

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC167071 Page: 1 of 67

FCC Radio Test Report FCC ID: 2AKBP-Q10CW

Original Grant

Report No.	:	TB-FCC167071
Applicant	÷	Shenzhen Hysiry Technology Co., Ltd.
Equipment Under 1	Test	(EUT)
EUT Name		Smart bulb
Model No.	×	Q10CW
Series Model No.	÷	N/A
Brand Name	:	HUSIRU 汇思税
Receipt Date		2019-07-02
Test Date		2019-07-03 to 2019-07-17
Issue Date	1	2019-07-18
Standards	:	FCC Part 15, Subpart C (15.247: 2018)
Test Method	÷	ANSI C63.10: 2013
Conclusions	:	PASS
		In the second

In the configuration tested, the EUT complied with the standards specified above, The EUT technically complies with the FCC and IC requirements

H Jack Deng

Ray L

Test/Witness Engineer

Test/Witness Engineer :

WRN SU fogstar.

Jack

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



Contents

CON	ITENTS	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	6
	1.4 Description of Support Units	6
	1.5 Description of Test Mode	
	1.6 Description of Test Software Setting	8
	1.7 Measurement Uncertainty	8
	1.8 Test Facility	9
2.	TEST SUMMARY	
3.	TEST EQUIPMENT	11
4.	CONDUCTED EMISSION TEST	12
	4.1 Test Standard and Limit	
	4.2 Test Setup	12
	4.3 Test Procedure	12
	4.4 EUT Operating Mode	13
	4.5 Test Data	
5.	RADIATED EMISSION TEST	14
	5.1 Test Standard and Limit	
	5.2 Test Setup	
	5.3 Test Procedure	
	5.4 EUT Operating Condition	
	5.5 Test Data	
6.	RESTRICTED BANDS REQUIREMENT	
	6.1 Test Standard and Limit	
	6.2 Test Setup	
	6.3 Test Procedure	
	6.4 EUT Operating Condition	
	6.5 Test Data	
7.	BANDWIDTH TEST	
	7.1 Test Standard and Limit	
	7.2 Test Setup	
	7.3 Test Procedure	
	7.4 EUT Operating Condition	
-	7.5 Test Data	
8.	PEAK OUTPUT POWER TEST	
	8.1 Test Standard and Limit	



	8.2 Test Setup	
	8.3 Test Procedure	
	8.4 EUT Operating Condition	
	8.5 Test Data	
9.	POWER SPECTRAL DENSITY TEST	
	9.1 Test Standard and Limit	
	9.2 Test Setup	
	9.3 Test Procedure	
	9.4 EUT Operating Condition	
	9.5 Test Data	
10.	ANTENNA REQUIREMENT	
	10.1 Standard Requirement	23
	10.2 Antenna Connected Construction	
ATTA	CHMENT A CONDUCTED EMISSION TEST DATA	24
ATTA	CHMENT C RESTRICTED BANDS REQUIREMENT AND BAND-EDGE	TEST DATA
ATTA	CHMENT D BANDWIDTH TEST DATA	
ATTA	CHMENT E PEAK OUTPUT POWER TEST DATA	
	CHMENT F POWER SPECTRAL DENSITY TEST DATA	



Report No.: TB-FCC167071 Page: 4 of 67

Revision History

Report No.	Version	Description	Issued Date
TB-FCC167071	Rev.01	Initial issue of report	2019-07-18
Ser Co	1100	BU RUDD	
LUL AND	3 2	angu aus	
			<u>unn</u>
NOB ON			
a aug			331
			00
TOD			3
	222		(DB)
Le con	504	6000 - 000	FOR



1. General Information about EUT

1.1 Client Information

Applicant		Shenzhen Hysiry Technology Co., Ltd.		
Address:2403D, 24th Floor, Coast Huanqing Building, No.24 Futian Road, X Town Community, Futian Street, Futian District, Shenzhen				
Manufacturer	: Shenzhen Hysiry Technology Co., Ltd.			
Address : 2403D, 24th Floor, Coast Huanqing Building, No.24 Futian Road, Town Community, Futian Street, Futian District, Shenzhen		2403D, 24th Floor, Coast Huanqing Building, No.24 Futian Road, Xu Town Community, Futian Street, Futian District, Shenzhen		

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	SMART Bulb		
Models No. Model Different	:	Q10CW		
	•••	N/A		
MUL		Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz	
6.1		Number of Channel:	802.11b/g/n(HT20):11 channels see note(3)	
OBI U		RF Output Power:	802.11b: 1.697dBm 802.11g: 0.968dBm 802.11n (HT20): 0.888dBm	
Product		Antenna Gain:	1.7dBi PCB Antenna	
Description		Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK,QPSK,16QAM, 64QAM)	
a TOB		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	•	1.0		
Hardware Version	:	1.0		
Connecting I/O Port(S)		Please refer to the User's Manual		

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.

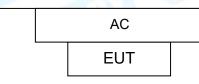


- (2) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (3) Channel List:

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.

ż	For Conducted Test		
0	Final Test Mode Description		
1	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.



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	TU CO	SecureCRT.exe	31
Channel	CH 01	CH 06	CH 11
IEEE 802.11b DSSS	80	80	80
IEEE 802.11g OFDM	50	50	50
IEEE 802.11n (HT20)	50	50	50

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:	() U
Conducted Emission	9kHz~150kHz	±3.42 dB
	150kHz to 30MHz	±3.42 dB
Dedicted Emission	Level Accuracy:	
Radiated Emission	9kHz to 30 MHz	±4.60 dB
Dedicted Environm	Level Accuracy:	
Radiated Emission	30MHz to 1000 MHz	±4.40 dB
	Level Accuracy:	
Radiated Emission	Above 1000MHz	±4.20 dB



Report No.: TB-FCC167071 Page: 9 of 67

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.



Report No.: TB-FCC167071 Page: 10 of 67

2. Test Summary

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

N/A is an abbreviation for Not Applicable.



3. Test Equipment

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 Emissio	on Test	<u>.</u>		<u>.</u>	<u>-</u>
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
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
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Mar.04, 2019	Mar. 03, 2020
Pre-amplifier	Sonoma	310N	185903	Mar.03, 2019	Mar. 02, 2020
Pre-amplifier	HP	8449B	3008A00849	Mar.03, 2019	Mar. 02, 2020
Cable	HUBER+SUHNER	100	SUCOFLEX	Jan. 27, 2019	Jan. 26, 2020
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. 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. 15, 2018	Sep. 14, 2019
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 15, 2018	Sep. 14, 2019
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 15, 2018	Sep. 14, 2019
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO26	Sep. 15, 2018	Sep. 14, 2019
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO29	Sep. 15, 2018	Sep. 14, 2019
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO31	Sep. 15, 2018	Sep. 14, 2019
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO33	Sep. 15, 2018	Sep. 14, 2019



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

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

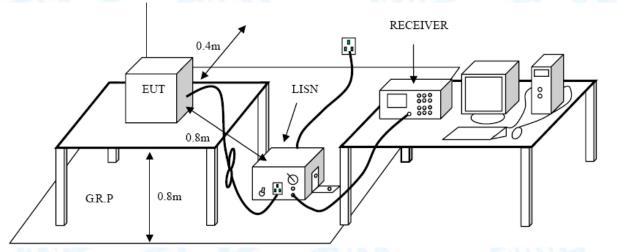
Notes:

(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.



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.



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 Distanc (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		

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

Note:

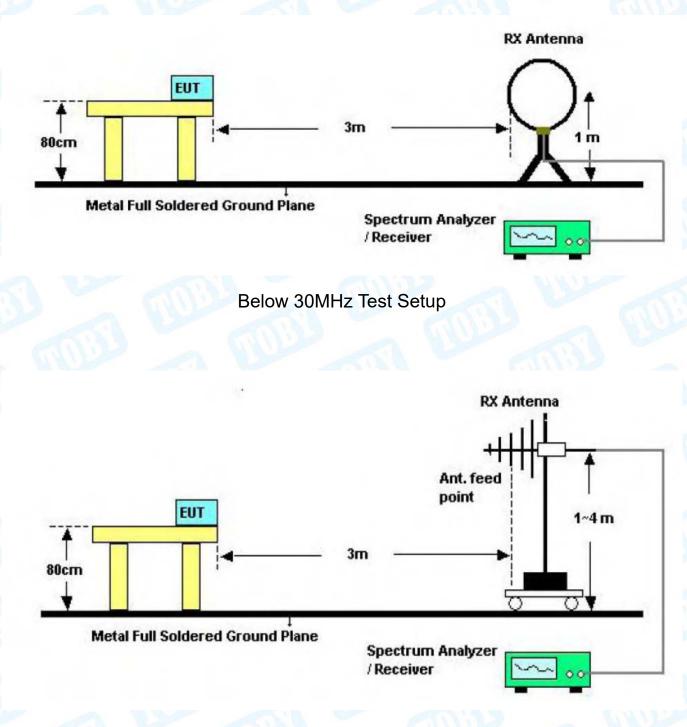
(1) The tighter limit applies at the band edges.

