RF Test Report

For

Globe Electric Company Inc.

	Part 15C Subpart C §15.247
Test Standards:	RSS-247
	RSS-Gen
Product Description:	Wifi Security Camera
Tested Model:	50054
Additional Model No.:	50147
Brand Name:	Globe
FCC ID:	2AQUQGE50054
IC:	8290A-GE50054
Classification	(DTS) Digital Transmission System
Report No.:	EC1902017F01
Tested Date:	2019-02-27 to 2019-4-28
Issued Date:	2019-05-13
Prepared By:	Tiny Yang / Engineer
Approved By:	Bacon Wu / RF Manager

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2019.05.13	Valid	Original Report

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Summary Of Test Result

FCC Rule	IC Rule	Description	Limit	Result	Remark
15.247(a)(2)	RSS-247 5.2(1)	6dB Bandwidth	≥ 0.5MHz	Pass	-
-	RSS-Gen 6.6	99% Bandwidth	-	Pass	-
15.247(b)(3)	RSS-247 A5.4(4)	Peak Output Power	≤ 30dBm	Pass	-
15.247(e)	RSS-247 5.2(2)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
15.247(d)	RSS-247 5.5	Conducted Band Edges and Spurious Emission	≤ 20dBc	Pass	-
15.247(d)	RSS-247 5.5	Radiated Band Edges and Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit -2.97 dB at 7230 MHz
15.207	RSS-GEN 8.8	AC Conducted Emission	15.207(a)	Pass	Under limit -12.24 dB at 0.497 MHz
15.203 & 15.247(b)	N/A	Antenna Requirement	N/A	Pass	-

1 Test Laboratory

1.1 Test facility

CNAS (accreditation number: L11138)

Hunan Ecloud Testing Technology Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (Designation number: CN1244 , Test Firm Registration Number: 793308)

Hunan Ecloud Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

ISED(CAB identifier: CN0012)

Hunan Ecloud Testing Technology Co., Ltd. has been listed on the Wireless Device Testing Laboratories list of innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

A2LA (Certificate Code : 4895.01)

Hunan Ecloud Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

2 General Description

2.1 Applicant

Globe Electric Company Inc.
150, ONEIDA, MONTREAL, QUEBEC, CANADA, H9R 1A8

2.2 Manufacturer

Globe Electric Company Inc.
150, ONEIDA, MONTREAL, QUEBEC, CANADA, H9R 1A8

2.3 General Description Of EUT

Product	WiFi Security Camera
Model No.	50054
Additional No.	50147
Difference Description	Only different in model NO.
FCC ID	2AQUQGE50054
IC ID	8290A-GE50054
Power Supply	5Vdc (adapter or host equipment)
Modulation Technology	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Type	802.11b : DSSS 802.11g/n : OFDM
Operating Frequency	2412-2462MHz
Number Of Channel	11
Max. Output Power	802.11b : 14.32 dBm (0.0270 W) 802.11g : 13.30 dBm (0.0214 W) 802.11n HT20 : 13.17 dBm (0.0207 W) 802.11n HT40 : 12.66 dBm (0.0185 W)
Antenna Type	Ceramic Antenna with 3dBi gain
I/O Ports	Refer to user's manual
Cable Supplied	USB cable: Unshielded, detachable, 1.0m

NOTE:

1. The EUT was powered by the following adapters:

Adapter	
Brand:	SZTY
Model:	TPA-46B050100UU
Input:	AC 100-240V, 50/60Hz, 0.2A
Output:	DC 5V, 1000mA
DC line:	N/A

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. The EUT matched the following USB cable:

USB Cable	
Signal Line:	1 Meter/Unshielded

2.4 Modification of EUT

No modifications are made to the EUT during all test items.

2.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- ANSI C63.10-2013
- IC RSS-247 Issue 2
- IC RSS-Gen Issue 5
- KDB 558074 D01 15.247 Meas Guidance v05r02

Remark:

1. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

3 Test Configuration of Equipment Under Test

3.1 Descriptions of Test Mode

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

7 channels are provided for 802.11n(HT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
		7	2442 MHz
		8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz		
5	2432 MHz		
6	2437 MHz		

The transmitter has a maximum conducted output power as follows:

Frequency Range(MHz)	Mode	Output Power(dBm)	Output Power(mW)
2412~2462	802.11b	14.32	0.0270
2412~2462	802.11g	13.30	0.0214
2412~2462	802.11n HT20	13.17	0.0207
2422~2452	802.11n HT40	12.66	0.0185

a. Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

b. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

c. Based on the baseline scan, the worst - case data rates were:

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: MCS0

3.2 Test Mode

3.2.1 Antenna Port Conducted Measurement

Summary table of Test Cases				
Test Item	**Modulation**			
	802.11 b	**802.11 g**	**802.11n HT20**	**802.11n HT40**
Conducted Test Cases	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH03 Mode 2: CH06 Mode 3: CH09

3.2.2 Radiated Emission Test (Below 1GHz)

Radiated Test Cases	**Modulation**
	Mode 1: CH11

Note : 1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.

2. Following channel(s) was (were) selected for the final test as listed above

3.2.3 Radiated Emission Test (Above 1GHz)

Test Item	**Modulation**			
	802.11 b	**802.11 g**	**802.11n HT20**	**802.11n HT40**
Radiated Test Cases	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH03 Mode 2: CH06 Mode 3: CH09

Note : 1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.

2. Following channel(s) was (were) selected for the final test as listed above

3.2.4 Power Line Conducted Emission Test:

AC Conducted Emission	Mode 1 : WLAN Link + USB Cable (Charging from Adapter)

3.3 Support Equipment

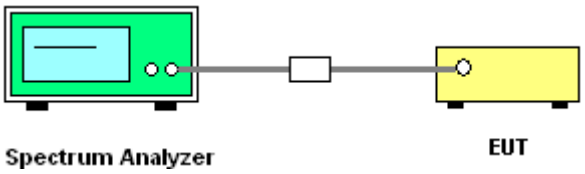
Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	Motorola	MX1200YZ	2AF5PMX1200	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	E470C	FCC DoC	N/A	shielded cable DC O/P 1.8 m unshielded AC I/P cable1.2 m

3.4 Test Setup

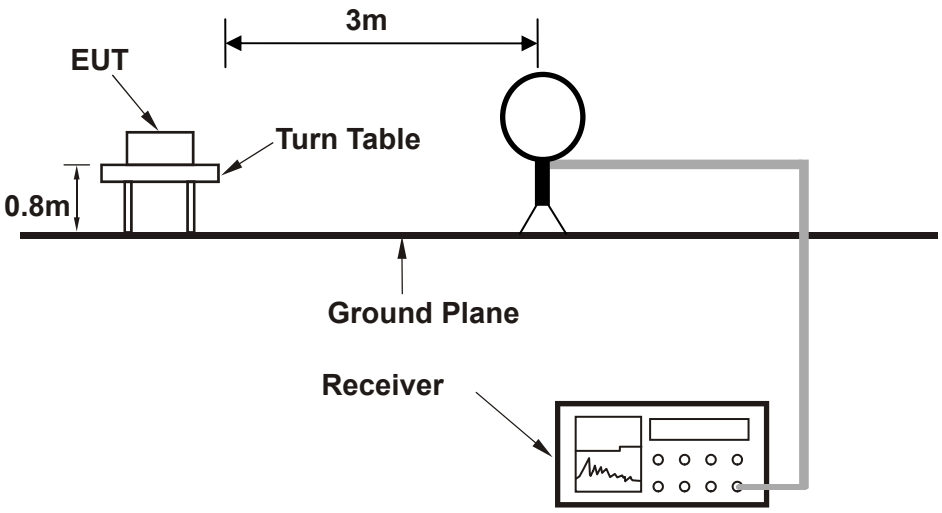
The EUT is continuously communicating to the Bluetooth tester during the tests.

EUT was set in the Hidden menu mode to enable BT communications.

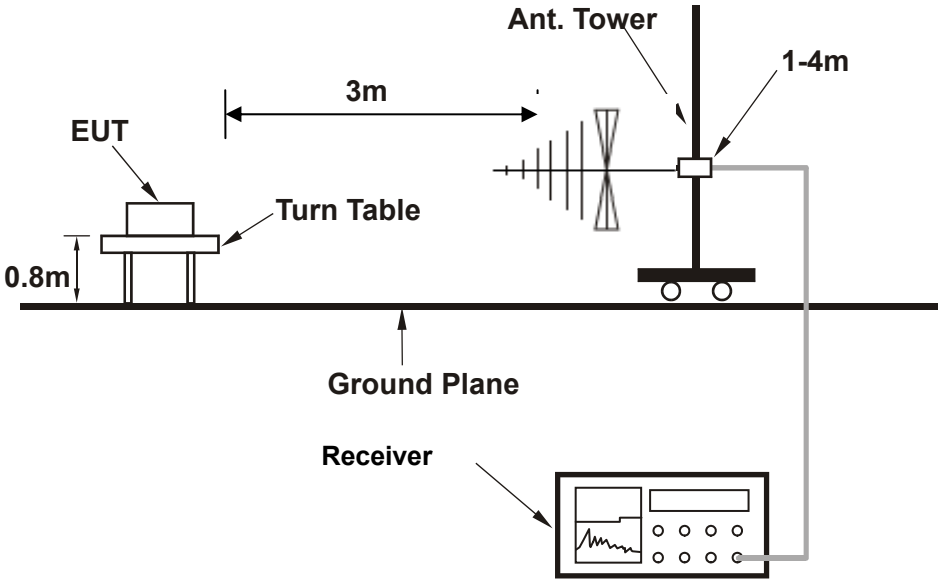
Setup diagram for Conducted Test



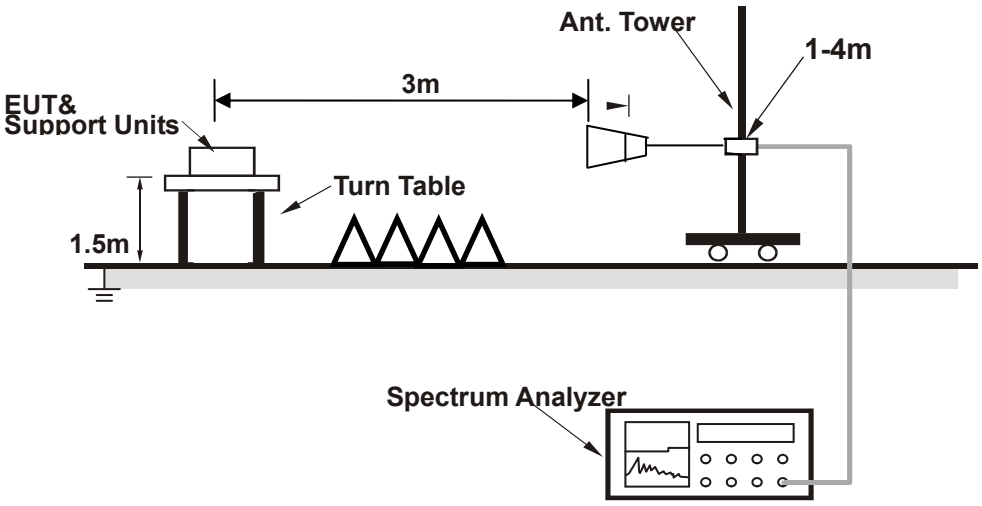
Setup diagram for Raidation(9KHz~30MHz) Test



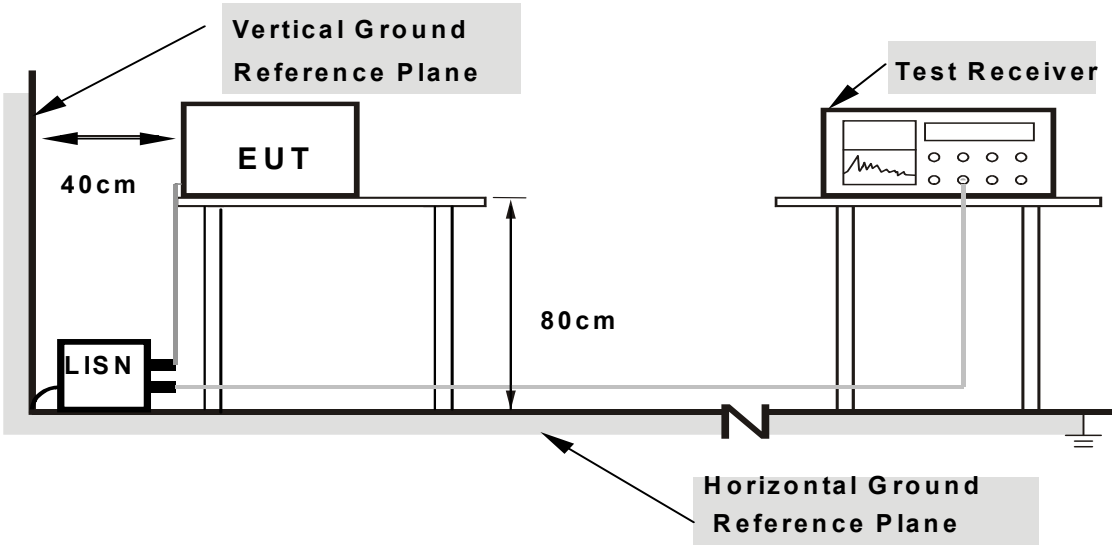
Setup diagram for Raidation(Below 1G) Test



Setup diagram for Raidation(Above1G) Test



Setup diagram for AC Conducted Emission Test



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 5 + 10 = 15 (dB)

4 Test Result

4.1 6dB and 99% Bandwidth Measurement

4.1.1 Limit of 6dB and 99% Bandwidth

FCC §15.247 (a) (2)

IC RSS-247 5.2(1)

The minimum 6 dB bandwidth shall be at least 500 kHz.

4.1.2 Test Procedures

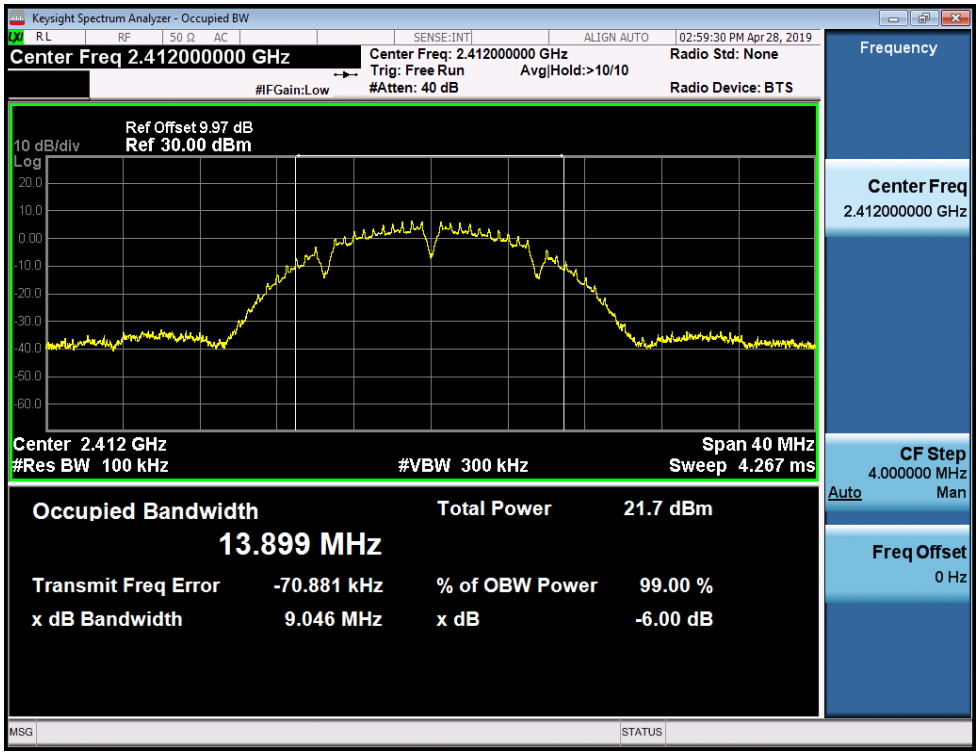
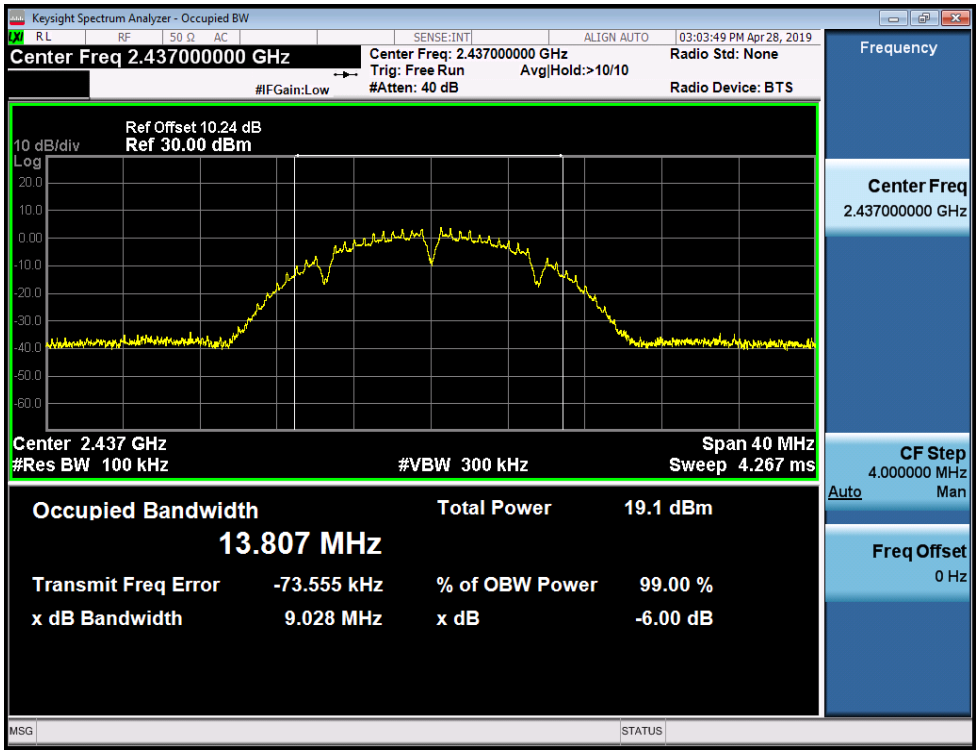
1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v05r02.
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Turn on the EUT and connect it to measurement instrument.
4. Set to the maximum power setting and enable Transmitting the EUT transmit continuously
5. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
6. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 100KHz and set the Video bandwidth (VBW) = 300KHz.

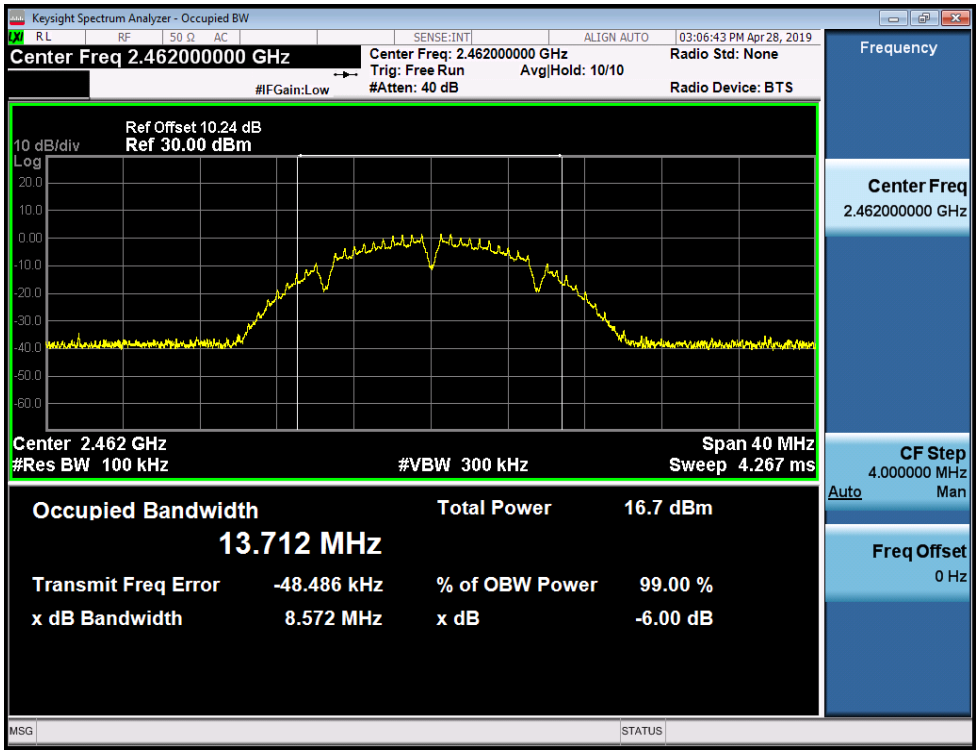
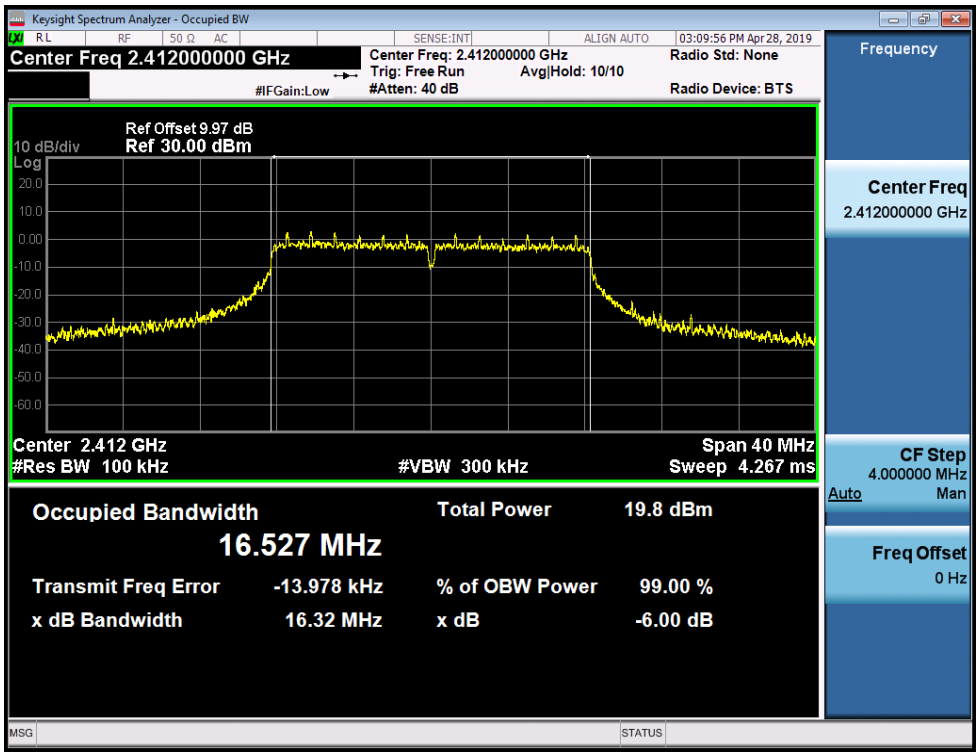
4.1.3 Test Result of 6dB and 99% Bandwidth

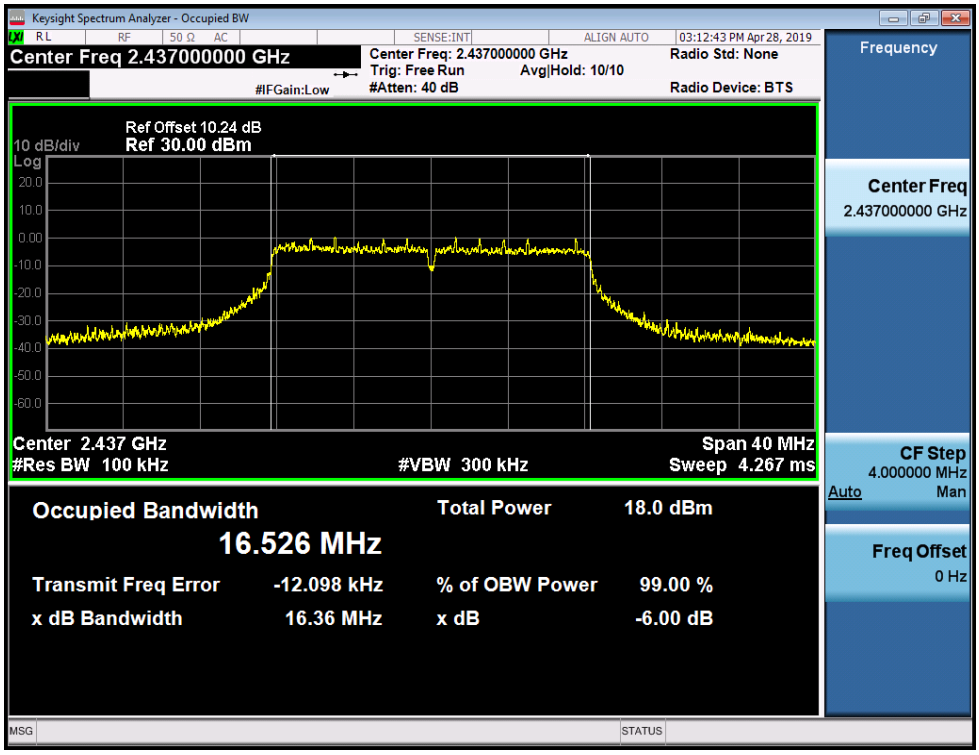
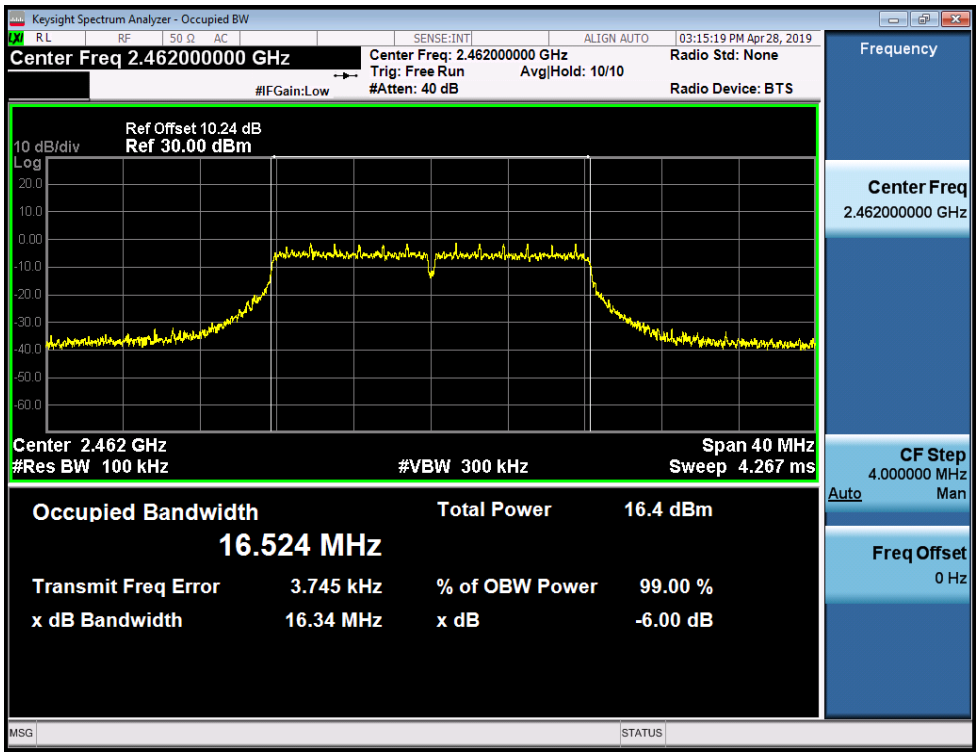
Test Mode :	Transmitting	Temperature :	24~26℃
Test Engineer :	Victorique Gao	Relative Humidity :	50~53%

