

Report No.: TB-FCC171124

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## **FCC Radio Test Report** FCC ID: 2ANK8-D06

## **Original Grant**

Report No. TB-FCC171124

Shenzhen Forever Young Technology Co.,Ltd **Applicant** 

**Equipment Under Test (EUT)** 

**EUT Name Door Window Sensor** 

Model No. D06

Series Model No.

**Brand Name** Zitech

**Receipt Date** 2019-12-20

2019-12-20 to 2019-12-23 **Test Date** 

**Issue Date** 2019-12-24

**Standards** FCC Part 15, Subpart C (15.247: 2019)

**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** Garen

**Test/Witness Engineer** Ivan Su

Galen WAN SV Long Lai. Approved& Ray Lai **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-FCC171124	Rev.01	Initial issue of report	2019-12-24
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## 1. General Information about EUT

## 1.1 Client Information

Applicant :		Shenzhen Forever Young Technology Co.,Ltd	
Address	1	/F, No.B2 Bldg, Fu Yuan Industrial Park, Fu Yong Town, Bao'an District, henzhen, China	
Manufacturer		Shenzhen Forever Young Technology Co.,Ltd	
Address		2/F, No.B2 Bldg, Fu Yuan Industrial Park, Fu Yong Town, Bao'an District, Shenzhen, China	

## 1.2 General Description of EUT (Equipment Under Test)

EUT Name	Ξ	Door Window Sensor		
Models No.	00)	D06		
Model Different	÷	TUDE 11		
		Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz	
		Number of Channel:	802.11b/g/n(HT20):11 channels see note(3)	
	W 12 12 01	802.11b: 15.96dBm RF Output Power: 802.11g: 14.96dBm 802.11n (HT20): 13.82dBm		
Product		Antenna Gain: 2.69dBi PCB Antenna		
Description		802.11b: DSSS(CCK, DQPSK, DBPSK)  802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)		
TOTAL TOTAL		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 Rating	·	DC 3V By AAA battery		
SoftwareVersion	ż	3.12.6		
Hardware Version		V1.0		
Connecting I/O Port(S)	Please refer to the User's Manual		s Manual	
Remark		: The antenna gain provided by the applicant, the verified for the RF conduct test provided by TOBY test lab.		



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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 v05.

(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	08	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

	EUT		

## 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.

For Conducted Test				
Final Test Mode Description				
Mode 1	TX B Mode Channel 06			



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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 mobile 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	Secure CRT.exe		
Channel	CH 01	CH 06	CH 11
IEEE 802.11b DSSS	40	40	40
IEEE 802.11g OFDM	60	60	60
IEEE 802.11n (HT20)	65	65	65

## 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:	m B	
Conducted Emission	9kHz~150kHz	±3.42 dB	
000	150kHz to 30MHz	±3.42 dB	
Radiated Emission	Level Accuracy:	±4.60 dB	
Radiated Effission	9kHz to 30 MHz	±4.00 dB	
Radiated Emission	Level Accuracy:	. 4. 40 dB	
Radiated Effission	30MHz to 1000 MHz	±4.40 dB	
Radiated Emission	Level Accuracy:	±4.20 dB	
Radiated Effission	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. FCC Accredited Test Site Number: 854351.

### 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	Took Itam	ludama ant	Domostr	
FCC	IC	Test Item	Judgment	Remark	
15.203	1 1	Antenna Requirement	PASS	N/A	
15.207	RSS-GEN 7.2.4	Conducted Emission	N/A	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:** (1)"/" for no requirement for this test item.

## **Test Software**

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	FA-03A2RE
RF Conducted	MTS-8310	MWRFtest	V2.0.0.0
Measurement	1011 3-03 10	WWW test	V2.0.0.0

<sup>(2)</sup>N/A is an abbreviation for Not Applicable.

<sup>(3)</sup> All tests were conducted using the adapter and antenna gain provided by the applicant, The laboratory tests only according to the information provided by the applicant.



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## 3. Test Equipment

<b>Conducted Emission</b>	on Test				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 13, 2019	Jul. 12, 2020
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 13, 2019	Jul. 12, 2020
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 13, 2019	Jul. 12, 2020
LISN	Rohde & Schwarz	ENV216	101131	Jul. 13, 2019	Jul. 12, 2020
Radiation Emission	Test				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 13, 2019	Jul. 12, 2020
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 13, 2019	Jul. 12, 2020
Spectrum Analyzer	Rohde & Schwarz	FSVR	1311.006K40-10094 5-DH	Feb. 10, 2019	Feb. 09, 2020
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Jan. 27, 2019	Jan. 26, 2020
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Jan. 27, 2019	Jan. 26, 2020
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.03, 2019	Mar. 02, 2020
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar.03, 2019	Mar. 02, 2020
Hom Antenna	ETS-LINDGREN	BBHA 9170	BBHA9170582	Mar.03, 2019	Mar. 02, 2020
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jul. 13, 2019	Jul. 12, 2020
Pre-amplifier	Sonoma	310N	185903	Mar.04, 2019	Mar. 03, 2020
Pre-amplifier	HP	8449B	3008A00849	Mar.03, 2019	Mar. 02, 2020
Pre-amplifier	EMCI	EMC02325	980217	Mar.03, 2019	Mar. 02, 2020
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar.03, 2019	Mar. 02, 2020
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Cond	ucted Emission	า			
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 13, 2019	Jul. 12, 2020
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 13, 2019	Jul. 12, 2020
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 16, 2019	Sep. 15, 2020
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 16, 2019	Sep. 15, 2020
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 16, 2019	Sep. 15, 2020
DE Dawar Carrage	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 16, 2019	Sep. 15, 2020
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 16, 2019	Sep. 15, 2020
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 16, 2019	Sep. 15, 2020



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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

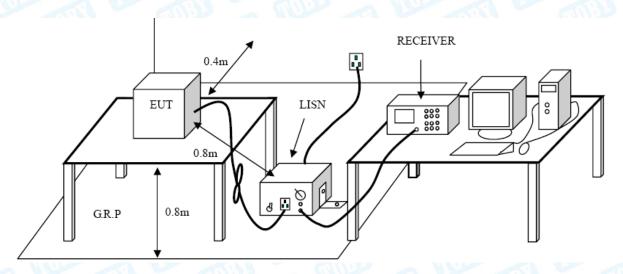
#### **Conducted Emission Test Limit**

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.



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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.

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

This EUT is powered by DC 3V battery. Conducted Emission not applicable.



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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)

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

### Note:

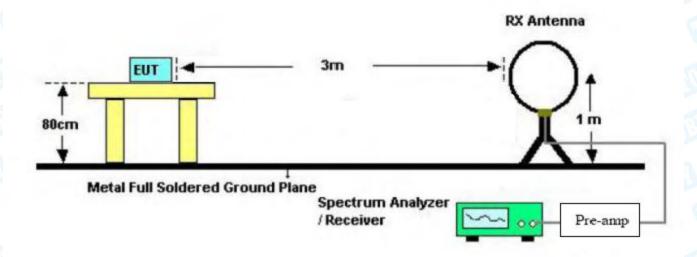
- (1) The tighter limit applies at the band edges.
- (2) Emission Level(dBuV/m)=20log Emission Level(uV/m)



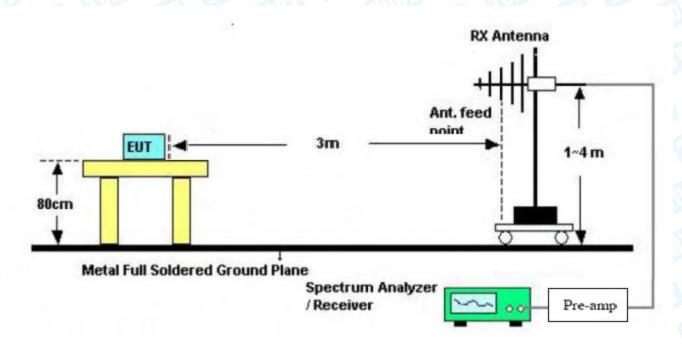
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## 5.2 Test Setup



## Below 30MHz Test Setup

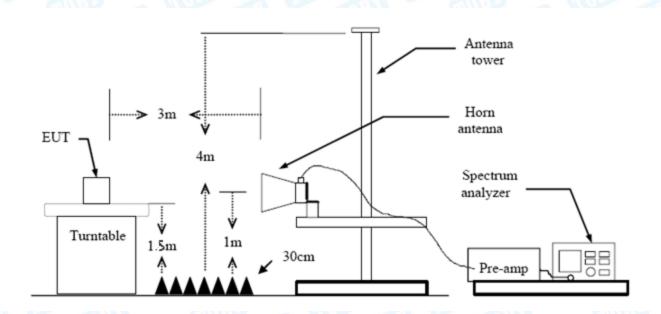


Below 1000MHz Test Setup



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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



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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.