(2) Emission Level(dBuV/m)=20log Emission Level(uV/m)



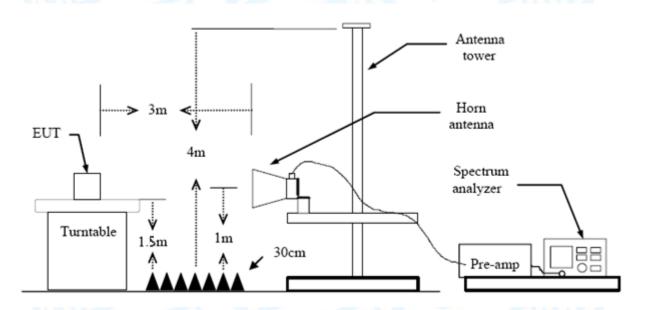
Report No.: TB-FCC167071 Page: 15 of 67

5.2 Test Setup



Below 1000MHz Test Setup





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.



- (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.

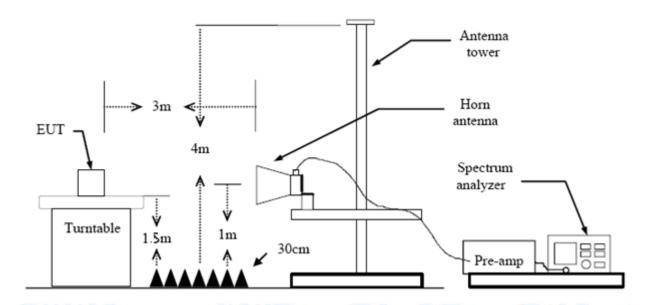


6. Restricted Bands Requirement

- 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.



- (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.

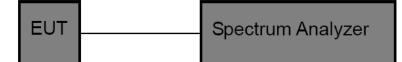


7. Bandwidth Test

- 7.1 Test Standard and Limit
 - 7.1.1 Test Standard
 - FCC Part 15.247 (a)(2) 7.1.2 Test Limit

F	CC Part 15 Subpart C(15.2	247)
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.

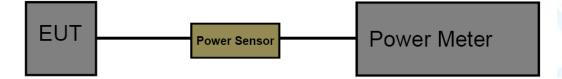


8. Peak Output Power Test

- 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 E.

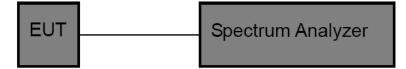


9. Power Spectral Density Test

- 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.



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 2.5dBi, 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				
000	Professional installation antenna				

Attachment A-- Conducted Emission Test Data

TOBY

Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Terminal:	Line		IN UP
Test Mode:	Mode 1		
Remark:	Only worse case is	s reported	
90.0 dBuV			
			QP: AVG:
XX			
40	XX		
- M	margar My Miller	WM.	реа
	Marine Marine		AVI
	WAR WILL	with more descent and war and a second second	an a service and a
-10			

		req.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	N	IHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1	740	32.53	9.71	42.24	64.76	-22.52	QP
2	0.1	740	20.14	9.71	29.85	54.76	-24.91	AVG
3	0.2	100	29.49	9.72	39.21	63.20	-23.99	QP
4	0.2	100	17.63	9.72	27.35	53.20	-25.85	AVG
5	0.2	460	25.04	9.72	34.76	61.89	-27.13	QP
6	0.2	460	13.82	9.72	23.54	51.89	-28.35	AVG
7	0.7	860	31.01	9.83	40.84	56.00	-15.16	QP
8	* 0.7	860	24.86	9.83	34.69	46.00	-11.31	AVG
9	1.1	019	29.04	9.88	38.92	56.00	-17.08	QP
10	1.1	019	16.63	9.88	26.51	46.00	-19.49	AVG
11	1.4	700	17.53	9.90	27.43	56.00	-28.57	QP
12	1.4	700	7.54	9.90	17.44	46.00	-28.56	AVG



Temperature:	25 ℃	Relative	e Humidity:	55%
Test Voltage:	AC 120V/60Hz		(III)	
Terminal:	Neutral			
Test Mode:	Mode 1			CU DE
Remark:	Only worse case	is reported		
90.0 dBu¥				
				QP: AVG:
40 X X	Ă ×			
	Enorman Marine	Multin w		/ [*] pea
	AND MARKEN	way WHITH WALK AND AN AND AND AND AND AND AND AND AND	an working the later stand	the month of the Andrean and and the AVI
	WWK WWK	man have been been and have	wellinger man and the manual statement of the second s	and an and a second second
-10	0.5	(MHz)	5	30.000

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1740	27.05	9.68	36.73	64.76	-28.03	QP
2		0.1740	17.82	9.68	27.50	54.76	-27.26	AVG
3		0.2140	25.10	9.69	34.79	63.04	-28.25	QP
4		0.2140	16.56	9.69	26.25	53.04	-26.79	AVG
5		0.3220	16.45	9.71	26.16	59.65	-33.49	QP
6		0.3220	11.02	9.71	20.73	49.65	-28.92	AVG
7		0.7860	32.80	9.73	42.53	56.00	-13.47	QP
8	*	0.7860	26.42	9.73	36.15	46.00	-9.85	AVG
9		1.1019	27.47	9.82	37.29	56.00	-18.71	QP
10		1.1019	15.91	9.82	25.73	46.00	-20.27	AVG
11		1.3900	16.34	9.89	26.23	56.00	-29.77	QP
12		1.3900	8.45	9.89	18.34	46.00	-27.66	AVG



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

/I⊓Z~′	IGHZ	2							
Temp	perature:	25 ℃	102		Relative H	lumidity:	55%		C 3
Test	Voltage:	AC 12	0V/60HZ	A.		C.	a Mi		
Ant.	Pol.	Horizo	ntal	NUE	1	3. 1			5
Test	Mode:	TXBN	/lode 2412M	IHz				112	
Rem	ark:	Only w	orse case is	s reported	N.Y.		1 P. P.	6	
80.0 dBuV/m									-
-20				2 Martine Mart		(RF)FCC		iation jin -6 dB	
30.0	00 40	50 60 70	80	(MHz)	300	0 400	500 600	700 1000.	.000
	No. Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		_
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector	_
	1	94.7601	54.84	-22.08	32.76	43.50	-10.74	QP	
	2 *	192.4186	60.24	-19.80	40.44	43.50	-3.06	QP	
:	3!	226.0994	59.45	-18.41	41.04	46.00	-4.96	QP	
	4	269.4284	55.82	-16.64	39.18	46.00	-6.82	QP	•
:	5	323.3204	52.98	-15.25	37.73	46.00	-8.27	QP	•

-13.26

35.73

-10.27

QP

46.00

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

374.6225

6

Emission Level= Read Level+ Correct Factor

48.99



Temperature:	25 ℃	1	F	Relative Hu	midity:	55%	C.	
Test Voltage:	AC 12	20V/60HZ		6	2112		1	
Ant. Pol.	Vertica	al				1	5	
Test Mode:	TX B I	Mode 2412	2MHz			50		
Remark:	Only v	vorse case	is reporte	d	12			Ø.
80.0 dBu∀/m								
					(RF)F	CC 15C 3M R	adiation	
						M	argin -6 dB	
2			s 4	5 6 X 6				
30		- m	m m	Min	month	wyhanger - m		
	γ	\ [V V	por when		hamer	mhr
	har	www						
	~ ~							
-20								
30.000 40 50	60 70	80	(MHz)	:	300 400	500 600	0 700 1	000.00
		Reading	Correct	Measure-				-
No. Mk.	Freq.	Level	Factor	ment	Limit	Over		
	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector	_
1 ! 34	4.0365	51.56	-16.06	35.50	40.00	-4.50	QP	_
2 ! 4	7.9940	57.13	-22.67	34.46	40.00	-5.54	QP	_
3 ! 12	0.2766	61.52	-22.32	39.20	43.50	-4.30	QP	_
4 ! 16	7.2368	58.87	-20.59	38.28	43.50	-5.22	QP	_
5 * 19	1.0738	59.44	-19.77	39.67	43.50	-3.83	QP	_
	9.8449	56.61	-18.77	37.84	46.00	-8.16	QP	_
÷ 21	0.0110	00.01	10.11	07.07	10.00	0.10	<u>.</u>	_

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

Above 1GHz

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

No	. Mk	Freq.	-	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4822.560	44.50	14.55	59.05	74.00	-14.95	peak
2	*	4823.082	30.26	14.55	44.81	54.00	-9.19	AVG

Emission Level= Read Level+ Correct Factor

Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Vertical						
Test Mode:	TX B Mode 2412MHz		ON STATE				
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		4822.584	45.20	14.55	59.75	74.00	-14.25	peak
2	*	4823.226	28.88	14.55	43.43	54.00	-10.57	AVG



Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Horizontal					
Test Mode:	TX B Mode 2437MHz	132	CTU -			
Remark:	rk: 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		4874.498	40.86	14.86	55.72	74.00	-18.28	peak
2	*	4874.498	27.11	14.86	41.97	54.00	-12.03	AVG

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

N	o. Mk	. Freq.		Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.352	27.17	14.86	42.03	54.00	-11.97	AVG
2		4874.300	40.72	14.86	55.58	74.00	-18.42	peak



Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	AC 120V/60HZ	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.							