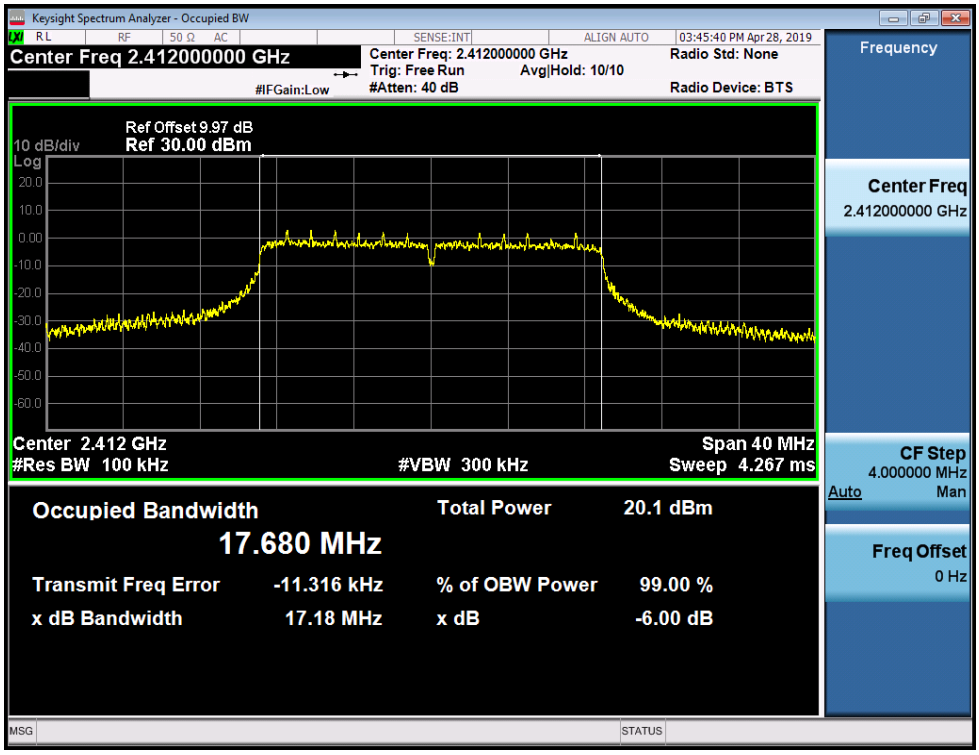
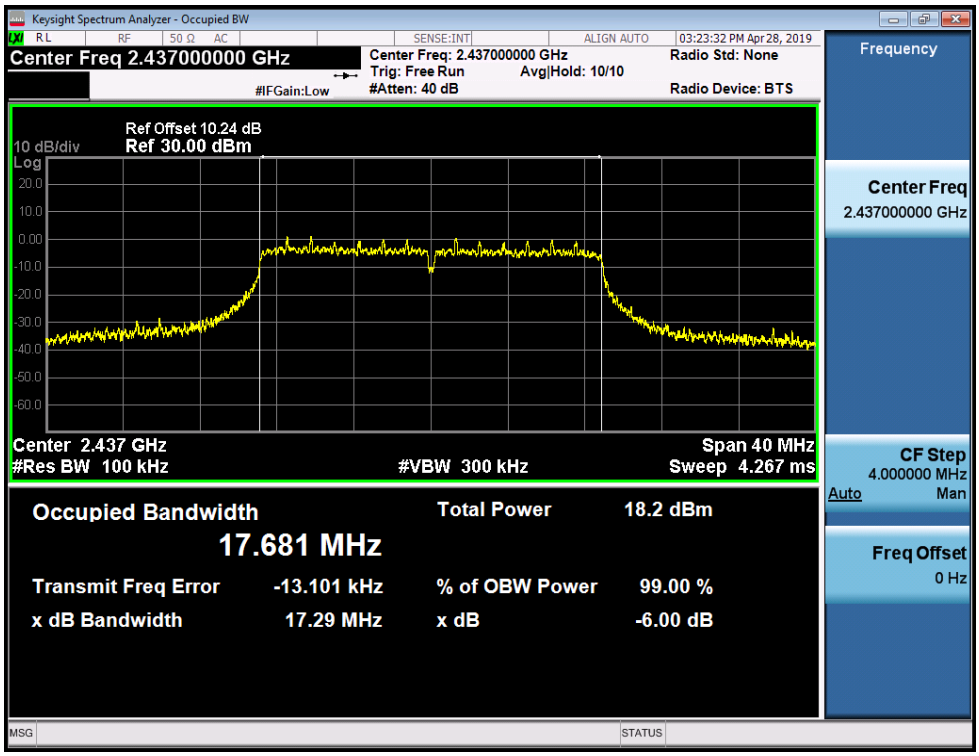
Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	LCH	9.046	13.899	PASS
11B	MCH	9.028	13.807	PASS
11B	HCH	8.572	13.712	PASS
11G	LCH	16.32	16.527	PASS
11G	MCH	16.36	16.526	PASS
11G	HCH	16.34	16.524	PASS
11N20	LCH	17.18	17.680	PASS
11N20	MCH	17.29	17.681	PASS
11N20	HCH	17.3	17.675	PASS
11N40	LCH	35.73	36.137	PASS
11N40	MCH	35.74	36.136	PASS
11N40	HCH	35.72	36.149	PASS

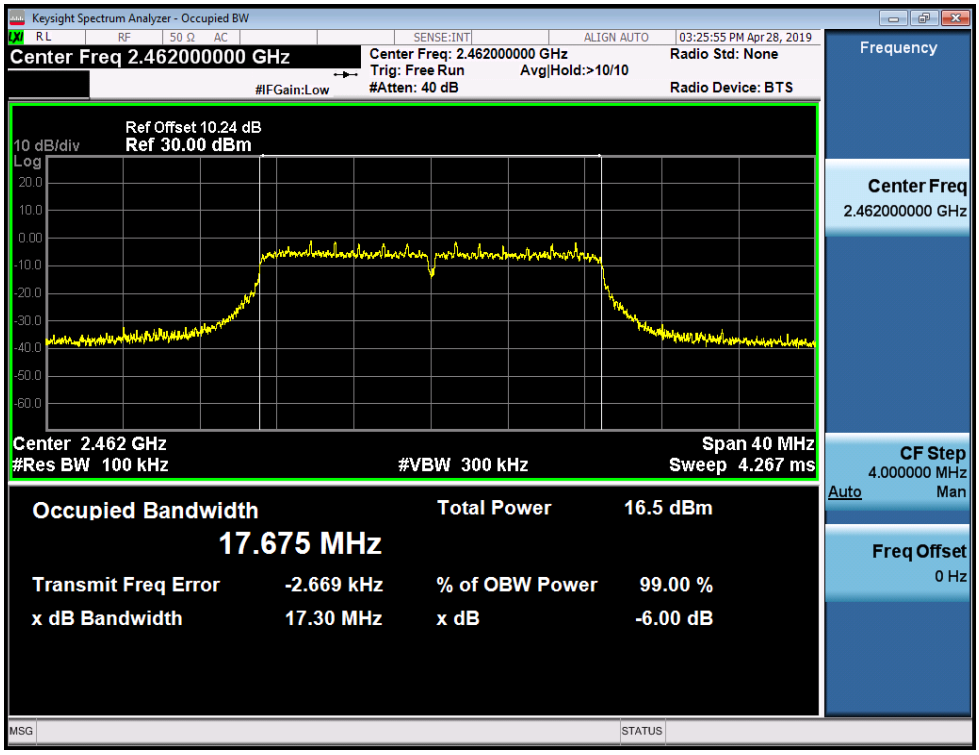
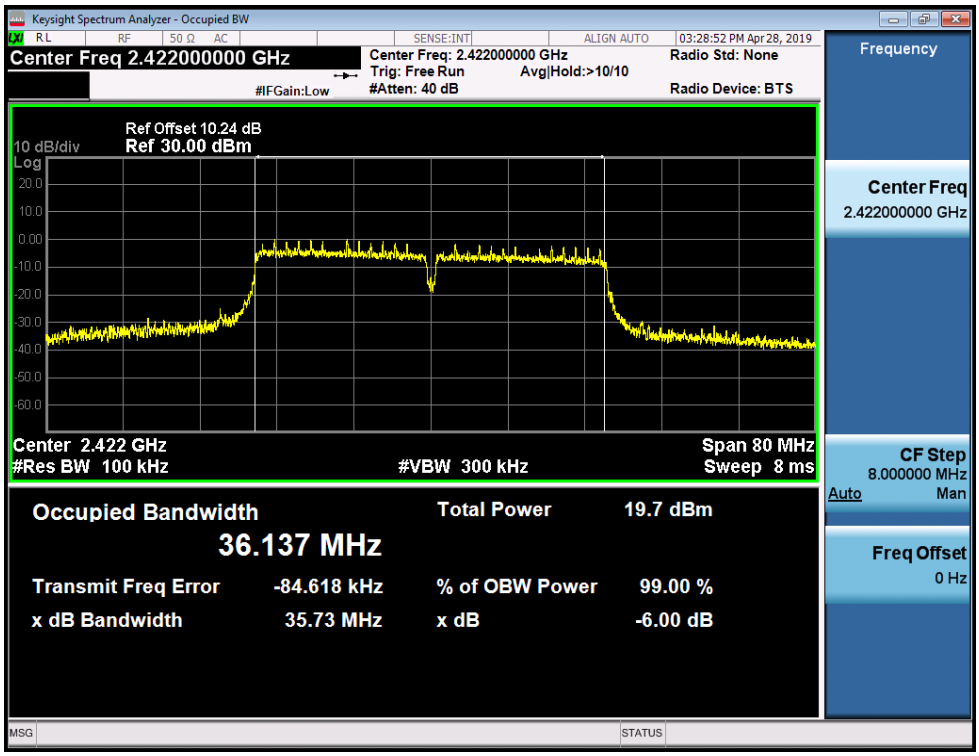
6dB and 99% Bandwidth Plot

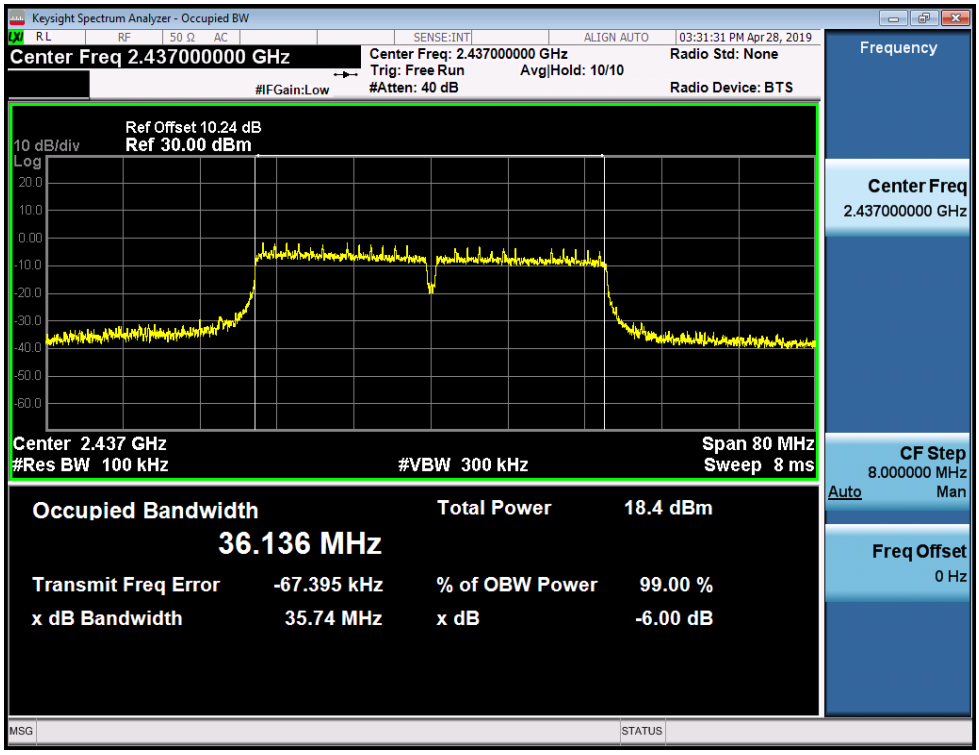
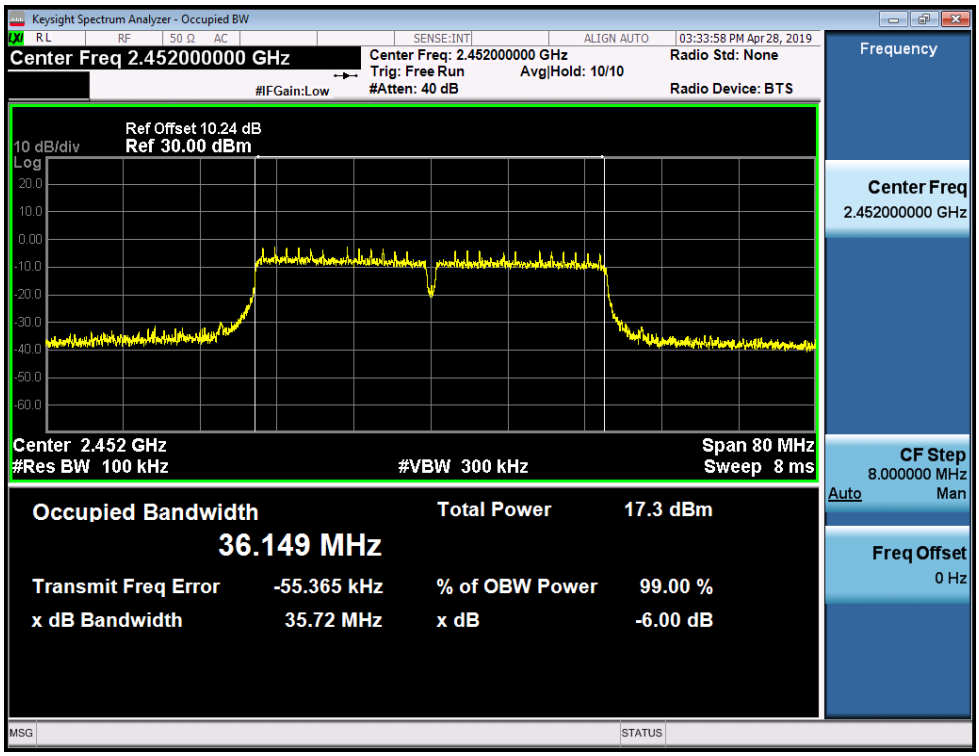
Graphs	
11B/LCH	
11B/MCH	

11B/HCH	
11G/LCH	

11G/MCH	
11G/HCH	

11N20/LCH	
11N20/MCH	

11N20/HCH	
11N40/LCH	

11N40/MCH	
11N40/HCH	

4.2 Output Power & EIRP Measurement

4.2.1 Limit of Output Power

FCC §15.247 (b)(3)

IC RSS-247 A5.4(4)

For systems using digital modulation in the 2400-2483.5 MHz bands: 30dBm.

4.2.2 Limit of EIRP

IC RSS-247 5.4(d)

For systems using digital modulation in the 2400-2483.5 MHz bands: 36dBm.

4.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v05r02 section 8.3.2.2 Measurement using a spectrum analyzer.
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Turn on the EUT and connect it to spectrum analyzer.
4. Set to the maximum power setting and enable Transmitting the EUT transmit continuously
5. Measure the duty cycle, x, of the transmitter output signal as described in below:
   a. Set the center frequency of the instrument to the center frequency of the transmission.
   b. Set RBW to the largest available Transmitting value.
   c. Set detector = peak
6. Set span to at least 1.5*OBW.Set RBW=1MHz,VBW=3MHz, Number of points in sweep ≥ 2/3* span, Sweep time = auto. Detector = RMS
7. Allow the sweep to “free run”. Trace average 100 traces in RMS mode
8. Compute power by integrating the spectrum across the OBW of the signal using the instrument’s Channel power measurement function with band limits set equal to the OBW band edges.
9. Add 10 log (1/x), where x is the duty cycle.

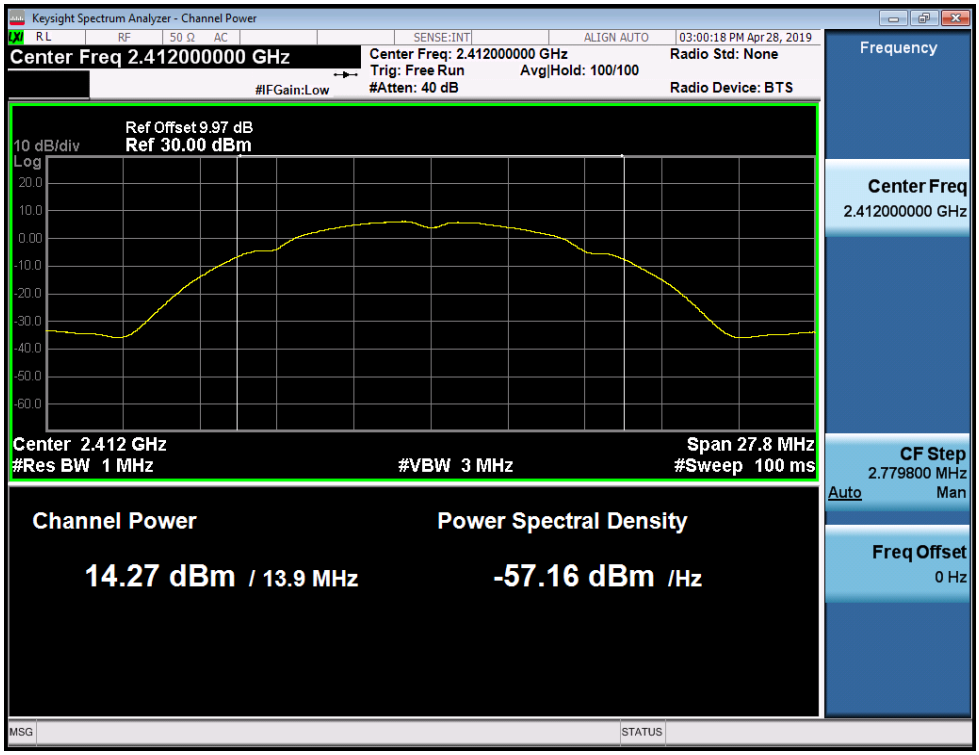
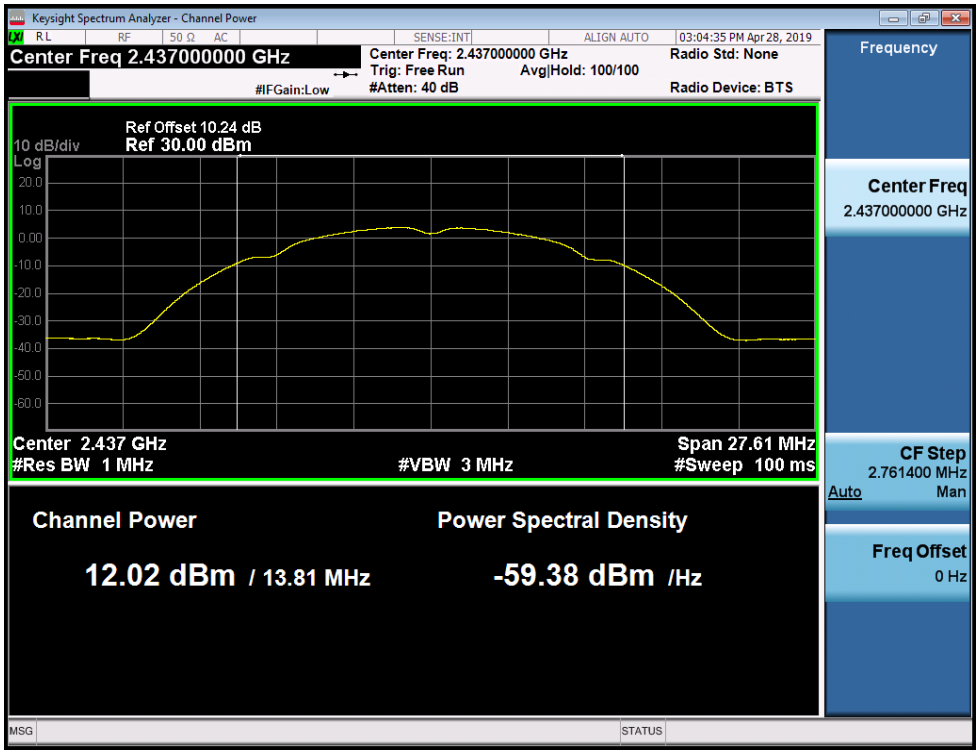
4.2.4 Test Result of Output Power

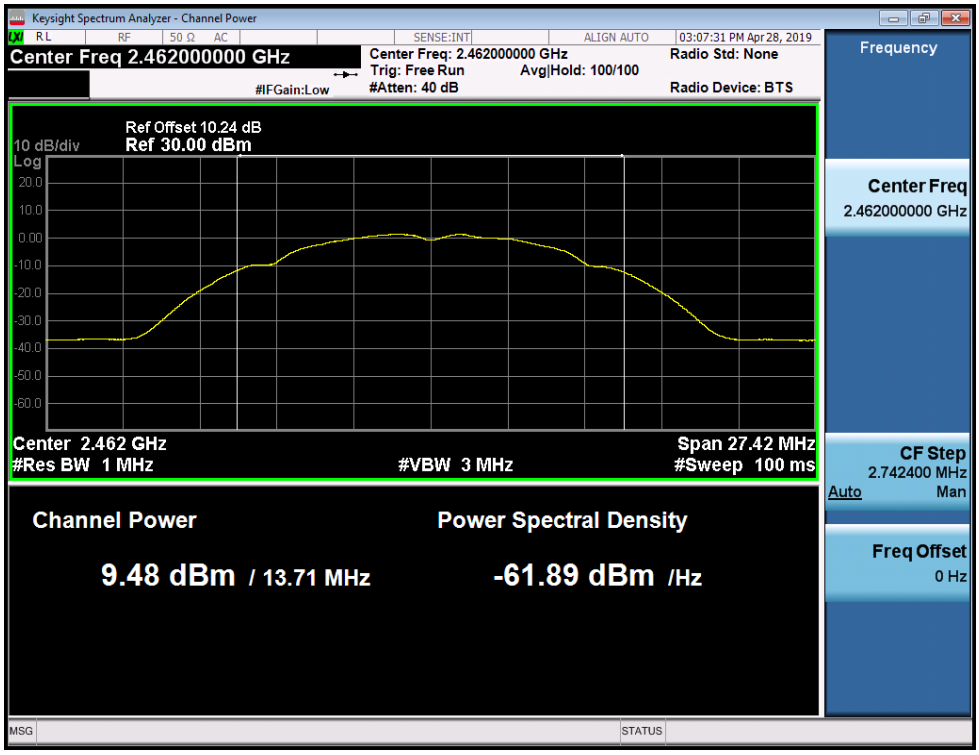
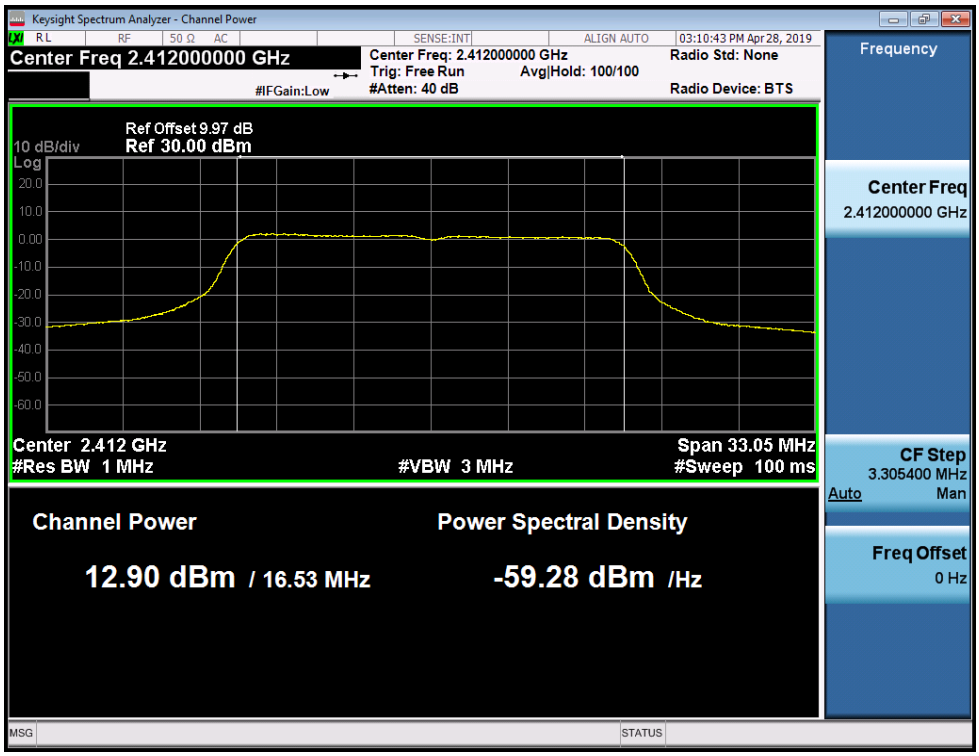
Test Mode :		Transmitting	Temperature :		24~26℃	
Test Engineer :		Victorique Gao	Relative Humidity :		50~53%	
Mode	**Channel**	**Meas.Level [dBm]**	**DT**	**10 log (1/x)**	**AV.Power [dBm]**	**Verdict**
11B	LCH	14.27	98.79%	0.05	14.32	PASS
11B	MCH	12.02	98.24%	0.08	12.10	PASS
11B	HCH	9.48	99.51%	0.02	9.50	PASS
11G	LCH	12.9	91.25%	0.40	13.30	PASS
11G	MCH	11.07	95.15%	0.22	11.29	PASS
11G	HCH	9.3	92.83%	0.32	9.62	PASS
11N20	LCH	12.63	88.36%	0.54	13.17	PASS
11N20	MCH	11.11	92.48%	0.34	11.45	PASS
11N20	HCH	9.49	90.57%	0.43	9.92	PASS
11N40	LCH	11.93	84.55%	0.73	12.66	PASS
11N40	MCH	11.02	92.50%	0.34	11.36	PASS
11N40	HCH	9.97	83.74%	0.77	10.74	PASS

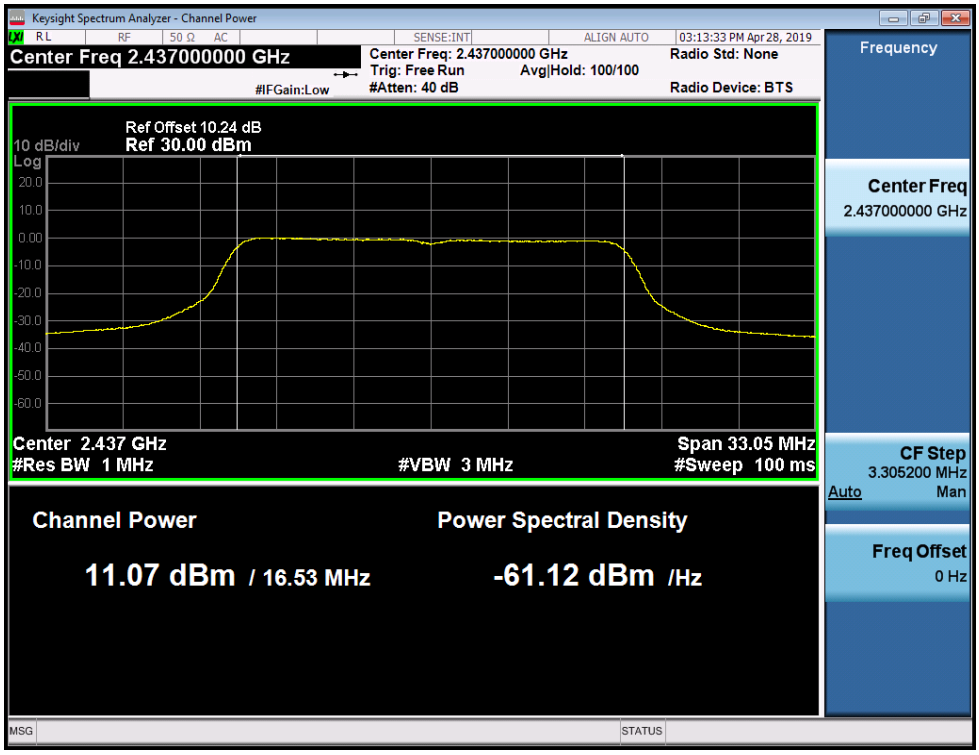
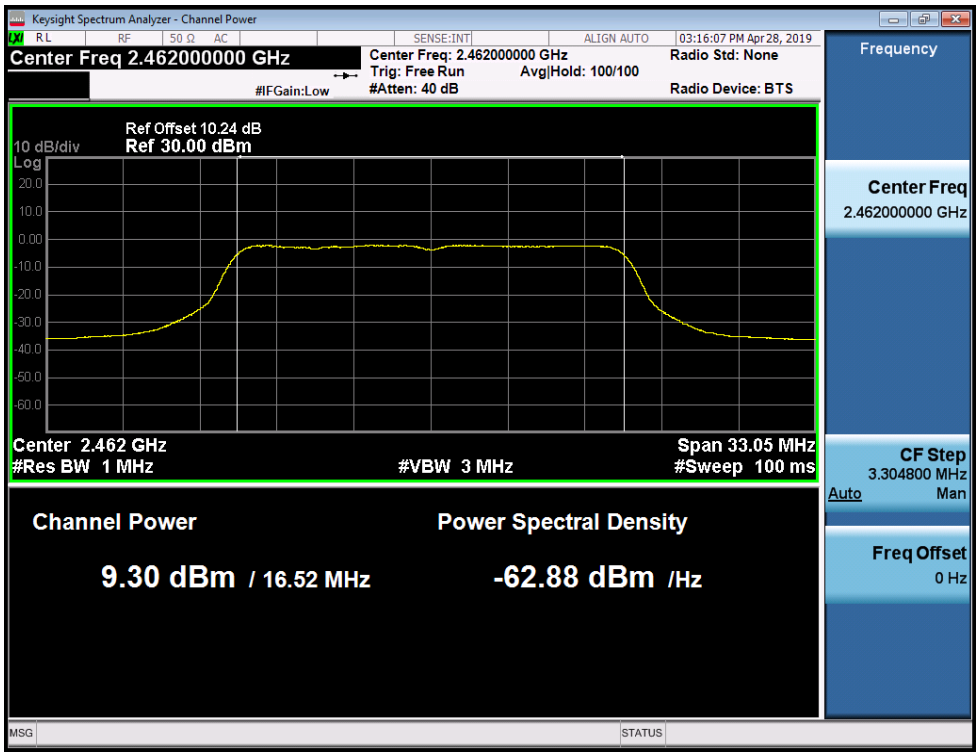
4.2.5 Test Result of EIRP