### 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 A.



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## 6. Restricted Bands Requirement

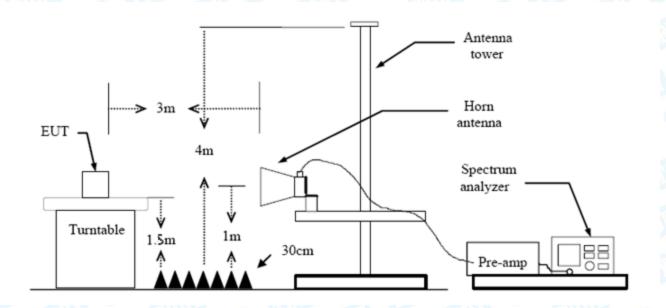
### 6.1 Test Standard and Limit

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 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



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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.
- (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 B.



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## 7. Bandwidth Test

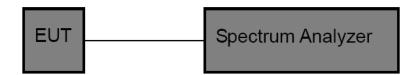
### 7.1 Test Standard and Limit

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

7.1.2 Test Limit

ang)	FCC Part 15 Subpart C(15.247)				
Test Item	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 C.



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## 8. Peak Output Power Test

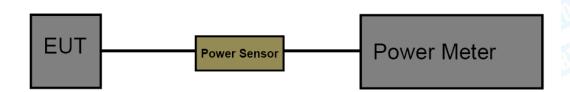
### 8.1 Test Standard and Limit

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 v05. 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 D.



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## 9. Power Spectral Density Test

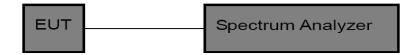
#### 9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247 (e)

9.1.2 Test Limit

FCC Part 15 Subpart C(15.247)					
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 v05.

- (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) 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 E.



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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 2.69dBi, 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			
THE PARTY OF THE P	Professional installation antenna			



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## Attachment A-- 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

Hz~1GHz			1.350	a Hill		
Temperature:	26 ℃	TO THE		Relative H	umidity:	55%
Test Voltage:	DC 3V	ann.		4000		
Ant. Pol.	Horizo	ntal			1100	The state of the s
Test Mode:	TXBN	/lode 2412N	ИHz			
Remark:	Only w	orse case is	s reported		53	4000
80.0 dBuV/m						
					(RF)FCC 1!	5C 3M Radiation
						Margin -6 dB
30						
1 2					6	an more market
-X, X		3	4	5 	who will the	
and programmery	And and and and	mankam	mandamen	www.		
l l	77.77					
20						
30.000 40 50	60 70	80	(MHz)	300	400 50	00 600 700 1000.000
No. Mk. F	req.	Reading Level	Correct Factor	Measure- ment	Limit	Over
1	ИНZ	dBu∨	dB/m	dBuV/m	dBuV/m	dB Detector
1 * 33.	3279	37.00	-15.52	21.48	40.00	-18.52 QP
2 38.	3462	38.40	-18.38	20.02	40.00	-19.98 QP
3 92.	1388	34.74	-22.04	12.70	43.50	-30.80 QP
4 154	.8204	33.77	-21.15	12.62	43.50	-30.88 QP
	.1444	32.98	-16.83	16.15	46.00	-29.85 QP

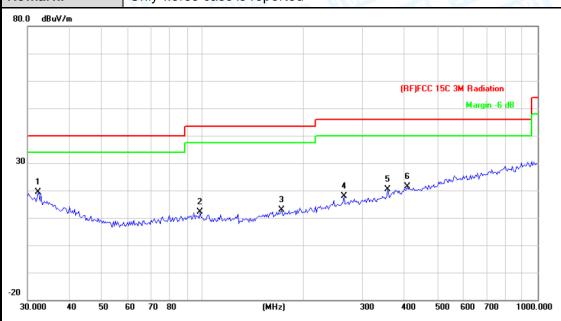
\*:Maximum data x:Over limit !:over margin



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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3V	Contract of the	
Ant. Pol.	Vertical		
Test Mode:	TX B Mode 2412MHz		
Remark:	Only worse case is repor	ted	The state of the s



No	. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	32.1795	34.01	-14.65	19.36	40.00	-20.64	QP
2		98.1419	34.23	-22.11	12.12	43.50	-31.38	QP
3		171.9946	33.38	-20.42	12.96	43.50	-30.54	QP
4		263.8190	34.62	-16.75	17.87	46.00	-28.13	QP
5		356.6758	34.49	-14.09	20.40	46.00	-25.60	QP
6		407.5145	33.34	-12.05	21.29	46.00	-24.71	QP

<sup>\*:</sup>Maximum data x:Over limit !:over margin



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## **Above 1GHz**

Temperature:	26 ℃ Relative Humidity: 55%
Test Voltage:	DC 3V
Ant. Pol.	Horizontal
Test Mode:	TX B Mode 2412MHz
Remark:	No report for the emission which more than 20 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		4823.340	43.40	14.71	58.11	74.00	-15.89	peak
2	*	4825.464	31.66	14.73	46.39	54.00	-7.61	AVG

### Emission Level= Read Level+ Correct Factor

Temperature:	26 ℃	Relative Humidity:			
Test Voltage:	DC 3V	The state of the s			
Ant. Pol.	Vertical				
Test Mode:	TX B Mode 2412MHz				
Remark: No report for the emission which more than 20 dB below the					
	prescribed limit.		TO DE		

No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.808	31.59	14.71	46.30	54.00	-7.70	AVG
2		4825.362	43.15	14.72	57.87	74.00	-16.13	peak



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	00.10				
Temperature:	26 ℃	Relative Humidity:	55%		
Test Voltage:	DC 3V	THE WAY			
Ant. Pol.	Horizontal				
Test Mode:	TX B Mode 2437MHz	ON THE			
Remark:	No report for the emission which more than 20 dB below the				
	prescribed limit.		MUDE		

No	. Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4874.240	43.50	15.10	58.60	74.00	-15.40	peak
2	*	4874.738	31.54	15.10	46.64	54.00	-7.36	AVG

### Emission Level= Read Level+ Correct Factor

Temperature:	26 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3V	TURN THE				
Ant. Pol. Vertical						
Test Mode:	TX B Mode 2437MHz	United States				
Remark:	No report for the emission prescribed limit.	which more than 20 dE	3 below the			

No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.196	31.49	15.09	46.58	54.00	-7.42	AVG
2		4875.122	43.05	15.11	58.16	74.00	-15.84	peak



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Temperature:	26 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3V	THE PARTY OF THE P				
Ant. Pol.	Horizontal					
Test Mode:	TX B Mode 2462MHz	United States				
Remark:	No report for the emission which more than 20 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		4924.102	43.74	15.48	59.22	74.00	-14.78	peak
2	*	4924.888	31.62	15.49	47.11	54.00	-6.89	AVG

