

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC162735

1 of 79 Page:

FCC Radio Test Report FCC ID: 2AKBP-Q9

Original Grant

Report No. TB-FCC162735

Applicant Shenzhen Hysiry Technology Co., Ltd.

Equipment Under Test (EUT)

EUT Name SMART LAMP

Model No. Q9

Series Model No. N/A

Brand Name Hysiry

Receipt Date 2018-11-12

2018-11-12 to 2018-11-21 **Test Date**

Issue Date 2018-11-23

Standards FCC Part 15, Subpart C (15.247: 2018)

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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Page: 2 of 79

Contents

COI	NTENTS	2
1.	GENERAL INFORMATION ABOUT EUT	5
	1.1 Client Information	5
	1.2 General Description of EUT (Equipment Under Test)	5
	1.3 Block Diagram Showing the Configuration of System Tested	7
	1.4 Description of Support Units	7
	1.5 Description of Test Mode	7
	1.6 Description of Test Software Setting	
	1.7 Measurement Uncertainty	
	1.8 Test Facility	10
2.	TEST SUMMARY	11
3.	TEST EQUIPMENT	12
4.	CONDUCTED EMISSION TEST	14
	4.1 Test Standard and Limit	14
	4.2 Test Setup	14
	4.3 Test Procedure	
	4.4 EUT Operating Mode	15
	4.5 Test Data	15
5.	RADIATED EMISSION TEST	16
	5.1 Test Standard and Limit	16
	5.2 Test Setup	17
	5.3 Test Procedure	18
	5.4 EUT Operating Condition	19
	5.5 Test Data	19
6.	RESTRICTED BANDS REQUIREMENT	20
	6.1 Test Standard and Limit	20
	6.2 Test Setup	20
	6.3 Test Procedure	20
	6.4 EUT Operating Condition	21
	6.5 Test Data	21
7.	BANDWIDTH TEST	22
	7.1 Test Standard and Limit	22
	7.2 Test Setup	22
	7.3 Test Procedure	22
	7.4 EUT Operating Condition	22
	7.5 Test Data	22
8.	PEAK OUTPUT POWER TEST	23
	8.1 Test Standard and Limit	23



Page: 3 of 79

	8.2 Test Setup	23
	8.3 Test Procedure	23
	8.4 EUT Operating Condition	23
	8.5 Test Data	23
9.	POWER SPECTRAL DENSITY TEST	24
	9.1 Test Standard and Limit	24
	9.2 Test Setup	
	9.3 Test Procedure	24
	9.4 EUT Operating Condition	24
	9.5 Test Data	24
10.	ANTENNA REQUIREMENT	
	10.1 Standard Requirement	25
	10.2 Antenna Connected Construction	25
ATT	ACHMENT A CONDUCTED EMISSION TEST DATA	26
ATT	ACHMENT B RADIATED EMISSION TEST DATA	30
	ACHMENT C RESTRICTED BANDS REQUIREMENT TEST DATA	
ATT	ACHMENT D BANDWIDTH TEST DATA	65
ATT	ACHMENT E PEAK OUTPUT POWER TEST DATA	71
ATT	ACHMENT F POWER SPECTRAL DENSITY TEST DATA	74



Page: 4 of 79

Revision History

Report No.	Version	Description	Issued Date
TB-FCC162735	Rev.01	Initial issue of report	2018-11-23
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Page: 5 of 79

1. General Information about EUT

1.1 Client Information

Applicant	i	Shenzhen Hysiry Technology Co., Ltd.
Address		No.524, BLDG A, One square world NET Industry Park, Xia Wei Yuan Wan Li Hua Industrial Zone, XiXiang Street, BaoAn District, ShenZhen, China
Manufacturer	3	Shenzhen Hysiry Technology Co., Ltd.
Address		No.524, BLDG A, One square world NET Industry Park, Xia Wei Yuan Wan Li Hua Industrial Zone, XiXiang Street, BaoAn District, ShenZhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	SMART LAMP			
Models No.	l _s :	Q9	Q9		
Model Different		N/A			
TO THE		Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz		
		Number of Channel:	802.11b/g/n(HT20):11 channels see note(3)		
	A BAN TO BAN	RF Output Power:	802.11b: 14.31dBm 802.11g: 13.75dBm 802.11n (HT20): 13.58dBm		
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 100~240V,50/	60Hz		
Software Version	.5	N/A			
Hardware Version		N/A			
Connecting I/O Port(S)		Please refer to the User's Manual			



Page: 6 of 79

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.



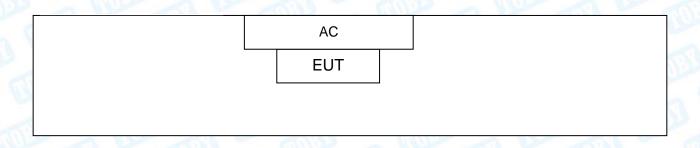
Page: 7 of 79

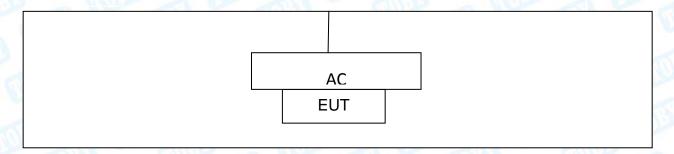
(3) Channel List:

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 1	1 for 802.11b/g/n(HT2	20)			

(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.



Page: 8 of 79

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.



Page: 9 of 79

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	The state of the s	SecureCRT.exe	(10:17)	
Channel	CH 01	CH 06	CH 11	
IEEE 802.11b DSSS	5	10	10	
IEEE 802.11g OFDM	30	30	30	
IEEE 802.11n (HT20)	30	30	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 _{Lab})
	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
Dedicted Emission	Level Accuracy:	. 4.40 dD
Radiated Emission	30MHz to 1000 MHz	±4.40 dB
Dadiated Emission	Level Accuracy:	. 4 20 dD
Radiated Emission	Above 1000MHz	±4.20 dB



Page: 10 of 79

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.



Page: 11 of 79

2. Test Summary

	FCC Part	t 15 Subpart C(15.247)/ RSS 247	Issue 2	
	rd Section	Test Item	Judgment	Remark
FCC	IC	3000300	g	
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	6dB Bandwidth	PASS	N/A
	5.2 (1)	oub Barrawiairi		
15.247(b)	RSS 247	Pook Output Power	PASS	N/A
13.247 (b)	5.4 (4)	Peak Output Power	PASS	
45.047(.)	RSS 247	Daniel Daniel	DAGO	N/A
15.247(e)	5.2 (2)	Power Spectral Density	PASS	
4= 0.4=(1)	RSS 247	133 100	PASS	
15.247(d)	5.5	Band Edge		N/A
15.247(d)&	RSS 247	Transmitter Radiated Spurious	DAGO	NI/A
15.209	5.5	Emission	PASS	N/A

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

N/A is an abbreviation for Not Applicable.



Page: 12 of 79

3. Test Equipment

Conducted Emissi	ion Test				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 18, 2018	Jul. 17, 2019
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jul. 18, 2018	Jul. 17, 2019
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 18, 2018	Jul. 17, 2019
LISN	Rohde & Schwarz	ENV216	101131	Jul. 18, 2018	Jul. 17, 2019
Radiation Emissio	n Test			-	-
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 18, 2018	Jul. 17, 2019
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 18, 2018	Jul. 17, 2019
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. 14, 2018	Jul. 13, 2019
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. 18, 2018	Jul. 17, 2019
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 18, 2018	Jul. 17, 2019
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
The state of the s	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Sep. 15, 2018	Sep. 14, 2019
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Sep. 15, 2018	Sep. 14, 2019
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Sep. 15, 2018	Sep. 14, 2019



Page: 13 of 79

(D)	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Sep. 15, 2018	Sep. 14, 2019



Page: 14 of 79

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard FCC Part 15.207

4.1.2 Test Limit

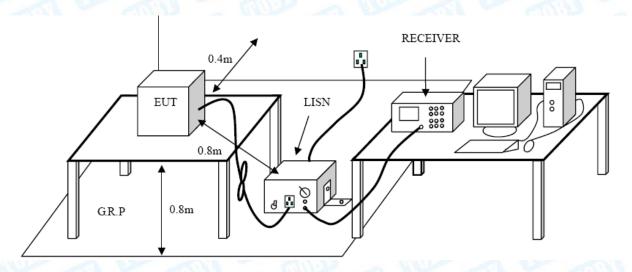
Conducted Emission Test Limit

	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.



Page: 15 of 79

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.



Page: 16 of 79

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 7 3
88~216	150	3
216~960	200	3 10
Above 960	500	3

Radiated Emission Limit (Above 1000MHz)

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

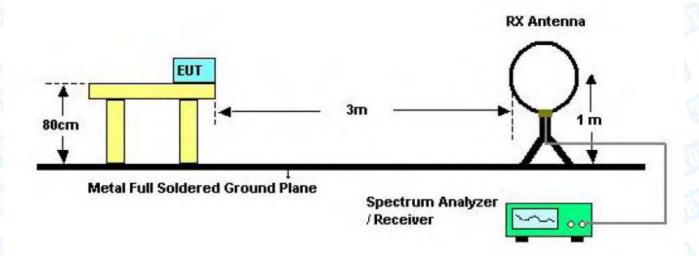
Note:

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

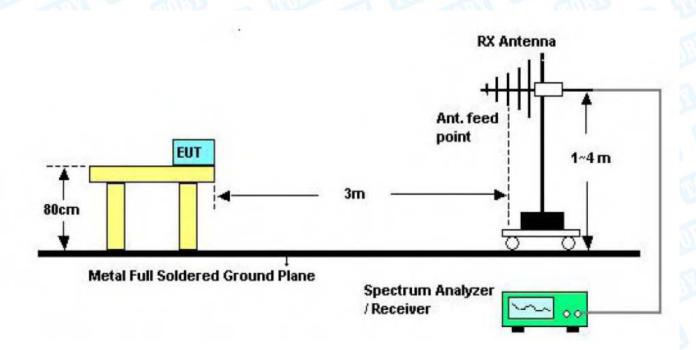


Page: 17 of 79

5.2 Test Setup



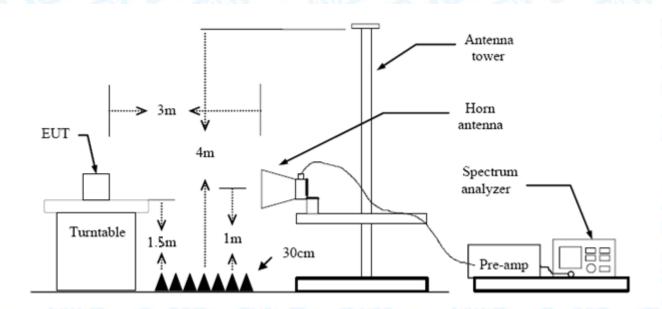
Below 30MHz Test Setup



Below 1000MHz Test Setup



Page: 18 of 79



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.