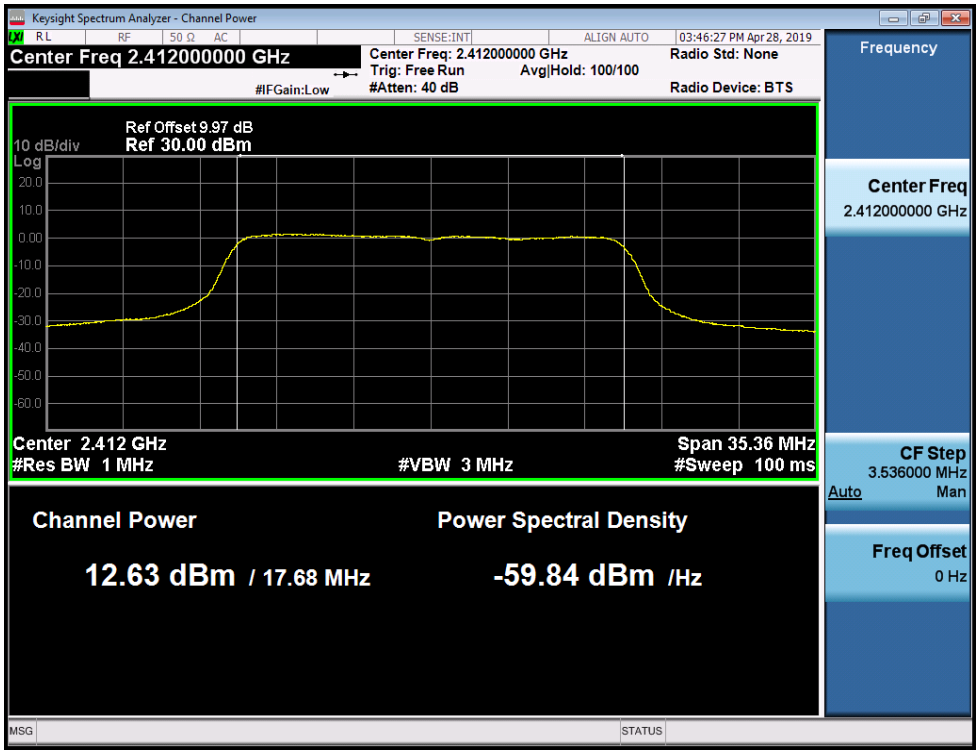
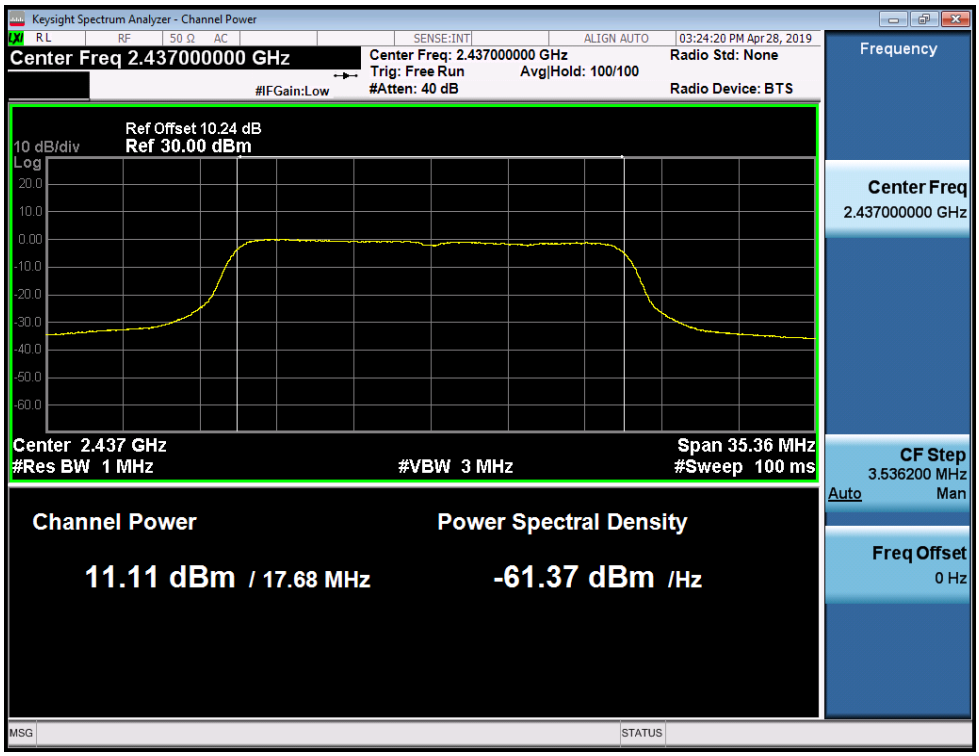
Test Mode :		Transmitting	Temperature :	24~26℃	
Test Engineer :		Victorique Gao	Relative Humidity :	50~53%	
Mode	**Channel**	**Meas.Level [dBm]**	**EIRP Power [dBm]**	**Limit [dBm]**	**Verdict**
11B	LCH	14.32	17.32	36	PASS
11B	MCH	12.10	15.1		PASS
11B	HCH	9.50	12.5		PASS
11G	LCH	13.30	16.3		PASS
11G	MCH	11.29	14.29		PASS
11G	HCH	9.62	12.62		PASS
11N20	LCH	13.17	16.17		PASS
11N20	MCH	11.45	14.45		PASS
11N20	HCH	9.92	12.92		PASS
11N40	LCH	12.66	15.66		PASS
11N40	MCH	11.36	14.36		PASS
11N40	HCH	10.74	13.74		PASS

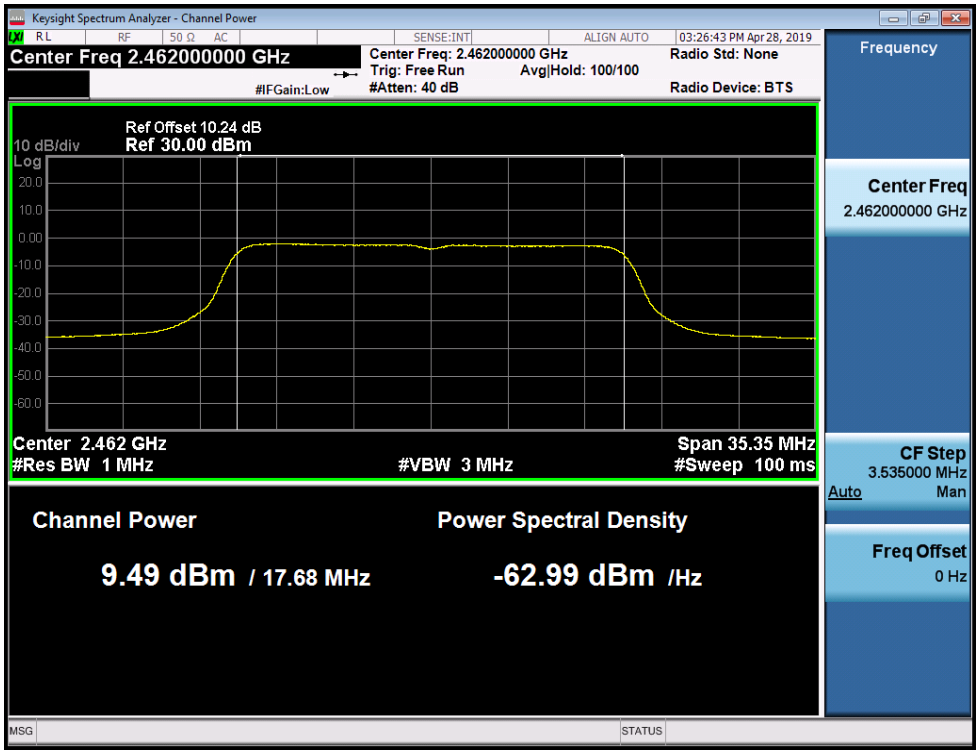
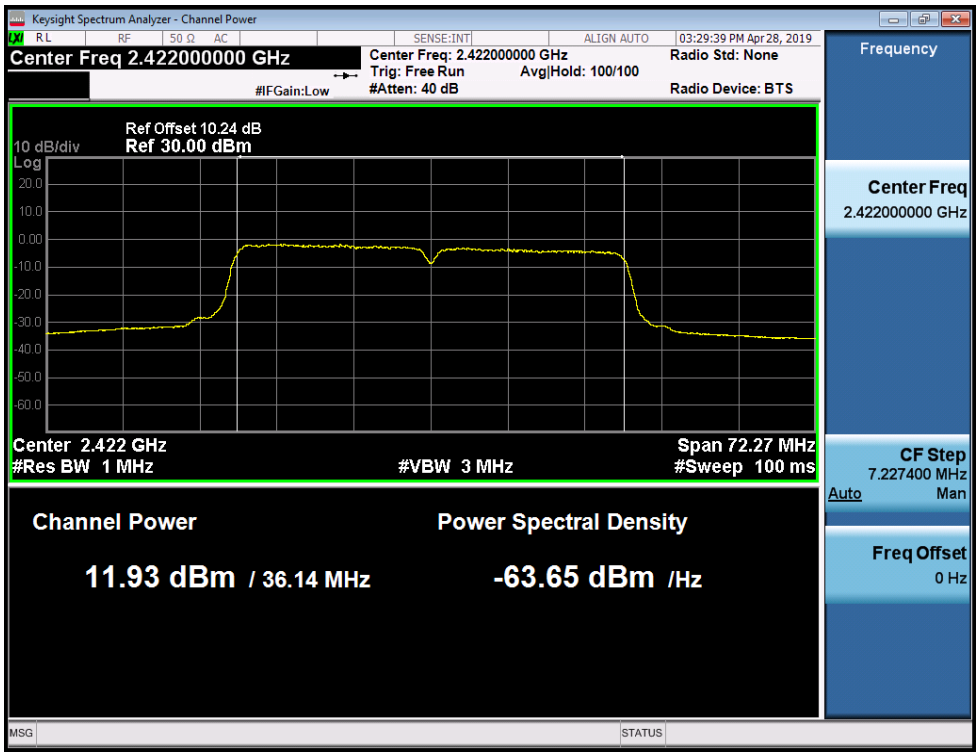
Meas.Level Plot

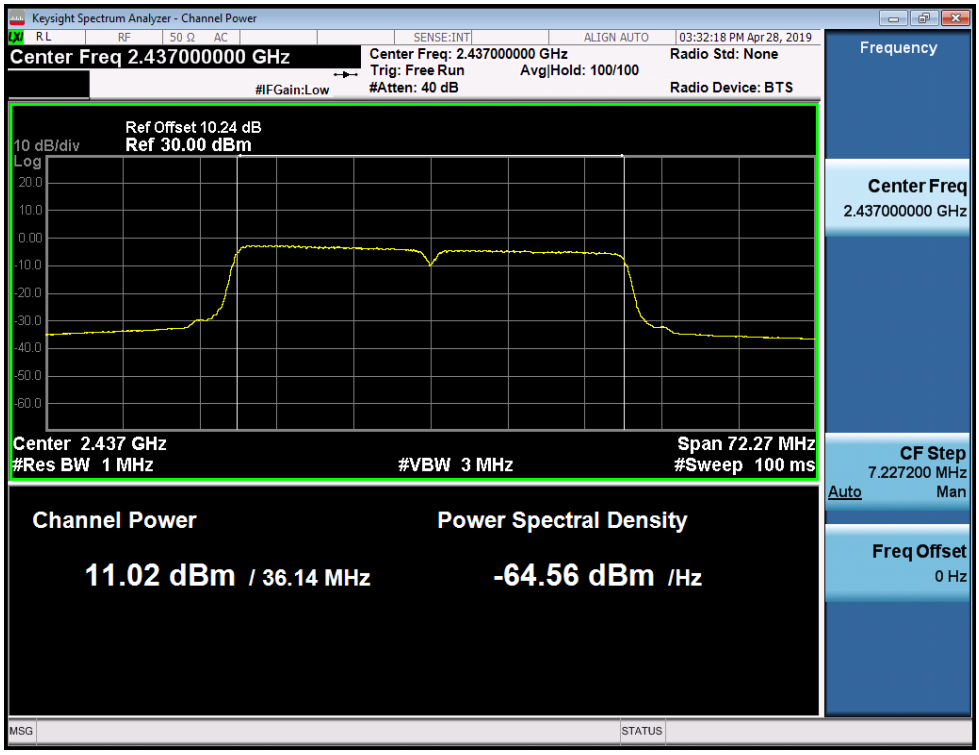
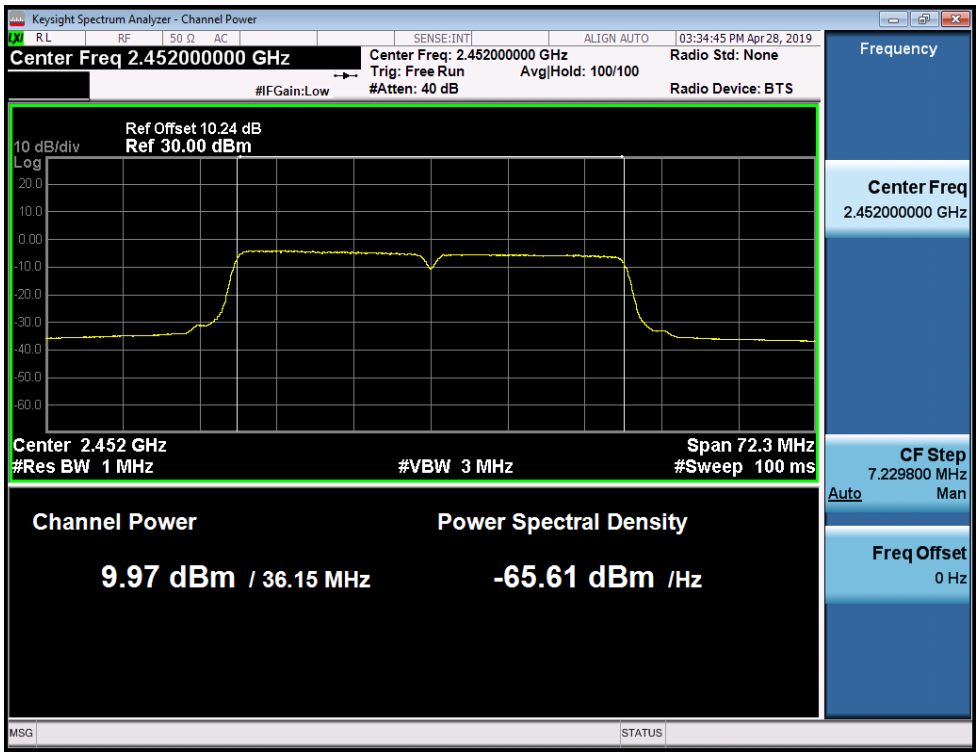
Graphs	
11B/LCH	
11B/MCH	

11B/HCH	
11G/LCH	

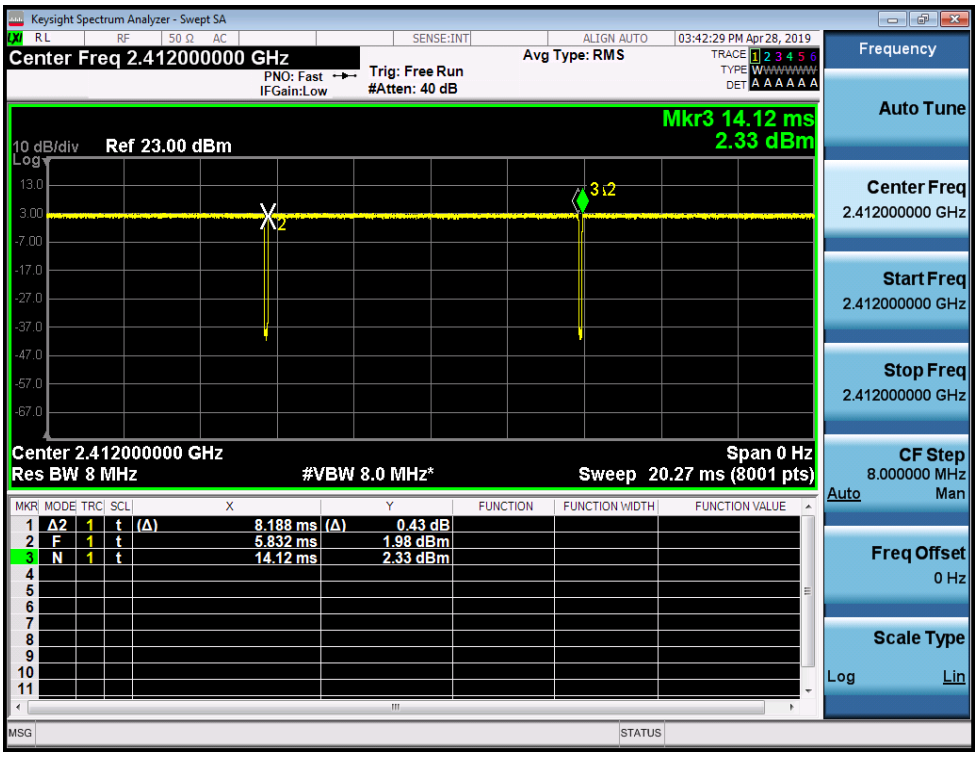
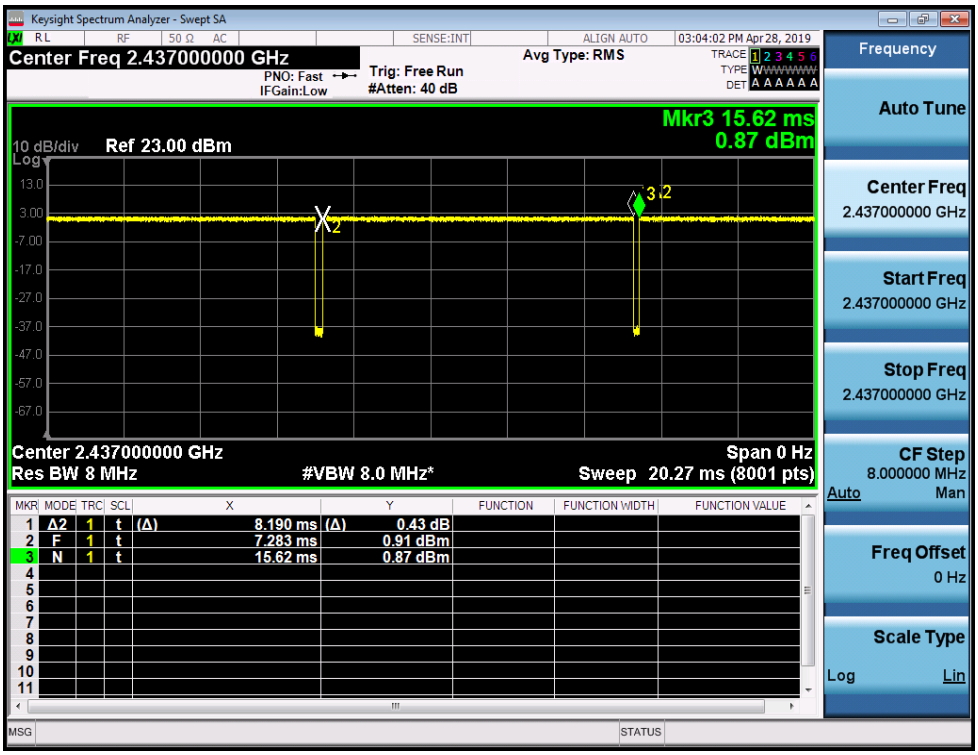
11G/MCH	
11G/HCH	

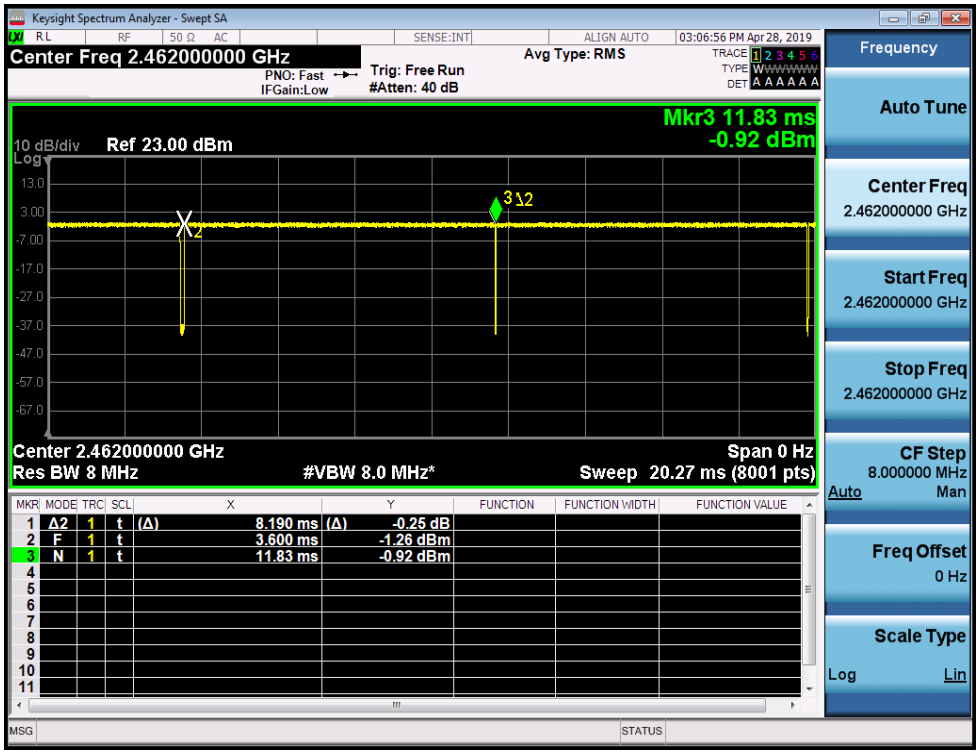
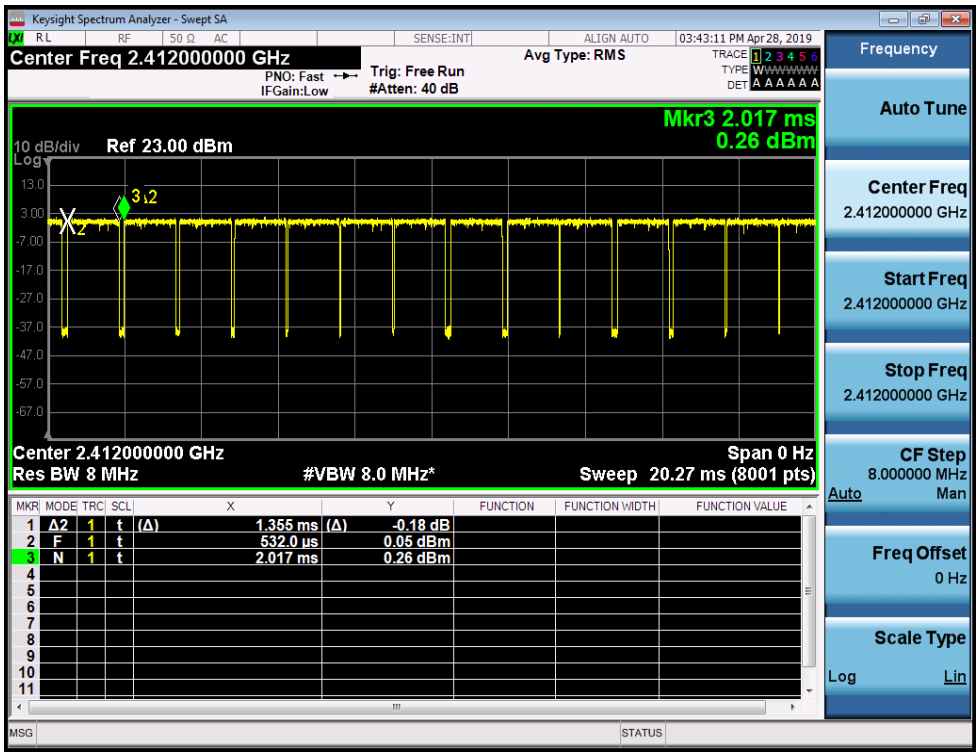
11N20/LCH	
11N20/MCH	

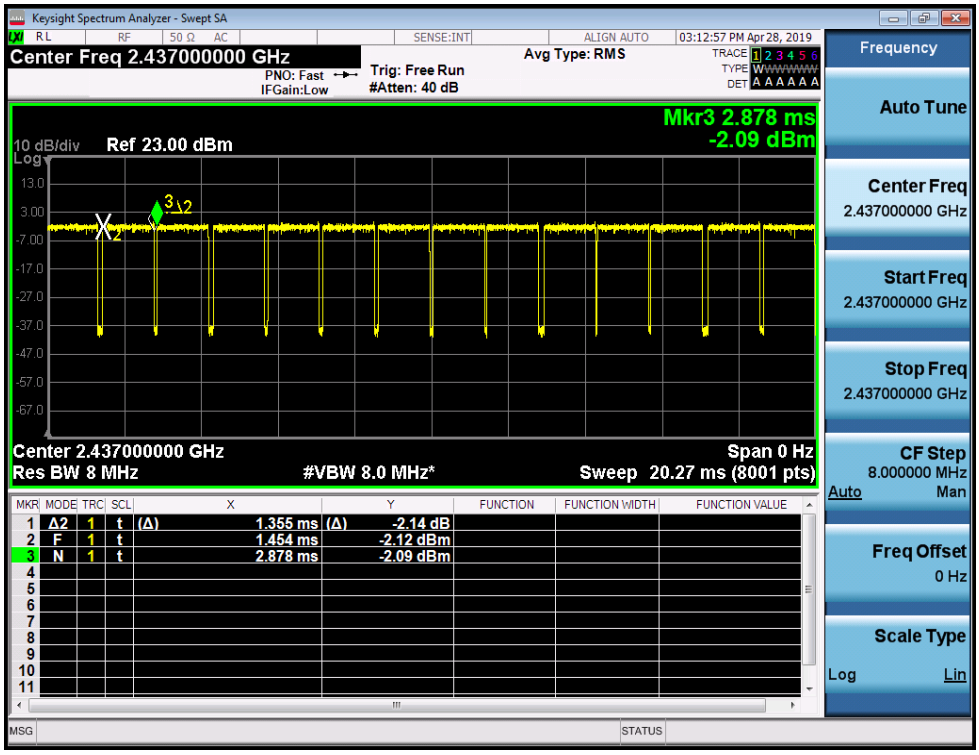
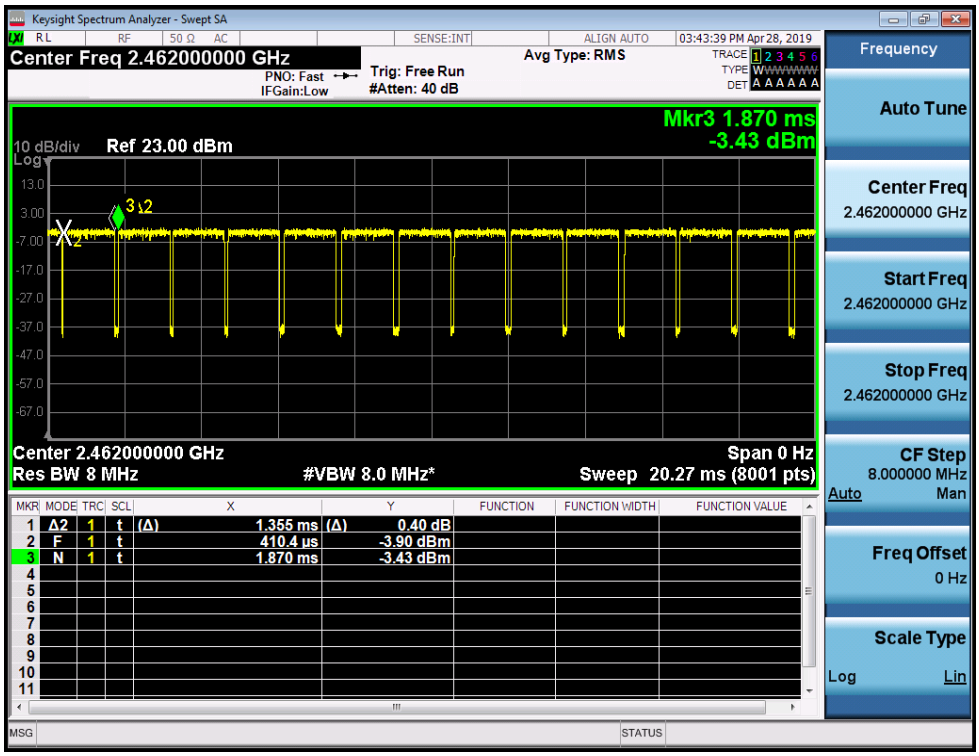
11N20/HCH	
11N40/LCH	

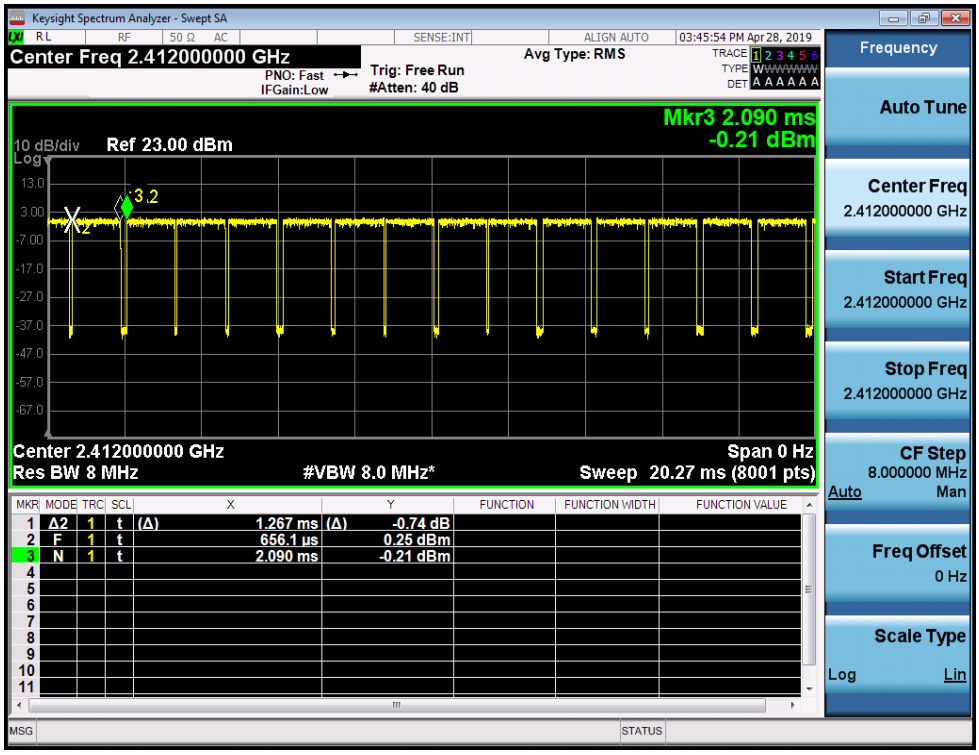
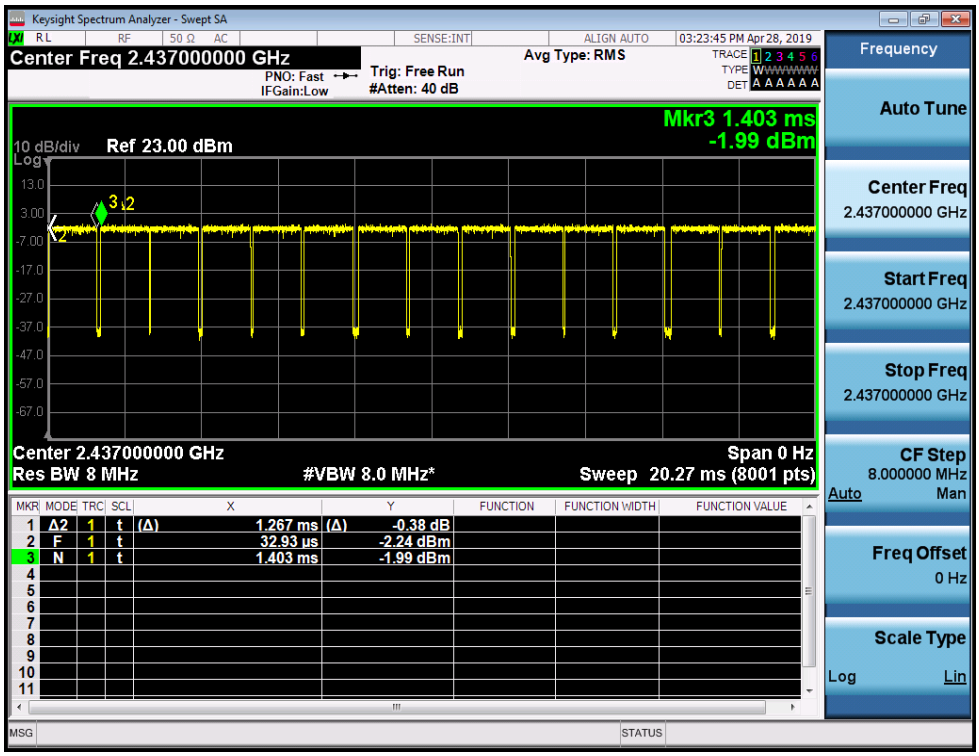
11N40/MCH	
11N40/HCH	