No.	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.100	41.48	15.17	56.65	74.00	-17.35	peak
2	*	4923.736	27.34	15.17	42.51	54.00	-11.49	AVG

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

No	. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4923.616	40.64	15.17	55.81	74.00	-18.19	peak
2	*	4924.504	27.33	15.17	42.50	54.00	-11.50	AVG



Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2412MHz	132	MUL!
Remark:	No report for the emission prescribed limit.	which more than 10 d	3 below the

No	o. I	Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
			MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	r	4822.500			43.25	54.00	-10.75	AVG
2			4823.658	43.53	14.55	58.08	74.00	-15.92	peak

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.		Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4822.782	28.95	14.55	43.50	54.00	-10.50	AVG
2		4823.010	43.81	14.55	58.36	74.00	-15.64	peak



Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60HZ				
Ant. Pol.	Horizontal				
Test Mode:	TX G Mode 2437MHz		CTU -		
Remark:	No report for the emission prescribed limit.	which more than 10 d	3 below the		

No	. Mk	. Freq.		Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4872.722	40.64	14.85	55.49	74.00	-18.51	peak
2	*	4873.118	27.20	14.85	42.05	54.00	-11.95	AVG

Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Vertical					
Test Mode:	TX G Mode 2437MHz					
Remark:	No report for the emission 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		4874.318	40.84	14.86	55.70	74.00	-18.30	peak
2	*	4874.318	27.15	14.86	42.01	54.00	-11.99	AVG



Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol. Horizontal						
Test Mode:	TX G Mode 2462MHz					
Remark:	No report for the emissic prescribed limit.	on which more than 10 dl	3 below the			
No. Mk. Fre	Reading Corre eq. Level Facto	1.1.1.1	Over			
MH	lz dBuV dB/m	dBuV/m dBuV/n	n dB Detector			
1 * 4924.	984 27.34 15.18	3 42.52 54.00	-11.48 AVG			
2 4925.	002 41.07 15.18	3 56.25 74.00	-17.75 peak			

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

No	b. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4923.382	27.28	15.17	42.45	54.00	-11.55	AVG
2		4925.428	40.71	15.19	55.90	74.00	-18.10	peak



2

*

AVG

-10.88

54.00

43.12

Temperature:	25 ℃	F	Relative Hum	idity:	55%	0		
Test Voltage:	AC 120V/60HZ							
Ant. Pol.	Horizontal	Horizontal						
Test Mode:	TX N(HT20) Mode	2412MHz			n U.			
Remark:	No report for the er prescribed limit.	No report for the emission which more than 10 dB below the prescribed limit.						
No. Mk. Fr	Reading req. Level	Correct Factor	Measure- ment	Limit	Over			
М	Hz dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector		
1 4824	.162 44.52	14.55	59.07	74.00	-14.93	peak		

14.55

Emission Level= Read Level+ Correct Factor

28.57

4824.792

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

No	o. Mk	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4823.970	43.98	14.55	58.53	74.00	-15.47	peak
2	*	4823.970	28.72	14.55	43.27	54.00	-10.73	AVG



Temperature:	25 ℃		Relative Hum	idity:	55%	0	
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Horizontal	Horizontal					
Test Mode:	TX N(HT20) Mod	e 2437MH	lz		END.		
Remark:	No report for the prescribed limit.	emission v	vhich more tha	in 10 dB	below the	e	
No. Mk. Fr	Reading req. Level	Correct Factor	Measure- ment	Limit	Over		
М	Hz dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	

		1411-12	ubuv	dB/m	ubuviii	dbuvin	ub	Delector
1		4874.690	40.67	14.86	55.53	74.00	-18.47	peak
2	*	4874.690	27.11	14.86	41.97	54.00	-12.03	AVG

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

N	o. Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4873.436	27.16	14.86	42.02	54.00	-11.98	AVG
2		4875.164	41.14	14.87	56.01	74.00	-17.99	peak



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

No	. Mk	. Freq.		Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4922.962	41.33	15.17	56.50	74.00	-17.50	peak
2	*	4922.974	27.27	15.17	42.44	54.00	-11.56	AVG

Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	AC 120V/60HZ							
Ant. Pol.	Vertical	Vertical						
Test Mode:	TX N(HT20) Mode 2462MH	z						
Remark:	No report for the emission w	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		4923.802	40.72	15.17	55.89	74.00	-18.11	peak
2	*	4924.786	27.29	15.18	42.47	54.00	-11.53	AVG



Conducted RF Spurious Emission Test Data

Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120/60Hz		
Test Mode:	TX B Mode		EN L'SE
Remark:	This report only shall the w	orst case mode for TX I	EEE 802.11b.
	2412 M	IHz	
	0.03GHz-20	6.5GHz	
Section Ref 1453 db db Ref 1453 db db 30 31 32 33 34 34 35 35 35 35 35 35 35 35 35 35	Miles million and	Certer Ferd 255000000 GH2 Certer Ferd 255000000 GH2 Certer Ferd 255000000 GH2 Certer Ferd 25000000 GH2 Certer Ferd 250000000 GH2 Certer Ferd 25000000 GH2 Certer Ferd 250000000 GH2 Certer Ferd 25000000 GH2 Certer Ferd 250000000 GH2 Certer Ferd 2500000000 GH2 Certer Ferd 2500000000 GH2 Certer Ferd 25000000000000000000000000000000000000	Ang Tau Lug-Par Ang Tau Lug-Par Ang Tau Lug-Par Ment 2435 Children and Ang Ment 2435 Children and Ang Ang Tau Lug-Par Ment 2435 Children and Ang Ment 2455 Children and Ang Ment 2455 Children and Ang Ment 2455 C
	2462 M 0.03GHz-20		
Support Instant Make Towards Center Freq 2.462000000 GHz Conter Freq 2.46200000 GHz Conter Freq 3.462 dem	NERM AND INFO	August behave have the set in the set of the set o	Approx.101 Angener.100 Angene
Center 2,46280 GHz RRes BW 100 kHz #VBW	(300 MHz (300 MHz (300 MHz) (300 MHz) (300 MHz) (300 MHz) (300 MHz) (300 MHz)	3 N 1 1 7 3 N 1 1 7 4 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7	hronti.

Attachment C-- Restricted Bands Requirement and

Band-edge Test Data

(1) Radiation Test

Temperature:	25 ℃		Relative Hur	nidity:	55%
Fest Voltage:	AC 120V/6)HZ		23	
Ant. Pol.	Horizontal				
Fest Mode:	TX B Mode	2412MHz		600	NOR
Remark:	N/A	MIN S			
110.0 dBuV/m					
					*
					X
				(RF) FCC PA	ART 15C (PEAR)
				1	
60					PART 15C (AVG)
			1 X	(HF)FCC	PAHT ISC (AVG)
			2		
	+				
10.0					

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	- Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	49.60	2.82	52.42	74.00	-21.58	peak
2		2390.000	38.73	2.82	41.55	54.00	-12.45	AVG
3	*	2412.800	83.59	2.94	86.53	Fundamental	Frequency	AVG
4	Х	2413.200	92.94	2.95	95.89	Fundamental F	requency	peak



emperature:	25 ℃		Relative Hu	midity: 55%	6
est Voltage:	AC 120V	/60HZ	5	TIPP	
nt. Pol.	Vertical	Ve			
est Mode:	TX B Mo	de 2412MHz		-	No.
emark:	N/A				0
110.0 dBuV/m	i				
60				(RF) FCC PART (RF) FCC PAR × 2 ×	
10.0 2320.000 2330.00	2340.00 23	60.00 2360.00	2370.00 2380.00	2390.00 2400.00	2420.00 M

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	46.53	2.82	49.35	74.00	-24.65	peak
2		2390.000	34.76	2.82	37.58	54.00	-16.42	AVG
3	*	2411.400	80.67	2.94	83.61	Fundamenta	I Frequency	AVG
4	Х	2413.200	89.65	2.95	92.60	Fundamenta	I Frequency	peak



emperature:	25 ℃	Relative Humidity: 55%	
est Voltage:	AC 120V/60HZ		
nt. Pol.	Horizontal		11.6
est Mode:	TX B Mode 2462MHz		
emark:	N/A		-
110.0 dBu∀/m			
60 2 X 1 X 4 4 4 4 4 4 4 4 4 4 4 4 4		(RF) FCC PART 15C (P (RF) FCC PART 15C (P	
10.0	2473.00 2493.00 2493.00 250	3.00 2513.00 2523.00 2533.00	