Page: 19 of 79

(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.



Page: 20 of 79

6. Restricted Bands Requirement

6.1 Test Standard and Limit

6.1.1 Test Standard

FCC Part 15.247(d)

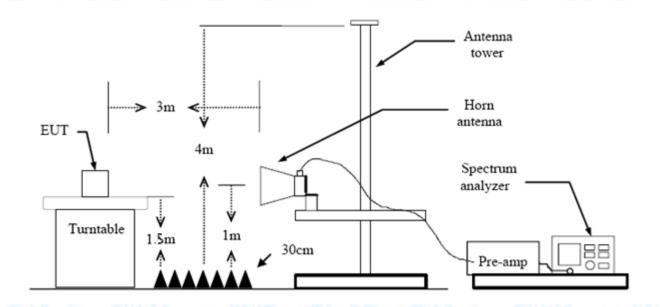
FCC Part 15.209

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 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.



Page: 21 of 79

(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.



Page: 22 of 79

7. Bandwidth Test

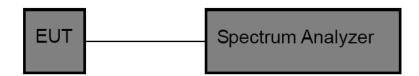
7.1 Test Standard and Limit

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

7.1.2 Test Limit

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 D.



Page: 23 of 79

8. Peak Output Power Test

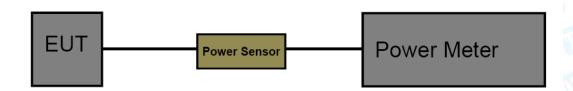
8.1 Test Standard and Limit

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(MH						
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 E.



Page: 24 of 79

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) 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.



Page: 25 of 79

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

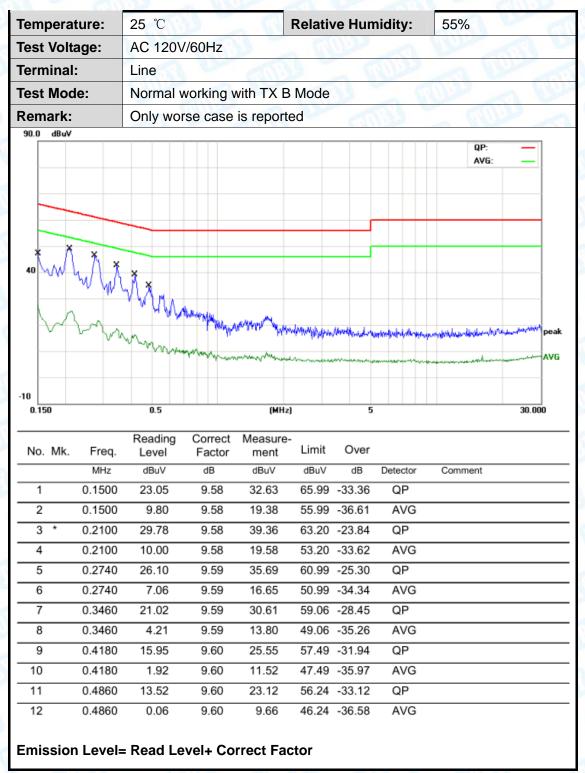
The EUT antenna is a PCB Antenna. It complies with the standard requirement.

Antenna Type				
TO TO	⊠Permanent attached antenna	ELO!		
THE PARTY OF THE P	☐Unique connector antenna			
	Professional installation antenna	The last		