### Emission Level= Read Level+ Correct Factor

Tomporeture	26 ℃	Polotivo Uumiditu	EE0/			
Temperature:	26 C	Relative Humidity:	55%			
Test Voltage:	DC 3V					
Ant. Pol.	Vertical					
Test Mode:	TX B Mode 2462MHz	United States				
Remark:	No report for the emission which more than 20 dB below the					
	prescribed limit.		0.000			

No.	Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4924.636	31.78	15.48	47.26	54.00	-6.74	AVG
2		4925.242	43.69	15.50	59.19	74.00	-14.81	peak



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Temperature:	26 ℃	Relative Humidity:	55%		
Test Voltage:	DC 3V	THE PARTY OF THE P			
Ant. Pol. Horizontal					
Test Mode:	TX G Mode 2412MHz	Will be a superior			
Remark:	3 below the				

No.	Mk	. Freq.		Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.094	44.16	14.71	58.87	74.00	-15.13	peak
2	*	4823.436	31.73	14.71	46.44	54.00	-7.56	AVG

### Emission Level= Read Level+ Correct Factor

		That the state of		
26 ℃	Relative Humidity:	55%		
DC 3V	THE RESERVE			
Vertical		The state of the s		
TX G Mode 2412MHz				
No report for the emission which more than 20 dB below the				
prescribed limit.		WOOD .		
	DC 3V  Vertical  TX G Mode 2412MHz  No report for the emission	DC 3V  Vertical  TX G Mode 2412MHz  No report for the emission which more than 20 dB		

No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.804	43.79	14.71	58.50	74.00	-15.50	peak
2	*	4825.446	36.55	14.73	51.28	54.00	-2.72	AVG



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Temperature:	26 ℃	Relative Humidity:	55%		
Test Voltage:	DC 3V	THE PARTY OF THE P			
Ant. Pol. Horizontal					
Test Mode:	TX G Mode 2437MHz	District Control			
Remark:	No report for the emission which more than 20 dB below the				
	prescribed limit.		TUDES .		

No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.036	31.61	15.10	46.71	54.00	-7.29	AVG
2		4874.054	43.42	15.10	58.52	74.00	-15.48	peak

### Emission Level= Read Level+ Correct Factor

26 ℃	Relative Humidity:	55%			
DC 3V	THE REAL PROPERTY.				
Ant. Pol. Vertical					
TX G Mode 2437MHz					
No report for the emission which more than 20 dB below the prescribed limit.					
	DC 3V Vertical TX G Mode 2437MHz No report for the emission	DC 3V  Vertical  TX G Mode 2437MHz  No report for the emission which more than 20 dE			

No.	Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4872.758	31.50	15.08	46.58	54.00	-7.42	AVG
2		4874.966	43.12	15.10	58.22	74.00	-15.78	peak



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Temperature:	26 ℃ Relative Humidity: 55%					
Test Voltage:	DC 3V	China Car				
Ant. Pol.	Horizontal					
Test Mode:	TX G Mode 2462MHz	Will be the				
Remark:	No report for the emission which more than 20 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	*	4923.928	30.69	15.48	46.17	54.00	-7.83	AVG
2		4924.042	42.79	15.48	58.27	74.00	-15.73	peak

### Emission Level= Read Level+ Correct Factor

All HA WAY RANGE			The tax of the same of the sam			
Temperature:	26 ℃	Relative Humidity:	55%			
Test Voltage:	DC 3V	THE PARTY OF				
Ant. Pol.	Vertical					
Test Mode:	TX G Mode 2462MHz					
Remark:	No report for the emission which more than 20 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		4922.764	42.93	15.47	58.40	74.00	-15.60	peak
2	*	4922.764	31.08	15.47	46.55	54.00	-7.45	AVG



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Temperature:	26 ℃	Relative Humidity:	55%		
Test Voltage: DC 3V					
Ant. Pol. Horizontal					
Test Mode:	TX N(HT20) Mode 2412M	Hz			
Remark:	B below the				
	prescribed limit.		TUDE		

No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.268	43.22	14.71	57.93	74.00	-16.07	peak
2	*	4823.328	31.65	14.71	46.36	54.00	-7.64	AVG

### Emission Level= Read Level+ Correct Factor

Temperature:	26 ℃	Relative Humidity: 55%			
Test Voltage:	DC 3V	The same			
Ant. Pol. Vertical					
Test Mode:	TX N(HT20) Mode 2412N	ИHz			
Remark:	No report for the emission which more than 20 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	*	4823.316	31.85	14.71	46.56	54.00	-7.44	AVG
2		4823.772	42.93	14.71	57.64	74.00	-16.36	peak



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Temperature:	26 ℃	Relative Humidity:	55%		
Test Voltage:	DC 3V	THE PARTY OF THE P			
Ant. Pol.	Pol. Horizontal				
Test Mode:	TX N(HT20) Mode 2437MI	-Iz			
Remark: No report for the emission which more than 20 dB below the					
	prescribed limit.		MULL		

No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.250	43.15	15.10	58.25	74.00	-15.75	peak
2	*	4874.870	28.80	15.10	43.90	54.00	-10.10	AVG

### Emission Level= Read Level+ Correct Factor

26 ℃	Relative Humidity:	55%			
t Voltage: DC 3V					
Vertical					
TX N(HT20) Mode 2437Ml	Hz				
Remark: No report for the emission which more than 20 dB below the					
prescribed limit.					
	DC 3V Vertical TX N(HT20) Mode 2437Ml No report for the emission	DC 3V  Vertical  TX N(HT20) Mode 2437MHz  No report for the emission which more than 20 dE			

No.	Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.796	31.50	15.10	46.60	54.00	-7.40	AVG
2		4874.660	42.62	15.10	57.72	74.00	-16.28	peak



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Temperature:	26 °C Relative Humidity: 55%					
Test Voltage:	DC 3V	The state of the				
Ant. Pol.	Horizontal					
Test Mode:	TX N(HT20) Mode 2462MHz					
Remark:	No report for the emission which more than 20 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		4923.982	43.51	15.48	58.99	74.00	-15.01	peak
2	*	4924.420	31.72	15.48	47.20	54.00	-6.80	AVG

### Emission Level= Read Level+ Correct Factor

Temperature:	26 ℃	Relative Humidity:	55%		
Test Voltage: DC 3V					
Ant. Pol. Vertical					
Test Mode:	TX N(HT20) Mode 2462MHz				
Remark:	No report for the emission which more than 20 dB below the				
prescribed limit.					

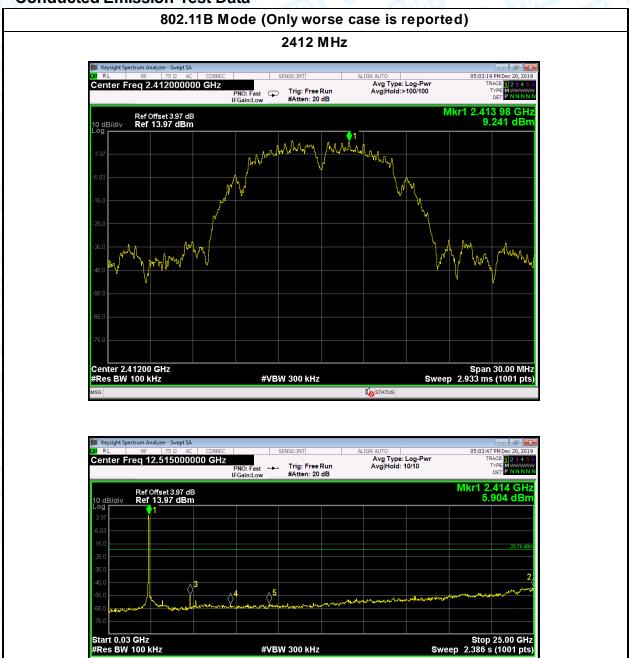
No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.478	30.51	15.48	45.99	54.00	-8.01	AVG
2		4923.766	43.29	15.48	58.77	74.00	-15.23	peak