NO). MI	k. ⊢req.	Level	Factor	ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2461.200	84.37	3.27	87.64	- Fundamental F		AVG
2	Х	2463.000	93.63	3.27	96.90	—Fundamental	Frequency ⁻	peak
3		2483.500	46.30	3.41	49.71	74.00	-24.29	peak
4		2483.500	35.87	3.41	39.28	54.00	-14.72	AVG



Ant. Pol. Vertical Test Mode: TX B Mode 2462MHz	Temperature:	25 ℃	Relative Humidity:	55%
TX B Mode 2462MHz Remark: N/A 110.0 dBuV/m 2 X 1	Test Voltage:	AC 120V/60HZ		2
Remark: N/A 110.0 dBuV/m 2	Ant. Pol.	Vertical		
110.0 dBuV/m	Test Mode:	TX B Mode 2462MF	Ηz	mu
2 x 1 x (RF) FCC PART 15C (PEAK)	Remark:	N/A		
X Image: Constraint of the second secon	110.0 dBu¥/m			
	X X			

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2462.600	80.56	3.27	83.83	Fundamental	Frequency	AVG
2	Х	2463.000	90.09	3.27	93.36	Fundamental	Frequency	peak
3		2483.500	45.56	3.41	48.97	74.00	-25.03	peak
4		2483.500	34.33	3.41	37.74	54.00	-16.26	AVG



AC 120V/60HZ		
10 120 10012		
Horizontal		
TX G Mode 2412MHz		mue
N/A		
		3
		×
		4
	(RF) FI	CC PART 15C (PEAK)
	X BEI	FCC PART 15C (AVG)
	2 X	
	TX G Mode 2412MHz N/A	TX G Mode 2412MHz N/A

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	56.21	2.82	59.03	74.00	-14.97	peak
2		2390.000	38.05	2.82	40.87	54.00	-13.13	AVG
3	Х	2417.800	95.44	2.98	98.42	Fundamental	Frequency	peak
4	*	2419.200	79.06	2.99	82.05	Fundamental	Frequency	AVG

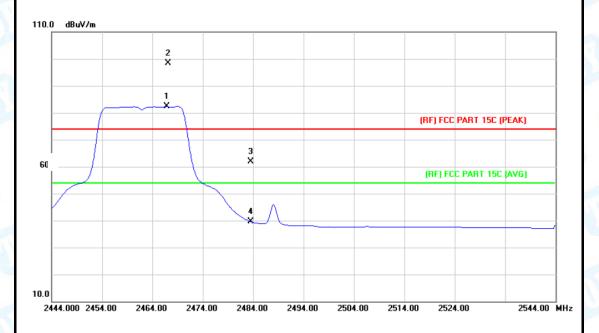


Cemperature:	25 ℃		Relative H	umidity:	55%
est Voltage:	AC 120V/	60HZ	5	11 DE	
Ant. Pol.	Vertical	N.C.			11
Fest Mode:	TX G Mod	de 2412MHz	2015		mue
Remark:	N/A			120	
110.0 dBuV/m	i.				
				4 ×	:
				(BE) FC	PART 15C (PEAK)
60			1	(RF) FC	PART 15C (AVG)
			×]	
			2		
			×		
10.0			381.00 2391.00 24	401.00 2411	

N	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	48.77	2.82	51.59	74.00	-22.41	peak
2		2390.000	34.54	2.82	37.36	54.00	-16.64	AVG
3	*	2410.800	74.57	2.93	77.50	Fundamental	Frequency	AVG
4	Х	2411.000	90.69	2.93	93.62	- Fundamental	Frequency	peak



Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Ant. Pol.	Horizontal		
Test Mode:	TX G Mode 2462MHz		mu
Remark:	N/A		6



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2466.800	78.99	3.29	82.28	Fundamental I	requency	AVG
2	Х	2467.200	95.18	3.31	98.49	Fundamental I	requency	peak
3		2483.500	58.40	3.41	61.81	74.00	-12.19	peak
4		2483.500	36.14	3.41	39.55	54.00	-14.45	AVG



	25 ℃		Relative H	innuity.	55%	
est Voltage:	AC 120V/60	DHZ		1101		
nt. Pol.	Vertical				ANI I	
est Mode:	TX G Mode	2462MHz	132		mu2	1
Remark:	N/A	2 10		12		P
100.0 dBu∀/m						
	2 X					
	\sim ¹			(RF) FCC	PART 15C (PEAK)	-
		3				
	\	×		(RF) FCC	PART 15C (AVG)	_
50						
		×				
						_
0.0						1
2444.000 2454.00	2464.00 2474.00	2484.00 2494	.00 2504.00 25	14.00 2524.	.00 2544.0	
	Read	ding Correc	t Measure-			

No.	Mk.	Freq.	Level	Factor	ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2464.600	75.43	3.28	78.71	Fundamental F	requency	AVG
2	Х	2467.600	91.71	3.31	95.02	Fundamental F	requency?	peak
3		2483.500	53.72	3.41	57.13	74.00	-16.87	peak
4		2483.500	34.38	3.41	37.79	54.00	-16.21	AVG



emp	eratu	re:	25 °C	2	-		R	Rela	tive H	lumi	idity:	55%		
'est \	/oltag	e:	AC 1	20V/	50HZ				6	11	10L			
Ant. F	Pol.		Horiz	ontal	010		R					-	2.1	
'est I	Mode:		TX N	(HT2	0) Mo	de 2412M	1Hz				_	an de	1	
Rema	ark:		N/A	- 2	2	N.S.	1			5			1	2
110.0	dBu∀/n	n												_
-												3 X		
											(RF) FCC	PART 15C (PE	4	
60									1 X			C PART 15C (A		
									2 X	/)			
_														
10.0														
232	28.000 23	338.00	2348.00	2358	.00 23	368.00 237	8.00	2388	3.00	2398.0	0 2408	3.00	2428.00	MH
No	. Mk	. Fr	req.		ading vel	Correc Facto		lea: me	sure- ent		imit	Over		
		М	Hz	dE	BuV	dB/m		dBu	ıV/m	d	BuV/m	dB	Detec	tor
1		2390	000.	56	.27	2.82		59	.09	7	74.00	-14.91	pea	ık
2		2390	000.	38	.07	2.82		40	.89	Ę	54.00	-13.11	AV	G
3	Х	2414	.800	94	.38	2.95		97	.33	— Fu	ndament	al Frequency	, pea	ık

81.73

Fundamental Frequency AVG

Emission Level= Read Level+ Correct Factor

78.74

2.99

2419.400

4

*



Temperature:	25 ℃		Relative Hu	nidity:	55%	
Fest Voltage:	AC 120	V/60HZ	5			
Ant. Pol.	Vertical	W.		3	-	2.1
fest Mode:	TX N(H	T20) Mode 241	2MHz		010	1
Remark:	N/A			120		
110.0 dBu¥/m						
					4 ×	
					2	
				(BE) FE	EPART 15C (PEA	K)
60			1	(RF) F	CC PART 15C AV	G)
			×	/	1	
			2	-		\searrow
10.0						

No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	49.42	2.82	52.24	74.00	-21.76	peak
2		2390.000	34.20	2.82	37.02	54.00	-16.98	AVG
3	*	2410.800	74.70	2.93	77.63	Fundamenta	I Frequency	AVG
4	Х	2411.200	90.82	2.94	93.76	Fundamental	Frequency	peak



3

4

empe	rature	:	25 °	С		2		Rela	tive H	umidity:	55%	
est Vo	oltage	:	AC 1	20V	/60HZ							
nt. Po	ol.		Horiz	zonta	al	/	1	2		2	1	11
est M	ode:		TXN	I(HT	20) Mo	de 24	162MHz	z)	-	and a	100
Remar	k:		N/A		-				1	120		0
100.0 d	lBuV/m 1		1									
	×											
		2										
	-	2 X								(RF) FCC	PART 15C (PEA	KI
					3 X							
				7						(RF) FC	C PART 15C (AV	6)
50					4	Δ						
					×	Д						
0.0												
	00 2456	.00 3	2466.00	247	6.00 24	86.00	2496.00	2506	6.00 25	516.00 2526	.00	2546.00 MH
				R	eading	С	orrect	Me	asure-			
No	. Mk.	F	req.		Level		actor		nent	Limit	Over	
		N	1Hz		dBuV	(dB/m	dE	3uV/m	dBuV/m	ı dB	Detecto
1	Х	245	5.600	1	94.88		3.23	9	8.11	Fundament	al Frequency	peak
2	*	2460	0.800		78.55		3.26	8	1.81	Fundament	al Frequency	AVG