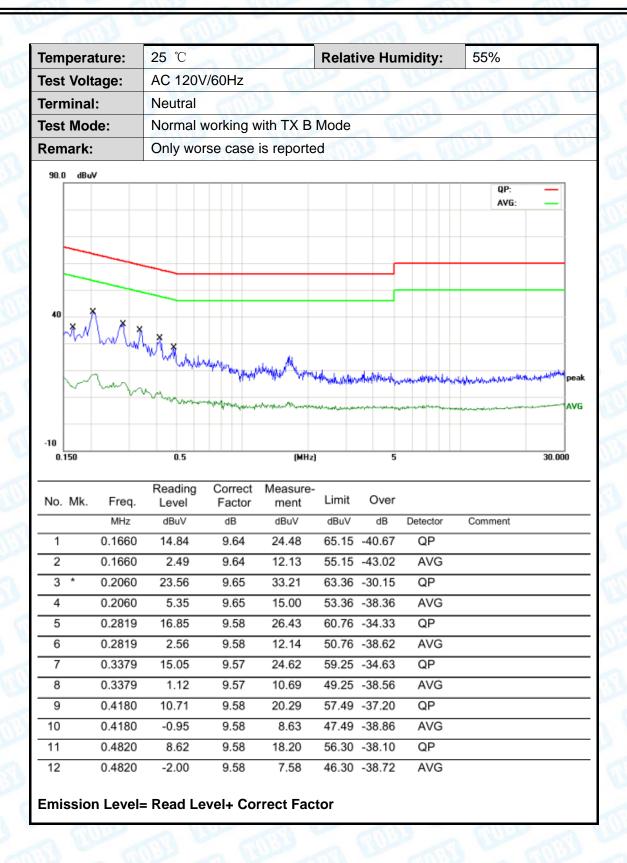
Page: 26 of 79

Attachment A-- Conducted Emission Test Data



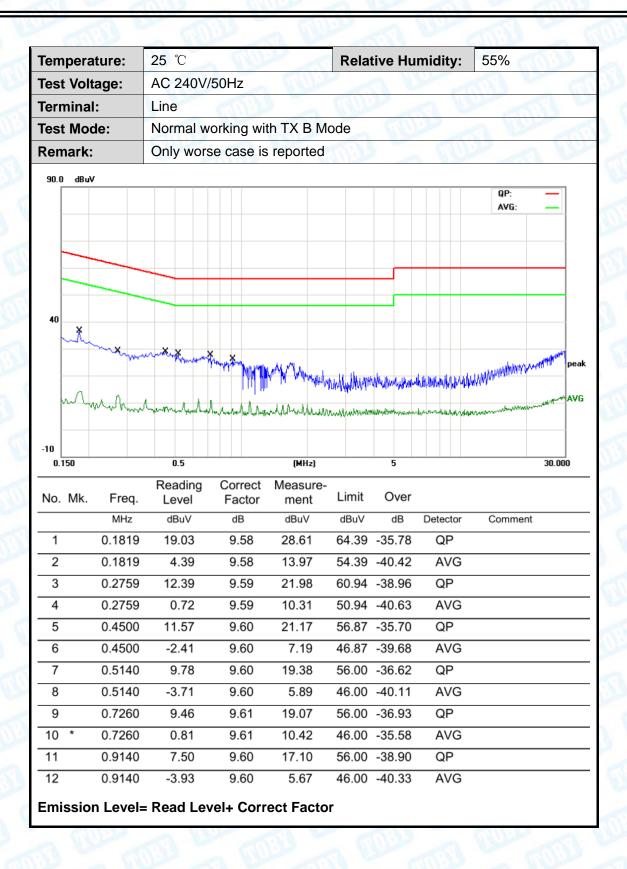


Page: 27 of 79



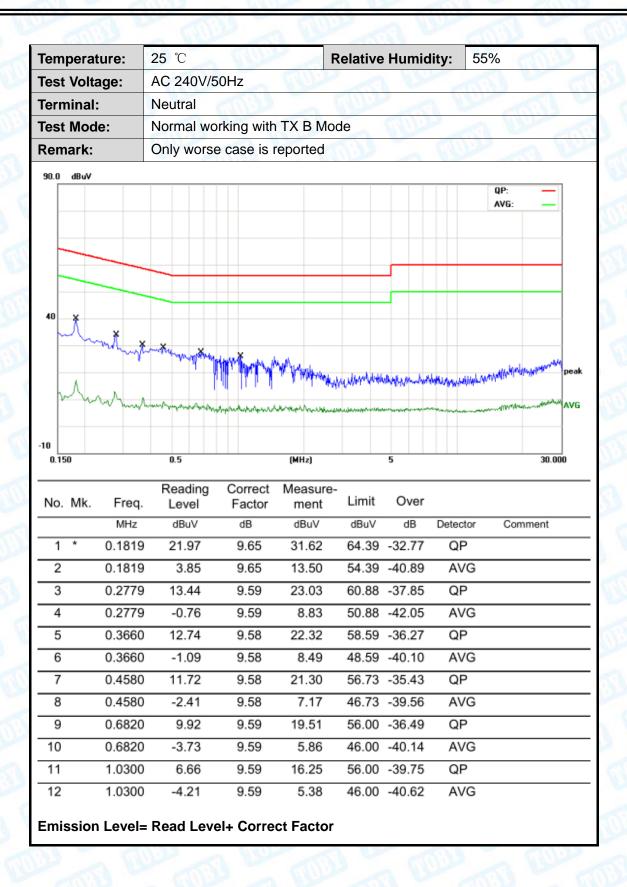


Page: 28 of 79





Page: 29 of 79





Page: 30 of 79

Attachment B-- Radiated Emission Test Data

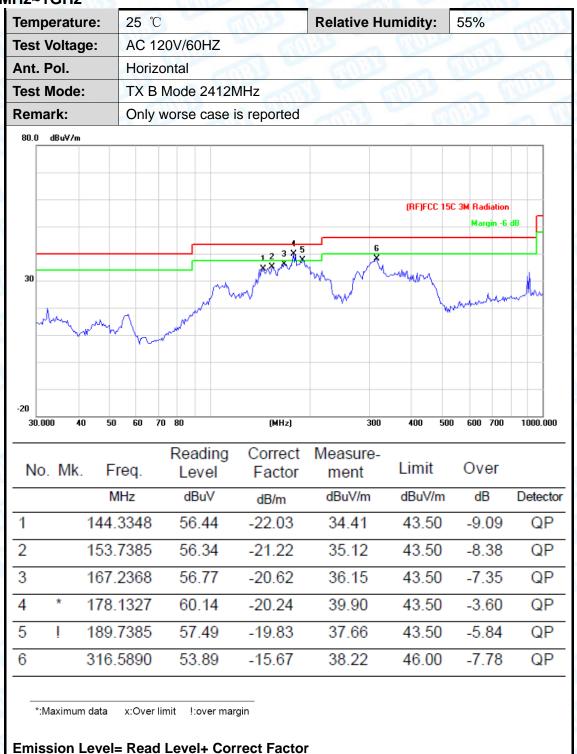
9KHz~30MHz

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB

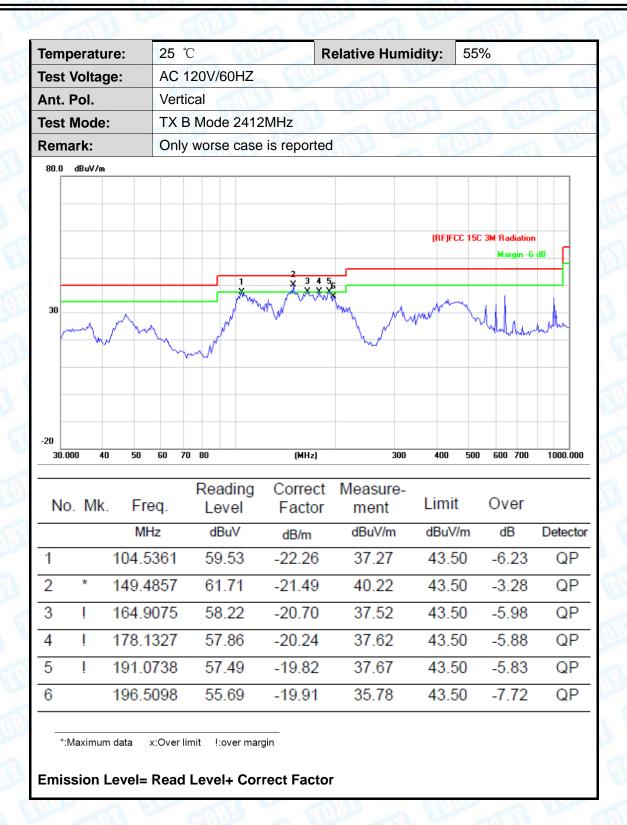
below the permissible value has no need to be reported.

30MHz~1GHz





Page: 31 of 79

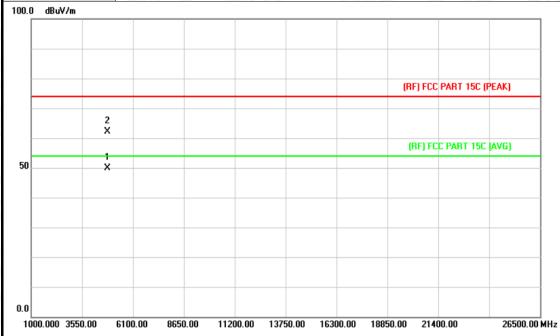




Page: 32 of 79

Above 1GHz

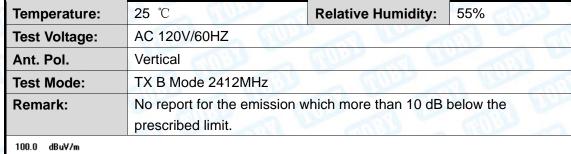
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ	The same	The second		
Ant. Pol.	Horizontal				
Test Mode:	TX B Mode 2412MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed				
	limit.				

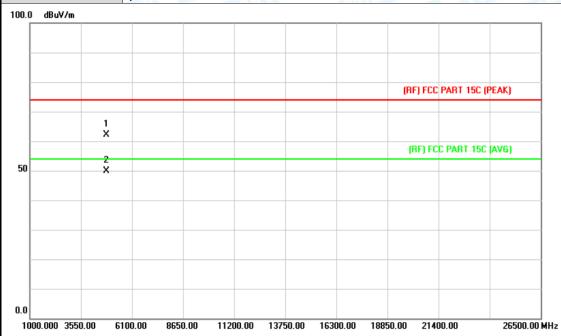


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4823.988	35.40	14.55	49.95	54.00	-4.05	AVG
2		4824.018	47.67	14.55	62.22	74.00	-11.78	peak



Page: 33 of 79



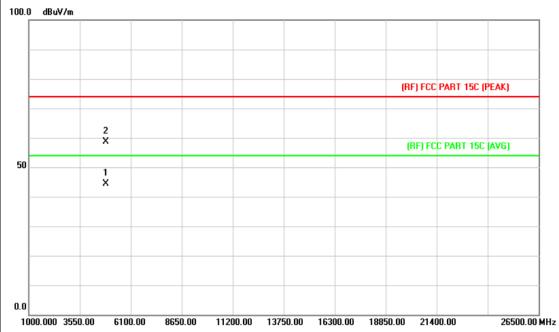


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.832	47.61	14.55	62.16	74.00	-11.84	peak
2	*	4824.012	35.23	14.55	49.78	54.00	-4.22	AVG



Page: 34 of 79

Temperature:	25 ℃	Relative Humidity:	55%	
Test Voltage:	AC 120V/60HZ	The same		
Ant. Pol.	Horizontal	The state of the		
Test Mode:	TX B Mode 2437MHz	The same	THE PERSON NAMED IN	
Remark: No report for the emission which more than 10 dB below the prescribed limit.				
100.0 dBuV/m				

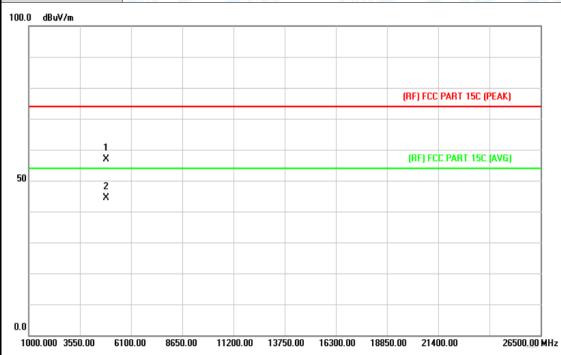


No.	. Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4874.864	29.55	14.86	44.41	54.00	-9.59	AVG
2		4874.936	43.81	14.86	58.67	74.00	-15.33	peak



Page: 35 of 79

Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ	The state of the s			
Ant. Pol.	Vertical	WILLIAM I			
Test Mode:	TX B Mode 2437MHz	TUDE	THE PARTY OF		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.				
	·				

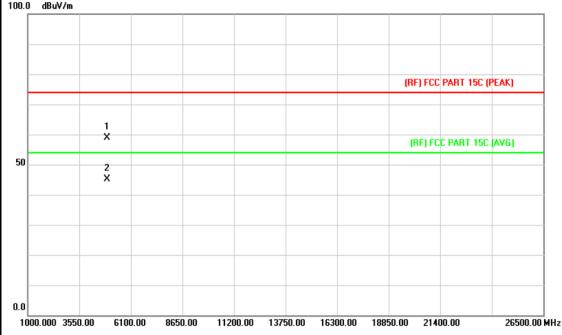


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.490	42.09	14.86	56.95	74.00	-17.05	peak
2	*	4874.888	29.57	14.86	44.43	54.00	-9.57	AVG



Page: 36 of 79

Temperature: 25 °C Relative Humidity: 55% Test Voltage: AC 120V/60HZ Ant. Pol. Horizontal 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				
Ant. Pol. Horizontal Test Mode: TX B Mode 2462MHz Remark: No report for the emission which more than 10 dB below the prescribed limit.	Temperature:	25 ℃	Relative Humidity:	55%
Test Mode: TX B Mode 2462MHz Remark: No report for the emission which more than 10 dB below the prescribed limit.	Test Voltage:	AC 120V/60HZ	THE PARTY OF THE P	
Remark: No report for the emission which more than 10 dB below the prescribed limit.	Ant. Pol.	Horizontal		
prescribed limit.	Test Mode:	TX B Mode 2462M	1Hz	THE REAL PROPERTY.
100.0 dBuV/m	Remark:	6311111	mission which more than 10 d	B below the
	100.0 dBuV/m			

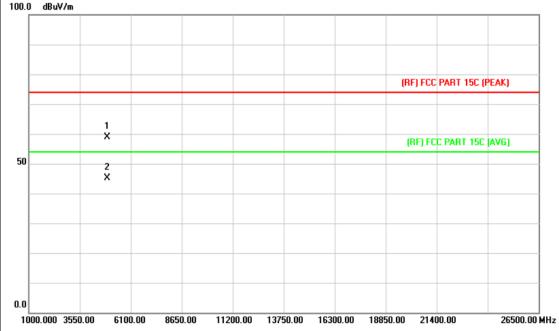


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4925.170	43.61	15.19	58.80	74.00	-15.20	peak
2	*	4925.362	29.86	15.19	45.05	54.00	-8.95	AVG



Page: 37 of 79

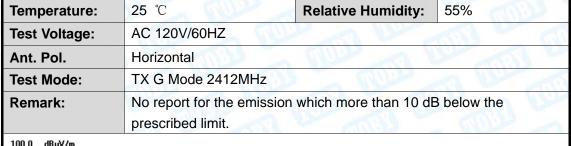
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ	The same				
Ant. Pol.	Vertical	Vertical				
Test Mode:	TX B Mode 2462MHz	TX B Mode 2462MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					
100.0 dBuV/m						

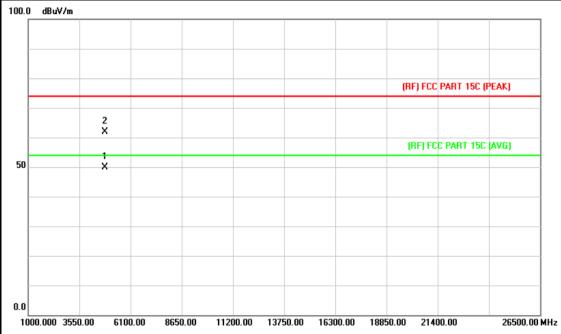


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4924.528	43.65	15.17	58.82	74.00	-15.18	peak
2	*	4925.104	29.94	15.19	45.13	54.00	-8.87	AVG



Page: 38 of 79





No	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.012	35.36	14.55	49.91	54.00	-4.09	AVG
2		4824.318	47.38	14.55	61.93	74.00	-12.07	peak



Page: 39 of 79

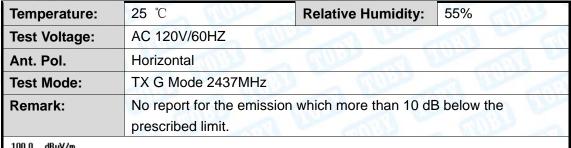
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Vertical					
Test Mode:	TX G Mode 2412MHz					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

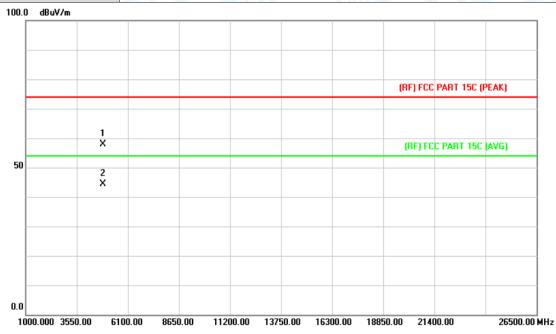


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4824.006	47.24	14.55	61.79	74.00	-12.21	peak
2	*	4824.006	35.13	14.55	49.68	54.00	-4.32	AVG