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### **Conducted Emission Test Data**





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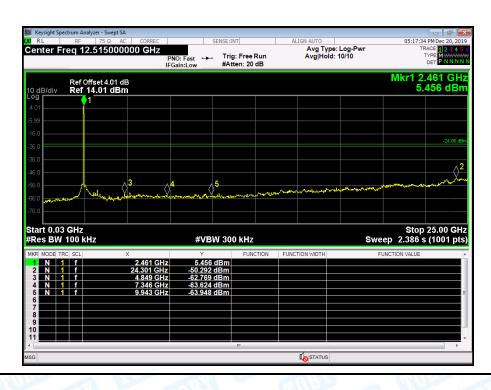




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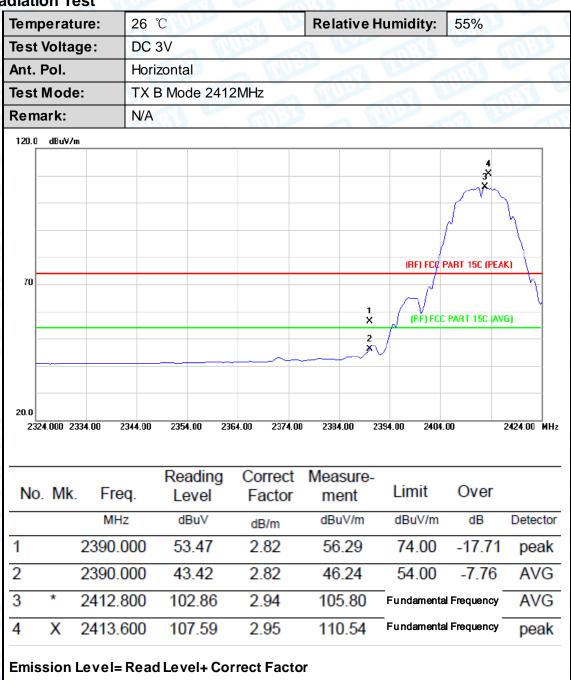


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# Attachment C-- Restricted Bands& Band-edge Requirement Test Data

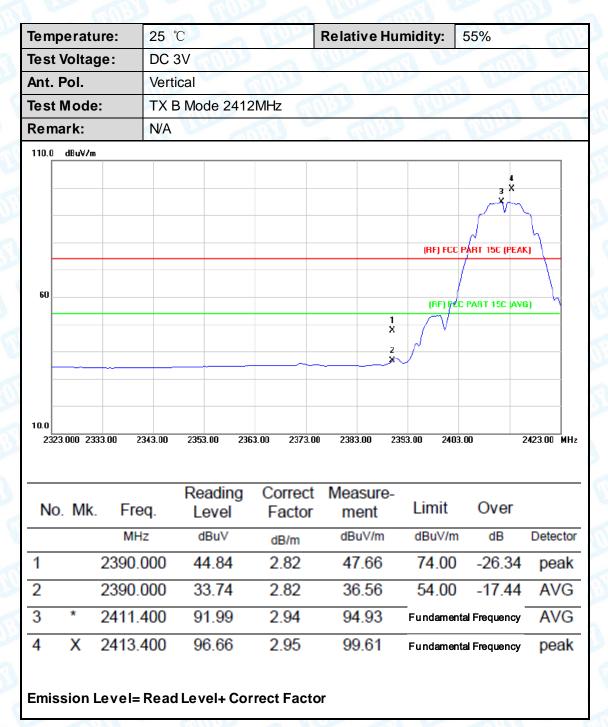
#### (1) Radiation Test





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•	rature:	25 ℃		BAILT	Relative Hu	ımidity:	55%	
Test Vo	Itage:	DC 3\	V		Maria	a w		3
Ant. Po	l.	Horizo	ontal	WURTE .	THU THU		I Rice	ean B
Test Mo	ode:	TX B	Mode 246	2MHz	0.72	Bir.		Rich
Remark	<b>(</b> :	N/A					Million	
120.0 dBc	uV/m 2							
70	*	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	3 X				PART 15C (PEA)	
20.0								
2450.000	0 2460.00	2470.00	2480.00 249	90.00 2500.0	DO 2510.00 25	520.00 2530.	.00 2	2550.00 MH
	Мk. Fr	eq.	Reading Level	Correct Factor		Limit	Over	
No. N								
No. N	M	Hz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
No. No. 1			dBu√ 105.41	dB/m 3.27	dBu√/m 108.68	dBuV/m Fundamenta		AVG
	2462	2.600					al Frequency	
1 *	2462	2.600	105.41	3.27	108.68	Fundamenta	al Frequency	AVG



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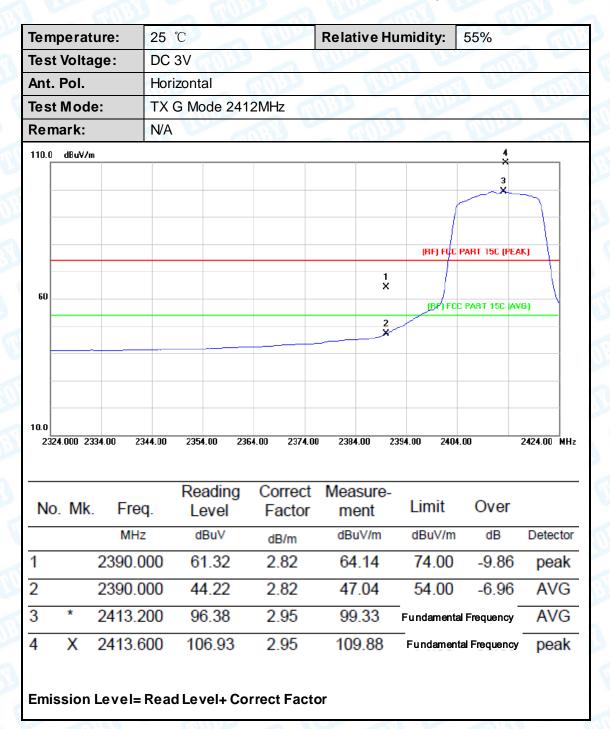
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101114	peratu	ıre:	25	$^{\circ}$		2	Ring	F	elat	ive F	lumidity:	5	5%		
Test	Voltag	ge:	DC	3V			-3	1			a W		600	13/3	0.50
Ant.	Pol.		Vert	ical		OH!	1:72			EA.	The same	A	100		
Test	st Mode: TX B Mode 2462MHz						1 6								
Rem	ark:		N/A	67			13		. 6			1			A
110.0	dBuV/m														_
60		2 1X	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	1	3 X 4								RT 15C (F		
10.0															
2452	2.000 246	52.00 24	172.00	2482	2.00	2492.00	250	2.00	2512	2.00	2522.00 29	532.00	1	2552.0	0 MHz
No	. Mk.	Fre	q.		adin evel	•	Corre Facto			sure ent	e- Limit		Ove	r	
		MH	Z	C	lBuV		dB/m		dB	uV/m	dBuV	/m	dB	De	tecto
1	*	2462.6	600	9	2.37	1	3.27		95	5.64	Fundam	ental	Frequen	cy A	VG
	Х	2463.4	400	9	7.12		3.28		10	0.40	Fundam	ental	Frequen	cy p	eak
2	/ \	2400.									7.0	_	25.0	10	
2		2483.	500	4	4.67		3.41		48	3.08	74.0	U	-25.9	92 p	eak