74.00

54.00

61.65

39.61

-12.35

-14.39

peak

AVG

Emission Level= Read Level+ Correct Factor

58.24

36.20

3.41

3.41

2483.500

2483.500



emperature:	25 ℃	Relative Humi	idity:	55%
est Voltage:	AC 120V/60HZ		NBB	
nt. Pol.	Vertical			
est Mode:	TX N(HT20) Mode 2	462MHz	-	mue
emark:	N/A		50	
100.0 dBuV/m				
1 X				
	_			
	2			
	×		(RF) FCC PA	ART 15C (PEAK)
	×		(RF) FCC PA	ART 15C (PEAK)
	3			
				ART 15C (PEAK) PART 15C (AVG)
50	3			
50	3			
50	3			
50	3			
50	3			

No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2458.600	90.65	3.24	93.89	- Fundamental	Frequency	peak
2	*	2465.000	74.86	3.28	78.14	Fundamental	Frequency	AVG
3		2483.500	55.06	3.41	58.47	74.00	-15.53	peak
4		2483.500	34.67	3.41	38.08	54.00	-15.92	AVG



(2) C

nperature:	25 ℃		Relative Humidity:	55%
t Voltage:	AC 120V/60	OHZ		-
t Mode:	TX B Mode	2412MHz / TX	B Mode 2462MHz	GANE
nark:	The EUT is	programed in o	continuously transmitting	, mode
💓 Keysight Spectrum				- 6 -
	RF 75 Ω AC CORREC 2.377000000 GHz	PNO: Fast Trig: Free F	Avg Type: Log-Pwr Run Avg Hold:>100/100	11:51:02 PM Jul 08, 2019 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N
Re	ef Offset 3.63 dB	IFGain:Low Atten: 30 d		2.412 5 GHz
10 dB/div R	ef 23.63 dBm			-9.114 dBm
3.63				.1
-6.37			Junua de la companya de la	mun
-26.4			N	
-36.4			4 3 2 war war and a start and a start and a start and a start	hull have a
-56.4	and the second second	┍╾┑╡┇╠┍┽┎┶╻┝╖╏┶╌┙╘╗╘╝┝╍╼┥	har and a second a second s	
Start 2.32700) GHz		St	op 2.42700 GHz
#Res BW 100		#VBW 300 kHz	Sweep 9.60	00 ms (1001 pts)
1 N 1 f 2 N 1 f	2.412 5 GH 2.400 0 GH	z -9.114 dBm z -49.189 dBm		
4 N 1 f	2.386 0 GH	Iz -53.402 dBm Iz -47.591 dBm		E
6 7 8				
9 10 11				•
MSG			STATUS	
	Analumar Succest CA		STATUS	
Keysight Spectrum		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	11:59:03 PM Jul 08, 2019 TRACE 2 2 3 4 5 6
Keysight Spectrum	RF 75 Ω AC CORREC	PNO: Fast Tifg: Free F IFGain:Low Atten: 30 c	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hoid:>100/100 JB	11:59:03 PM Jul 08, 2019 TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN
Keysight Spectrum WRL F Center Freq 10 dB/div Rt	RF 75 Ω AC CORREC	PNO: Fast Trig: Free F	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hoid:>100/100 JB	11:59:03 PM Jul 08, 2019 TRACE 1 2 3 4 5 6 TYPE M WWWWW
Keysight Spectrum WRL F Center Freq Re	RF 75 Ω AC CORREC 2.497000000 GHz ef Offset 3.6 dB	PNO: Fast Trig: Free F	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hoid:>100/100 JB	11:59:03 PMJul 08, 2019 TRACE 1 2 3 4 5 6 TYPE DET P NNNNN 2.461 5 GHz
Keysight Spectrum M RL F Center Freq 10 dB/div R 13 6 3 60	RF 75 Ω AC CORREC 2.497000000 GHz ef Offset 3.6 dB	PNO: Fast Trig: Free F	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hoid:>100/100 JB	11:59:03 PMJul 08, 2019 TRACE 1 2 3 4 5 6 TYPE DET P NNNNN 2.461 5 GHz
Keysight Spectrum XRL F Center Freq 10 dB/div R 13 6	RF 75 Ω AC CORREC 2.497000000 GHz ef Offset 3.6 dB	PNO: Fast Trig: Free F	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hoid:>100/100 JB	11:59:03 PMJul 08, 2019 TRACE 1 2 3 4 5 6 TYPE DET P NNNNN 2.461 5 GHz
Keysight Spectrum M RL F Center Freq 10 dB/div R 13 6 3 60	ef Offset 3.6 dB ef 23.60 dBm	PNO: Fast Trig: Free F IFGain:Low Atten: 30 c	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hold:>100/100 IB Mkr1	11:59:03 PMJul 08, 2019 TRACE 1 2 3 4 5 6 TYPE DET P NNNNN 2.461 5 GHz
Keysight Spectrum Keysight Spectrum Keysight Spectrum Keysight Spectrum Keysight Spectrum Re Center Freq Second State Sec	ef Offset 3.6 dB ef 23.60 dBm	PNO: Fast Trig: Free F	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hoid:>100/100 JB	11:59:03 PMJul 08, 2019 TRACE 1 2 3 4 5 6 TYPE DET P NNNNN 2.461 5 GHz
Image: Keysight Spectrum OM RL F Center Freq R 10 dB/div R 13 6 3 50 -6 4 -6 4 -16 4 -6 4	ef Offset 3.6 dB ef 23.60 dBm	PNO: Fast Trig: Free F IFGain:Low Atten: 30 c	ALIGN AUTO Avg Type: Log-Pwr Run Avg Hold:>100/100 IB Mkr1	11:5903 PMJU 08,2019 TRACE 12:24 3 5 TRACE 12:24 3 5 PTEP MANNAN 2:461 5 GHz -9.746 dBm
Keysight Spectrum (M RL) F Center Freq 10 dB/div R 13 6 3 60 -6 40 -16 4 -26 4 -36 4 -36 4 -36 4 -36 4	ef Offset 3.6 dB ef 23.60 dBm	PNO: Fast Trig: Free F IFGain:Low Atten: 30 c	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 B Mkr1	11:5903 PMJU 08,2019 TRACE 12:24 3 5 TRACE 12:24 3 5 PTEP MANNAN 2:461 5 GHz -9.746 dBm

				GHz kHz		#VB	W 300 kHz			Sweep	Stop 2.5 9.600 ms	4700 GHz (1001 pts)
MKR	MODE	TRC	SCL		х	Y	FUN	CTION FUN	CTION WIDTH	FU	NCTION VALUE	~
1	Ν	1	f		2.461 5 GHz		dBm					
2	Ν	1	f		2.483 5 GHz							
3	Ν	1	f		2.500 0 GHz							
4	Ν	1	f		2.488 0 GHz	-48.007	dBm					
5												E
6												
7												
8												
9												
10												
11												
•							m					•



perature:	25 ℃ Relative Hum	idity: 55%						
t Voltage:	AC 120V/60HZ	UP -						
Mode: TX G Mode 2412MHz / TX G Mode 2462MHz								
nark:								
Keysight Spectrum Al XI RL RF Center Freq 2	75 Ω AC CORREC SENSE:INT ALIGN AUTO .3770000000 GHz Avg Type: Log-Pw Avg Type: Log-Pw PN0: East Trig: Free Run AvgItolid:>100/100	TYPE M WAWAAAAAA						
Bef	IFGain:Low Atten: 30 dB	Mkr1 2.413 3 GHz						
10 dB/div Ref	23.63 dBm	-5.338 dBm						
3.63		1						
-6.37 -16.4		alulidadada alaya bada hada h						
-26.4								
-46.4	and a second designed a							
-56.4								
Start 2.32700 0 #Res BW 100 P		Stop 2.42700 GHz weep 9.600 ms (1001 pts)						
MKR MODE TRC SCL	X Y FUNCTION FUNCTION WIDTH 2.413 3 GHz -5.338 dBm	FUNCTION VALUE						
2 N 1 f 3 N 1 f 4 N 1 f	2.400 0 GHz -31.975 dBm 2.390 0 GHz -50.630 dBm 2.386 0 GHz -47.170 dBm							
5 6	2.300 U GH2 -4/.1/U UDIII	E						
7 8 9								
10								
MSG	STATUS	STATUS						
🎉 Keysight Spectrum Ar								
Center Freq 2	75 Ω AC CORREC SENSE:INT ALIGN AUTO .4970000000 GHz PNO: Fast Trig: Free Run Avg Type: Log-Pw	12:13:46 AM Jul 09, 2019 r TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N						
Bef	IFGain:Low Atten: 30 dB	Mkr1 2.463 3 GHz						
10 dB/div Ref	23.60 dBm	-6.008 dBm						
3.60								
-6.40	Listen had set							
-16.4		-26.02 dBm						
-36.4 mlasm								
-46.4	Man State Ward have been and a state of the	ะเทียงม _{ีสุข} างของของการสองที่สามารถ						
-66.4								
Start 2.44700 0 #Res BW 100 b		Stop 2.54700 GHz weep 9.600 ms (1001 pts)						
MKR MODE TRC SCL	X Y FUNCTION I FUNCTION WIDTH	FUNCTION VALUE						
1 N 1 f 2 N 1 f 3 N 1 f	2.463 3 GHz -6.008 dBm 2.483 5 GHz -50.391 dBm 2.500 0 GHz -51.466 dBm							
4 N 1 f	2.488 0 GHz 45.600 dBm	E						
6 7 8								
9 10 11								
		Þ						
MSG	STATUS							