Page: 40 of 79



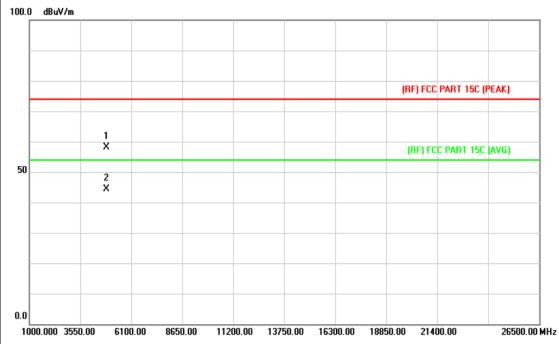


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4874.156	43.09	14.86	57.95	74.00	-16.05	peak
2	*	4874.528	29.53	14.86	44.39	54.00	-9.61	AVG



Page: 41 of 79

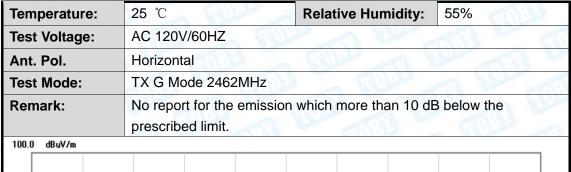
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ	AC 120V/60HZ					
Ant. Pol.	Vertical						
Test Mode:	TX G Mode 2437MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						
	process and a second						



No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4875.374	43.19	14.87	58.06	74.00	-15.94	peak
2	*	4875.398	29.60	14.87	44.47	54.00	-9.53	AVG



Page: 42 of 79





No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4925.302	43.52	15.19	58.71	74.00	-15.29	peak
2	*	4925.440	29.89	15.19	45.08	54.00	-8.92	AVG



Page: 43 of 79

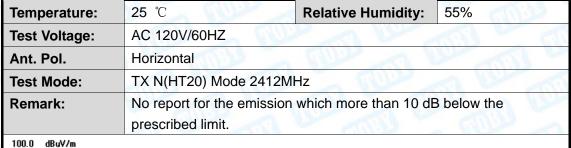
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ	The state of the s	The Line			
Ant. Pol.	Vertical	Vertical				
Test Mode:	TX G Mode 2462MHz	TX G Mode 2462MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					
100.0 dBuV/m						

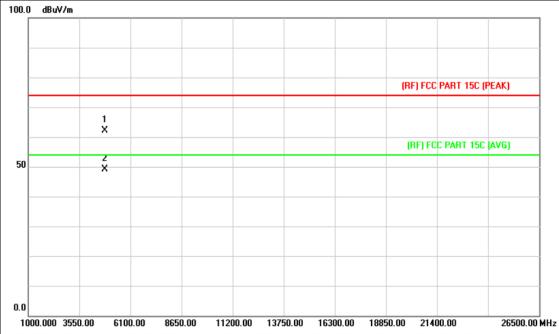


No	o. Mk	. Freq.		Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4922.740	29.92	15.17	45.09	54.00	-8.91	AVG
2		4924.594	44.36	15.17	59.53	74.00	-14.47	peak



Page: 44 of 79





No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.664	47.69	14.55	62.24	74.00	-11.76	peak
2	*	4823.664	34.62	14.55	49.17	54.00	-4.83	AVG



Page: 45 of 79

Temperature:	25 ℃	Relative Humidity:	55%	
Test Voltage:	AC 120V/60HZ	The state of the s	The second	
Ant. Pol.	Vertical			
Test Mode:	TX N(HT20) Mode 2412M	Hz	1	
Remark:	No report for the emission prescribed limit.	which more than 10 dE	3 below the	

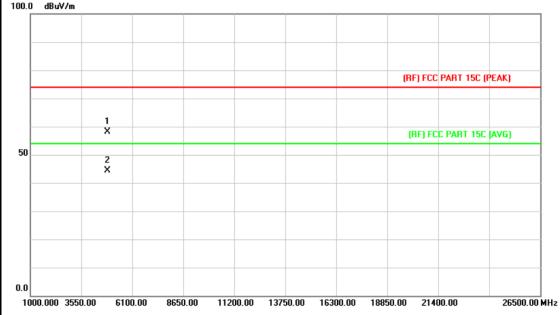


No.	Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4824.048	35.11	14.55	49.66	54.00	-4.34	AVG
2		4824.120	47.58	14.55	62.13	74.00	-11.87	peak



Page: 46 of 79

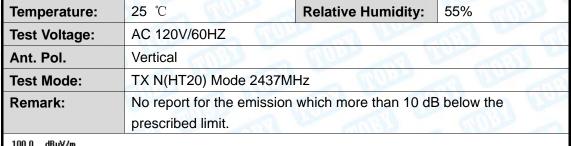
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ				
Ant. Pol.	Horizontal				
Test Mode:	TX N(HT20) Mode 2437Ml	Hz	1		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.				
100.0 dBuV/m					

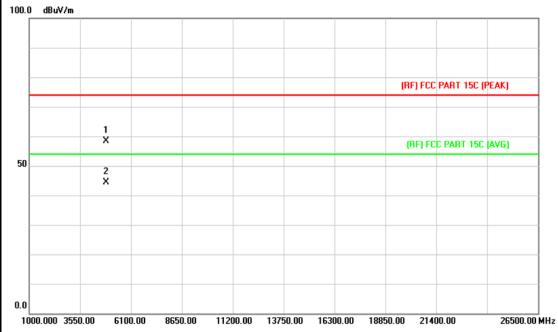


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.160	43.27	14.85	58.12	74.00	-15.88	peak
2	*	4875.482	29.55	14.87	44.42	54.00	-9.58	AVG



Page: 47 of 79

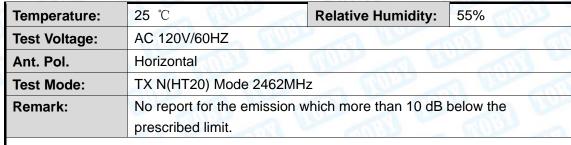


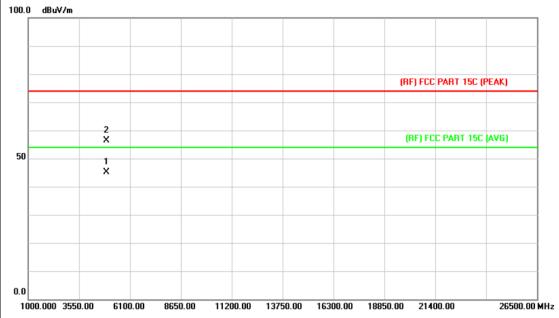


No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4873.922	43.56	14.86	58.42	74.00	-15.58	peak
2	*	4873.922	29.49	14.86	44.35	54.00	-9.65	AVG



Page: 48 of 79

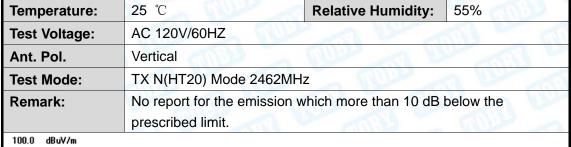


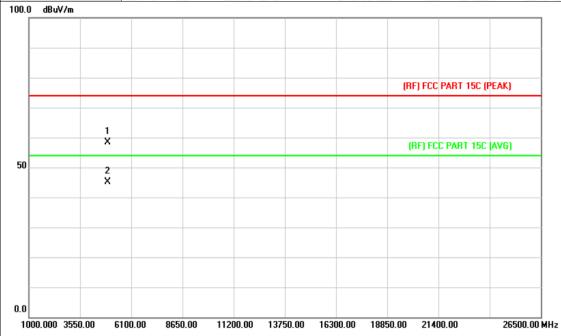


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4925.302	29.84	15.19	45.03	54.00	-8.97	AVG
2		4925.332	41.29	15.19	56.48	74.00	-17.52	peak



Page: 49 of 79





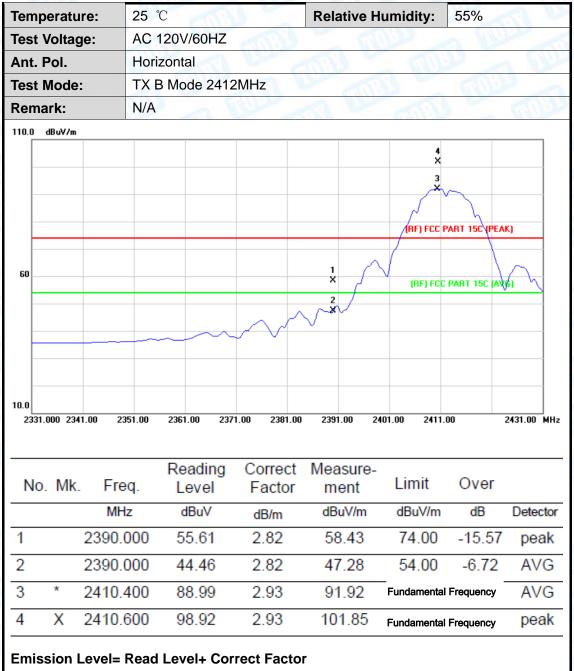
No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.058	43.33	15.17	58.50	74.00	-15.50	peak
2	*	4925.302	29.90	15.19	45.09	54.00	-8.91	AVG



Page: 50 of 79

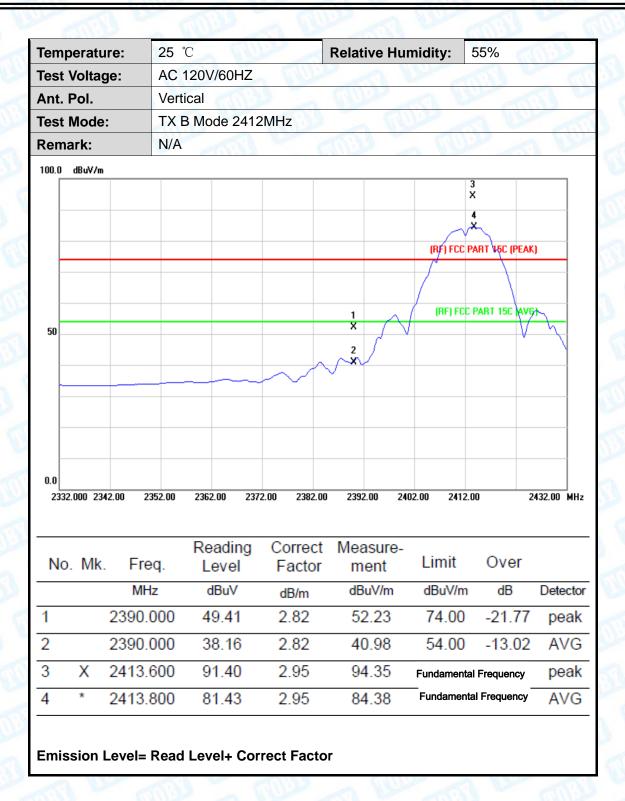
Attachment C-- Restricted Bands Requirement Test Data