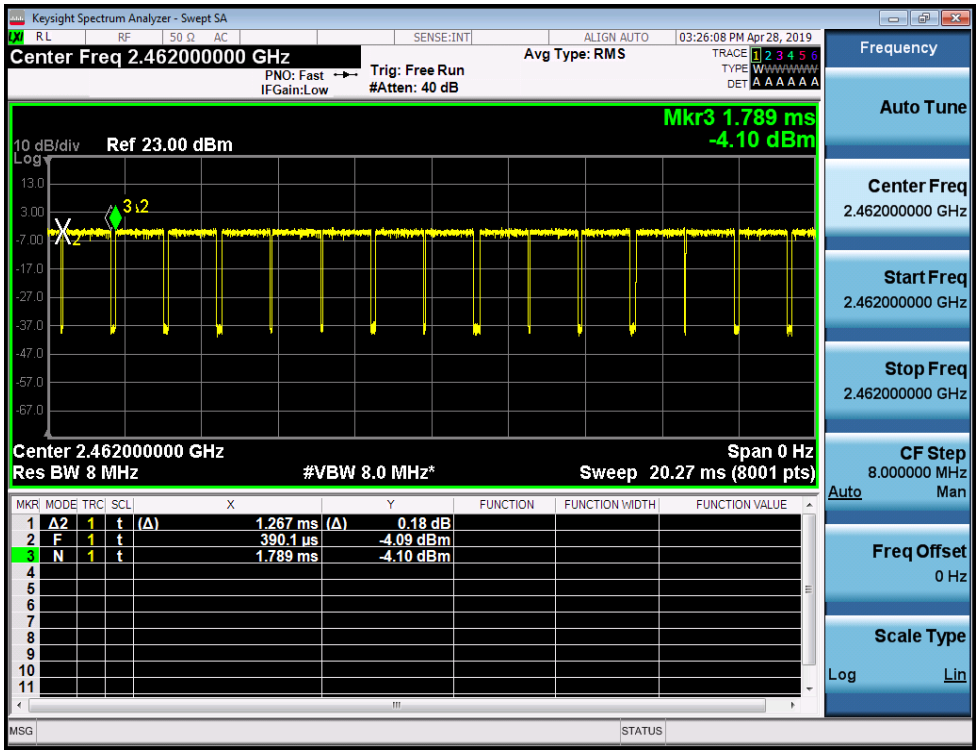
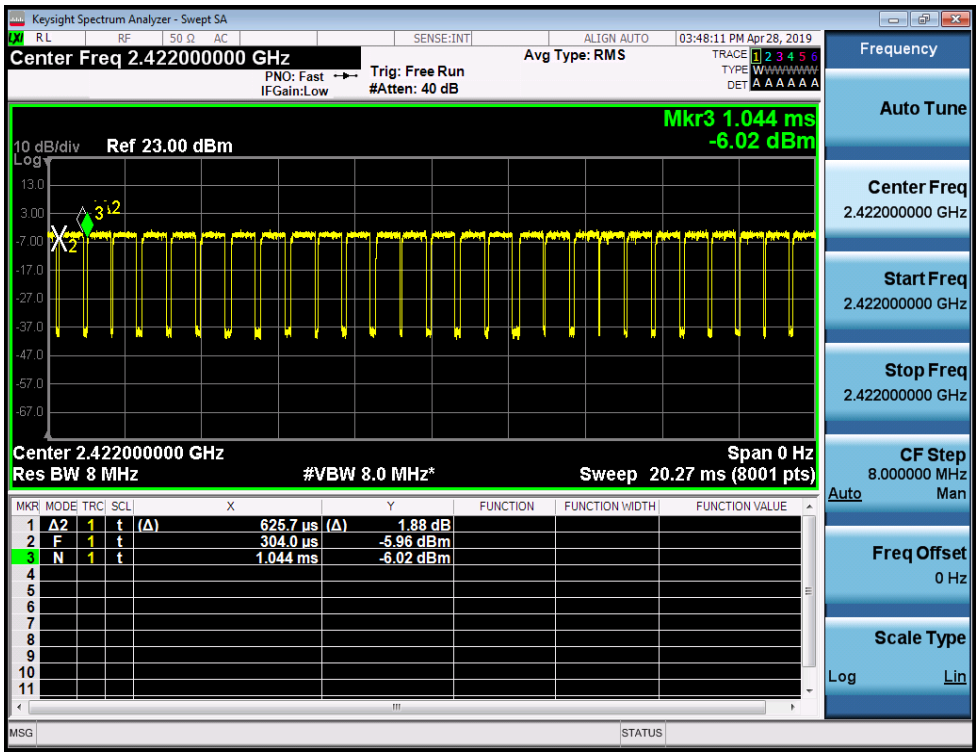
Duty cycle Plot

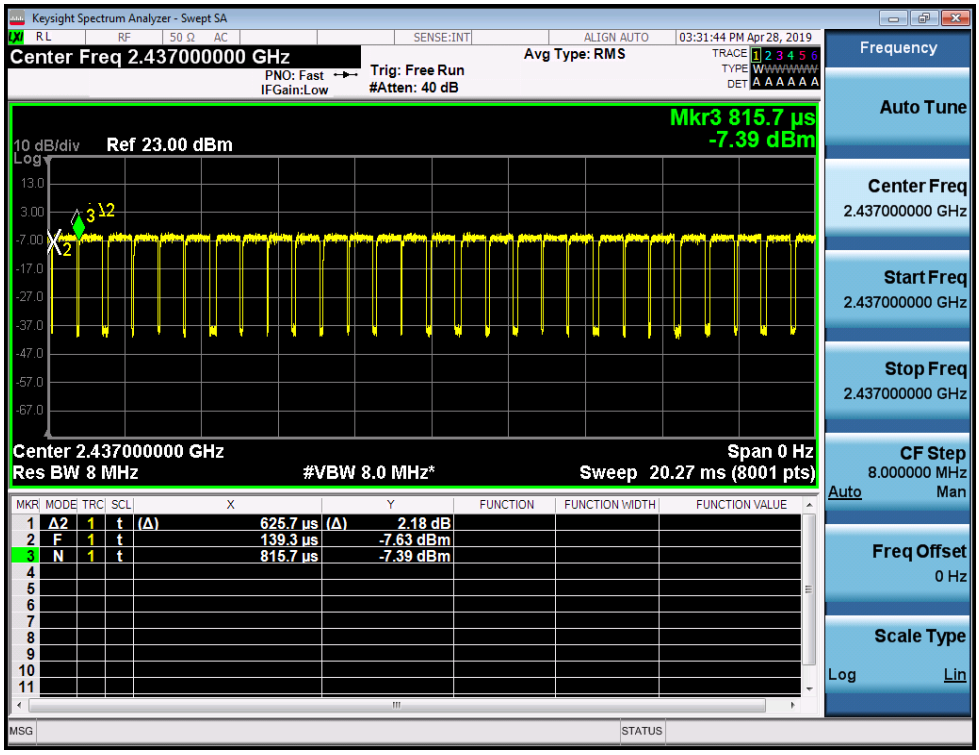
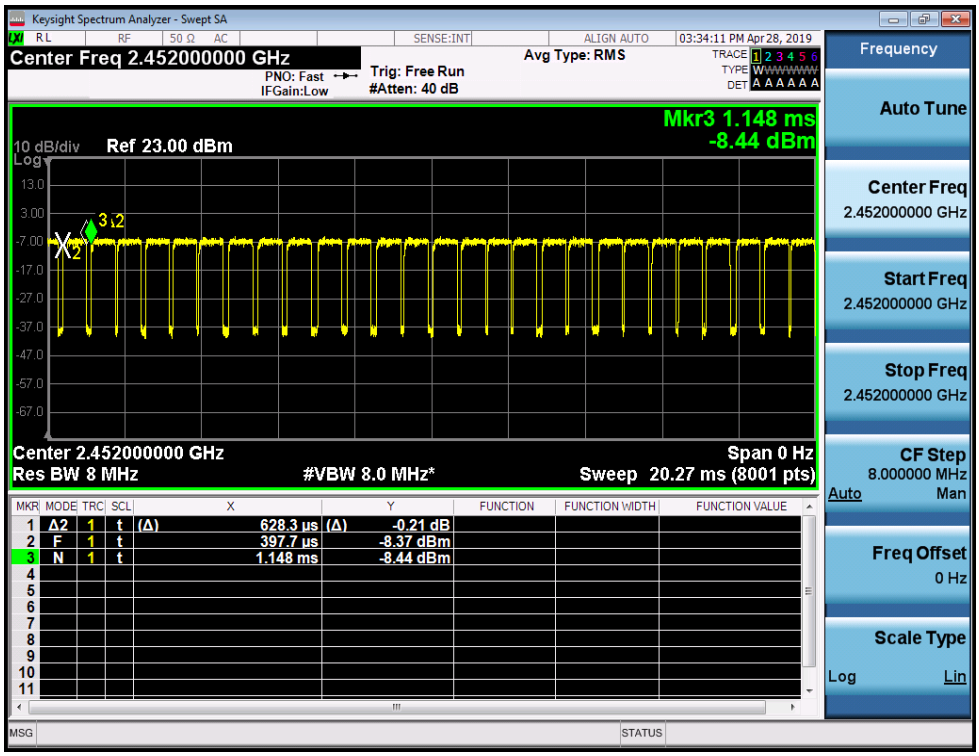
Graphs	
11B/LCH	
11B/MCH	

11B/HCH	
11G/LCH	

11G/MCH	
11G/HCH	

11N20/LCH	
11N20/MCH	

11N20/HCH	
11N40/LCH	

11N40/MCH	
11N40/HCH	

4.3 Power Spectral Density Measurement

4.3.1 Limits of Power Spectral Density

FCC§15.247(e)

IC RSS-247 5.2(2)

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

4.3.2 Test Procedure

1. The testing follows Measurement Procedure 8.4 DTS maximum power spectral density level in the fundamental emission of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Turn on the EUT and connect it to measurement instrument.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 30 kHz. Video bandwidth VBW = 100 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = power averaging (rms), Sweep time = auto couple, Trace mode = averaging (rms) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

4.3.3 Test Result of Power Spectral Density

Test Mode :		Transmitting	Temperature :		24~26℃	
Test Engineer :		Victorique Gao	Relative Humidity :		50~53%	
Mode	Channel	Meas.Level [dBm/30KHz]	Av.PSD [dBm/30KHz]	Av.PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-7.231	-7.18	-17.18	8	PASS
11B	MCH	-9.338	-9.26	-19.26		PASS
11B	HCH	-12.027	-12.01	-22.01		PASS
11G	LCH	-11.282	-10.88	-20.88		PASS
11G	MCH	-12.894	-12.68	-22.68		PASS
11G	HCH	-14.689	-14.37	-24.37		PASS
11N20	LCH	-11.651	-11.11	-21.11		PASS
11N20	MCH	-13.088	-12.75	-22.75		PASS
11N20	HCH	-15.052	-14.62	-24.62		PASS
11N40	LCH	-12.855	-12.13	-22.13		PASS
11N40	MCH	-15.742	-15.40	-25.40		PASS
11N40	HCH	-16.561	-15.79	-25.79		PASS

Note:

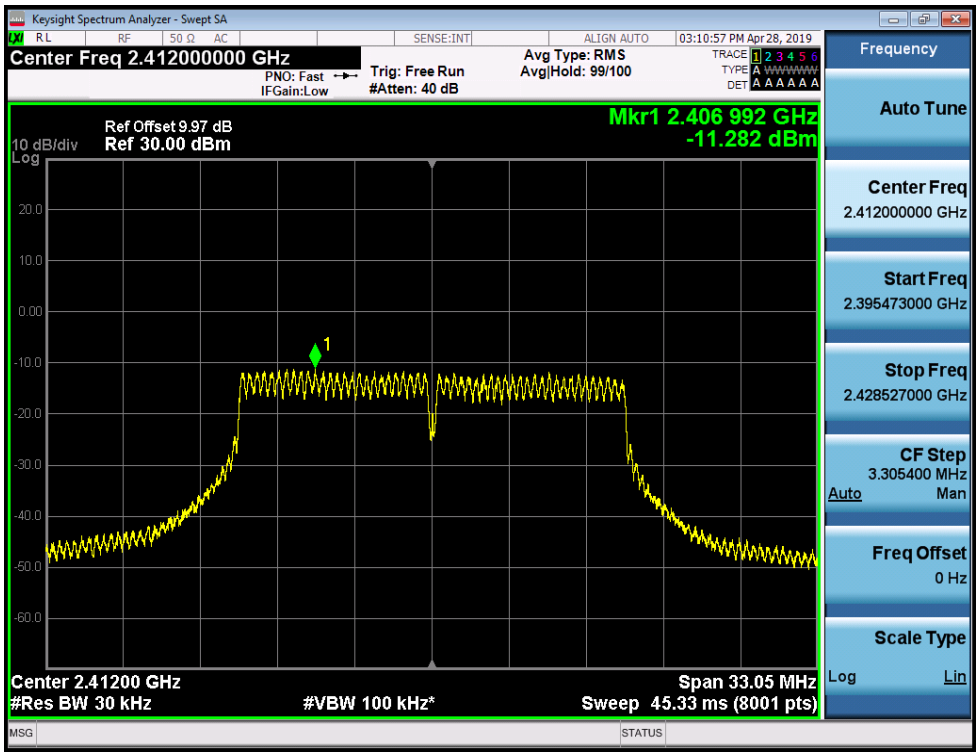
dBm/30KHz = dBm/3KHz+ 10*Log(30/3)

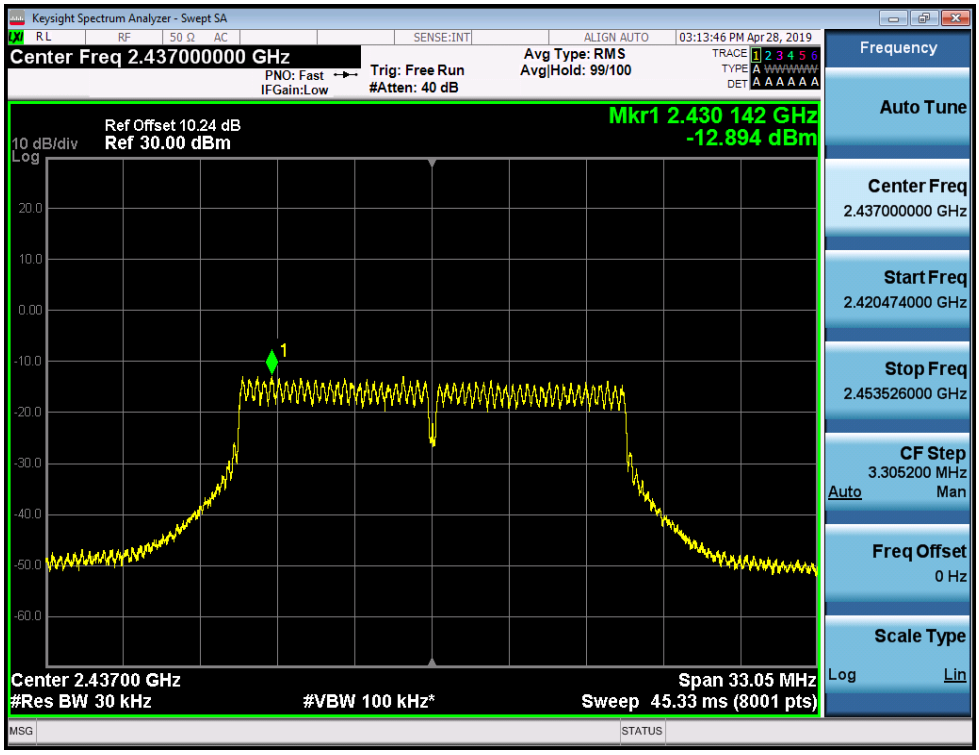
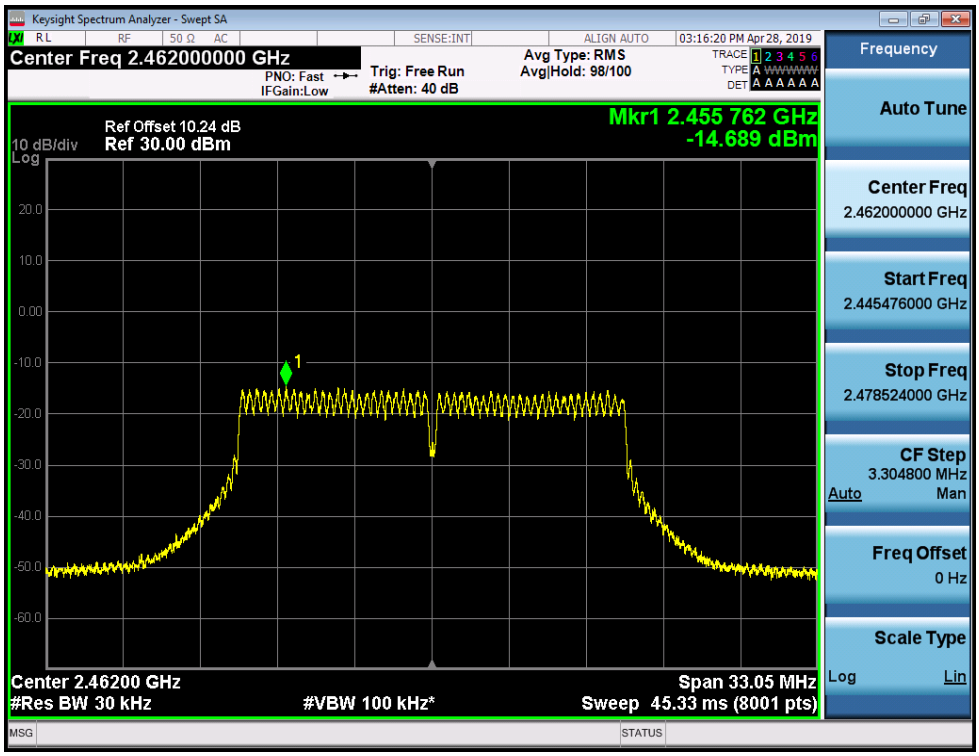
for example,

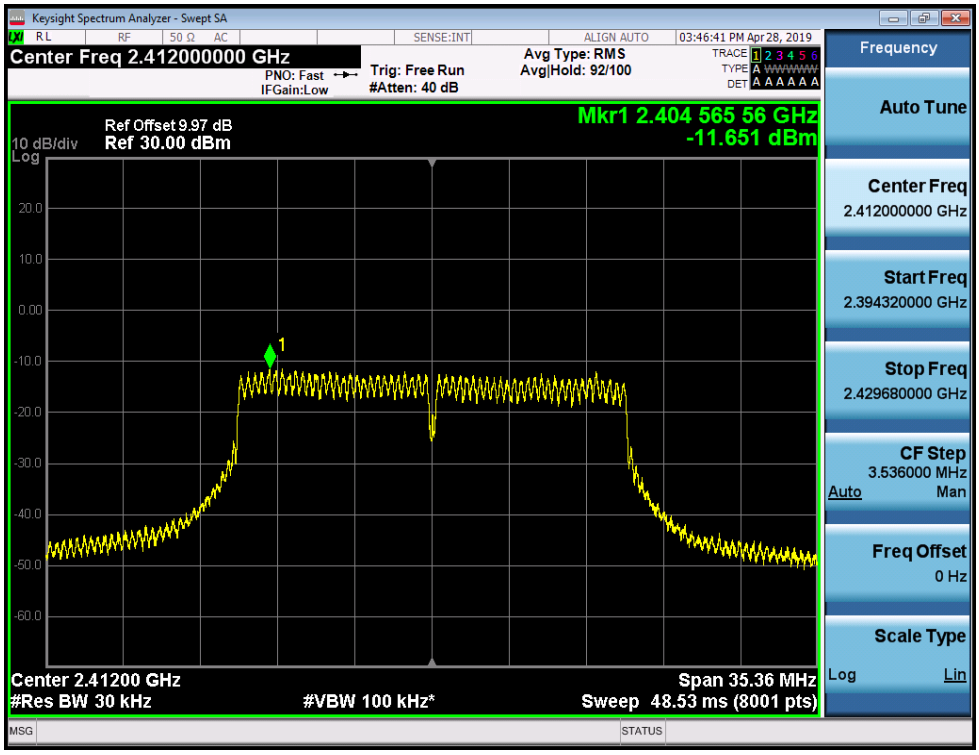
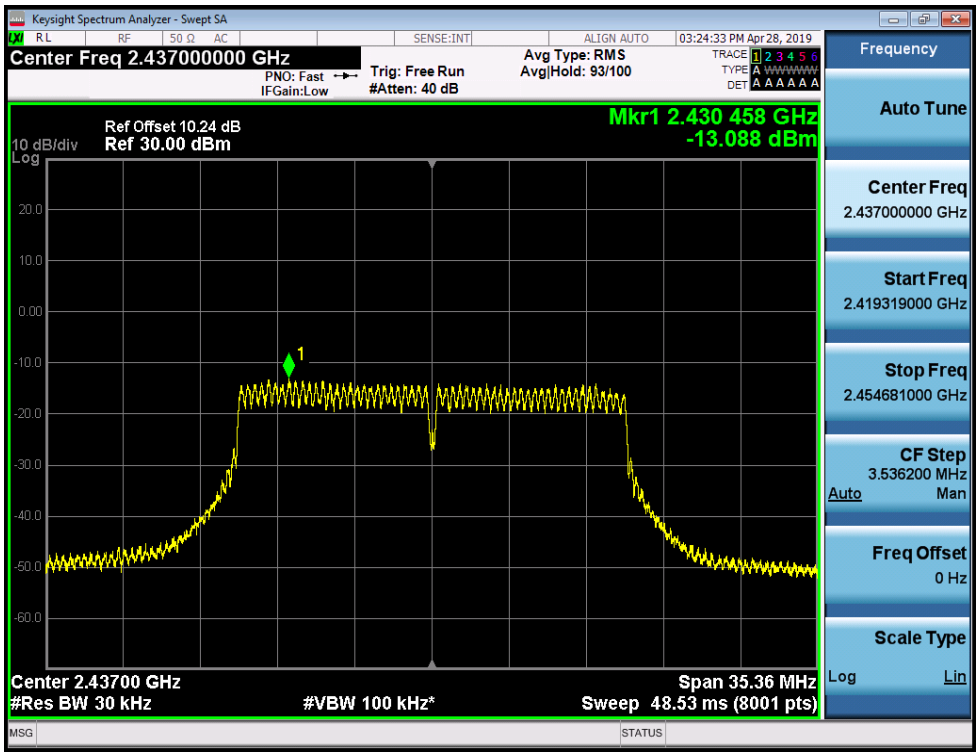
-7.18 dBm/30KHz -10*Log(30/3)=-17.18 dBm/3KHz

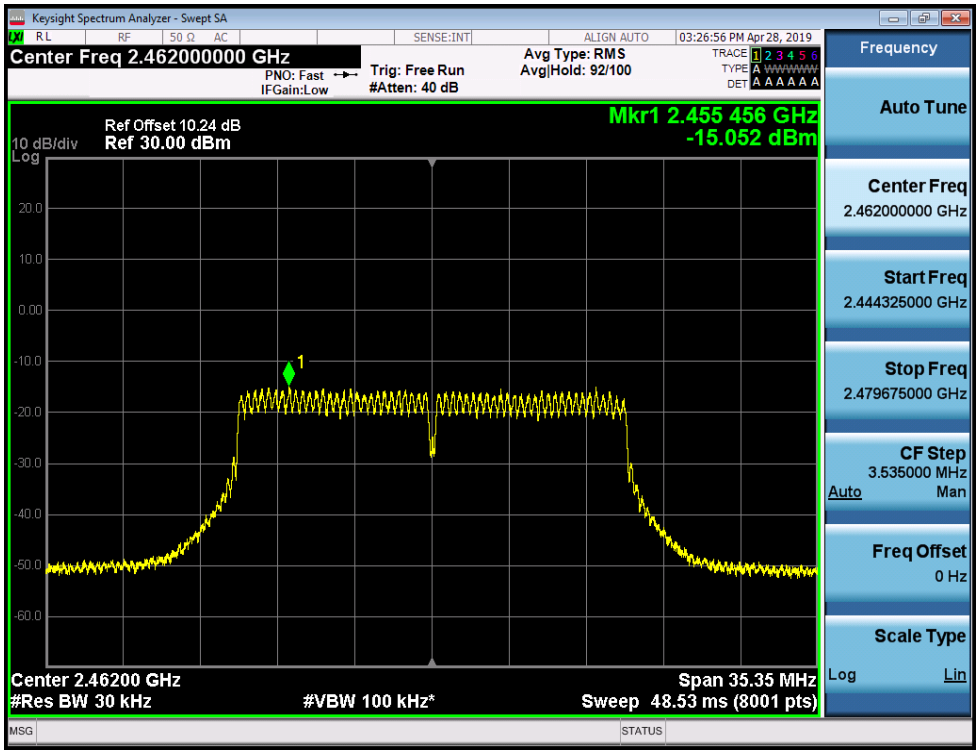
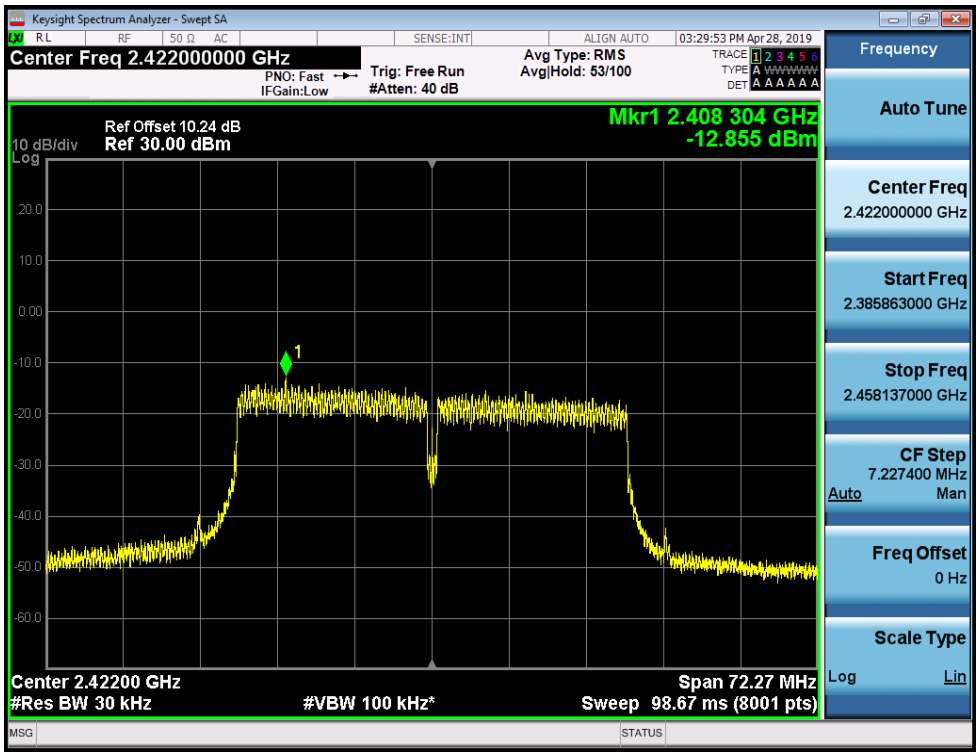
Power Spectral Density Plot