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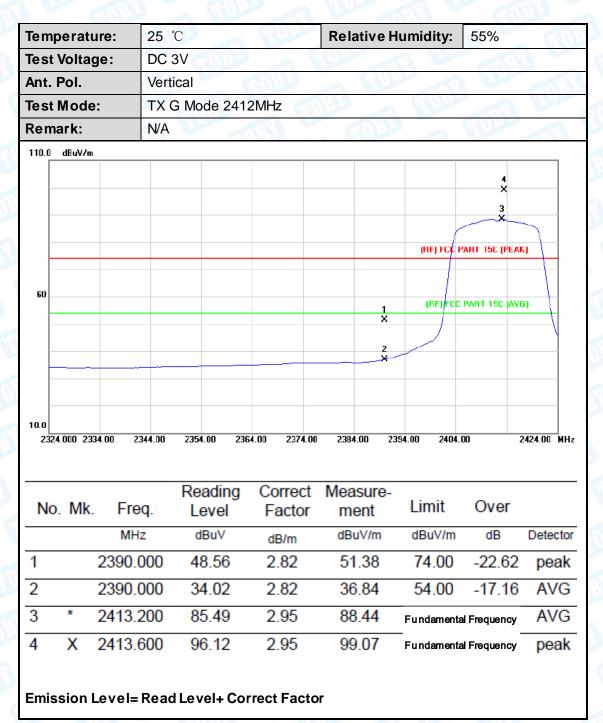
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Temperature:	<b>25</b> ℃	Relative Humidity:	55%
Test Voltage:	DC 3V	The state of the	
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz	TO THE	
Remark:	N/A		FILLS



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2461.000	98.19	3.26	101.45	Fundamenta	al Freguency	AVG
2	X	2463.400	108.74	3.28	112.02	Fundamenta	I Frequency	peak
3		2483.500	64.36	3.41	67.77	74.00	-6.23	peak
4		2483.500	48.21	3.41	51.62	54.00	-2.38	AVG

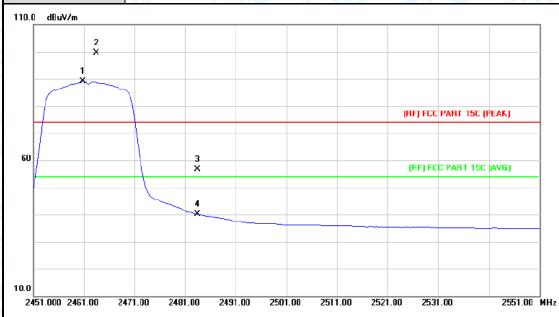
Emission Level= Read Level+ Correct Factor



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Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3V	The same of the	
Ant. Pol.	Vertical		
Test Mode:	TX G Mode 2462MHz	En China	
Remark:	N/A		CIU.



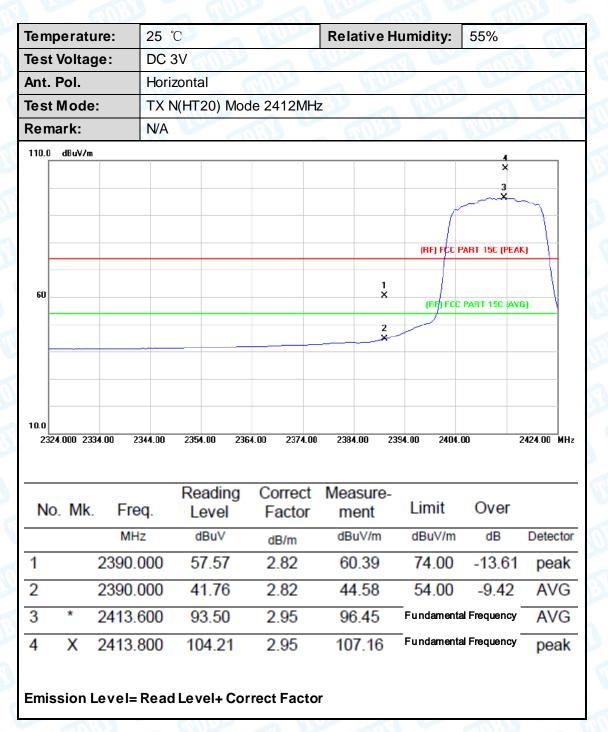
No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2460.800	85.75	3.26	89.01	Fundamenta	al Frequency	AVG
2	X	2463.400	96.42	3.28	99.70	Fundamenta	al Frequency	peak
3		2483.500	53.25	3.41	56.66	74.00	-17.34	peak
4		2483.500	36.67	3.41	40.08	54.00	-13.92	AVG

Emission Level= Read Level+ Correct Factor



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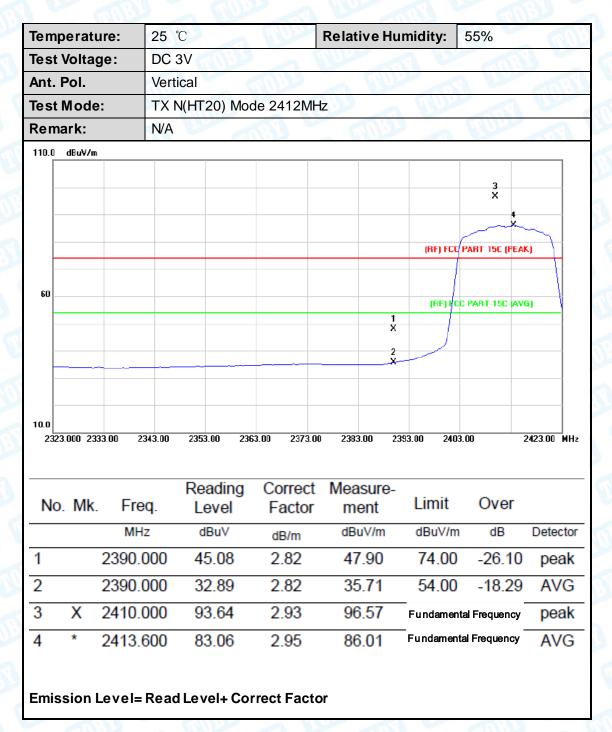
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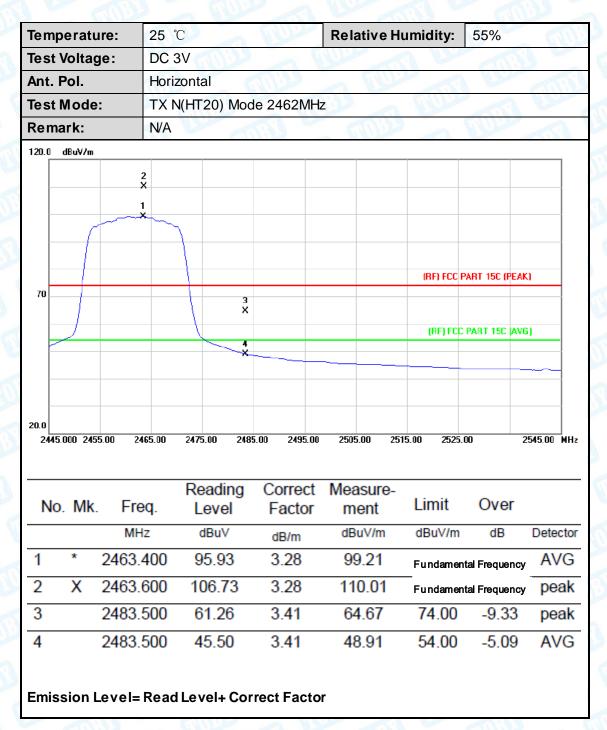
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em	nperatu		<b>25</b> ℃		A Brown	Kelative	Humidity:	55%	CHI.
Te s	t Voltaç	je:	DC 3\	40081		Birry	W D		3
۹nt.	. Pol.		Vertica	al		- N	No.	3 100	em?
Tes	t Mode	:	TX N(HT20) Mode 2462MHz N/A					A Comment	
Ren	nark:								
110.0	dBuV/m								
60		1 X 2 X		3 X				C PART 15C (PEA	
10.0 24	49.000 245	9.00 246	9.00	2479.00 248	9.00 2499.0	0 2509.00	2519.00 252	9.00	2549.00 MH:
No	o. Mk.	Freq		Reading Level	Correct Factor	Measu ment	1.2	Over	
		MHz		dBuV	dB/m	dBuV/	m dBuV/n	n dB	Detector
1	Χ	2463.40	00	93.92	3.28	97.20	 O Fundame	ntal Frequency	peak
2	*	2463.40	00	83.16	3.28	86.44	4 Fundame	ntal Frequency	AVG
3		2483.50	20	48.61	3.41	52.02			