(1) Radiation Test



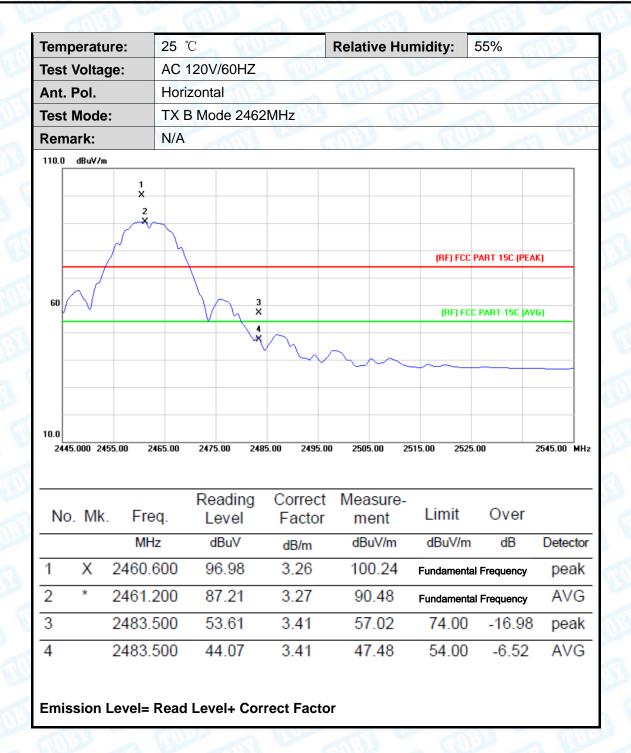


Page: 51 of 79



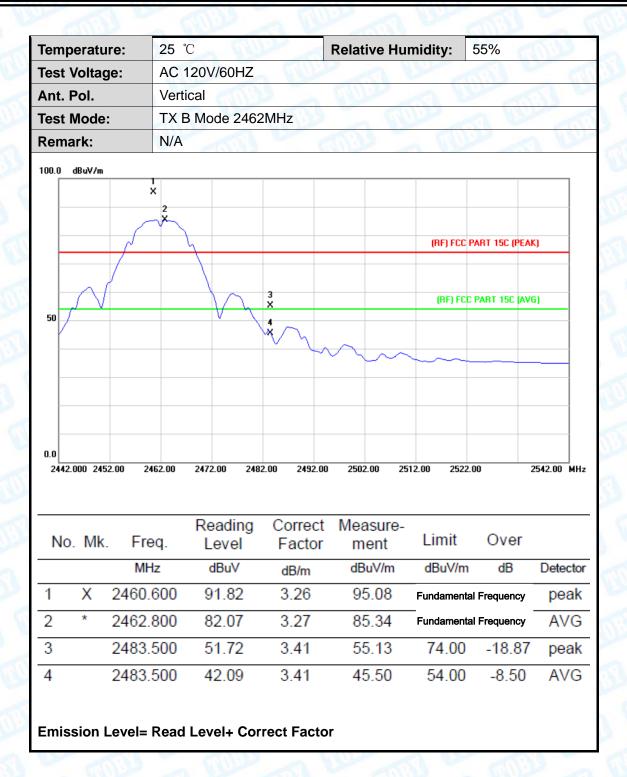


Page: 52 of 79



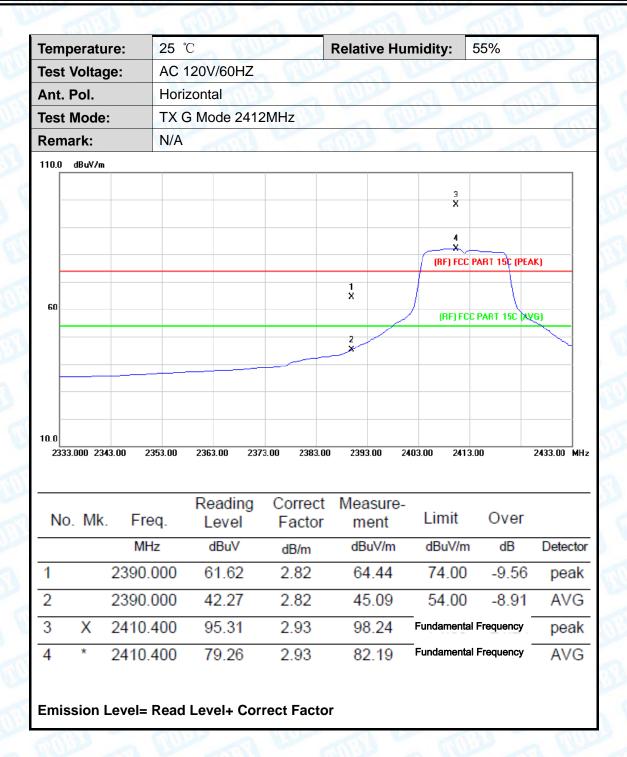


Page: 53 of 79



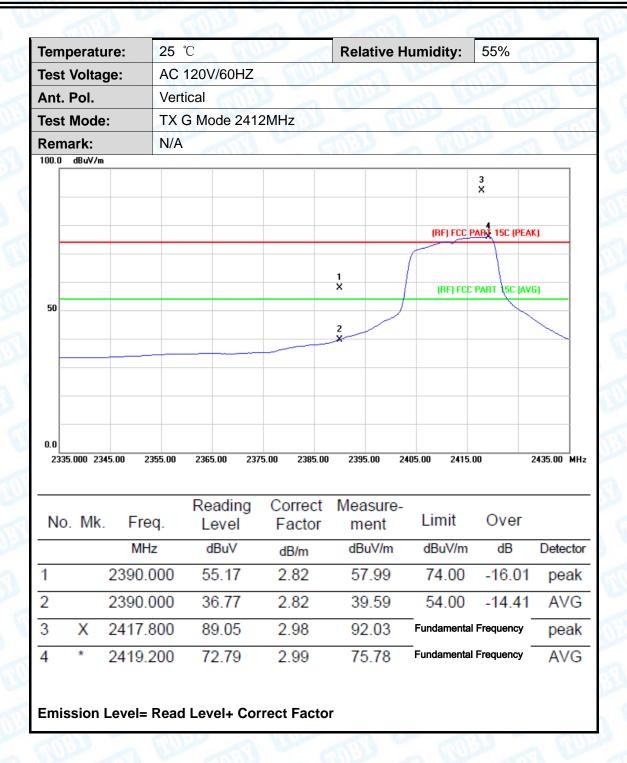


Page: 54 of 79



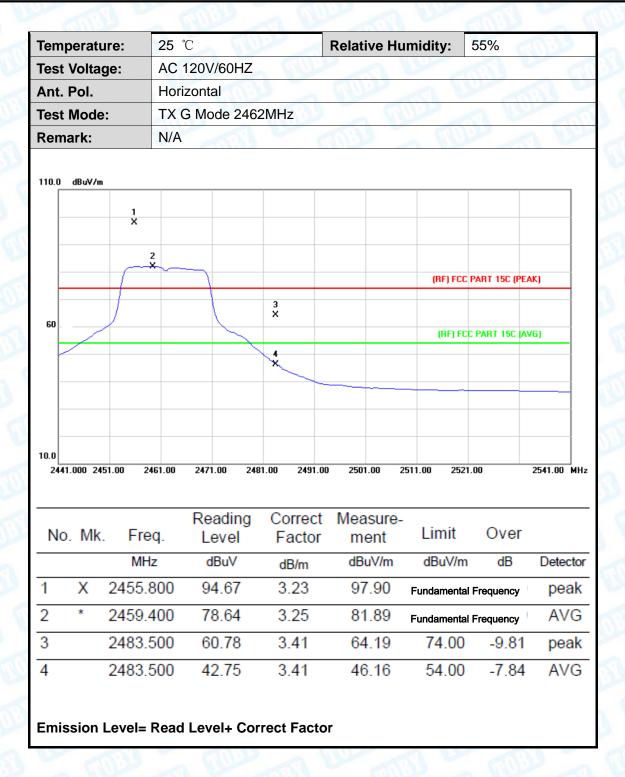


Page: 55 of 79



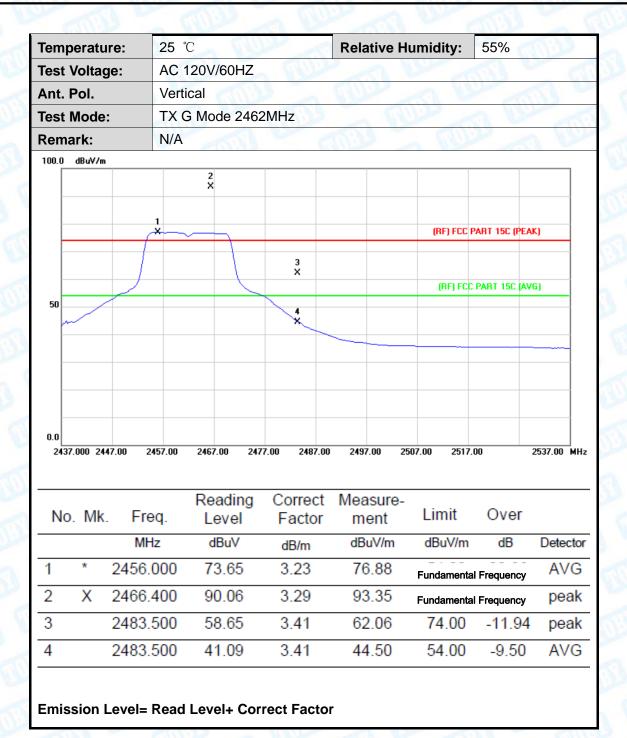


Page: 56 of 79



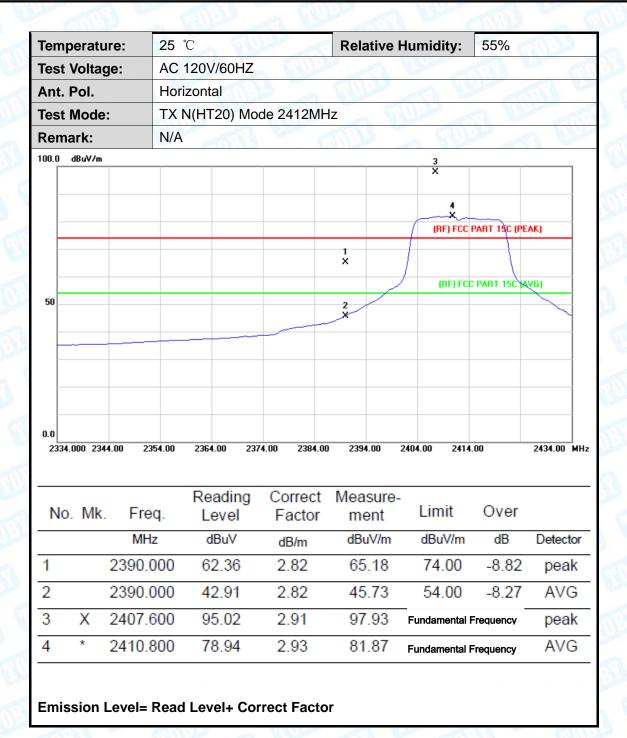


Page: 57 of 79



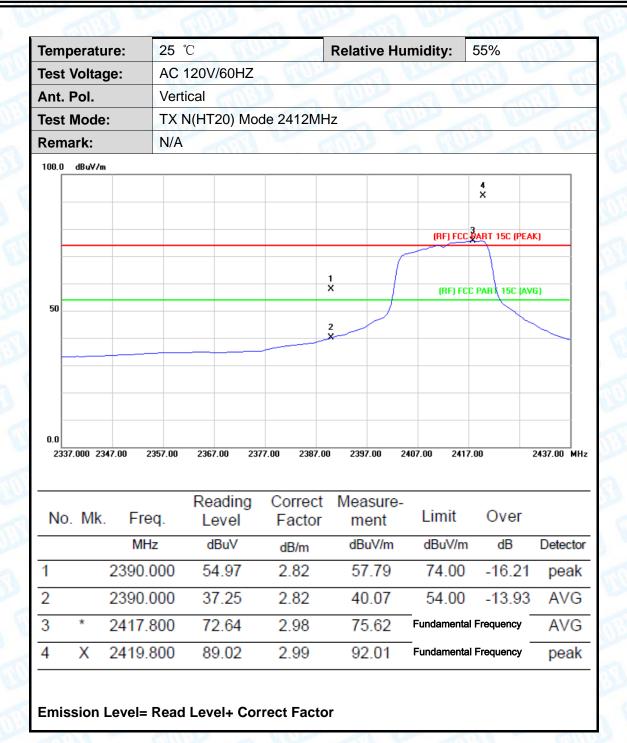


Page: 58 of 79



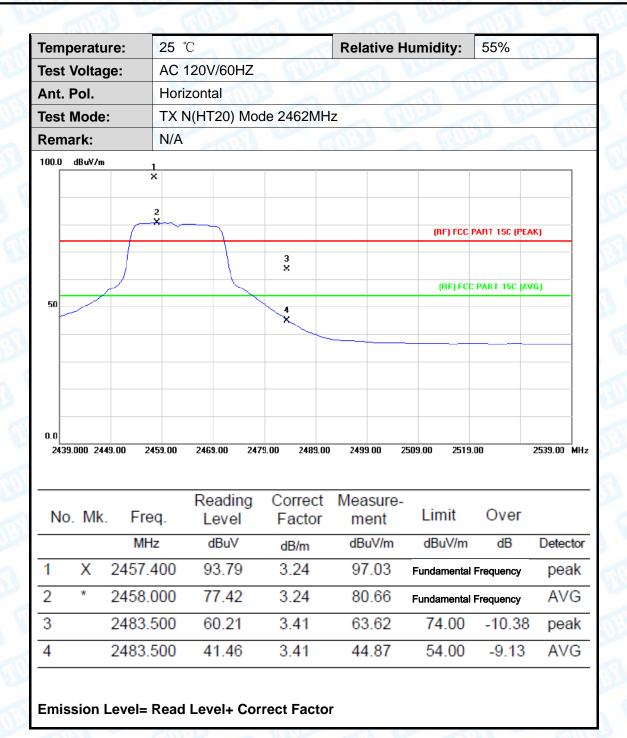


Page: 59 of 79



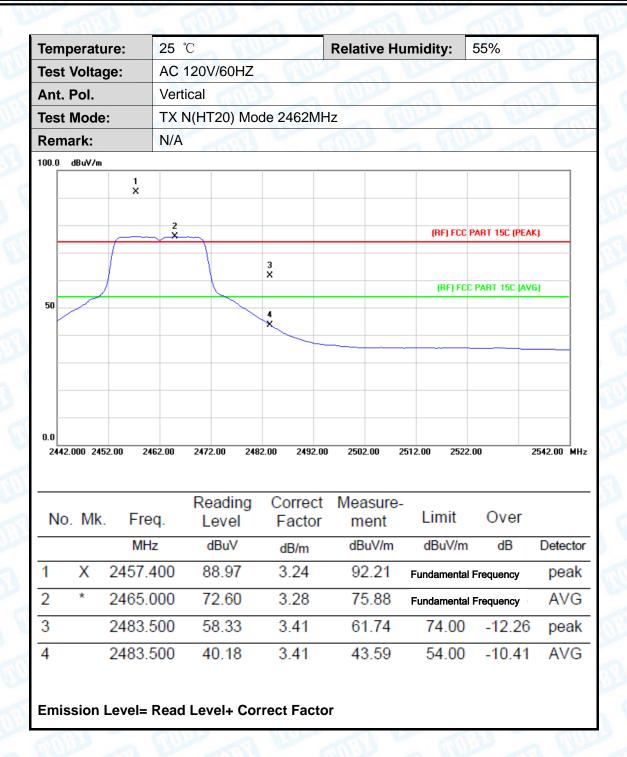


Page: 60 of 79





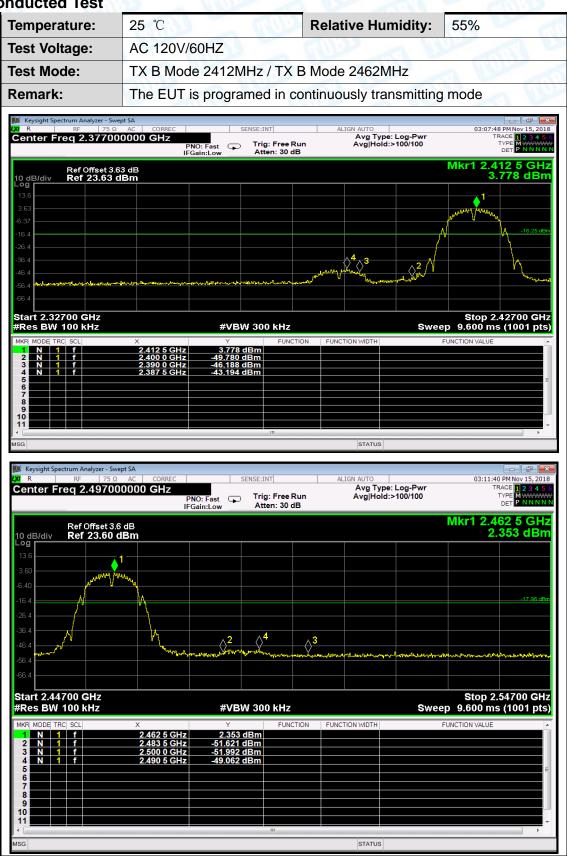
Page: 61 of 79





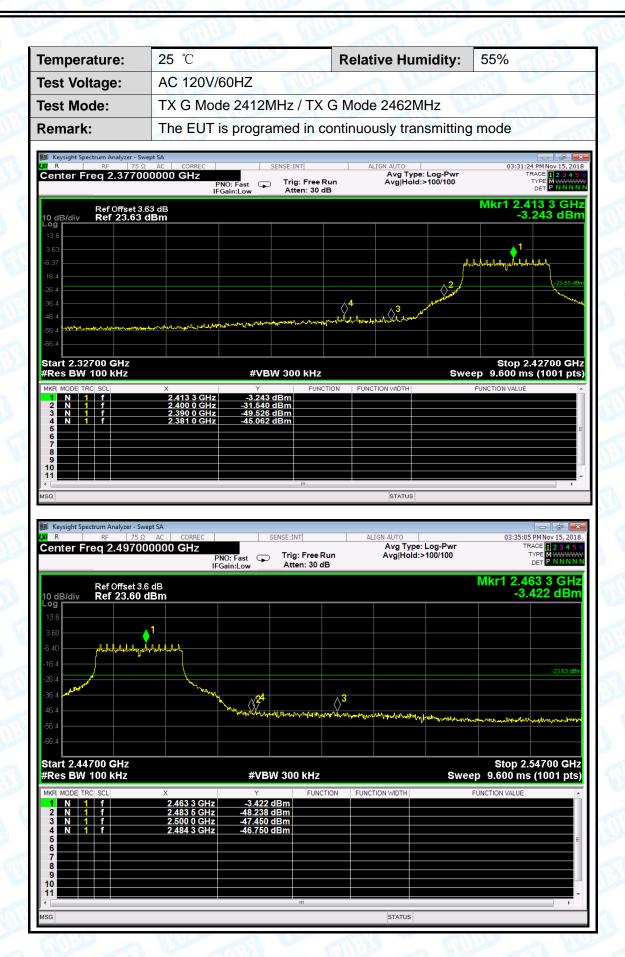
Page: 62 of 79

(2) Conducted Test



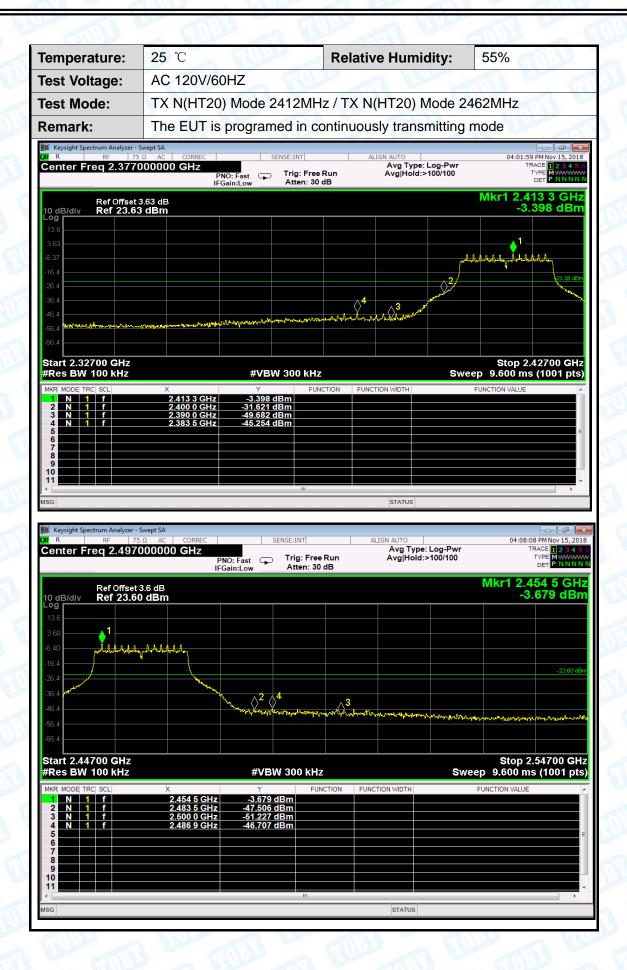


Page: 63 of 79





Page: 64 of 79



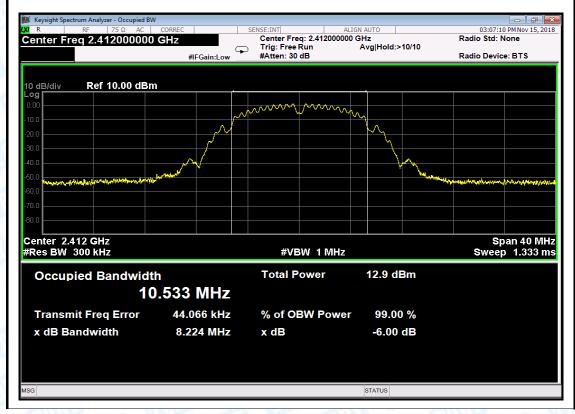