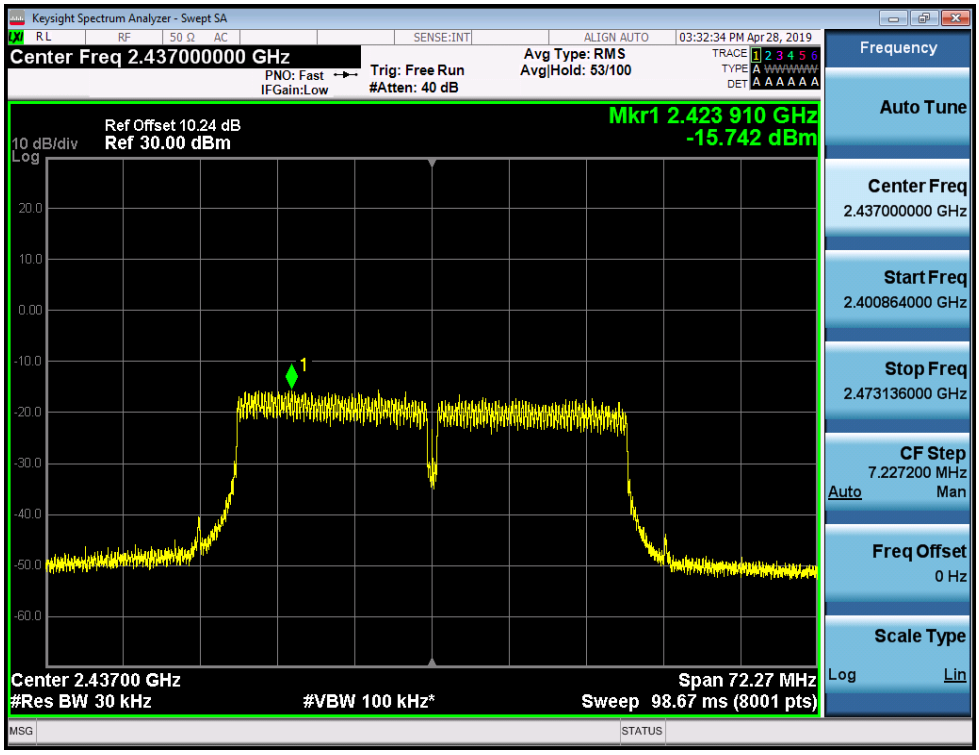
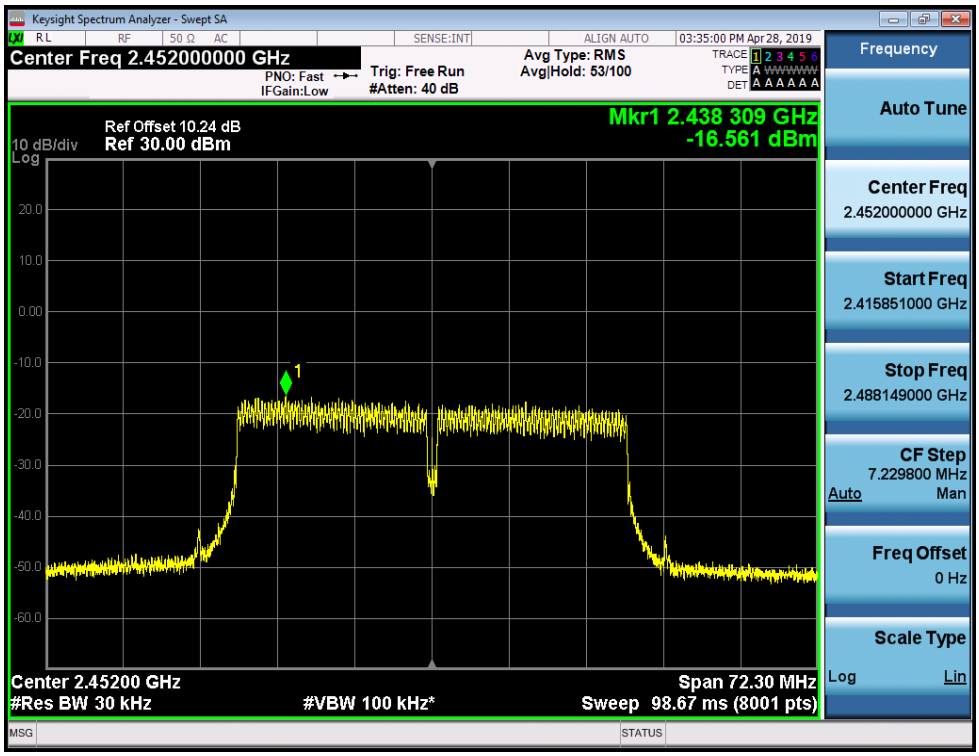
Graphs	
11B/LCH	
11B/MCH	

11B/HCH	
11G/LCH	

11G/MCH	
11G/HCH	

11N20/LCH	
11N20/MCH	

11N20/HCH	
11N40/LCH	

11N40/MCH	
11N40/HCH	

4.4 Conducted Band Edges and Spurious Emission Measurement

4.4.1 Limit of Conducted Band Edges and Spurious Emission

FCC §15.247 (d)

IC RSS-247 5.5

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

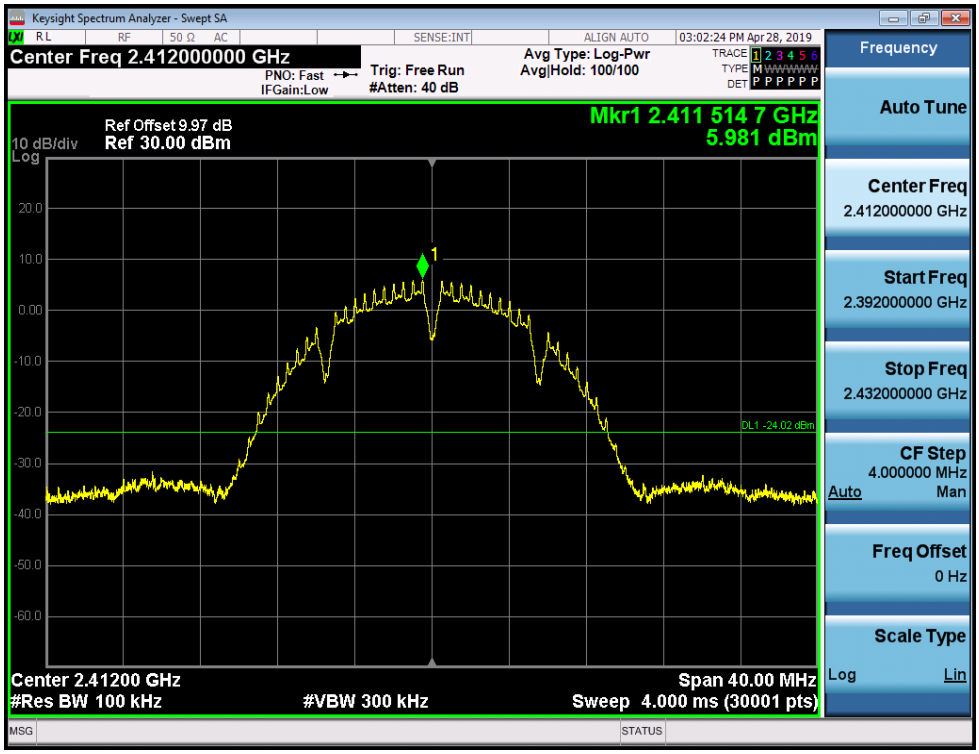
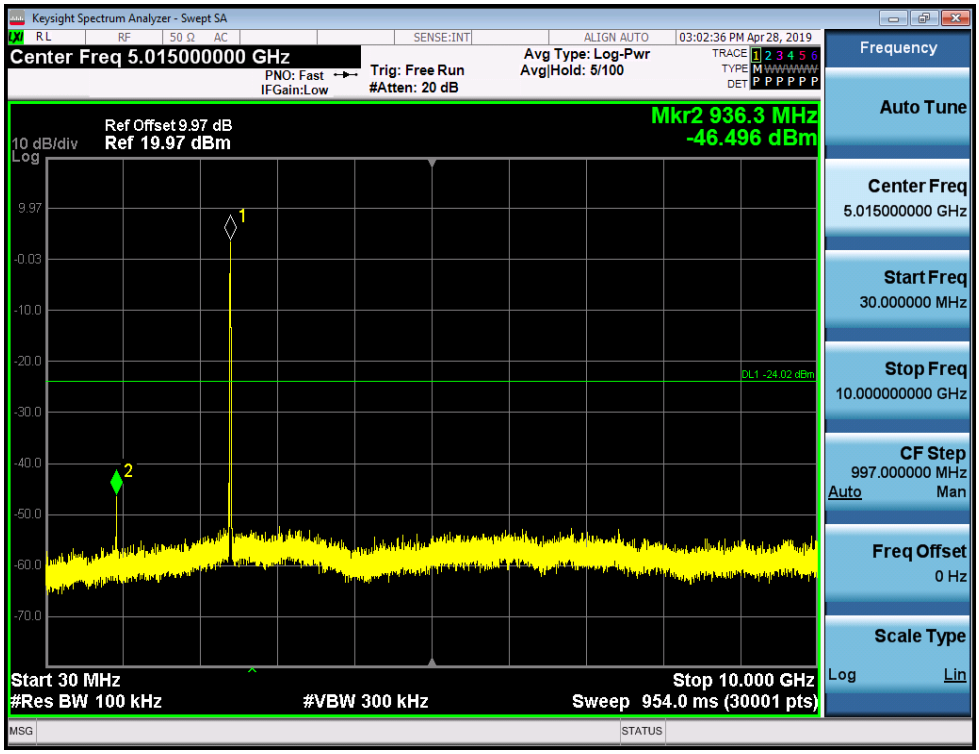
4.4.2 Test Procedures

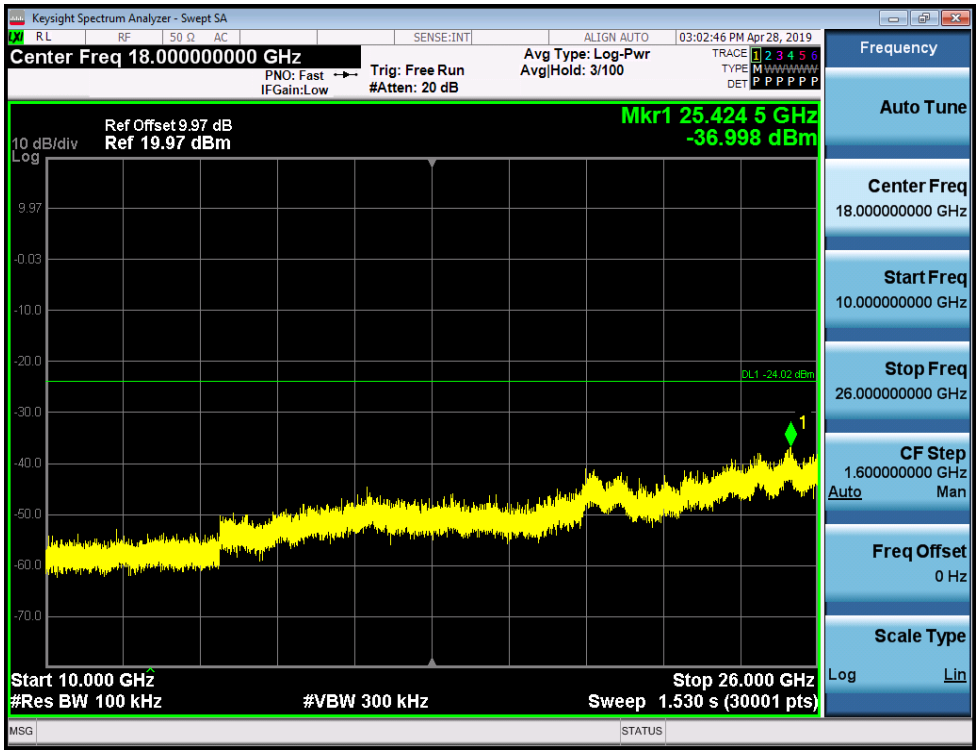
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument.
3. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
4. Measure and record the results in the test report.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

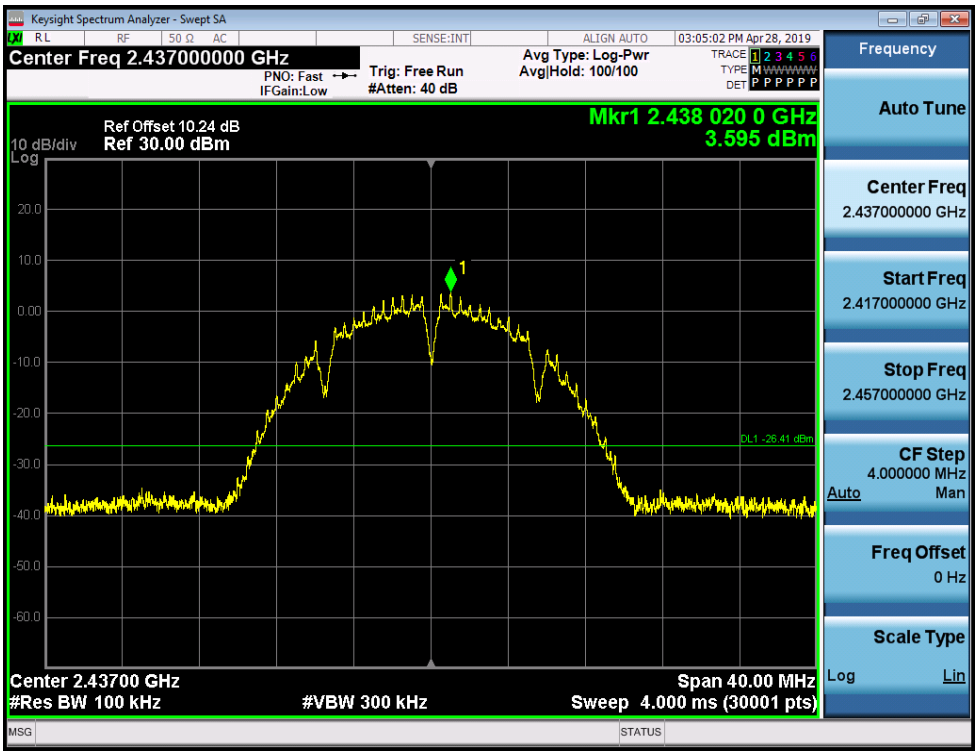
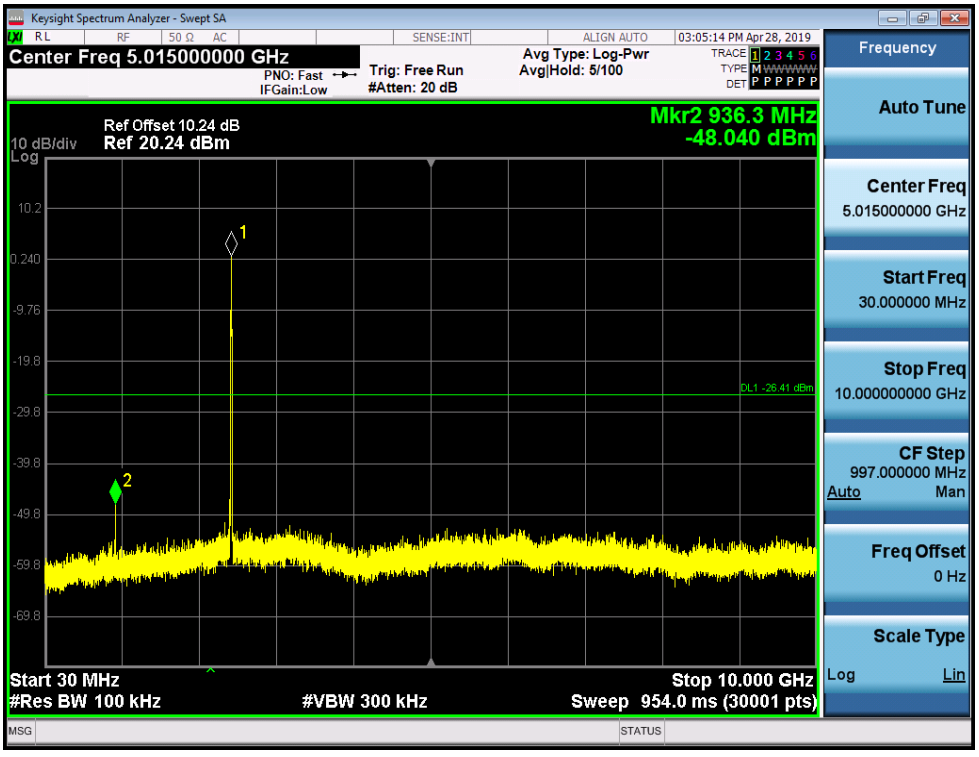
4.4.3 Test Result of Conducted Band Edges and Spurious Emission

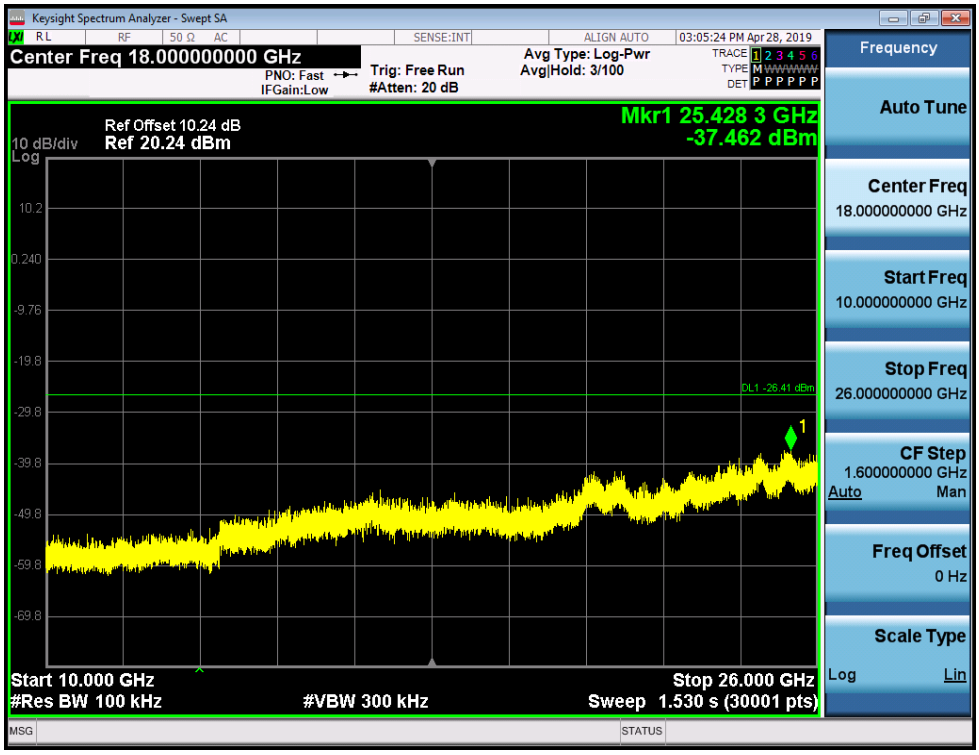
Test Mode :		Transmitting	Temperature :	24~26℃	
Test Engineer :		Victorique Gao	Relative Humidity :	50~53%	
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	5.981	-36.998	-24.02	PASS
11B	MCH	3.595	-37.462	-26.41	PASS
11B	HCH	0.907	-36.715	-29.09	PASS
11G	LCH	2.646	-37.501	-27.35	PASS
11G	MCH	0.717	-37.441	-29.28	PASS
11G	HCH	-0.972	-36.452	-30.97	PASS
11N20	LCH	2.875	-38.080	-27.13	PASS
11N20	MCH	0.787	-36.801	-29.21	PASS
11N20	HCH	-1.245	-35.974	-31.25	PASS
11N40	LCH	-0.331	-37.098	-30.33	PASS
11N40	MCH	-1.470	-36.755	-31.47	PASS
11N40	HCH	-2.976	-37.040	-32.98	PASS

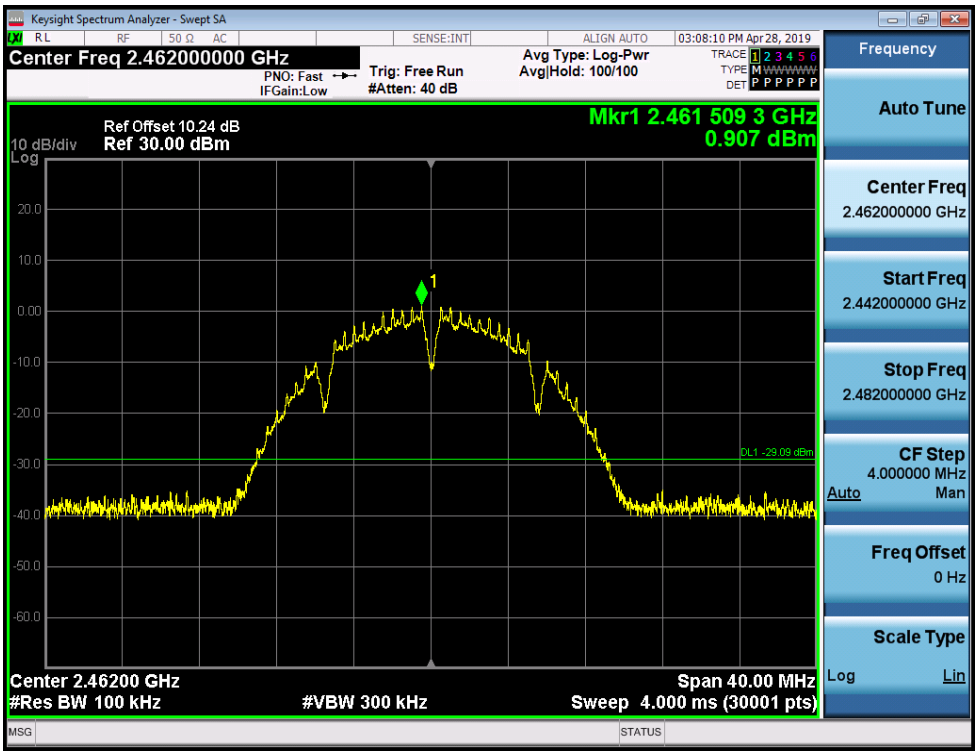
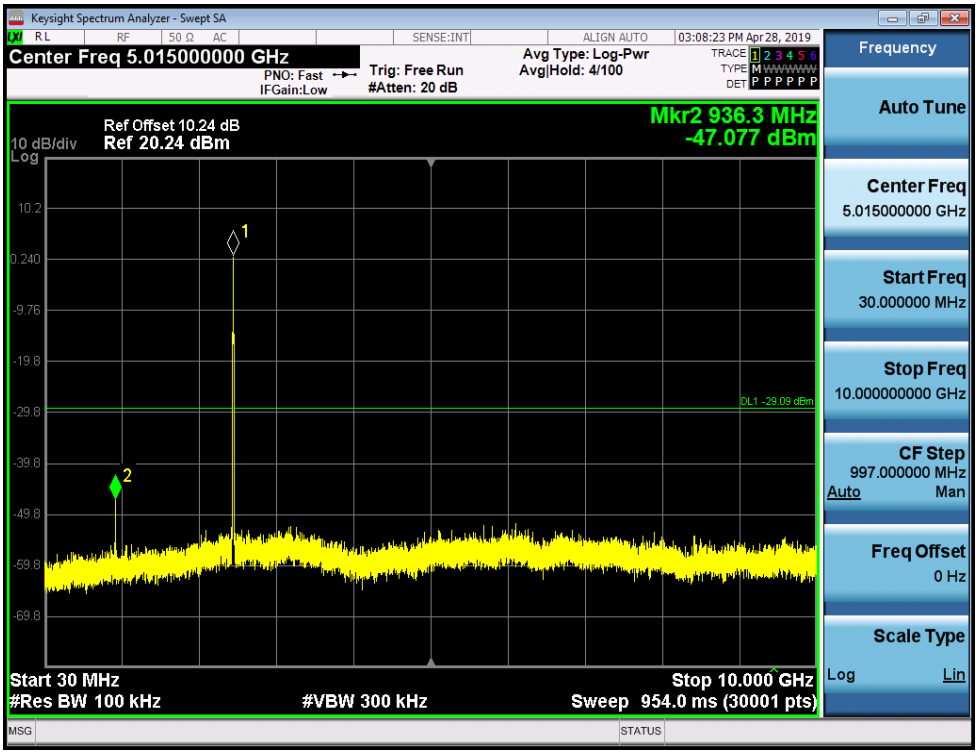
Conducted Band Edges and Spurious Emission Plot

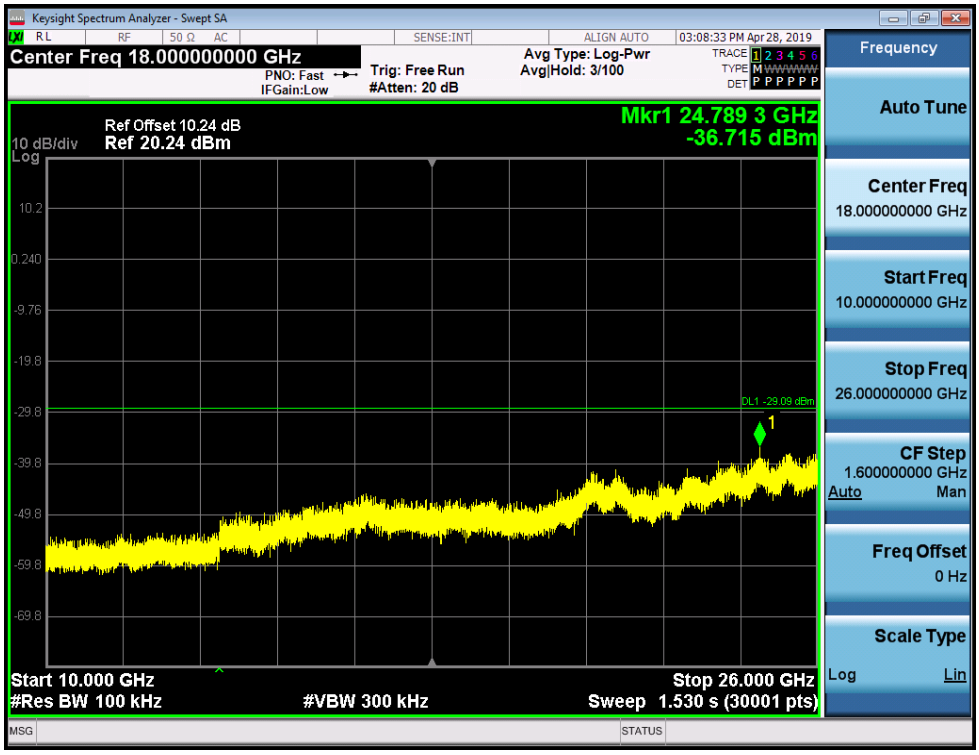
11B_LCH_Graphs	
Pref/11B/LCH	
Puw/11B/LCH	

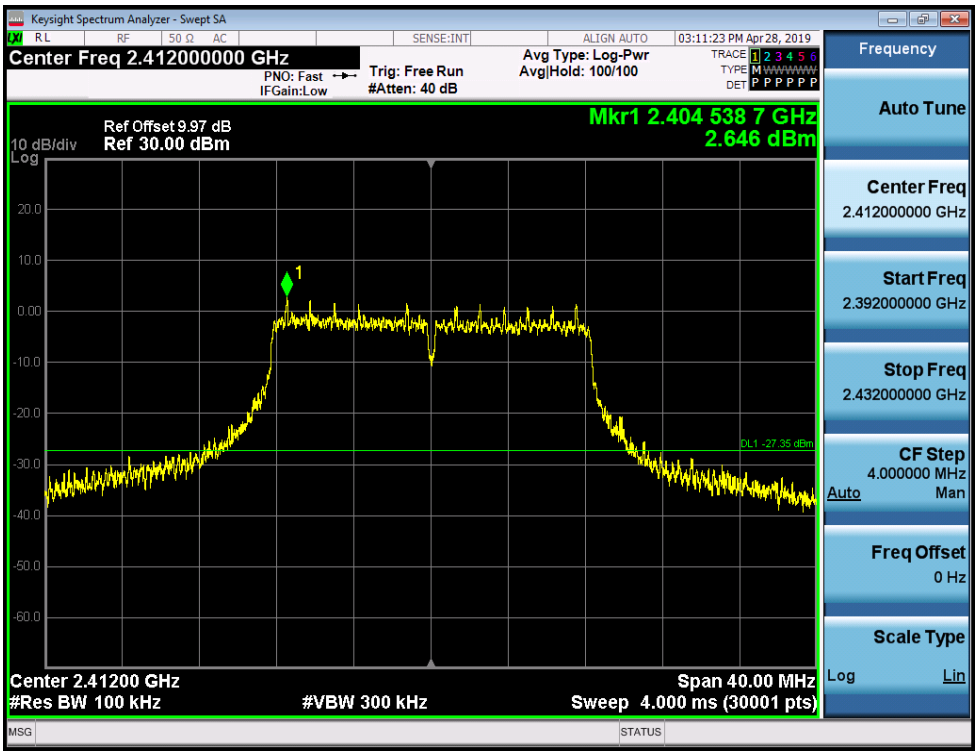
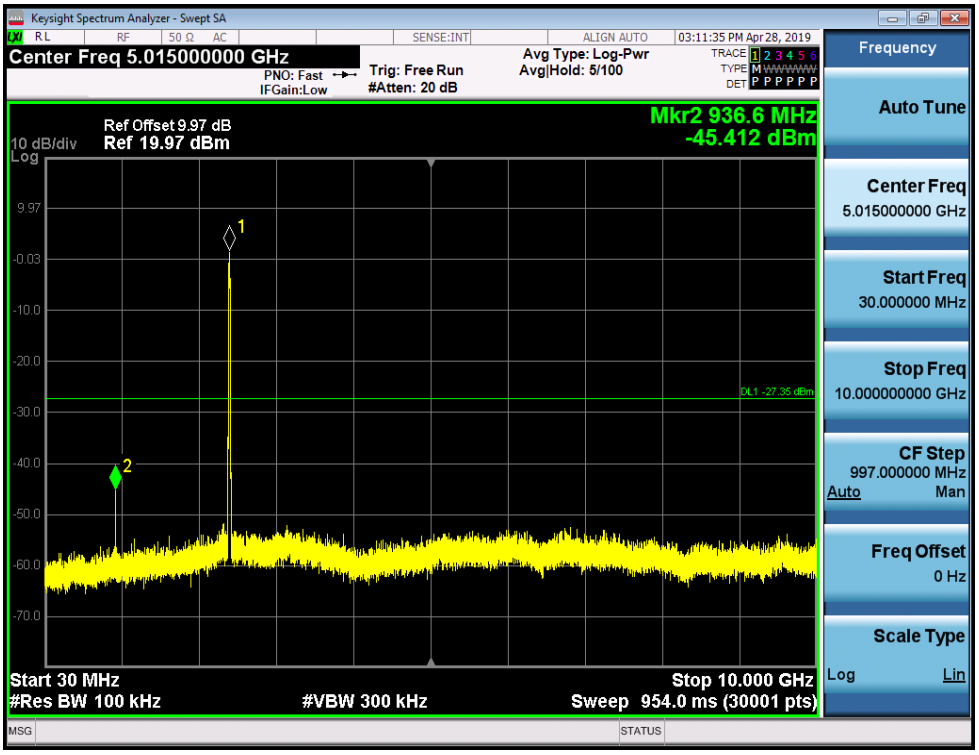

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:02:46 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 9.97 dB
10 dB/div
Log
Ref 19.97 dBm
Mkr1 25.424 5 GHz
-36.998 dBm
9.97
-0.03
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
DL1 -24.02 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