2483.500

33.46

Emission Level= Read Level+ Correct Factor

3.41

AVG

-17.13

54.00

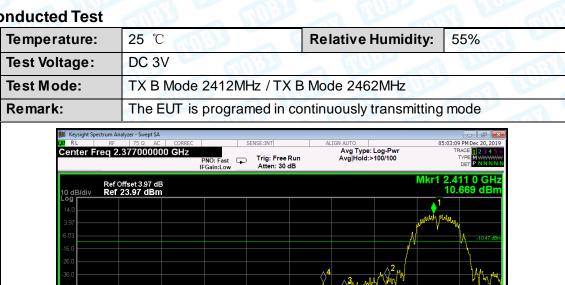
36.87

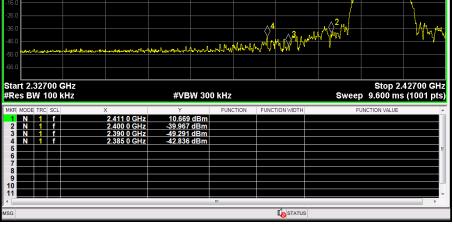


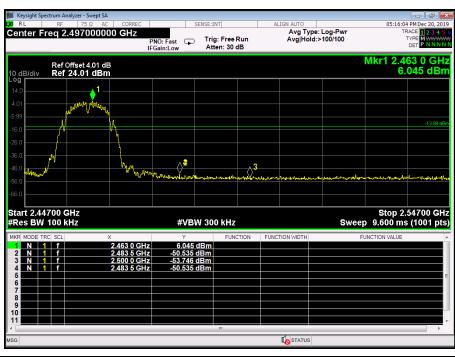
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### (2) Conducted Test



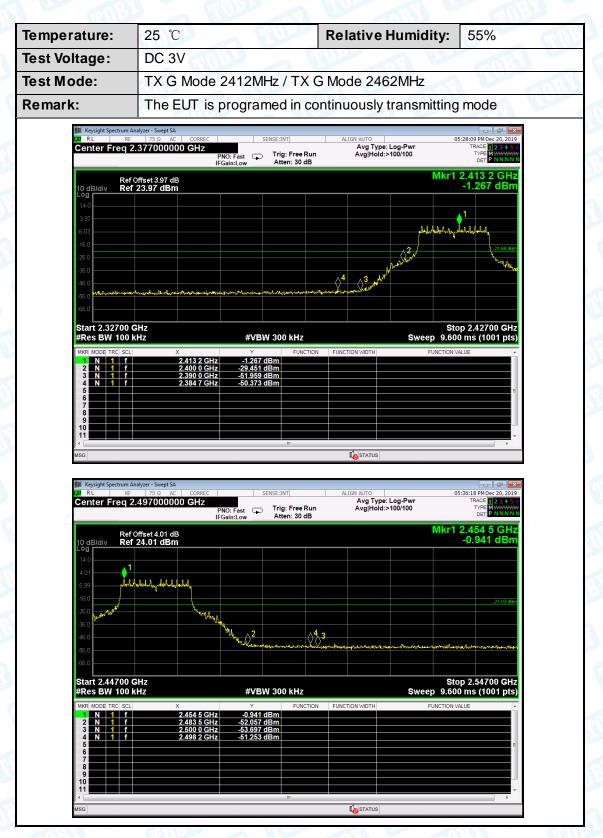






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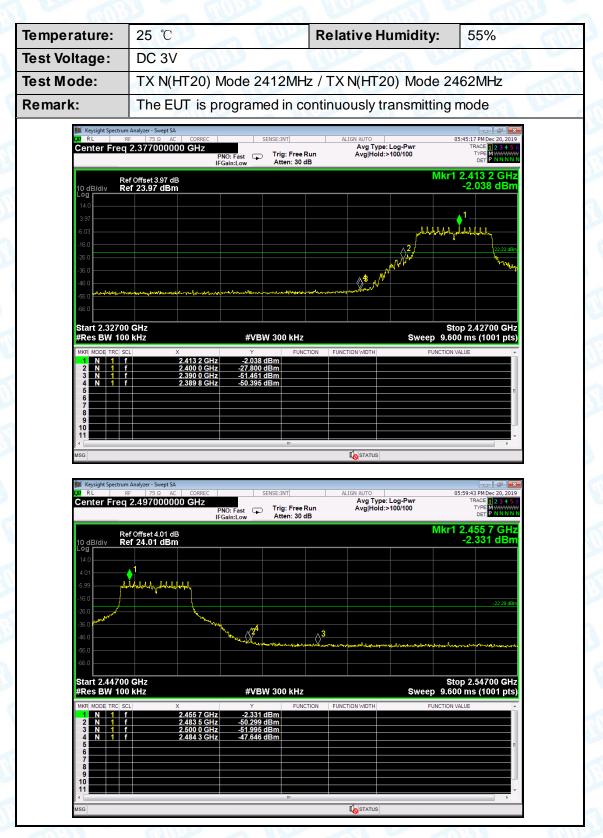
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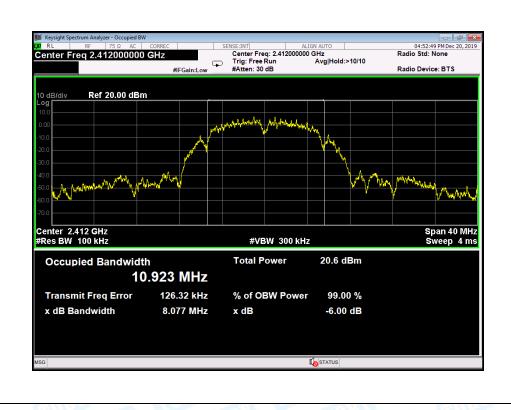
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### Attachment D-- Bandwidth Test Data

Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3V	W. Committee	
Test Mode:			
Channel frequence	y 6dB Bandwidth	99% Bandwidth	Limit
(MHz)	(MHz)	(MHz)	(MHz)
2412	8.077	10.923	
2437	7.999	10.670	>=0.5
2462	8.055	10.519	

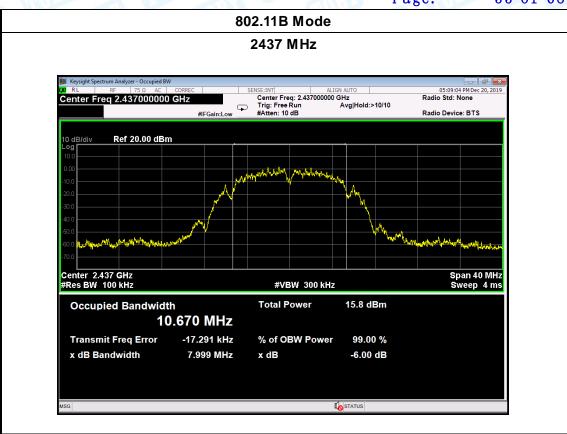
#### 802.11B Mode

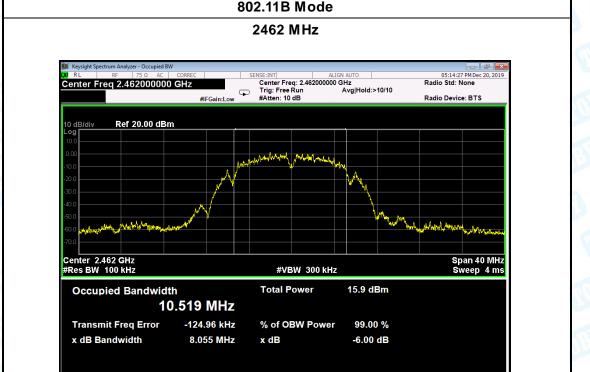




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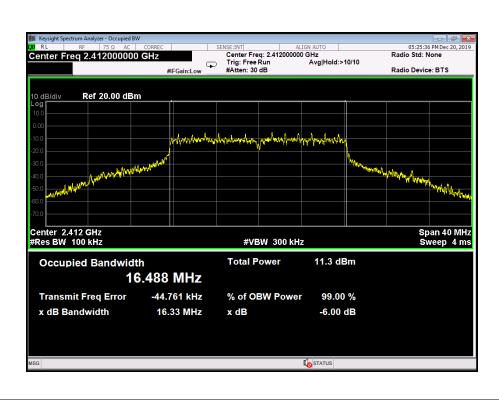