Page: 65 of 79

Attachment D-- Bandwidth Test Data

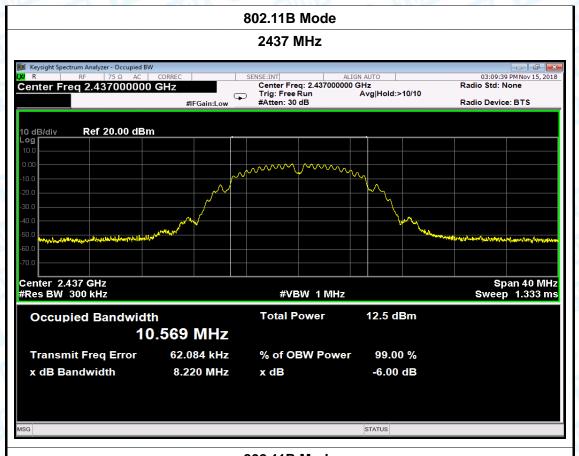
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	TX 802.11B Mode	WODE OF	A MILLER
Channel frequence	cy 6dB Bandwidth	99% Bandwidth	Limit
(MHz)	(MHz)	(MHz)	(MHz)
2412	8.224	10.533	
2437	8.220	10.569	>=0.5
2462	8.224	10.604	

802.11B Mode

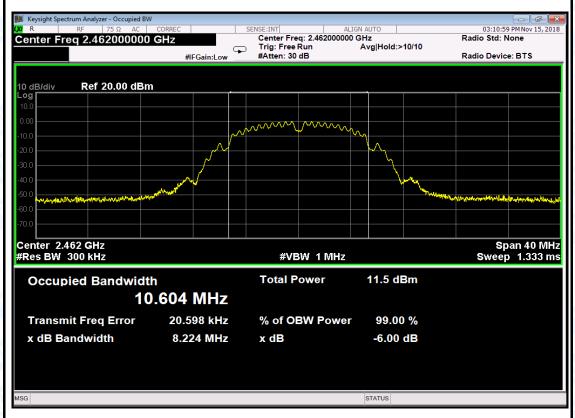




Page: 66 of 79



802.11B Mode

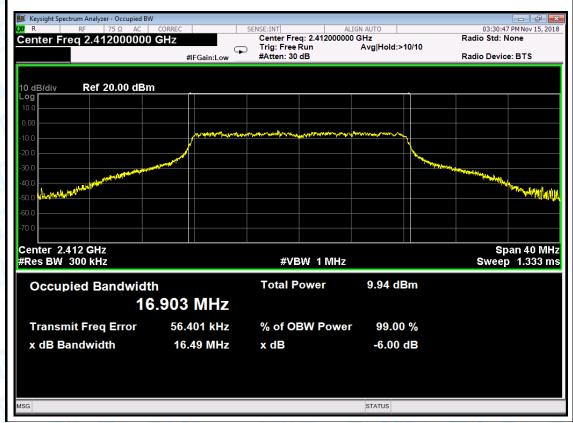




Page: 67 of 79

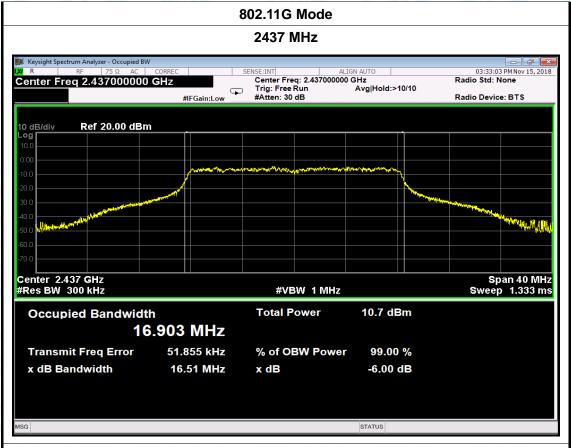
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ				
Test Mode:	TX 802.11G Mode				
Channel frequence	cy 6dB Bandwid	lth 99% Bandwidth	Limit		
(MHz)	(MHz)	(MHz)	(MHz)		
2412	16.49	16.903			
2437	16.51	16.903	>=0.5		
2462	16.43	16.940			
	· ·	<u> </u>	•		

802.11G Mode

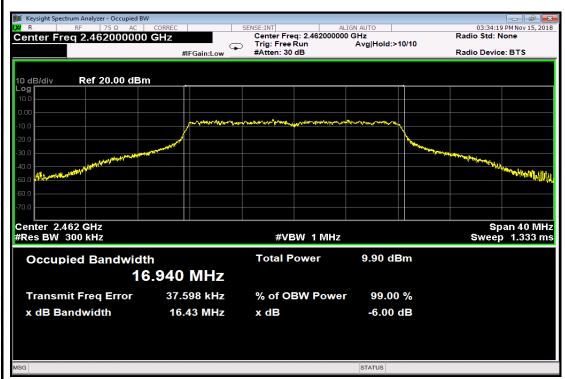




Page: 68 of 79



802.11G Mode

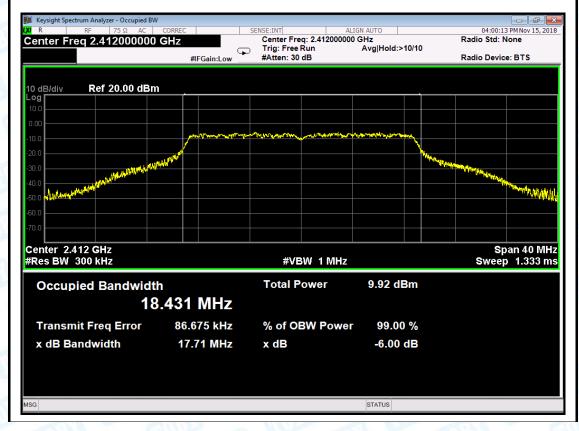




