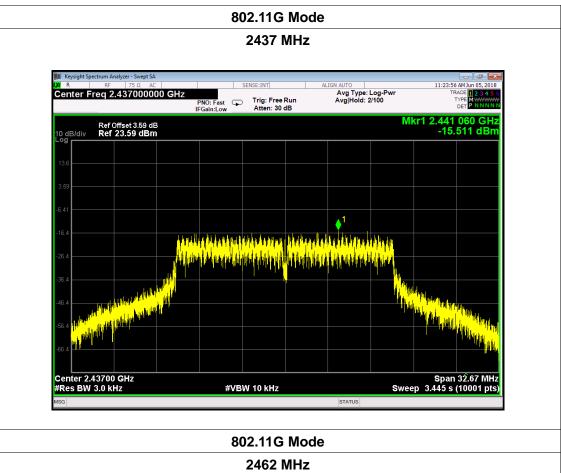
### 2412 MHz

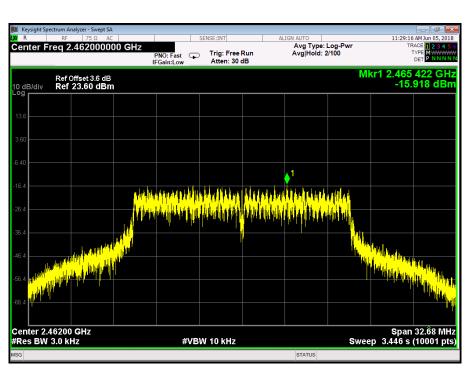




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Temperature:	25 ℃		Temperatu	re:	25 ℃	
Test Voltage:	AC 120V/	AC 120V/60HZ				
Test Mode:	TX 802.1	TX 802.11N(HT20) Mode				
Channel Frequency		Power Dei	nsity		Limit	
(MHz)		(dBm/3 k	Hz)	(dBm/3kHz)		

 Channel Frequency
 Power Density
 Limit

 (MHz)
 (dBm/3 kHz)
 (dBm/3kHz)

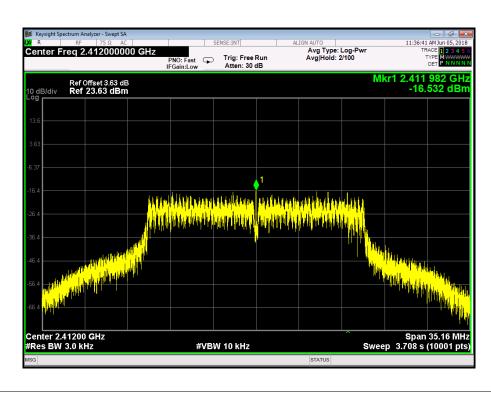
 2412
 -16.532
 8

 2437
 -16.500
 8

 2462
 -17.358

### 802.11N(HT20) Mode

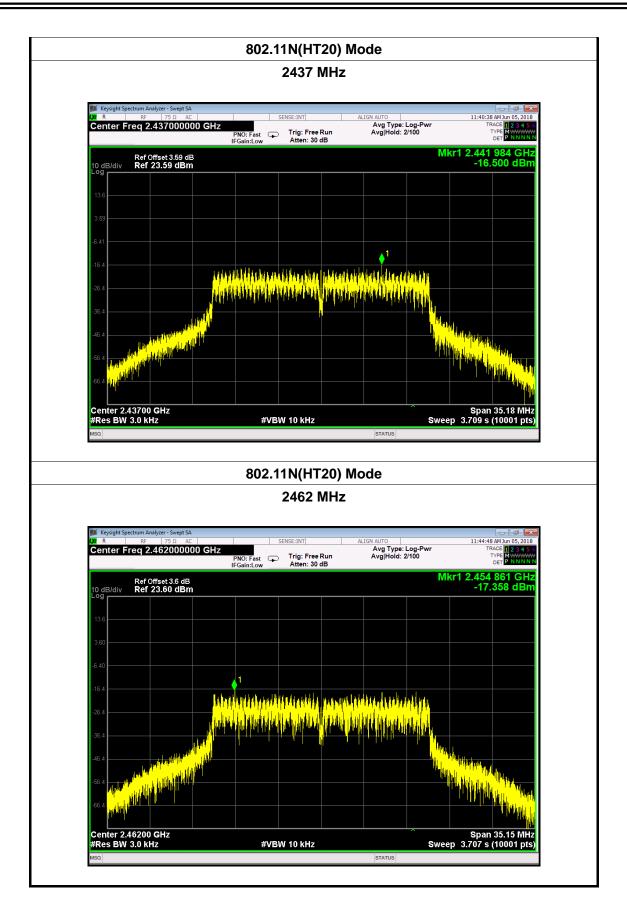
### 2412 MHz





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----END OF REPORT----