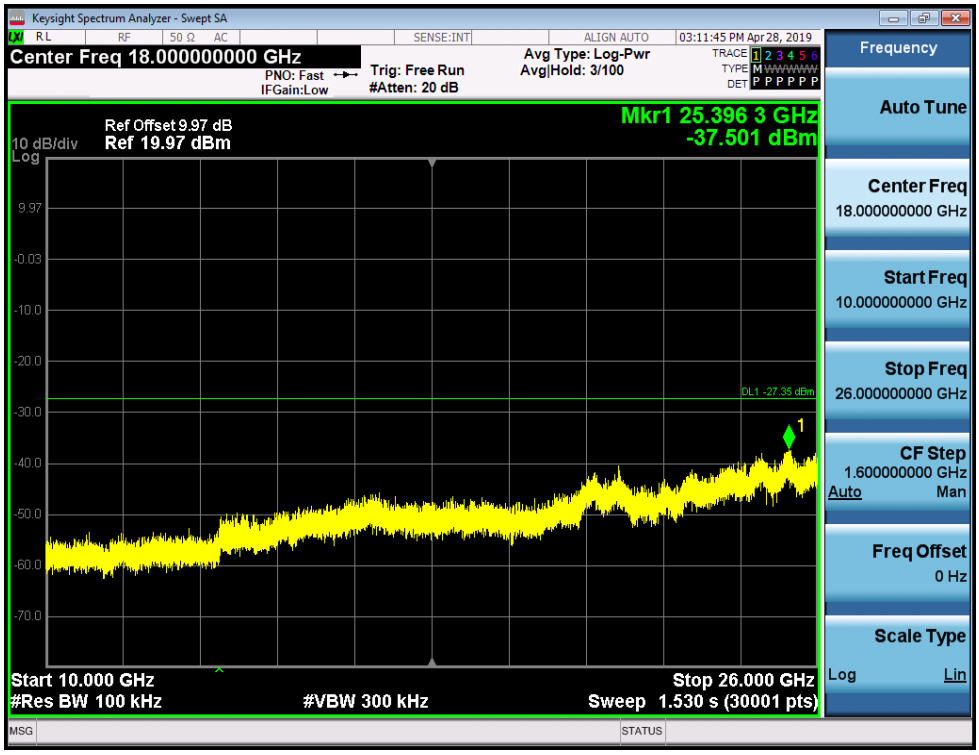
11B_MCH_Graphs	
Pref/11B/MCH	
Puw/11B/MCH	

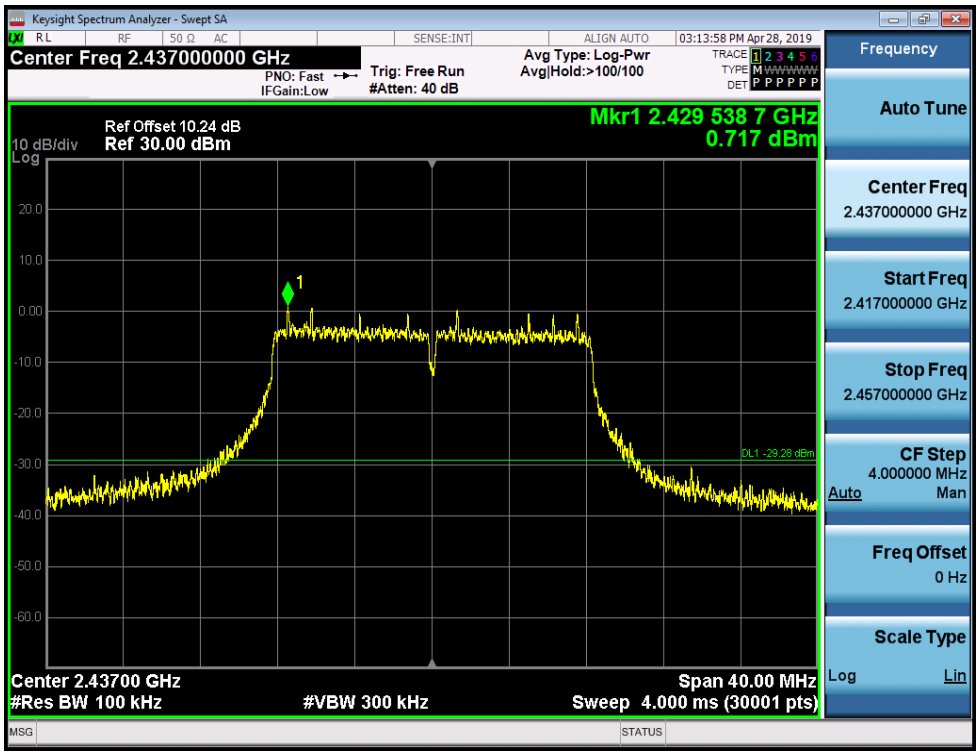
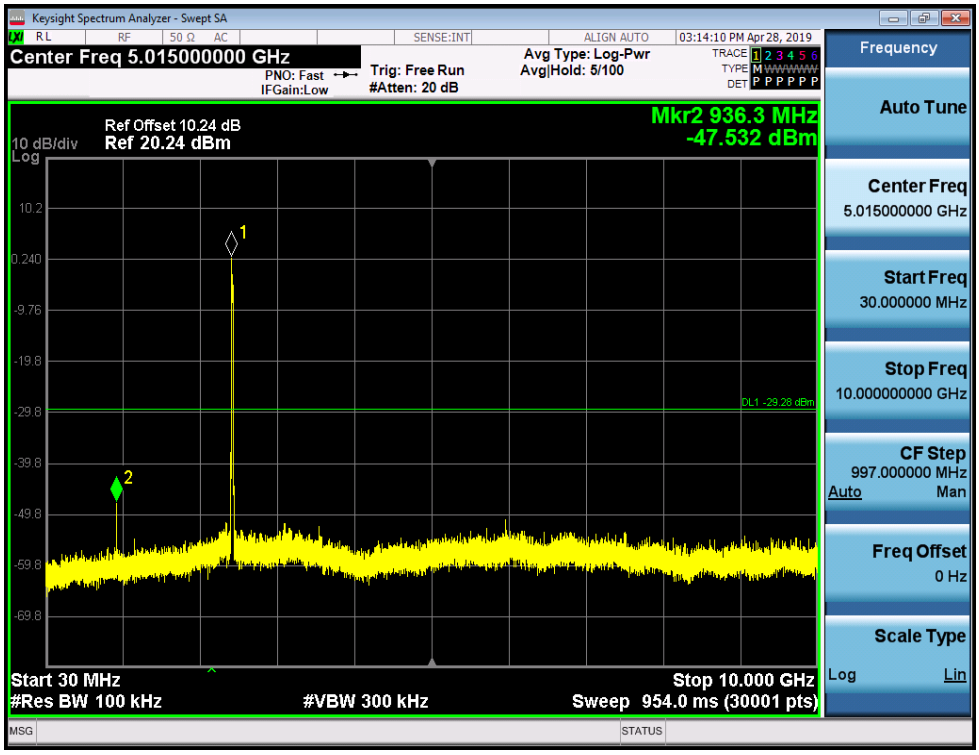

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:05:24 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.428 3 GHz
-37.462 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
DL1 -26.41 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

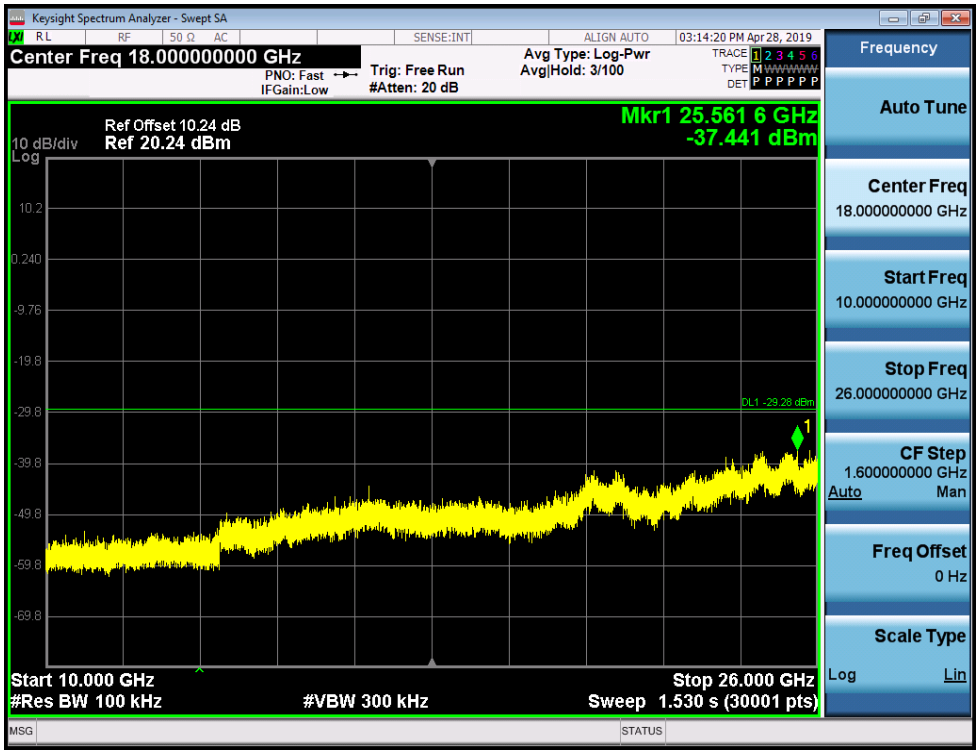
11B_HCH_Graphs	
Pref/11B/HCH	
Puw/11B/HCH	

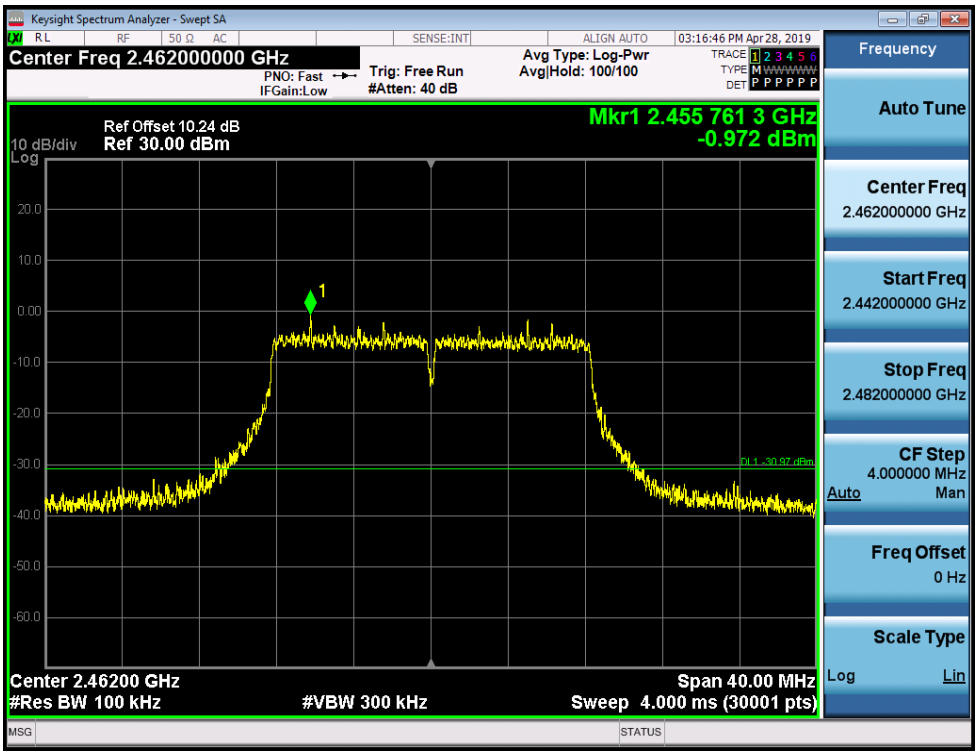
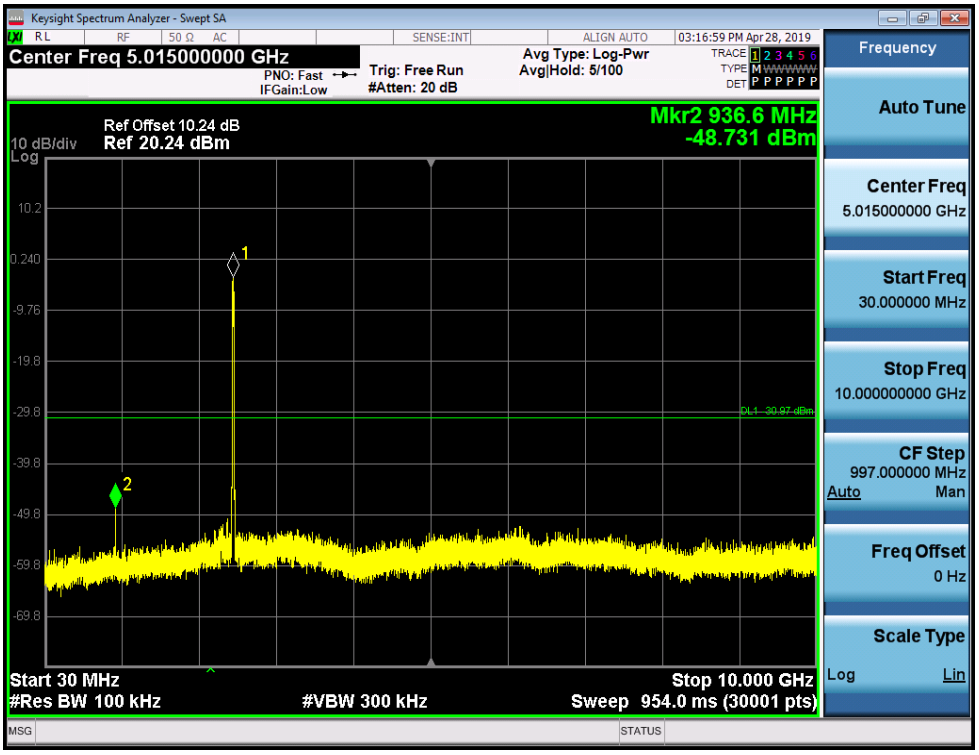

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:08:33 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 24.789 3 GHz
-36.715 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
DL1 -29.09 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

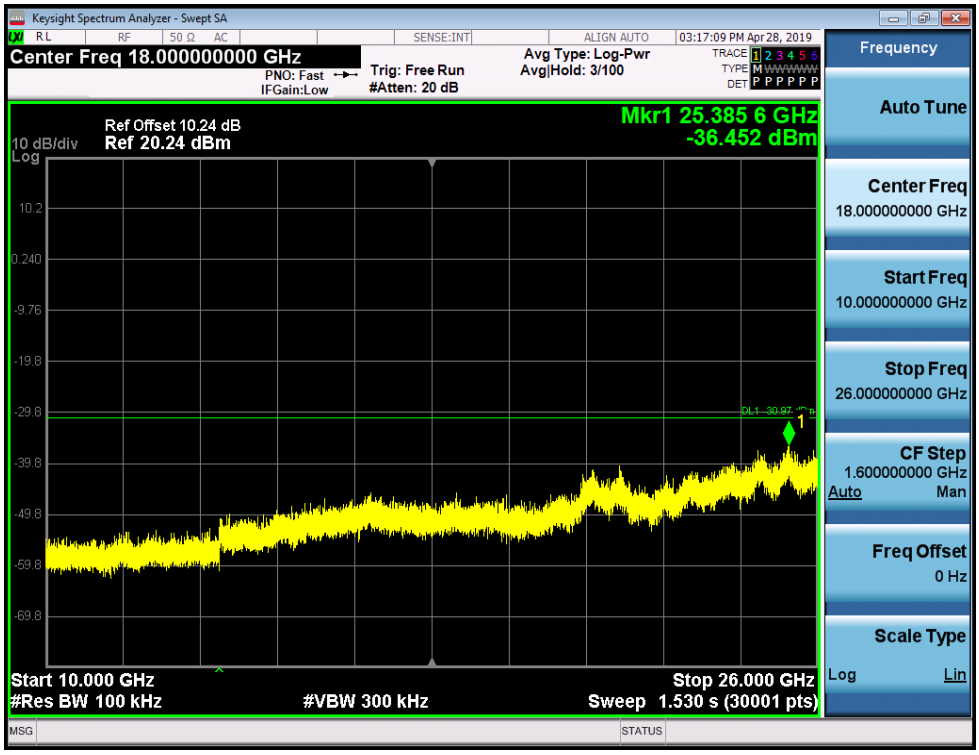
11G_LCH_Graphs	
Pref/11G/LCH	
Puw/11G/LCH	

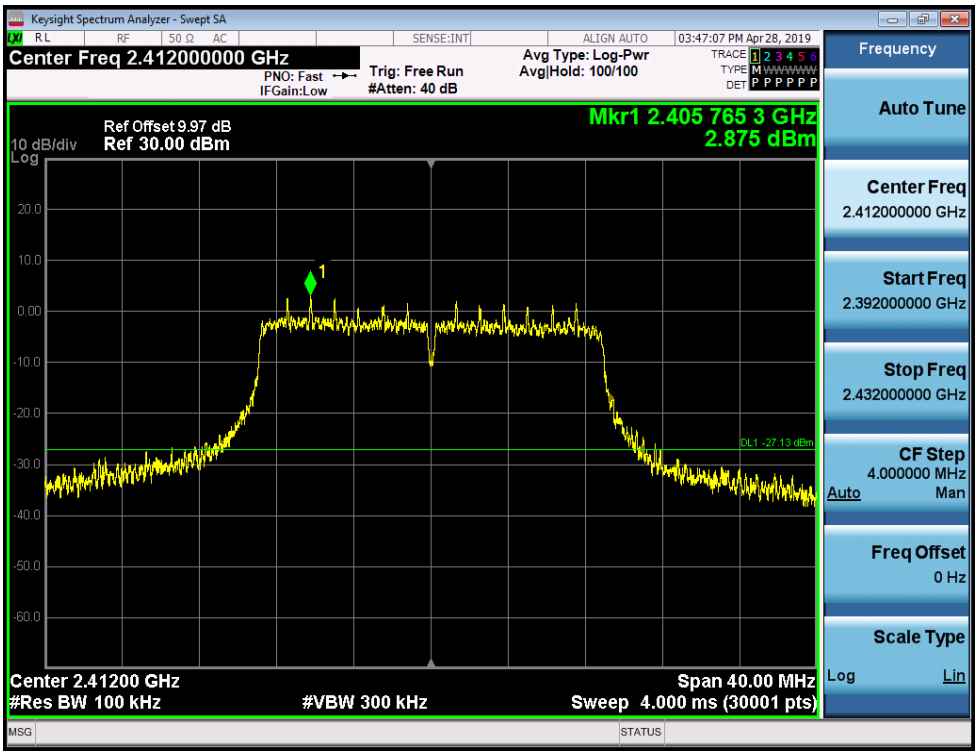
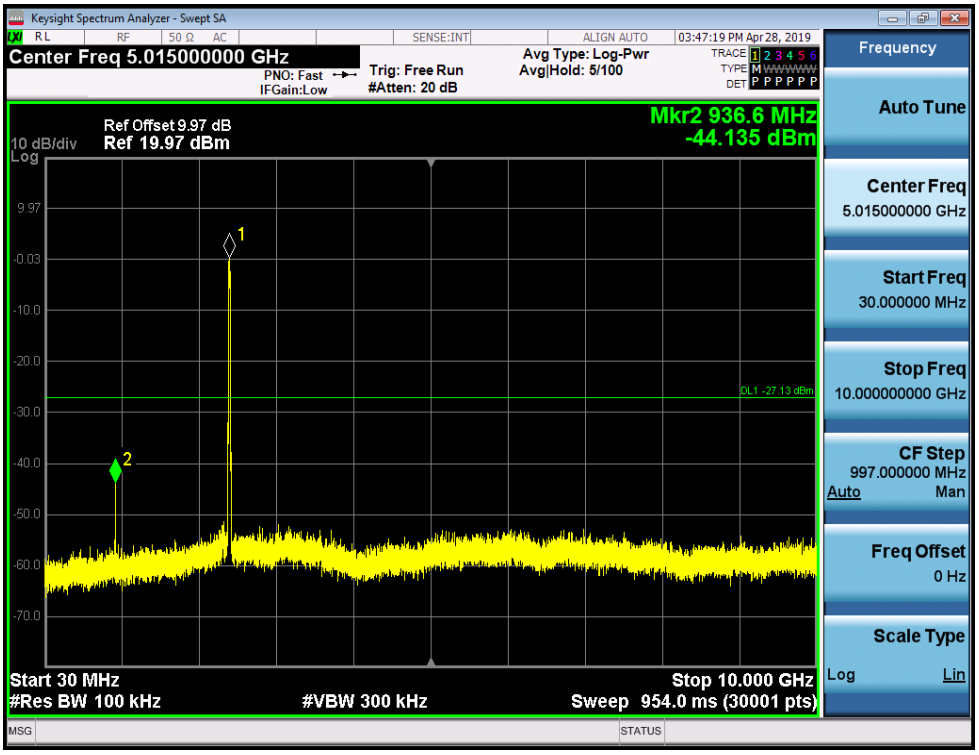

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:11:45 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 9.97 dB
10 dB/div
Log
Ref 19.97 dBm
Mkr1 25.396 3 GHz
-37.501 dBm
9.97
-0.03
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
DL1 -27.35 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

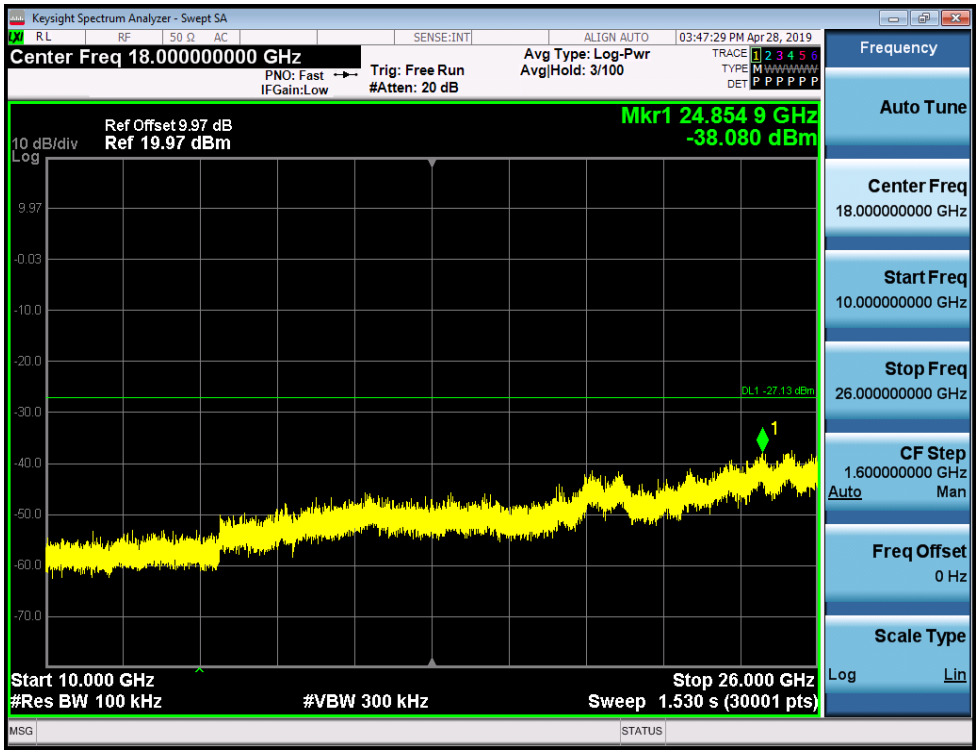
11G_MCH_Graphs	
Pref/11G/MCH	
Puw/11G/MCH	

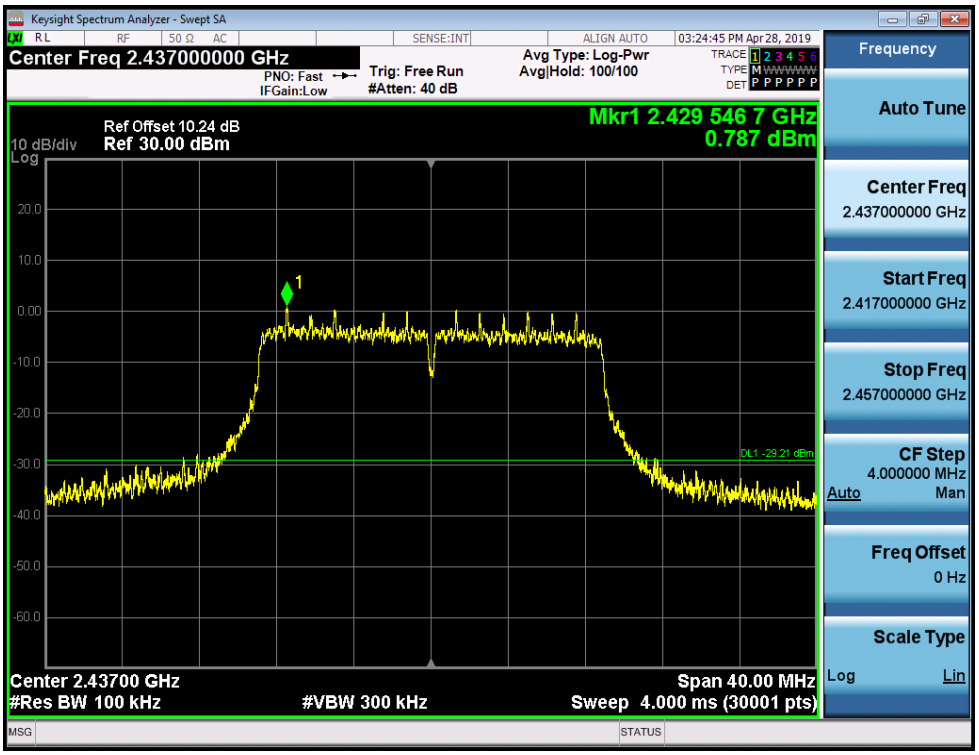
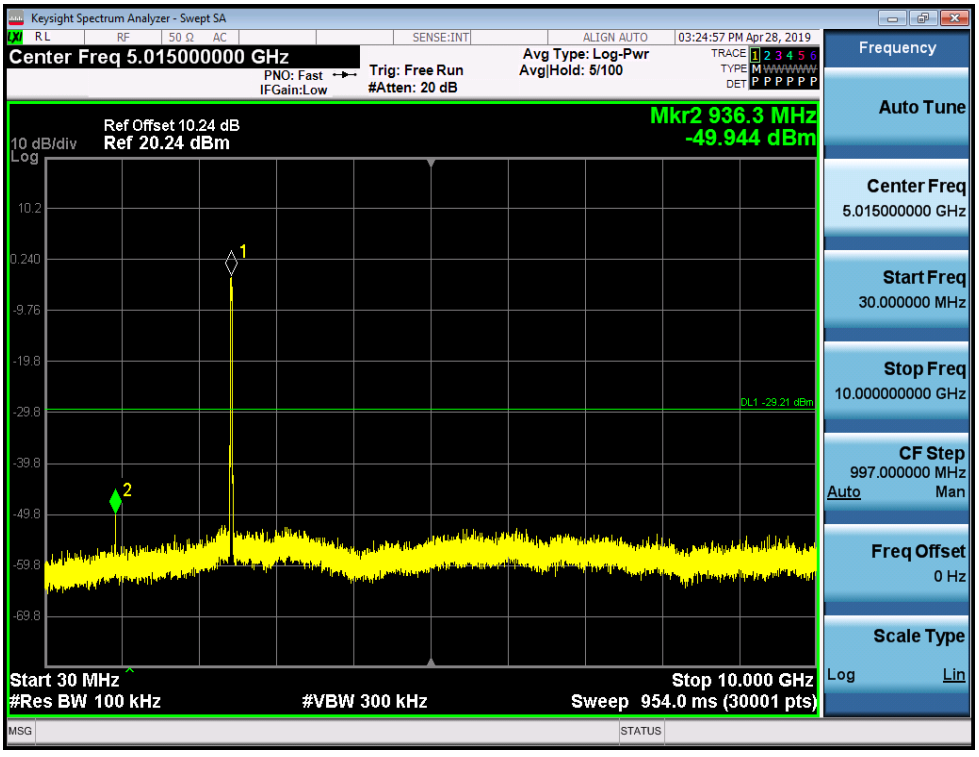

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
03:14:20 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.561 6 GHz
-37.441 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
DL1 -29.28 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

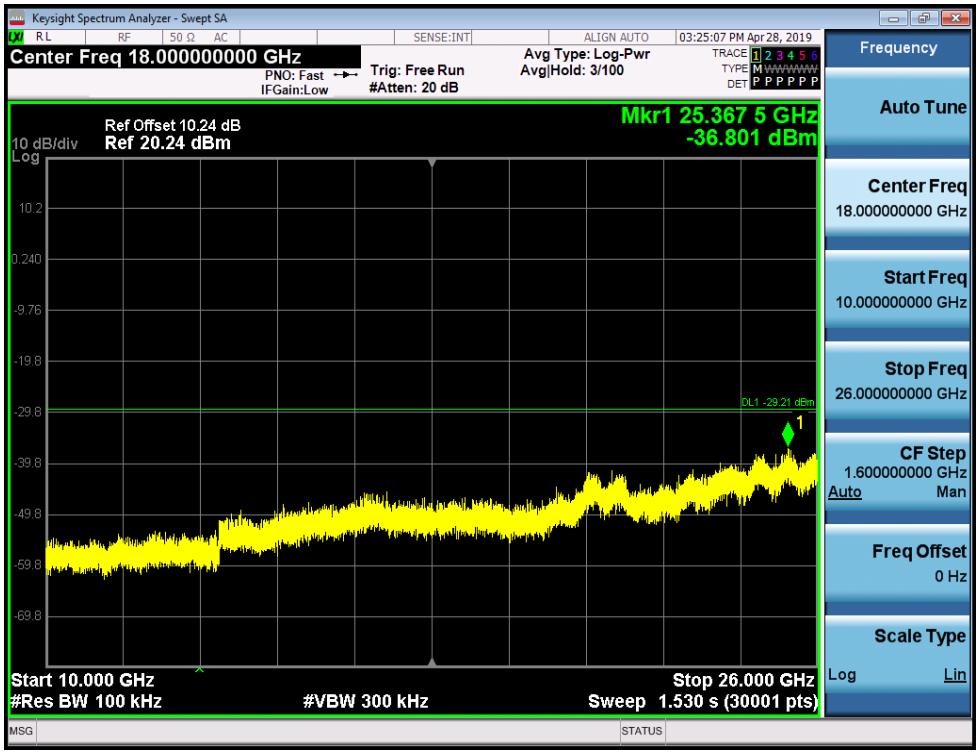
11G_HCH_Graphs	
Pref/11G/HCH	
Puw/11G/HCH	