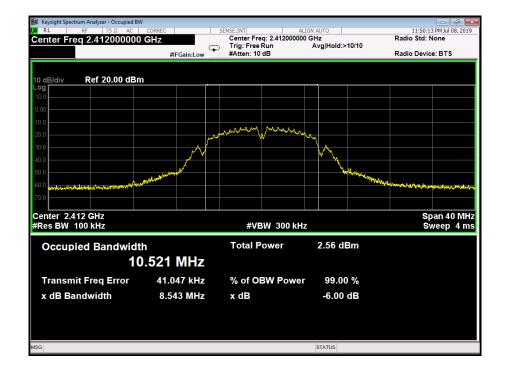


erature:	25 ℃	Relative Humidity:	55%				
oltage:	AC 120V/60HZ						
lode:							
k: The EUT is programed in continuously transmitting mode							
LXI RL	q 2.377000000 GHz	ENSE:INT ALION AUTO Avg Type: Log-Pwr Trig: Free Run Avg Hold:>100/100	12:22:44 AM Jul 09, 2019 TRACE 1 2 3 4 5 6 TYPE M				
	Ref Offset 3.63 dB Mkr1 2.413 SGH2						
10 dB/div Log	Ref 23.63 dBm		-3.298 UBII				
3.63			1				
-16.4		البانيانيان	alan ya lata ba ba				
-26.4 -36.4		A marked	and the second				
-46.4 -56.4	and a second and a second and a second	methodin and mentioned and the second					
-66.4							
Start 2.3270 #Res BW 10		V 300 kHz Sweep	Stop 2.42700 GHz 9.600 ms (1001 pts)				
MKR MODE TRC	f 2.413 3 GHz -5.298 c	dBm	TION VALUE				
2 N 1 3 N 1 4 N 1 5	f 2.390 0 GHz -50.318 d	dBm					
6 7 8							
9 10 11							
			*				
MSG		III STATUS	F				
		III. STATUS					
Keysight Spectre (X) R L		ENSE:INT ALIGN AUTO AUTO AUTO AUTO AUTO AUTO AUTO AUTO	, 12:28:31 AM Jul (09, 2019 TRACE 2 34 5 (
Keysight Spectre (X) R L		ENSE:INT ALIGN AUTO Avg Type: Log-Pwr Trig: Free Run Avg Hoid:>100/100 Atten: 30 dB	12:28:31 AM Jul 09, 2019 TRACE 2 3 4 5 6 TYPE MWWWW DET P NNNN				
Keysight Spectre RL Center Fre 10 dB/div	RF 75 Ω AC CORREC S q 2.497000000 GHz PNO: Fast C	ENSE:INT ALIGN AUTO Avg Type: Log-Pwr Trig: Free Run Avg Hoid:>100/100 Atten: 30 dB	12:28:31 AM Jul 09, 2019 TRACE 1 2 3 4 5 6				
III Keysight Spectr (X) RL Center Fre 10 dB/div	RF 75 Ω AC CORREC S q 2.497000000 GHz PNO: Fast Fiscan:Low Fiscan:Low	ENSE:INT ALIGN AUTO Avg Type: Log-Pwr Trig: Free Run Avg Hoid:>100/100 Atten: 30 dB	12:28:31 AM Jul 09, 2019 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET PNNNNN kr1 2.463 3 GHz				
Keysight Spectra VM RL Center Fre 10 dB/div Log 13.6 3.60 -6.40	RF 75 Ω AC CORREC S q 2.497000000 GHz PNO: Fast Fiscan:Low Fiscan:Low	ENSE:INT ALIGN AUTO Avg Type: Log-Pwr Trig: Free Run Avg Hoid:>100/100 Atten: 30 dB	12:28:31 AM Jul 09, 2019 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET PNNNNN kr1 2.463 3 GHz				
Keysight Spectr RL Center Fre 10 dB/div 13.6 3.60	RF 75.0 AC CORREC S q 2.4970000000 GHz PN0: Fast IFGain:Low IFGain:Low Ref Offset 3.6 dB Ref 23.60 dBm Iffall Iffall	ENSE:INT ALIGN AUTO Avg Type: Log-Pwr Trig: Free Run Avg Hoid:>100/100 Atten: 30 dB	12:28:31 AM Jul 09, 2019 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET PNNNNN kr1 2.463 3 GHz				
Keysight Spectra VM RL Center Fre 10 dB/div Log 13.6 3.60 -6.40	PF 75.0 AC CORREC S q 2.4970000000 GHz PN0: Fast IFGain:Low PN0: Fast IFGain:Low Ref Offset 3.6 dB Ref 23.60 dBm IfGain:Low	ENSE:INT ALIGN AUTO Trig: Free Run Atten: 30 dB M Atten: 4 Atten: 4 At	12:28:31 AM Julog. 2019 TRACE [] 23 4 5 6 TYPE MANANAN OET PININNIN kr1 2.463 3 GHz -6.018 dBm				
Keysight Spectr R Center Fre 10 dB/div 13.6 3.80 -6.40 -16.4 -26.4 -46.4 -66.4	RF 75.0 AC CORREC S q 2.4970000000 GHz PNO: Fast IFGain:Low PNO: Fast PNO: Fast PNO: Fast PNO: Fast Ref Offset 3.6 dB Ref 23.60 dBm PNO: Fast PNO: Fast PNO: Fast	ENSE:INT ALIGN AUTO Aug Type: Log-Pwr Trig: Free Run Atten: 30 dB M	12:28:31 AM Julog. 2019 TRACE 12:34:56 TYPE PNNNNN kr1 2:463 3 GHz -6.018 dBm				
Keysight Spectru Center Fre 10 dB/div 13.6 3.60 -6.40 -16.4 -36.4 -66.4	RF 75.0 AC CORREC S q 2.497000000 GHz PNO: Fast IFGain:Low PNO: Fast PNO: Fast PNO: Fast Ref Offset 3.6 dB Ref 23.60 dB	ENSE:INT ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100 M	12:28:31 AM Julog. 2019 TRACE 12:34:54 TYPE P NNINN kr1 2:463 3 GHz -6.018 dBm -6.018 dBm				
Keysight Spectr Q RL Center Fre 10 dB/div 13.6	RF 75.0. AC CORREC S q 2.4970000000 GHz PNO: Fast IFGain:Low PNO: Fast IFGain:Low Ref Offset 3.6 dB Ref 23.60 dBm PNO: Fast IFGain:Low 00 GHz 00 KHz PNO: Fast IFGain:Low	ENSE:INT ALIGN AUTO Trig: Free Run Atten: 30 dB M M M V 300 kHz Sweep	12:28:31 AM Julog. 2019 TRACE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 AM JULICATION OF 12:34 AM JULICATION OF 12				
Keysight Spectr RL Center Fre 10 dB/div 13 6 3 60 -6.40 -16.4 -26.4 -36.4 -46.4 -56.4 Start 2.4477 #Res BW 10 MKR MODE TRC 2 N	RF 75.0 AC CORREC S q 2.497000000 GHz PNO: Fast IFGain:Low PN	ENSE:INT ALIGN AUTO Trig: Free Run Atten: 30 dB M Atten: 30 dB M Aug Type: Log-Pwr Avg Hold:>100/100 M M M M M M M M M M M M M	12:28:31 AM Julog. 2019 TR46:11 2:463 3 GHz -6.018 dBm -6.018 dBm -6.018 dBm -6.018 dBm				
Keysight Spectric Center Free 10 dB/div 13.6 3.60 -6.4 -7.5 -7.5 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.6 -7.7 -7.7 -7.7 -7.7 -7.7 -7.7 -7.7 -7.7 -7.7 -7.7 -	RF 75.0 AC CORREC S q 2.497000000 GHz PNO: Fast IFGaint.low PNO: Fast PNO: Fast PNO: Fast PNO: Fast Ref Offset 3.6 dB Ref 23.60 dBm PNO: Fast PNO: Fast PNO: Fast 00 GHz 00 GHz 00 GHz PNO: Fast PNO: Fast 00 GHz 1 00 GHz #VBN SCL X Y Y 1 2.463 3 GHz -51.81 -51.841	ENSE:INT ALIGN AUTO Trig: Free Run Atten: 30 dB M Atten: 30 dB M Aug Type: Log-Pwr Avg Hold:>100/100 M M M M M M M M M M M M M	12:28:31 AM Julog. 2019 TRACE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 AM JULICATION OF 12:34 AM JULICATION OF 12				
Keysight Spectr M RL Center Fre 10 dB/div 0.9 13.6 3.60 -6.40 -16.4 -36.4 -46.4 -66.4 Start 2.4470 #Res BW 11 MKR MODE TRC 1 1 3 1 4 1 5 1 6 1 7 1 8 1	RF 75.0 AC CORREC S q 2.497000000 GHz PNO: Fast IFGain:Low PN	ENSE:INT ALIGN AUTO Trig: Free Run Atten: 30 dB M Atten: 30 dB M Aug Type: Log-Pwr Avg Hold:>100/100 M M M M M M M M M M M M M	12:28:31 AM Julog. 2019 TRACE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 AM JULICATION OF 12:34 AM JULICATION OF 12				
Keysight Spectric Center Free 10 dB/div 13.6 3.60 -6.40 -16.4 -66.4 -66.4 -66.4 -66.4 -66.4 -66.4 -76.4	RF 75.0 AC CORREC S q 2.497000000 GHz PNO: Fast IFGain:Low PN	ENSE:INT ALIGN AUTO Trig: Free Run Atten: 30 dB M Atten: 30 dB M Aug Type: Log-Pwr Avg Hold:>100/100 M M M M M M M M M M M M M	12:28:31 AM Julog. 2019 TRACE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 TYPE MANAGE 12:34:54 AM JULICATION OF 12:34 AM JULICATION OF 12				