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Temperature:	25 ℃	Relative Humidity:	55%	
Test Voltage:	DC 3V	The state of the		
Test Mode:	TX 802.11G Mode		The same of	
Channel frequence	cy 6dB Bandwidth	99% Bandwidth	Limit	
(MHz)	(MHz)	(MHz)	(MHz)	
2412	16.33	16.488		
2437	16.34	16.517	>=0.5	
2462	16.33	16.549		

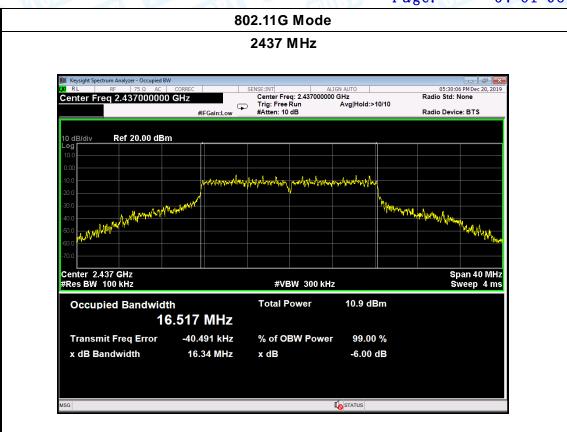
#### 802.11G Mode



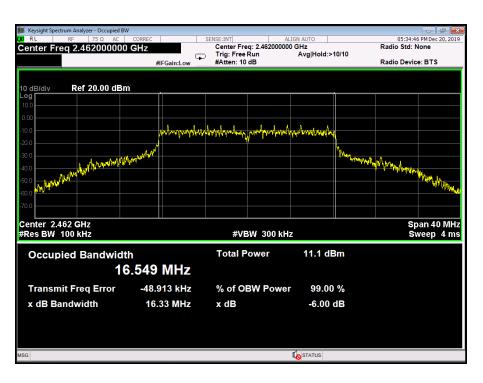


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#### 802.11G Mode



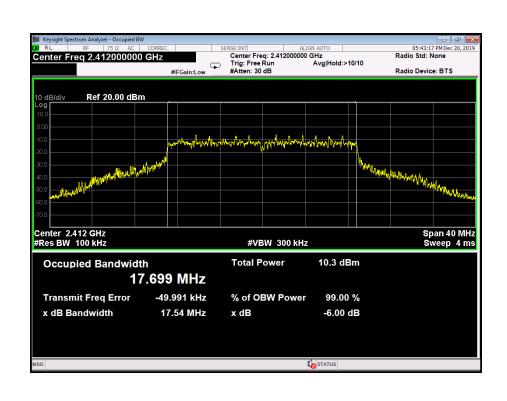


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Temperature:	25 ℃	Relative Humidity:	55%	
Test Voltage:	DC 3V		THE STATE OF THE S	
Test Mode:	TX 802.11N(HT20) Mode		And the second	
Channel frequen	cy 6dB Bandwidth	99% Bandwidth	Limit	
(MHz)	(MHz)	(MHz)	(MHz)	
2412	17.54	17.699		
2437	17.57	17.716	>=0.5	
2462	16.33	16.489		

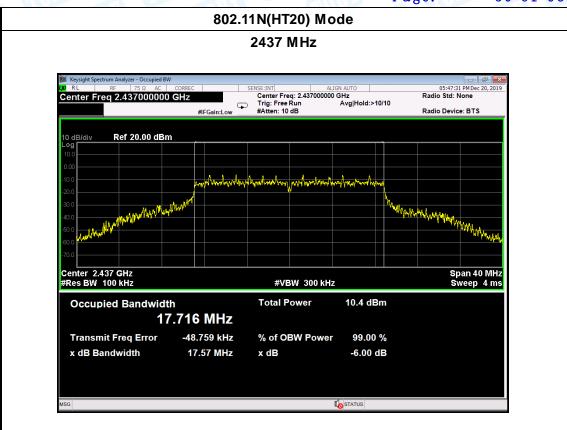
#### 802.11N(HT20) Mode

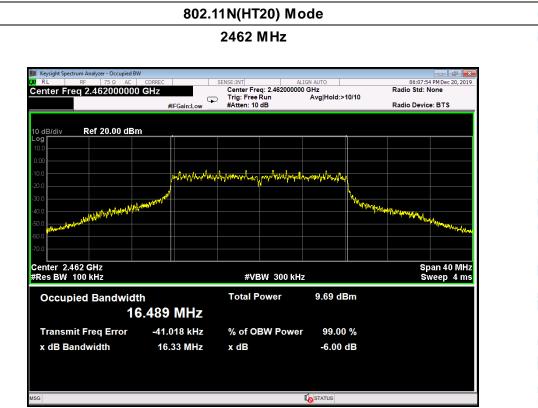




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### Attachment E-- Peak Output Power Test Data

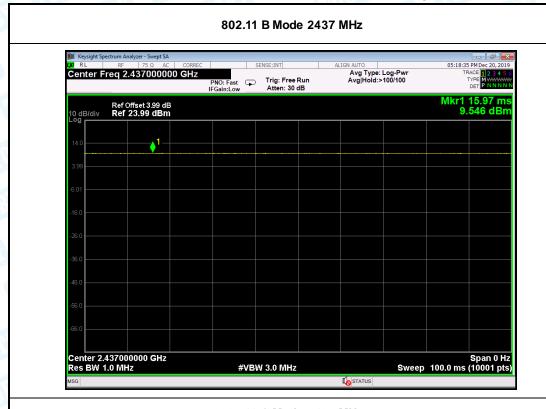
<b>Test Condition</b>	s: Continuous transm	itting Mode			
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	DC 3V				
Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)		
	2412	15.78			
802.11b	2437	15.96			
	2462	15.88			
	2412	14.74			
802.11g	2437	14.50	30		
	2462	14.96			
902 44m	2412	13.77			
802.11n (HT20)	2437	13.82			
(11120)	2462	13.71			
	Resu	ult: PASS			

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

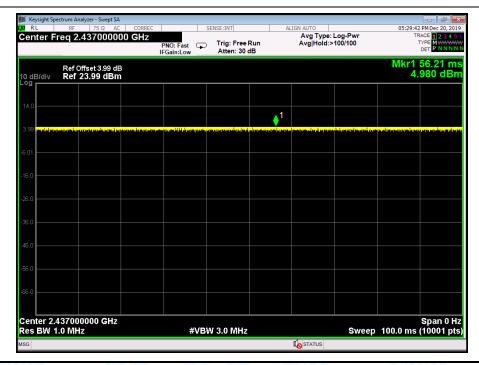


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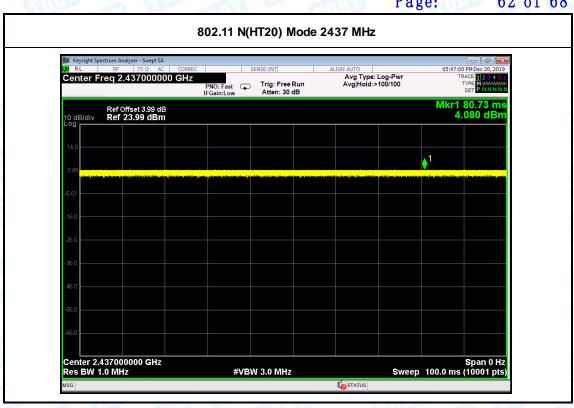
#### 802.11 G Mode 2437 MHz