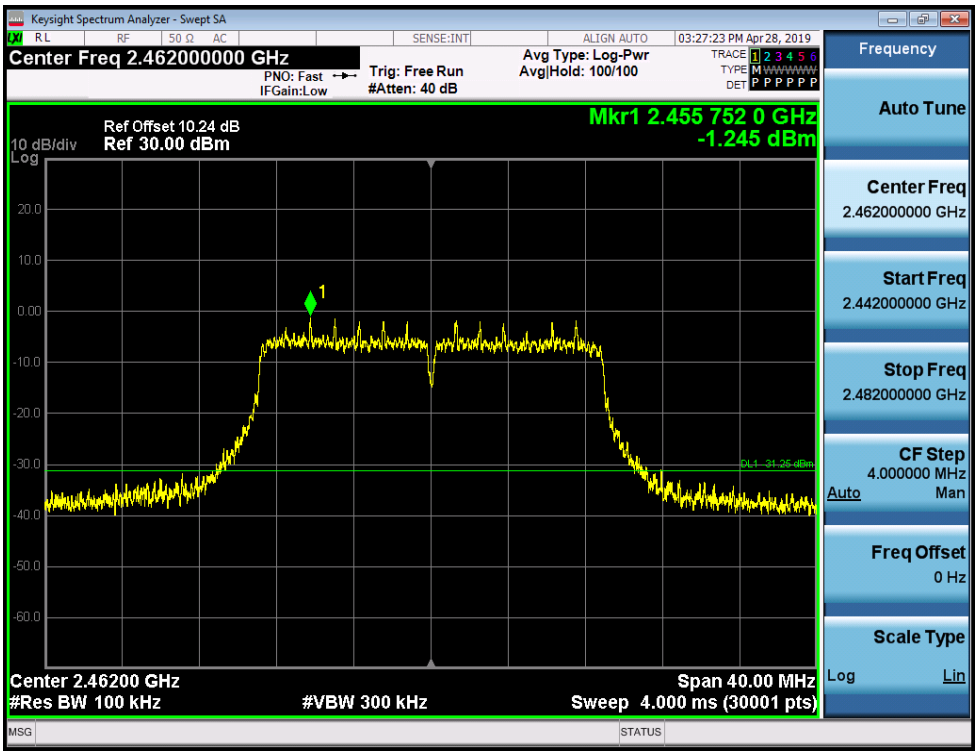
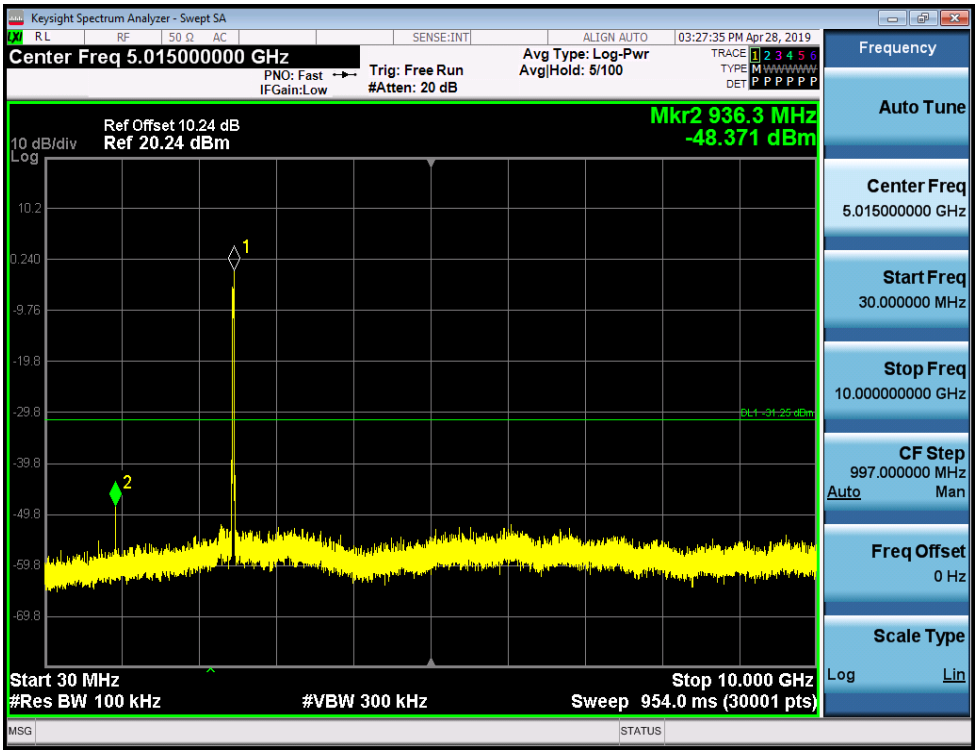

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:17:09 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.385 6 GHz
-36.452 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

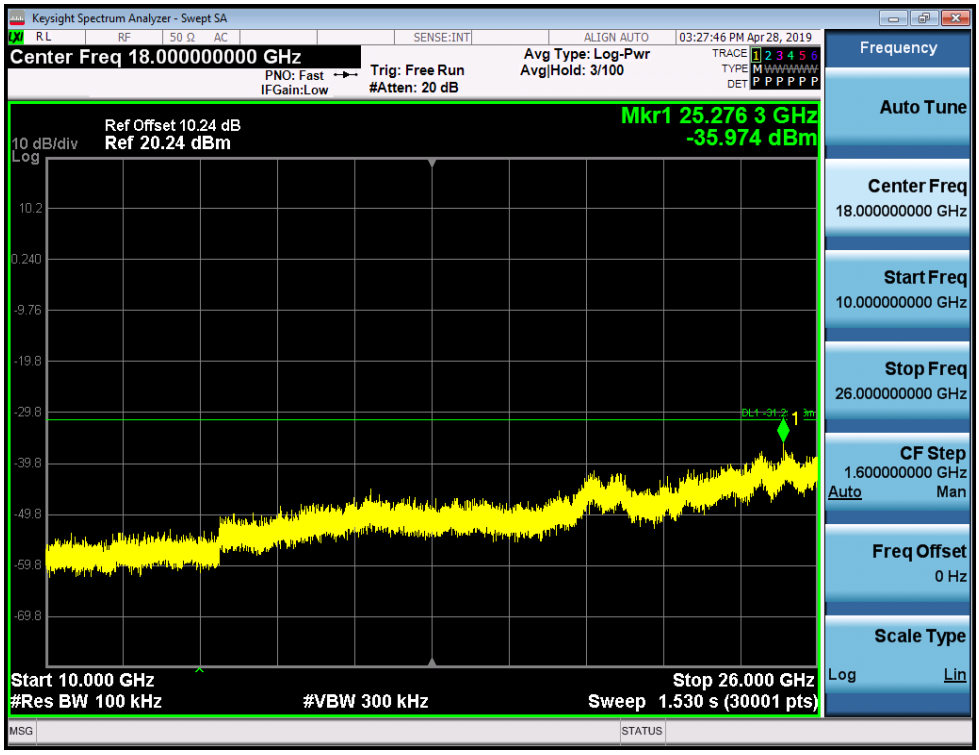
11N20_LCH_Graphs	
Pref/11N20/LCH	
Puw/11N20/LCH	

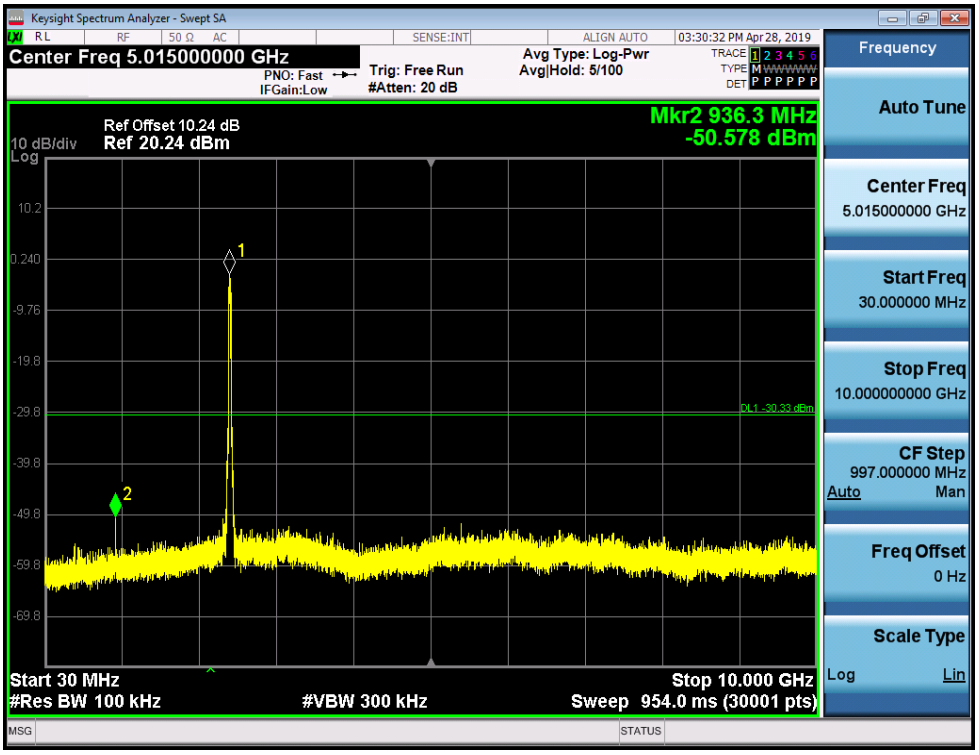

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:47:29 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 9.97 dB
10 dB/div
Log
Ref 19.97 dBm
Mkr1 24.854 9 GHz
-38.080 dBm
9.97
-0.03
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
DL1 -27.13 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

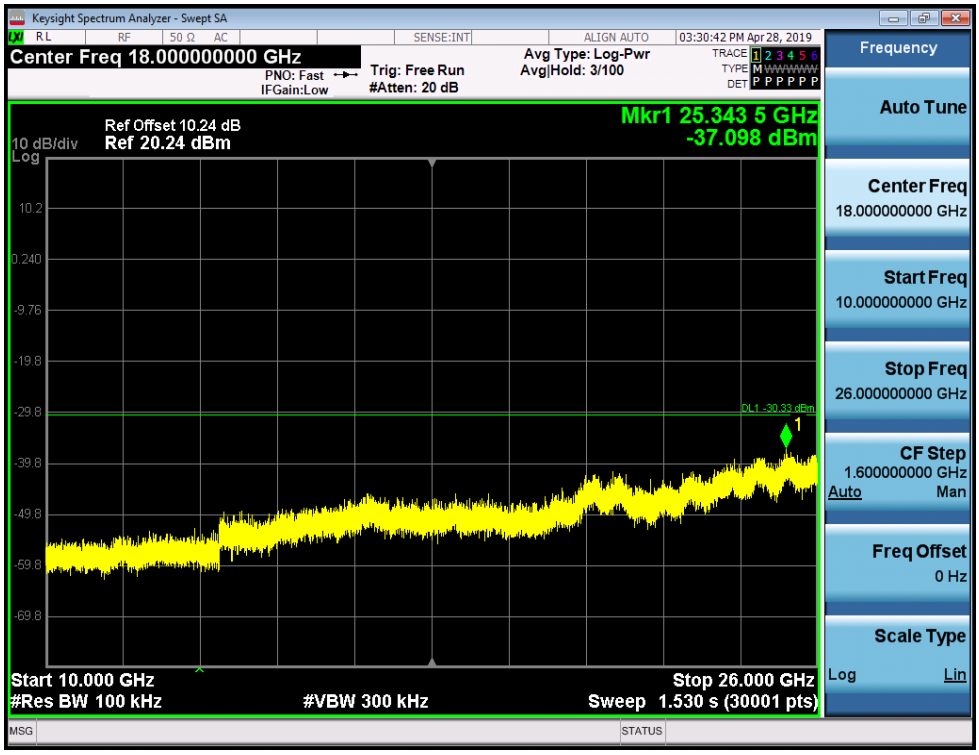
11N20_MCH_Graphs	
Pref/11N20/MCH	
Puw/11N20/MCH	

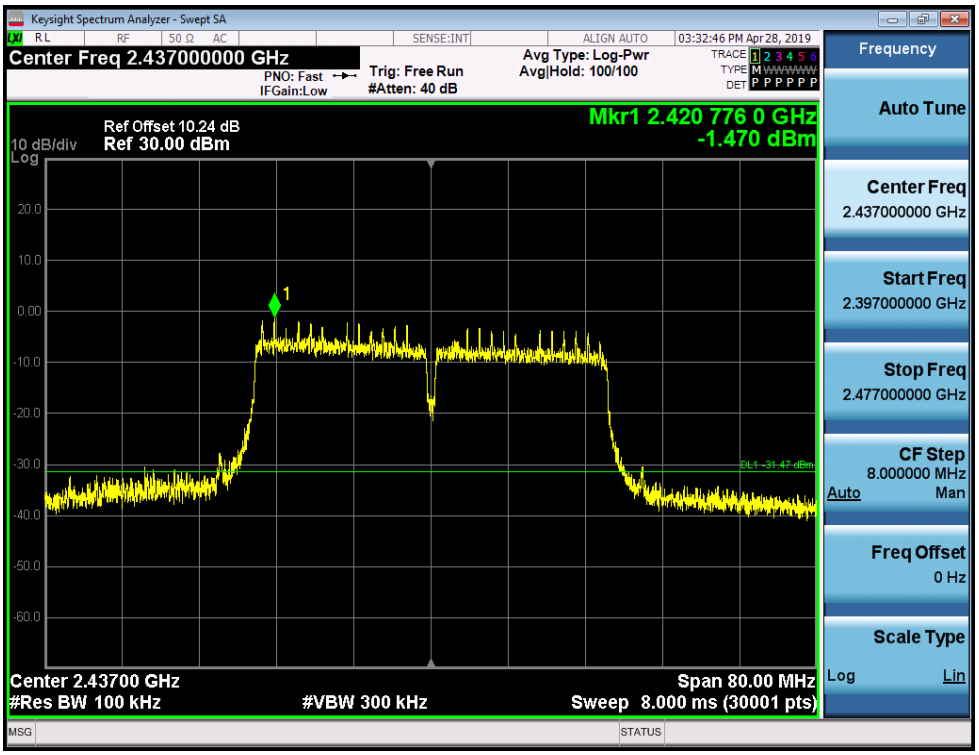
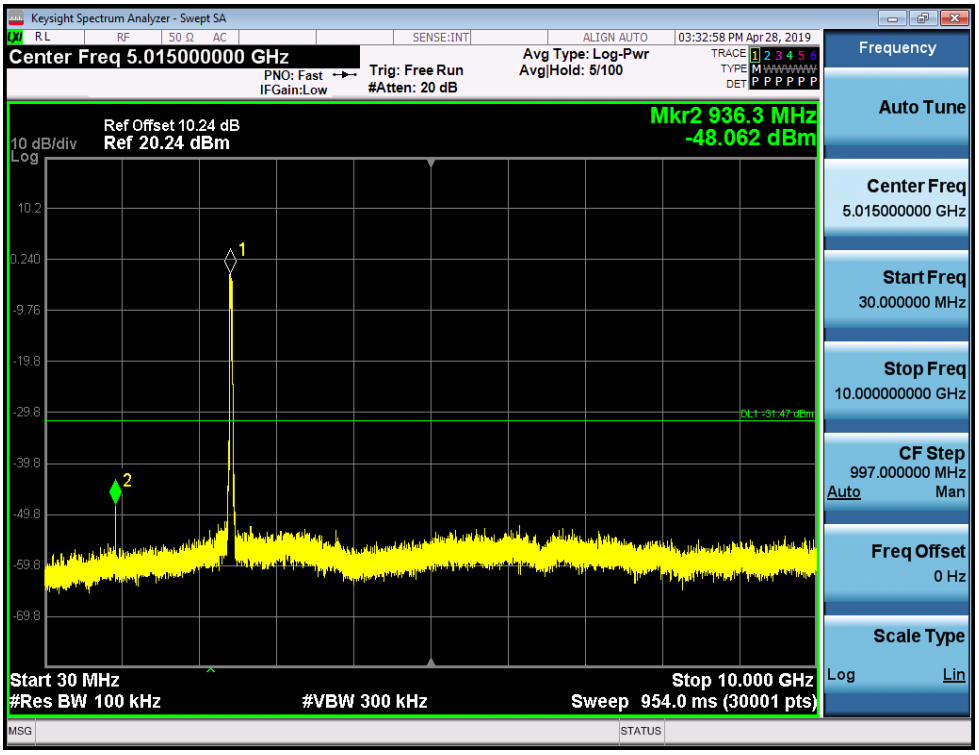

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:25:07 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.367 5 GHz
-36.801 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
DL1 -29.21 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

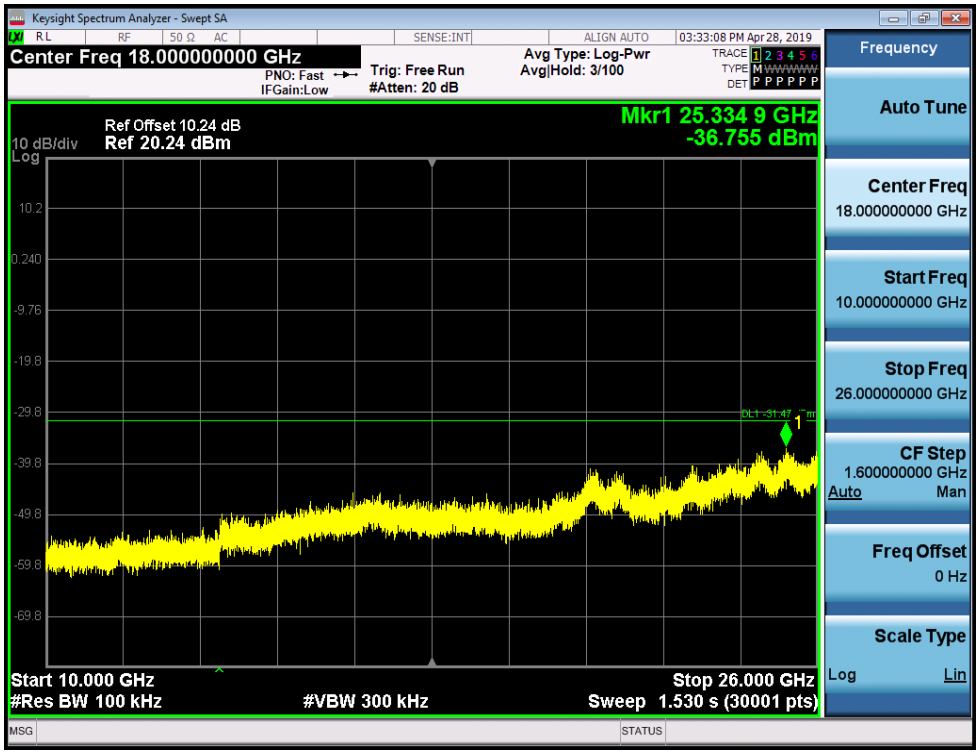
11N20_HCH_Graphs	
Pref/11N20/HCH	
Puw/11N20/HCH	

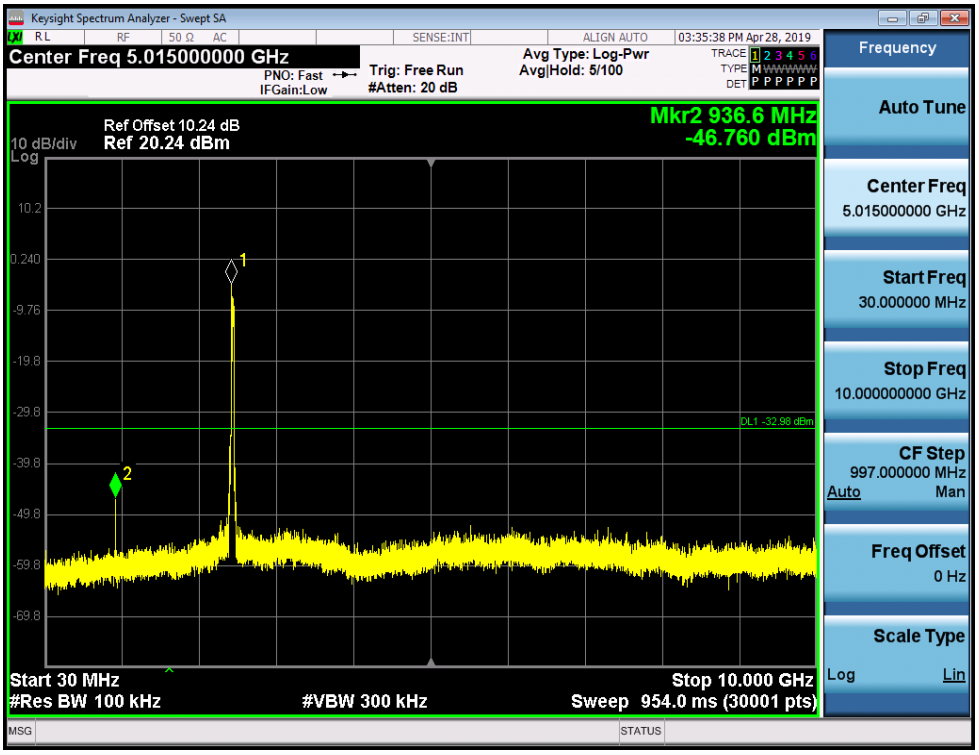

Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:27:46 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.276 3 GHz
-35.974 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

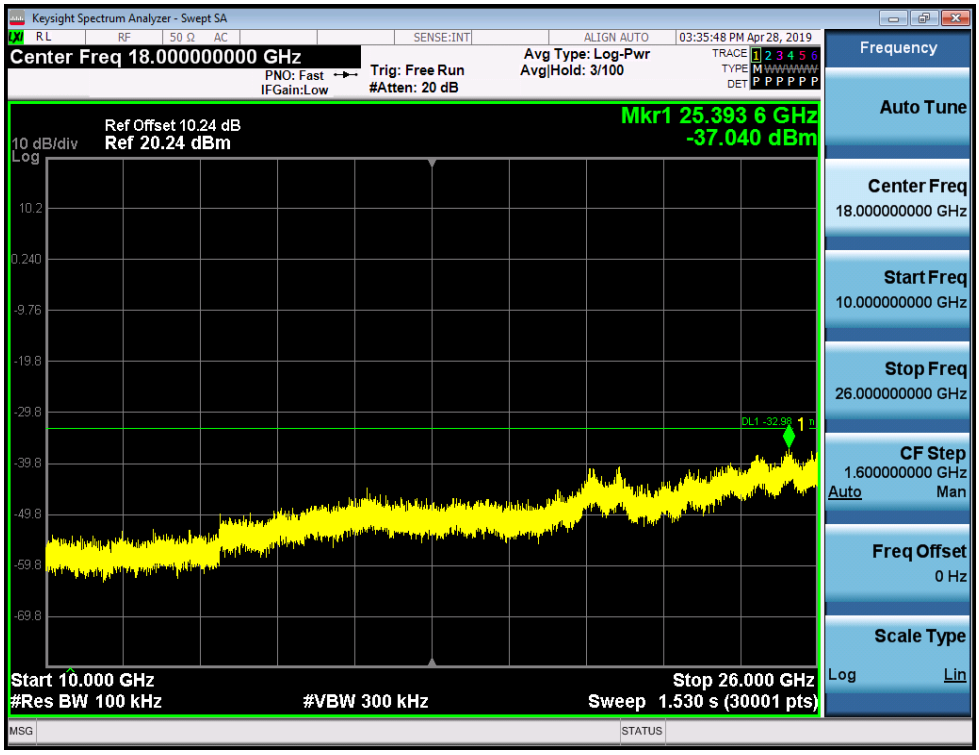
11N40_LCH_Graphs	
Pref/11N40/LCH	
Puw/11N40/LCH	


Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
03:30:42 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.343 5 GHz
-37.098 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
DL1 -30.33 dBm
1
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

11N40_MCH_Graphs	
Pref/11N40/MCH	
Puw/11N40/MCH	


Keysight Spectrum Analyzer - Swept SA
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
03:33:08 PM Apr 28, 2019
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.334 9 GHz
-36.755 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin
MSG
STATUS

11N40_HCH_Graphs	
Pref/11N40/HCH	
Puw/11N40/HCH	


Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
03:35:48 PM Apr 28, 2019
Center Freq 18.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P P P P P P
Ref Offset 10.24 dB
10 dB/div
Log
Ref 20.24 dBm
Mkr1 25.393 6 GHz
-37.040 dBm
10.2
0.240
-9.76
-19.8
-29.8
-39.8
-49.8
-59.8
-69.8
DL1 -32.96
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.000 GHz
Sweep 1.530 s (30001 pts)
MSG
STATUS
Frequency
Auto Tune
Center Freq
18.000000000 GHz
Start Freq
10.000000000 GHz
Stop Freq
26.000000000 GHz
CF Step
1.600000000 GHz
Auto
Man
Freq Offset
0 Hz
Scale Type
Log
Lin

4.5 Radiated Band Edges and Spurious Emission Measurement

4.5.1 Limit of Radiated Band Edges and Spurious Emission

FCC §15.247 (d)

IC RSS-247 5.5

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

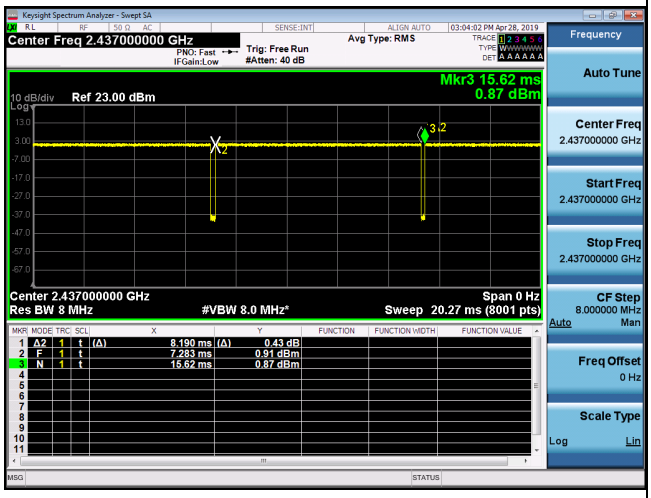
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

4.5.2 Test Procedures

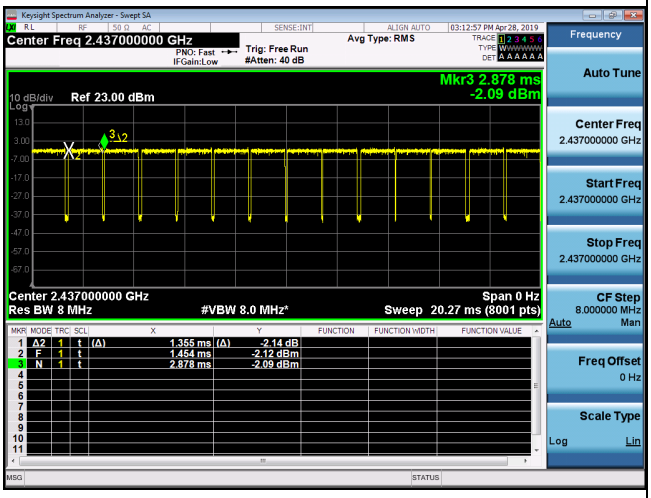
1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The measurement distance is 3 meter.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement:
   VBW = 10 Hz, when duty cycle is no less than 98 percent.
   VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	98.24	-	-	10Hz
802.11g	95.15	1.355	0.738	1KHz
802.11n HT20	92.48	1.267	0.789	1KHz
802.11n HT40	92.50	0.6257	1.60	3KHz

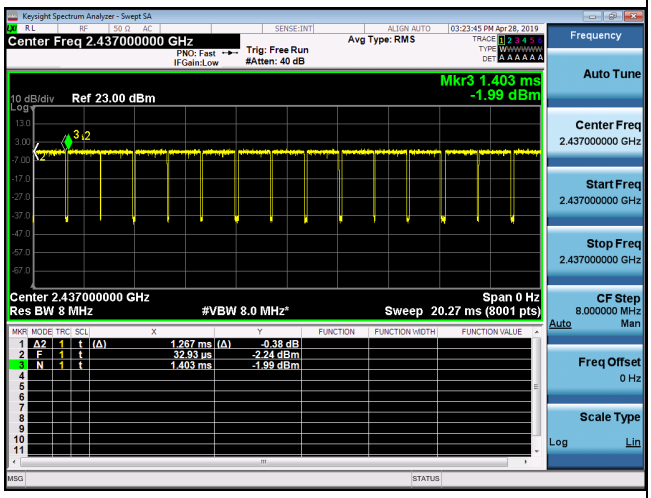
11b



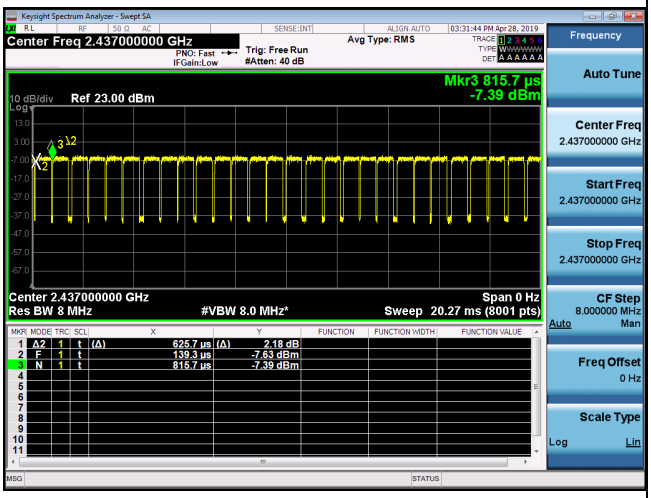
11g



11n HT20



11n HT40



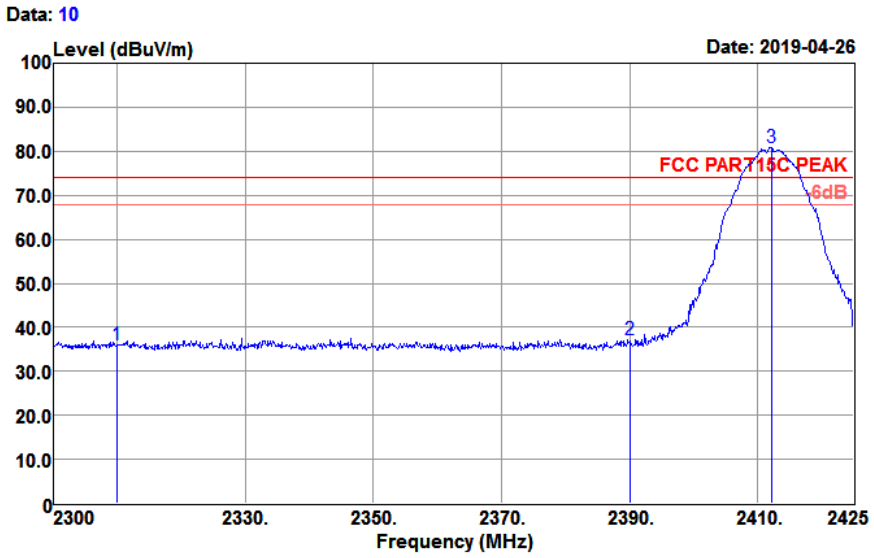
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