Page: 69 of 79

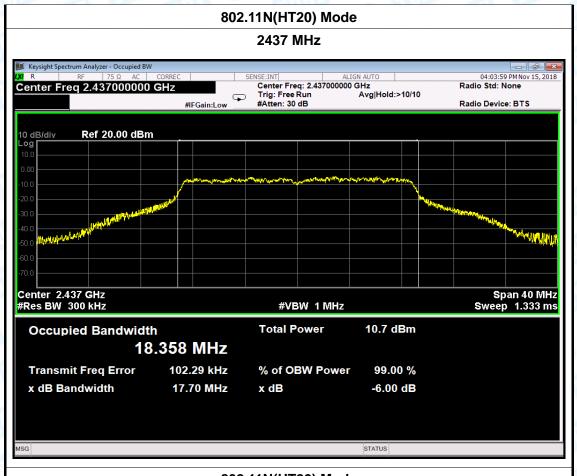
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ				
Test Mode:	TX 802.11N(HT20) Mode				
Channel frequence	y 6dB Bandwidth	99% Bandwidth	Limit		
(MHz)	(MHz)	(MHz)	(MHz)		
2412	17.71	18.431			
2437	17.70	18.358	>=0.5		
2462	17.72	18.495			
	802 11N/HT2	n) Mode	1		

802.11N(HT20) Mode





Page: 70 of 79



802.11N(HT20) Mode 2462 MHz Keysight Spectrum Analyzer - Occupied BW 04:07:22 PM Nov 15, 2018 Radio Std: None Center Freq 2.462000000 GHz Avg|Hold:>10/10 Radio Device: BTS #IFGain:Low Ref 20.00 dBm 10 dB/div Span 40 MHz Sweep 1.333 ms Center 2.462 GHz #Res BW 300 kHz #VBW 1 MHz **Occupied Bandwidth Total Power** 9.81 dBm 18.495 MHz Transmit Freg Error 90.085 kHz % of OBW Power 99.00 % -6.00 dB x dB Bandwidth 17.72 MHz x dB STATUS



Page: 71 of 79

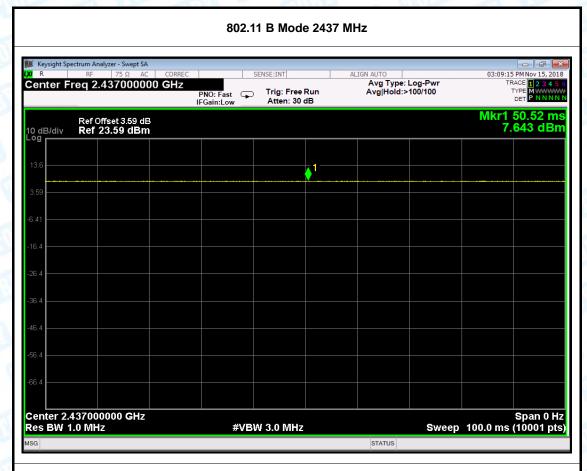
Attachment E-- Peak Output Power Test Data