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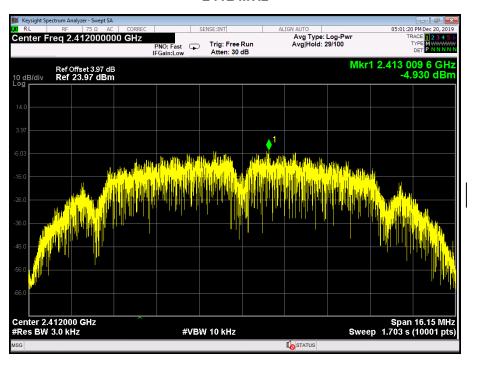
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### **Attachment F-- Power Spectral Density Test Data**

remperature:	25 C		Relative numbers:	55%		
Test Voltage:	DC 3V					
Test Mode:	TX 802.11B Mode					
Channel Frequency		Power Density		Limit		
(MHz)		(dBm/3 k	Hz)	(dBm/3kHz)		
2412		-4.930				
2437	2437		2 8			
2462		-9.163				
			_			

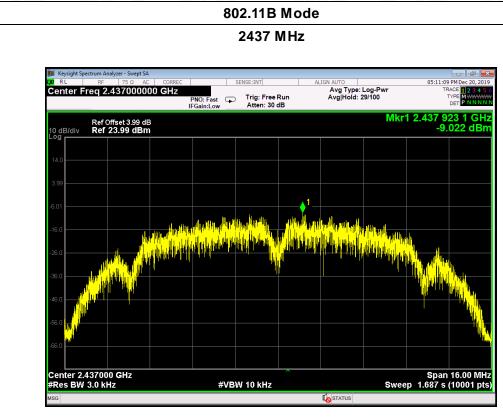
#### 802.11B Mode



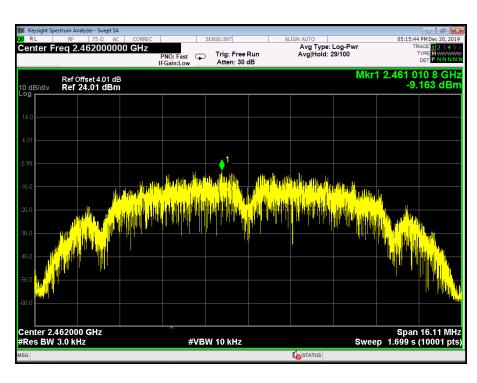


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#### 802.11B Mode

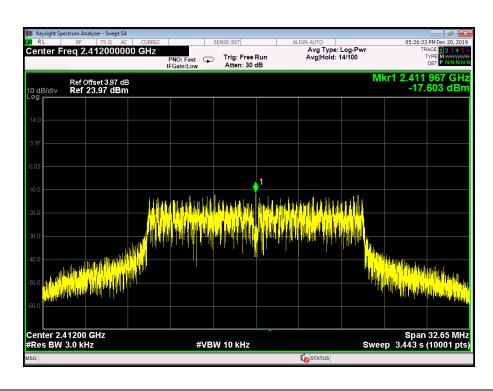




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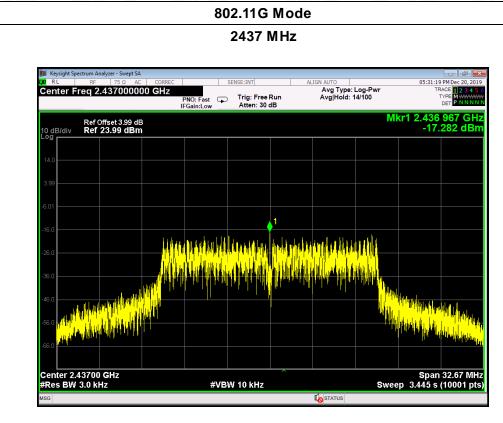
Temperature:	25 ℃		Temperature:	25 ℃		
Test Voltage:	DC 3V					
Test Mode:	TX 802.11G Mode					
Channel Frequency		Power Density		Limit		
(MHz)		(dBm/3 kHz)		(dBm/3kHz)		
2412		-17.6	03			
2437		-17.282		8		
2462		-17.4	45	1		
		802.11G	Mode			



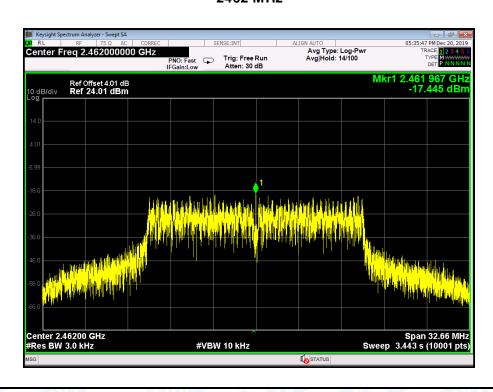


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#### 802.11G Mode

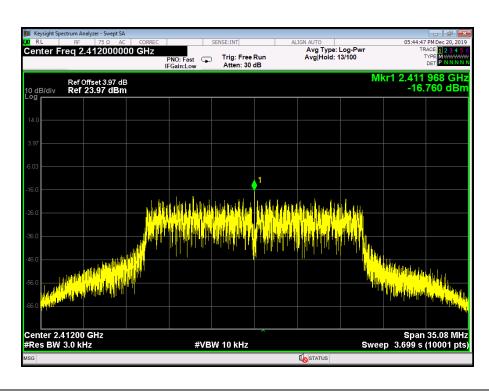




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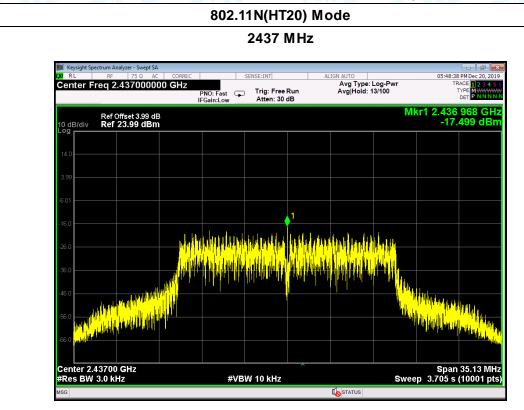
Temperature:	25 ℃	The state of the s	Temperature:	25 ℃			
Test Voltage:	DC 3V						
Test Mode:	TX 802.11N(HT20) Mode						
Channel Frequency		Power Density		Limit			
(MHz)		(dBm/3 kHz)		(dBm/3kHz)			
2412		-16.760					
2437 2462		-17.499		8			
		-16.109					
		802.11N(HT20)	Mode				





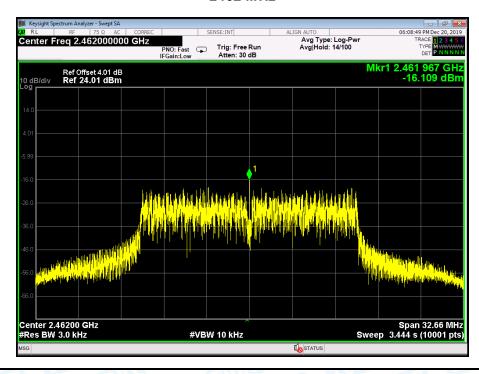
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#### 802.11N(HT20) Mode

#### 2462 MHz



----END OF REPORT----