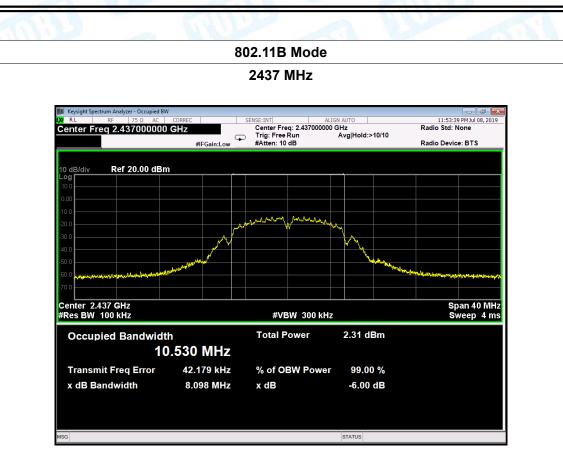


Attachment D-- Bandwidth Test Data

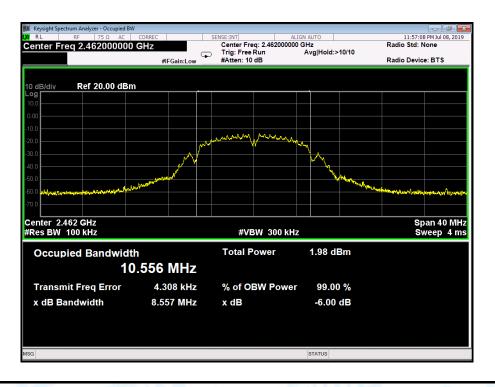
Temperature:		°C	Relative Humidity:	55%			
Test Voltage:	AC	AC 120V/60HZ					
Test Mode:		(802.11B Mode		GILL			
Channel frequen	су	6dB Bandwidth	99% Bandwidth	Limit			
(MHz)		(MHz)	(MHz)	(MHz)			
2412	2412 8.543		10.521				
2437		8.098	10.530	>=0.5			
2462		8.557	10.556				
		802.11B	Mode				





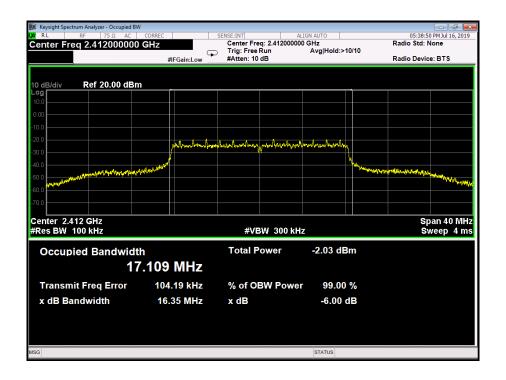


802.11B Mode

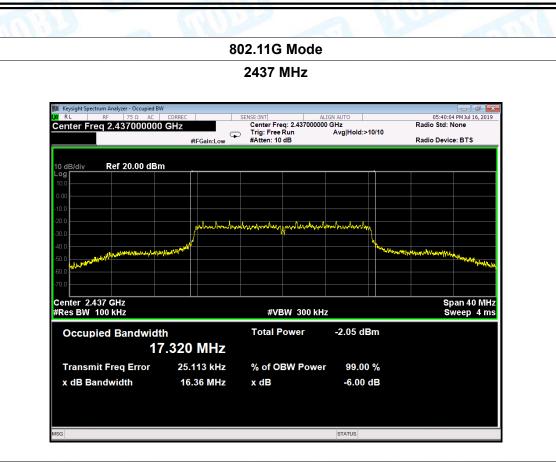




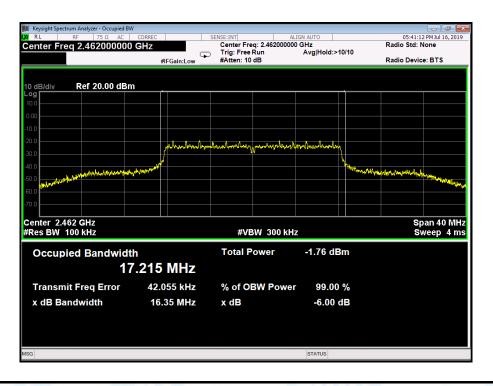
Temperature: 2		°C	Relative Humidity:					
Test Voltage:	AC	AC 120V/60HZ						
Test Mode:	ТΧ	802.11G Mode						
Channel frequen	су	6dB Bandwidth	99% Bandwidth	Limit				
(MHz)		(MHz)	(MHz)	(MHz)				
2412	16.35		17.109					
2437		2437 16.36		>=0.5				
2462		16.35	17.215	-				
		802.11G	Mode					







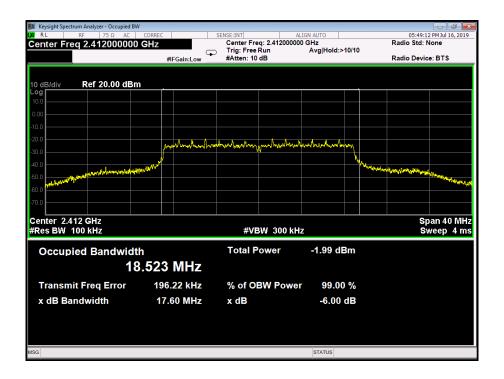
802.11G Mode



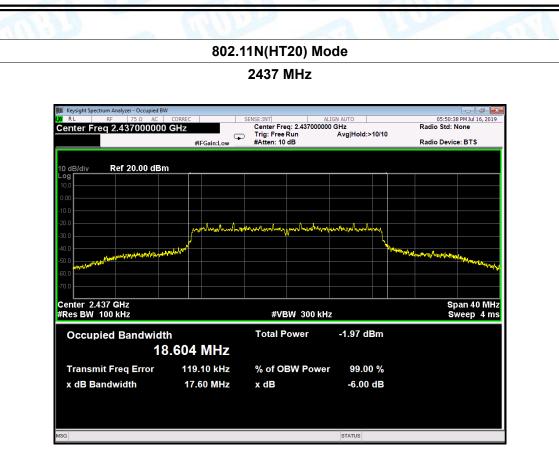


Temperature:	25	5 °C	Relative Humidity:	55%		
Test Voltage:	A	C 120V/60HZ				
Test Mode:	T)	K 802.11N(HT20) Mode				
Channel frequen	су	6dB Bandwidth	99% Bandwidth	Limit		
(MHz)		(MHz)	(MHz)	(MHz)		
2412	2412 17.60		18.523			
2437	2437 17.		17.604	>=0.5		
2462		17.59	19.703			

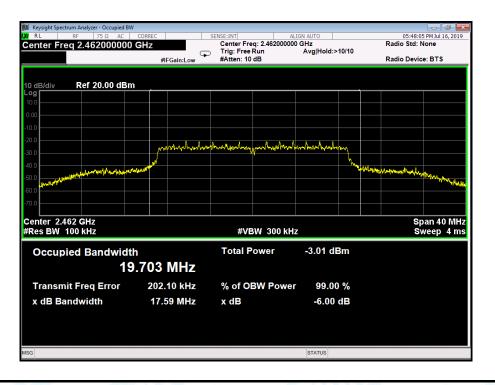
802.11N(HT20) Mode







802.11N(HT20) Mode



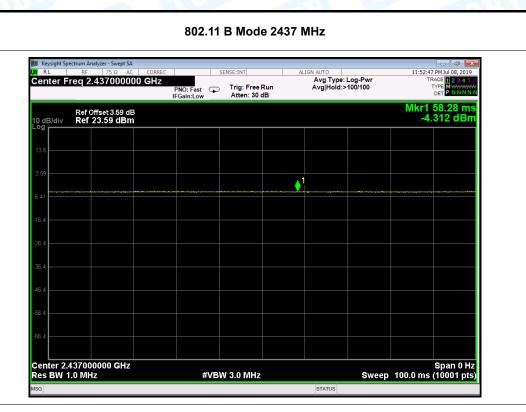


Attachment E-- Peak Output Power Test Data

Test Conditions:		Continuous transmi	itting Mode	
Temperature:		25 ℃	ity: 55%	
Test Voltage:		AC 120V/60HZ	THU Y	
Mode	Ch	annel frequency (MHz)	Test Result (dBm)	Limit (dBm)
	2412		1.697	
802.11b		2437	1.480	
		2462	1.176	
	2412		0.765	
802.11g		2437	0.788	30
		2462	0.968	
000 44		2412	0.754]
802.11n (HT20)	2437		0.888	
(HT20)		2462	-0.259	
	·	Resu	Ilt: PASS	