Test Conditions	: Continuous transm	itting Mode	
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		THE PARTY OF
Mode	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
	2412	14.31	
802.11b	2437	13.91	
	2462	12.96	
	2412	13.17	
802.11g	2437	13.75	30
	2462	13.00	
000 44	2412	12.97	
802.11n	2437	13.58	
(HT20)	2462	12.78	
	Resi	ult: PASS	

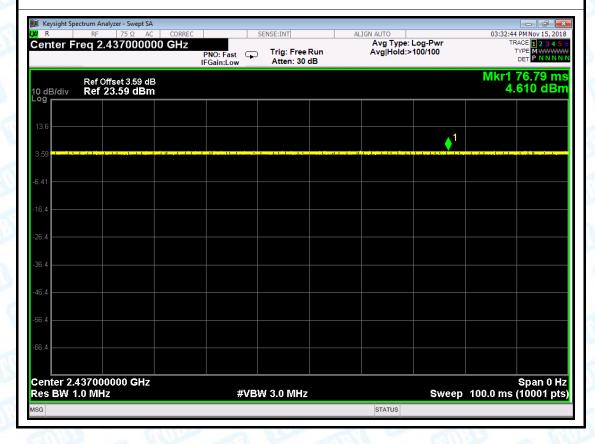
Duty Cycle						
Mode	Channel frequency (MHz)	Test Result				
802.11b	2412					
	2437					
	2462					
	2412					
802.11g	2437	>98%				
	2462					
000.44	2412					
802.11n (HT20)	2437					
	2462					



Page: 72 of 79









Page: 73 of 79



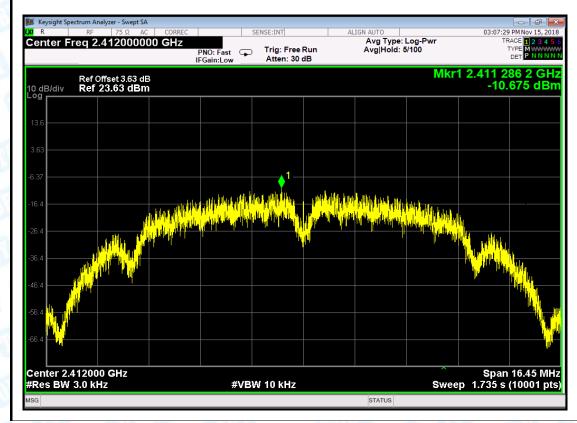


Page: 74 of 79

Attachment F-- Power Spectral Density Test Data

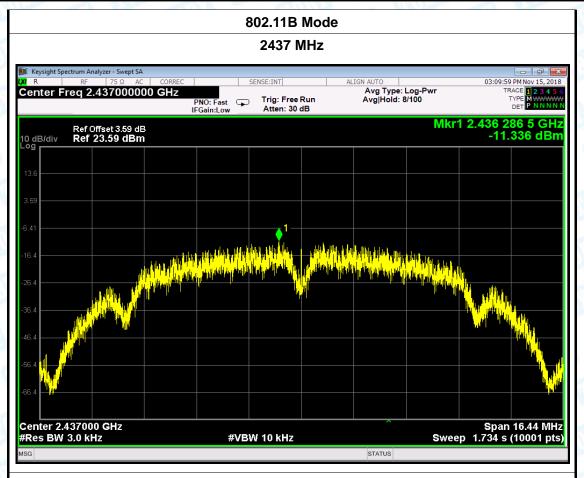
	Temperature:	25 ℃	(10)	Relative Humidity:	55%	
	Test Voltage:	AC 120V/	4000	The same of the		
	Test Mode:	TX 802.11	1B Mode		The same of the sa	
Channel Frequency		uency	Power Density		Limit	
	(MHz)		(dBm/3	kHz)	(dBm/3kHz)	
	2412		-10.6	75		
	2437		-11.33	36	8	
	2462		-12.12	28		
802 11B Mode						

802.11B Mode

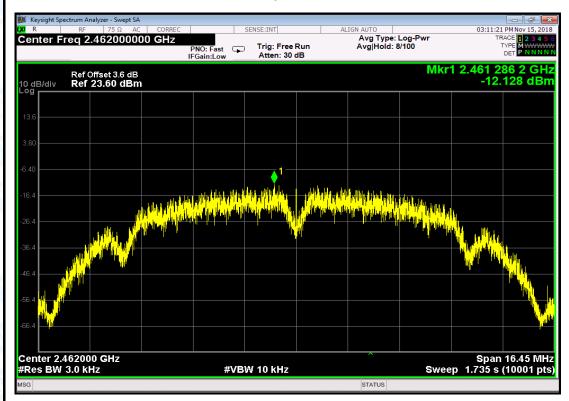




Page: 75 of 79





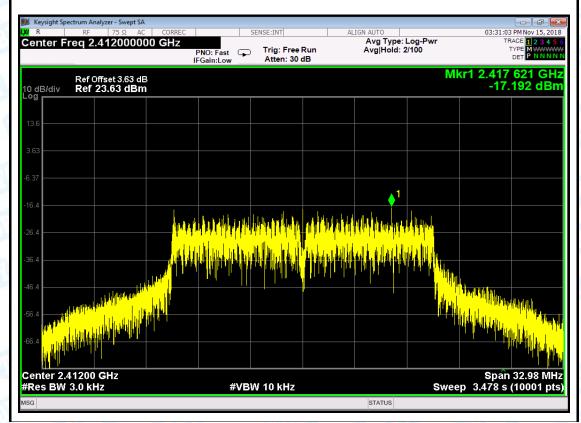




Page: 76 of 79

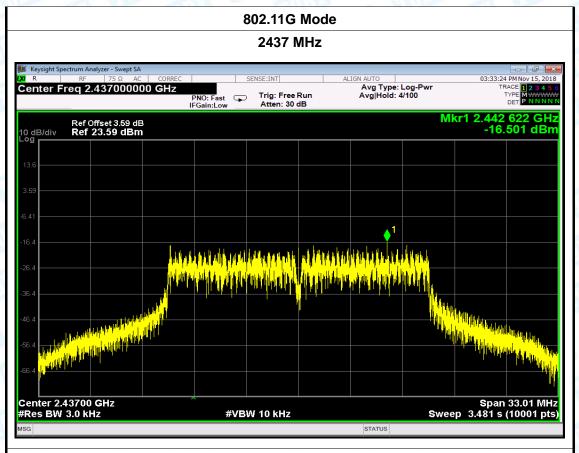
Temperature:	25 ℃	MILES TO	Temperature:	25 ℃	
Test Voltage:	AC 120V	The same of	TO THE		
Test Mode:	TX 802.1	1G Mode			
Channel Frequency		Power Dens	sity	Limit	
(MHz)		(dBm/3 kH	z)	(dBm/3kHz)	
2412		-17.192			
2437 2462		-16.501		8	
		-18.319			
		802.11G Mo	de		

802.11G Mode

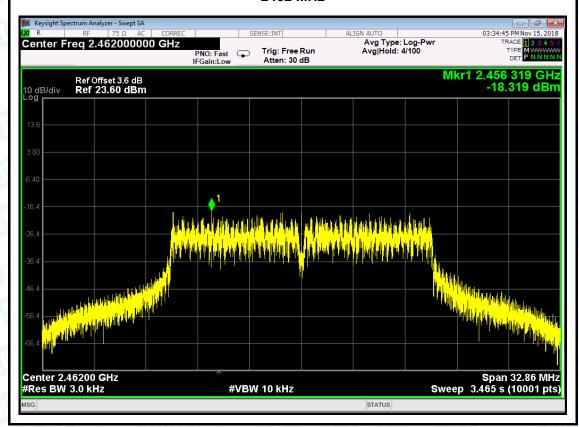




Page: 77 of 79



802.11G Mode

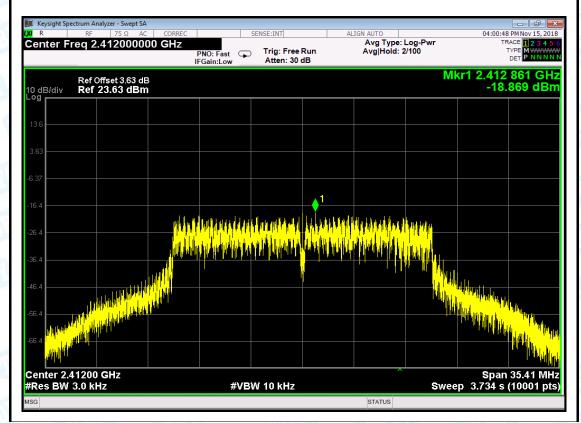




Page: 78 of 79

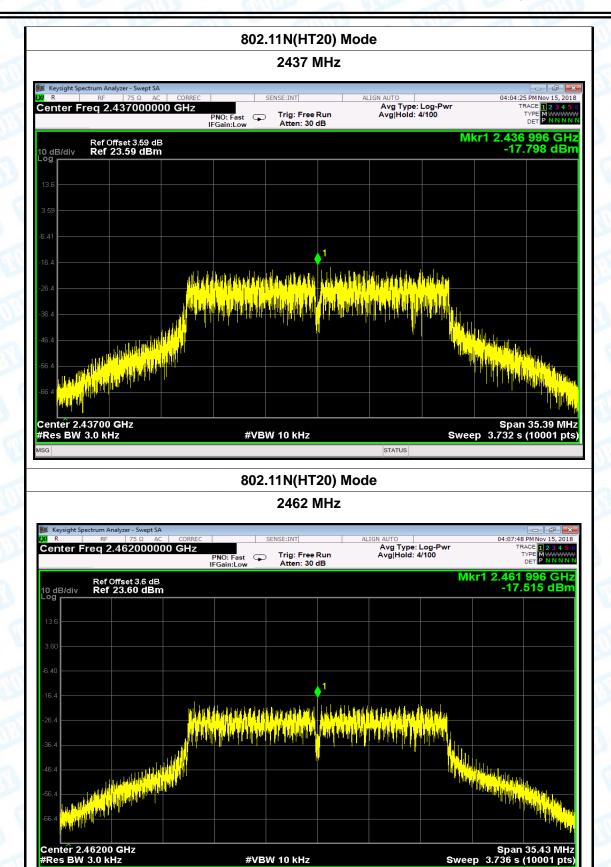
Temperature:	25 ℃		Temperature:	25 ℃		
Test Voltage:	AC 120V	A LIBE				
Test Mode:	TX 802.11N(HT20) Mode					
Channel Frequency		Power Density		Limit		
(MHz) 2412 2437		(dBm/3 kHz)		(dBm/3kHz)		
		-18.869	9	8		
		-17.79	3			
2462		-17.51	5			
		000 44N/UTO)) Mada			

802.11N(HT20) Mode





Page: 79 of 79



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