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





802.11 G Mode 2437 MHz

	000000 GHz	PNO: Fast	SENSE:INT Trig: Free F Atten: 30 d	Run	LIGN AUTO Avg Type: I Avg Hold:>*	.og-Pwr 100/100	TF	1 PMJul 17, 2019 RACE 1 2 3 4 5 6 TYPE M DET P N N N N
Ref Offset dB/div Ref 23.59	3.59 dB 9 dBm						Mkr1 -5.	2.310 ms 184 dBm
6								
59								
♦ ¹								
4								
4								
4								
4								
4								
4								
nter 2.437000000 s BW 1.0 MHz	GHz	#VB	W 3.0 MHz			Sweep	100.0 ms	Span 0 Hz (10001 pts)

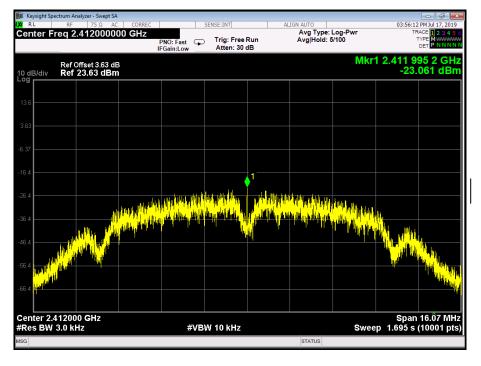


🚺 Keysight Spectrum Analyzer - Swept SA					×
Center Freq 2.437000000 G	PNO: East D Tri	g: Free Run ten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	03:51:15 PM Jul 17, 2019 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N	6
Ref Offset 3.59 dB 10 dB/div Ref 23.59 dBm				Mkr1 12.03 m -5.167 dBr	n
13.6					
3.59					
-6.41					
-0.41					
-16.4					
-26.4					
-36.4					
-46.4					
-56.4					
-66.4					



Attachment F-- Power Spectral Density Test Data

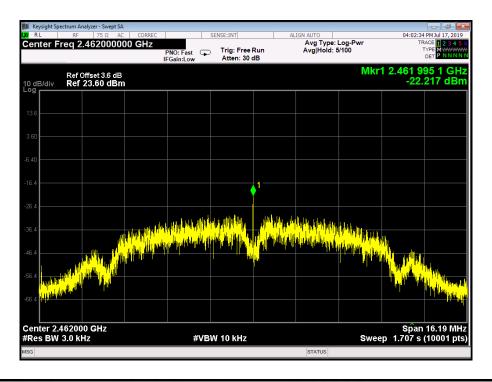
Temperature: 25 ℃			Relative Humidity:	55%	
Test Voltage:	AC 120V	/60HZ			
Test Mode:	TX 802.1	1B Mode		GILLE	
Channel Frequ	uency	Power Density		Limit	
(MHz)		(dBm/3	kHz)	(dBm/3kHz)	
2412		-23.0	61	8	
2437		-22.2	69		
2462		-22.217			
		802.11B	Mode		





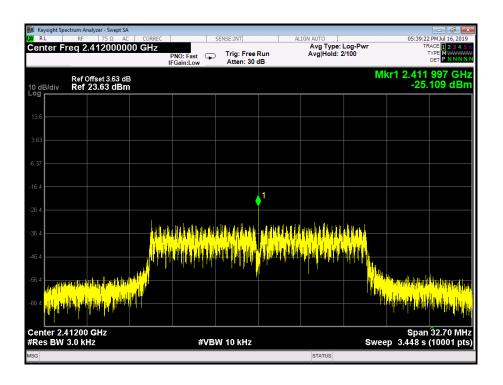
<section-header>

802.11B Mode



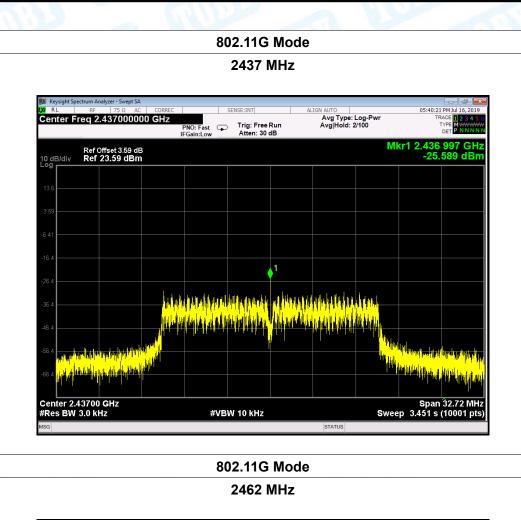


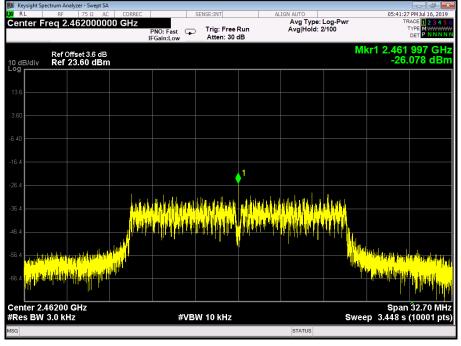
Temperature:25 °C		Temperature:		25 ℃
Test Voltage:	AC 120V	60HZ		
Test Mode:	TX 802.1	1G Mode	0.12	
Channel Freq	luency	Power De	ensity	Limit
(MHz)		(dBm/3	kHz)	(dBm/3kHz)
2412		-25.10	9	
2437		-25.58	39	8
2462		-26.07	.078	
		802.11G I	Node	





TOBY

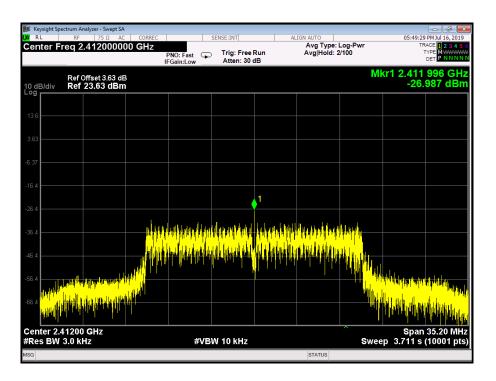






Temperature:	25 ℃		Temperature:	25 ℃
Test Voltage:	AC 120V/60HZ			
Test Mode:	TX 802.11N(HT20) Mode			
Channel Frequency		Power Density		Limit
(MHz)		(dBm/3 kHz)		(dBm/3kHz)
2412		-26.987		
2437		-24.932		8
2462		-27.386		

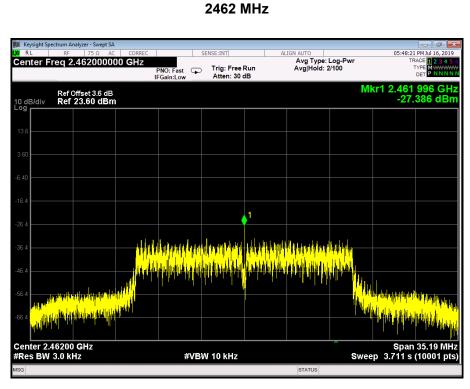
802.11N(HT20) Mode

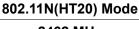


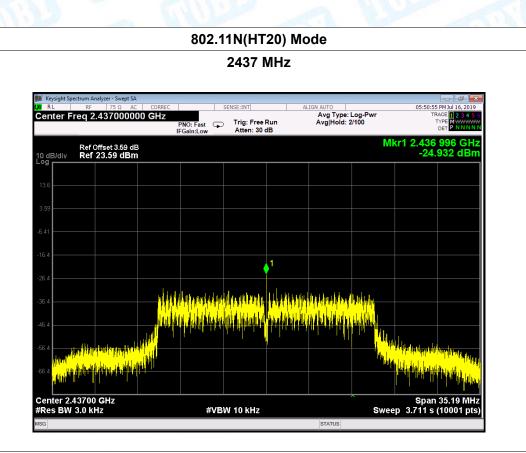


TB-RF-074-1.0









TOBY