4.5.3 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

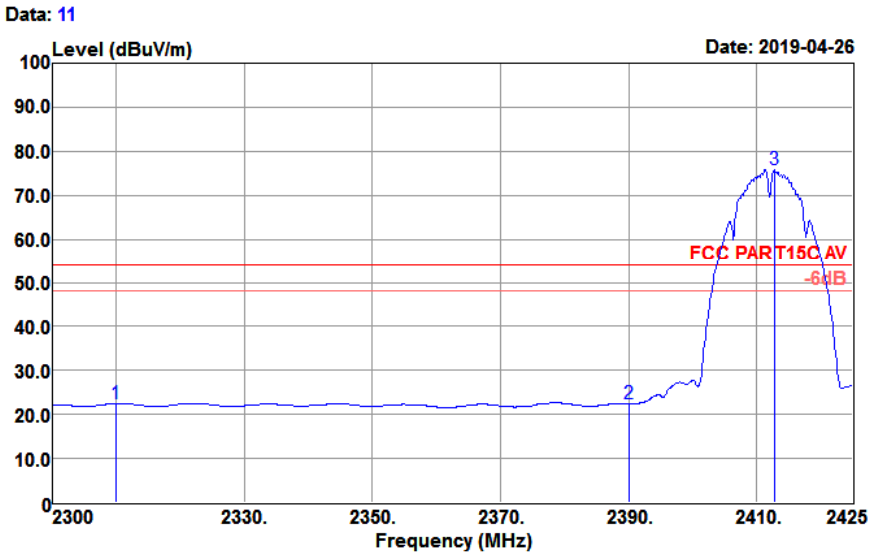
4.5.4 Test Result of Radiated Spurious at Band Edges

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH01(2412MHz)		



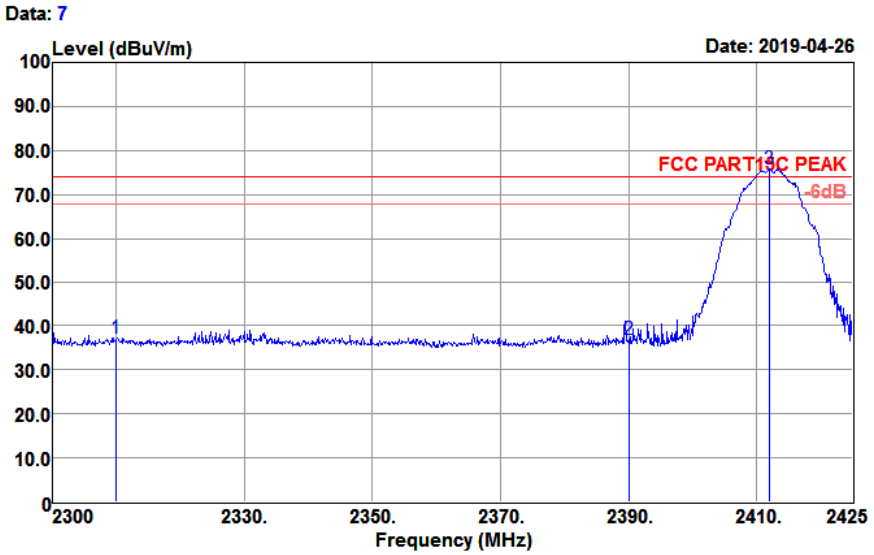
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	Level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	41.48	26.91	3.56	35.87	36.08	74.00	-37.92	Peak
2390.000	42.63	27.11	3.64	36.08	37.30	74.00	-36.70	Peak
2412.125	86.14	27.17	3.65	36.14	80.82	74.00	6.82	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH01(2412MHz)		



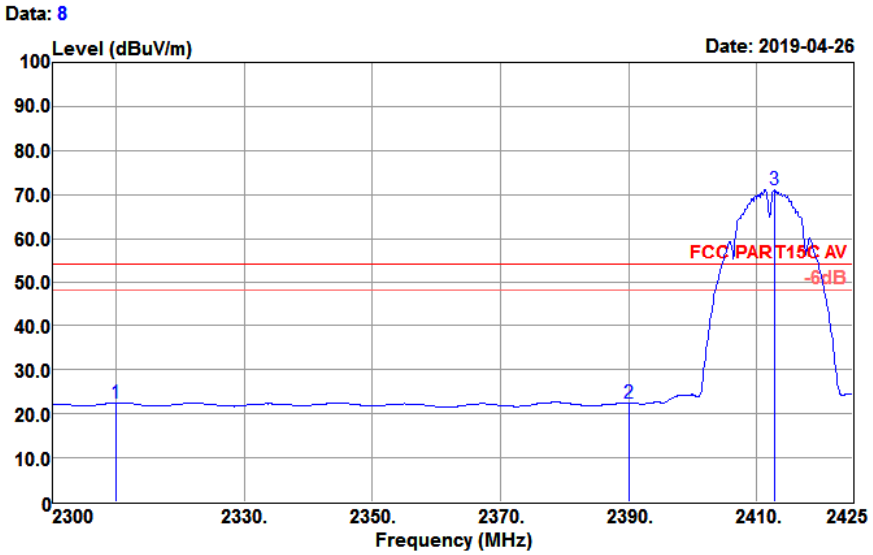
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	27.92	26.91	3.56	35.87	22.52	54.00	-31.48	Average
2390.000	27.89	27.11	3.64	36.08	22.56	54.00	-31.44	Average
2412.750	81.15	27.17	3.65	36.14	75.83	54.00	21.83	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH01(2412MHz)		



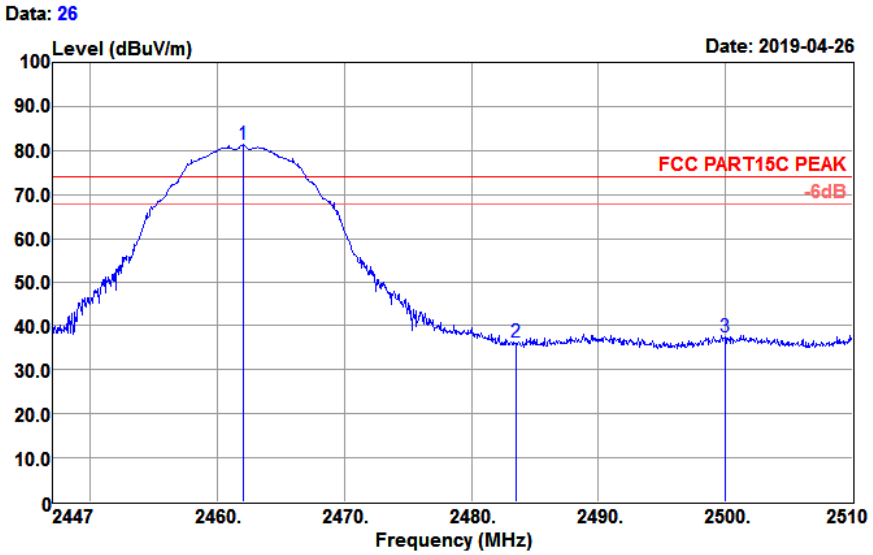
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	42.62	26.91	3.56	35.87	37.22	74.00	-36.78	Peak
2390.000	42.31	27.11	3.64	36.08	36.98	74.00	-37.02	Peak
2412.000	81.26	27.17	3.65	36.14	75.94	74.00	1.94	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH01(2412MHz)		



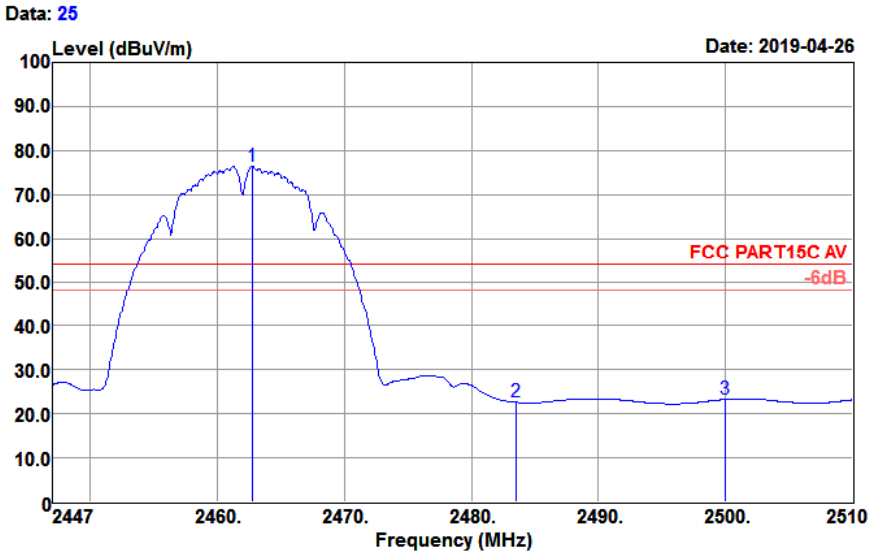
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	27.92	26.91	3.56	35.87	22.52	54.00	-31.48	Average
2390.000	27.74	27.11	3.64	36.08	22.41	54.00	-31.59	Average
2412.750	76.48	27.17	3.65	36.14	71.16	54.00	17.16	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH11(2462MHz)		



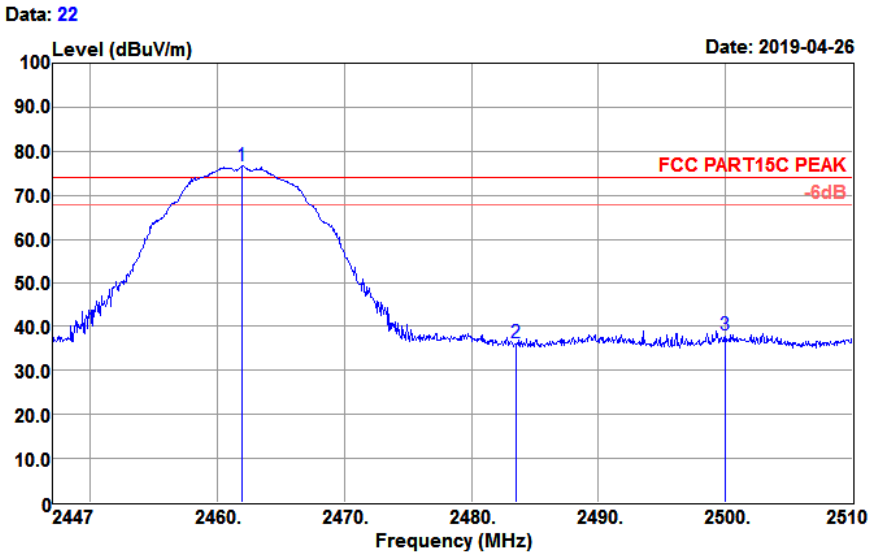
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2462.057	86.64	27.30	3.67	36.27	81.34	74.00	7.34	Peak
2483.500	41.68	27.36	3.68	36.33	36.39	74.00	-37.61	Peak
2500.000	42.68	27.40	3.68	36.37	37.39	74.00	-36.61	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH11(2462MHz)		



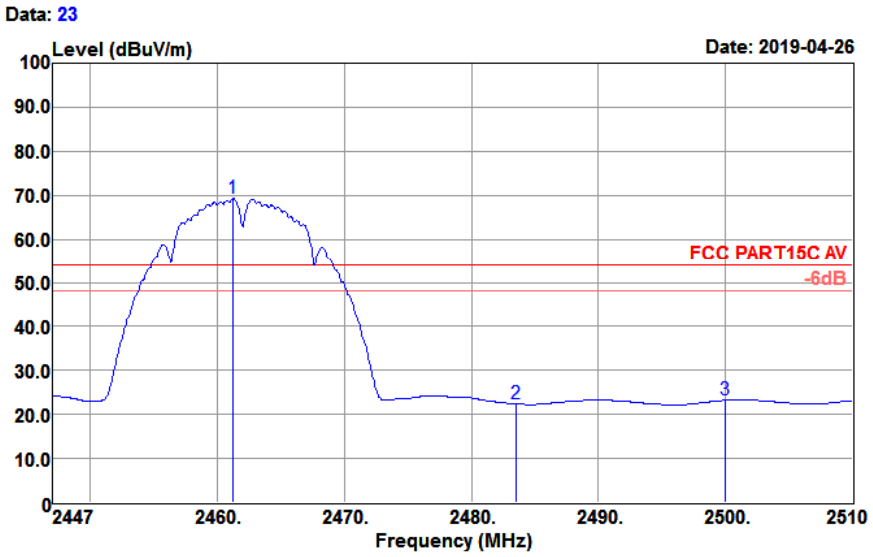
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2462.750	81.72	27.30	3.67	36.27	76.42	54.00	22.42	Average
2483.500	27.96	27.36	3.68	36.33	22.67	54.00	-31.33	Average
2500.000	28.66	27.40	3.68	36.37	23.37	54.00	-30.63	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH11(2462MHz)		



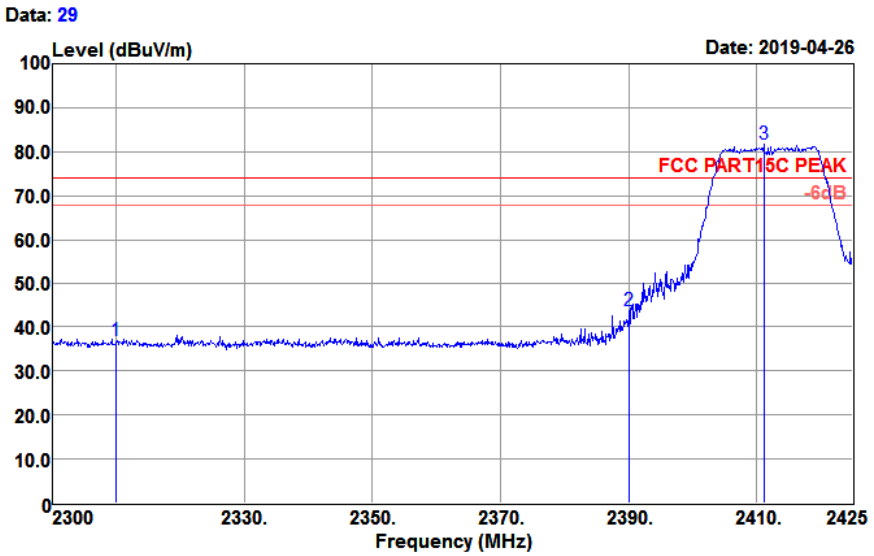
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2461.931	81.94	27.30	3.67	36.27	76.64	74.00	2.64	Peak
2483.500	41.67	27.36	3.68	36.33	36.38	74.00	-37.62	Peak
2500.000	43.49	27.40	3.68	36.37	38.20	74.00	-35.80	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11b CH11(2462MHz)		



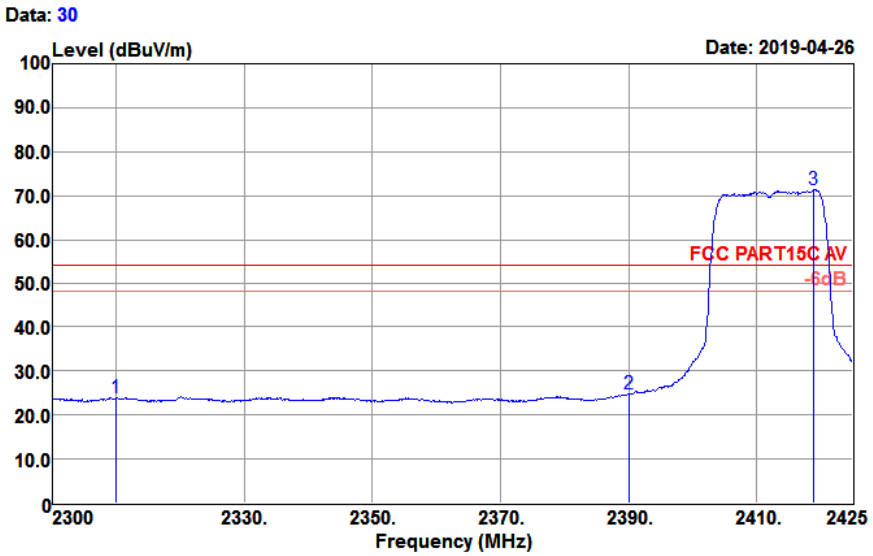
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2461.238	74.58	27.30	3.67	36.27	69.28	54.00	15.28	Average
2483.500	27.73	27.36	3.68	36.33	22.44	54.00	-31.56	Average
2500.000	28.63	27.40	3.68	36.37	23.34	54.00	-30.66	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH01(2412MHz)		



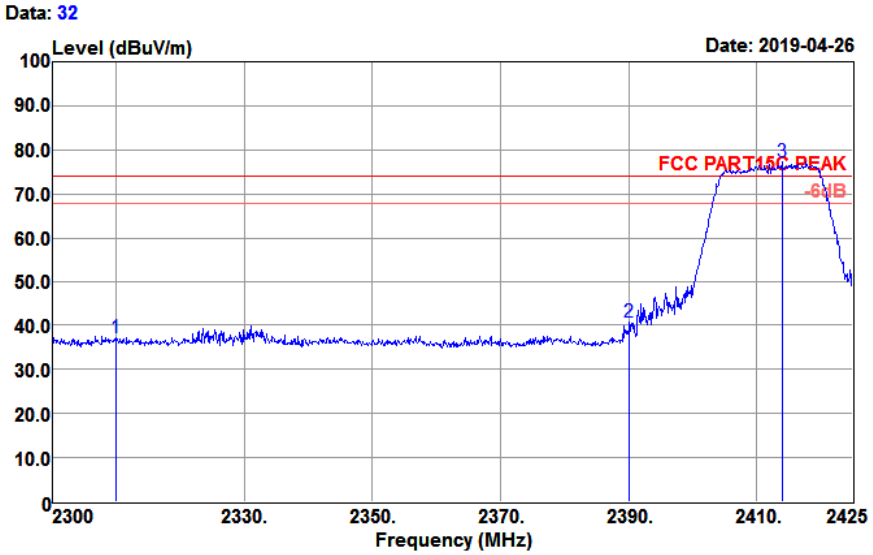
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	42.34	26.91	3.56	35.87	36.94	74.00	-37.06	Peak
2390.000	49.08	27.11	3.64	36.08	43.75	74.00	-30.25	Peak
2411.125	87.10	27.17	3.65	36.14	81.78	74.00	7.78	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH01(2412MHz)		



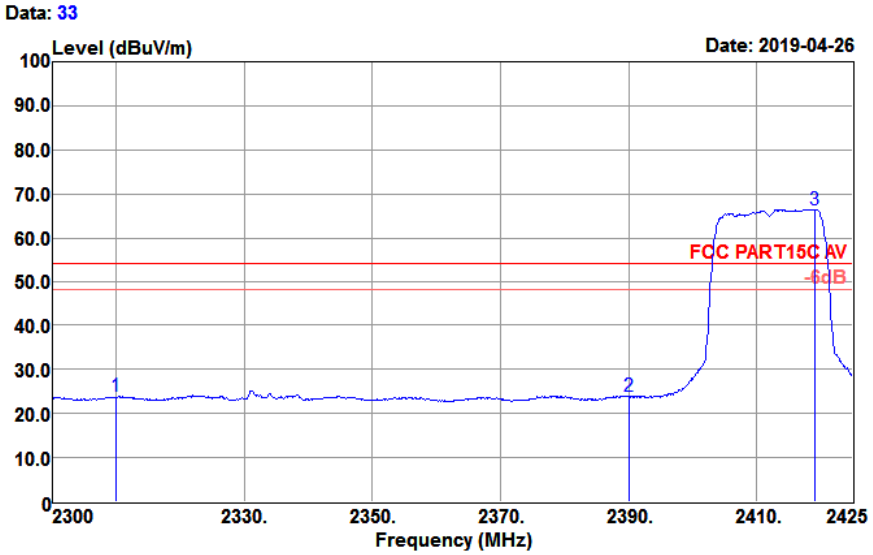
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	29.17	26.91	3.56	35.87	23.77	54.00	-30.23	Average
2390.000	30.15	27.11	3.64	36.08	24.82	54.00	-29.18	Average
2418.875	76.69	27.19	3.66	36.16	71.38	54.00	17.38	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH01(2412MHz)		



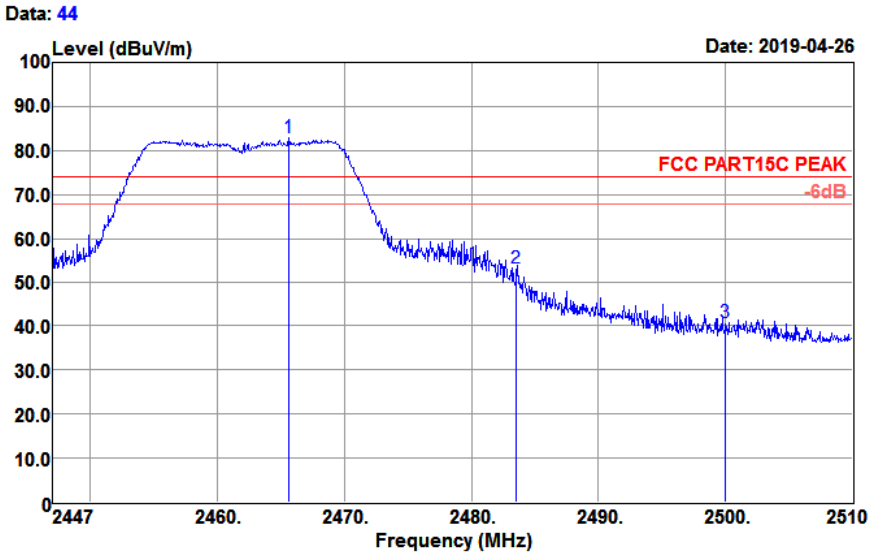
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	42.52	26.91	3.56	35.87	37.12	74.00	-36.88	Peak
2390.000	46.19	27.11	3.64	36.08	40.86	74.00	-33.14	Peak
2414.000	82.50	27.18	3.65	36.14	77.19	74.00	3.19	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH01(2412MHz)		



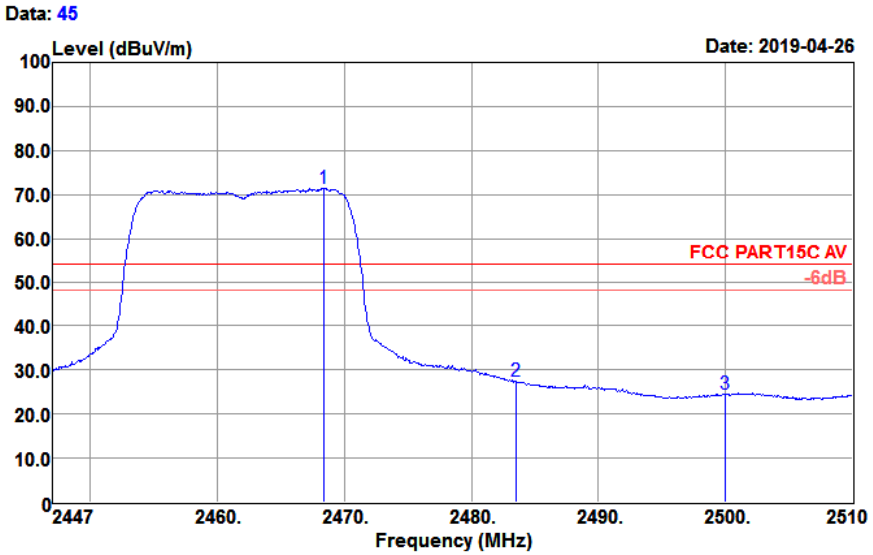
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	29.26	26.91	3.56	35.87	23.86	54.00	-30.14	Average
2390.000	29.25	27.11	3.64	36.08	23.92	54.00	-30.08	Average
2419.125	71.84	27.19	3.66	36.16	66.53	54.00	12.53	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH11(2462MHz)		



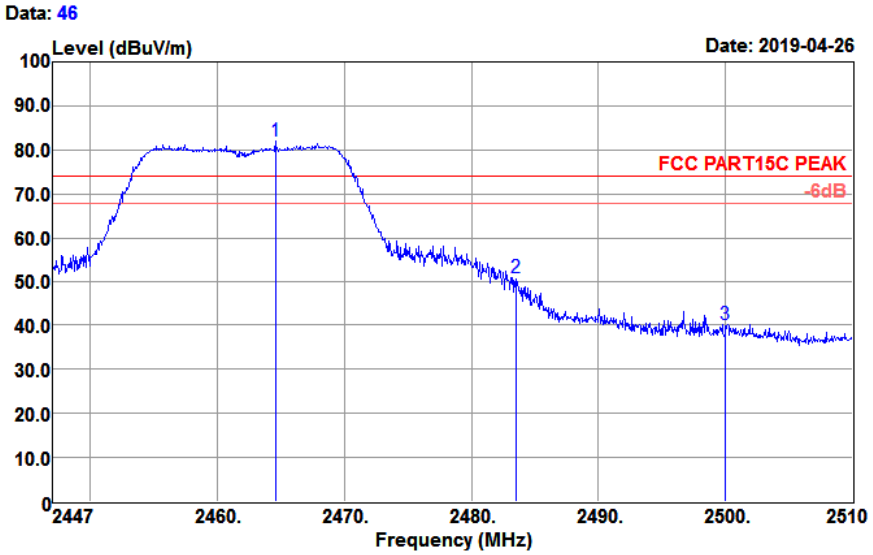
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2465.605	88.16	27.31	3.67	36.28	82.86	74.00	8.86	Peak
2483.500	58.36	27.36	3.68	36.33	53.07	74.00	-20.93	Peak
2500.000	46.05	27.40	3.68	36.37	40.76	74.00	-33.24	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH11(2462MHz)		



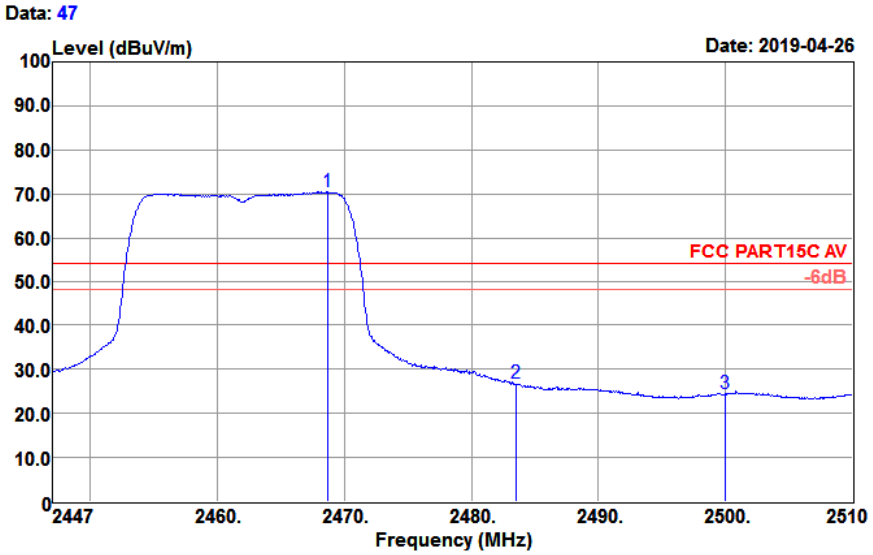
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2468.335	76.65	27.32	3.67	36.29	71.35	54.00	17.35	Average
2483.500	32.88	27.36	3.68	36.33	27.59	54.00	-26.41	Average
2500.000	29.78	27.40	3.68	36.37	24.49	54.00	-29.51	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH11(2462MHz)		



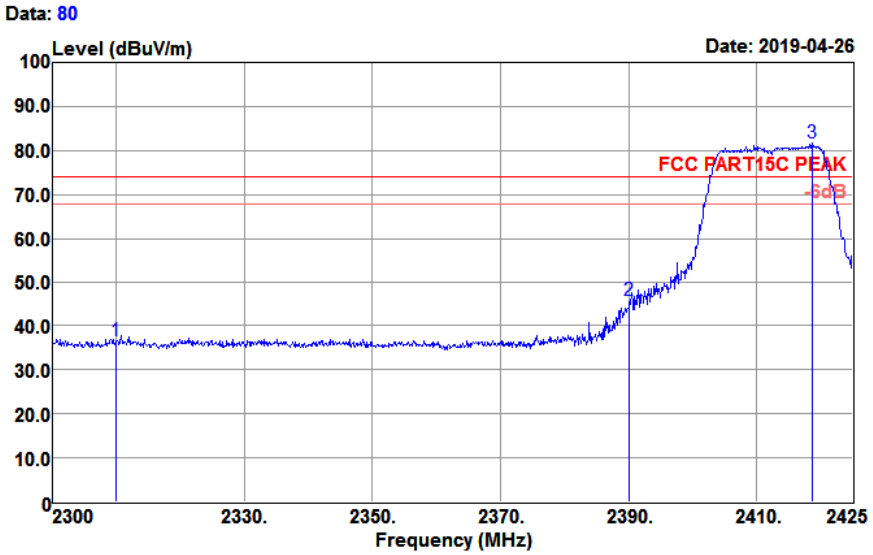
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2464.565	87.37	27.31	3.67	36.28	82.07	74.00	8.07	Peak
2483.500	56.14	27.36	3.68	36.33	50.85	74.00	-23.15	Peak
2500.000	45.30	27.40	3.68	36.37	40.01	74.00	-33.99	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11g CH11(2462MHz)		



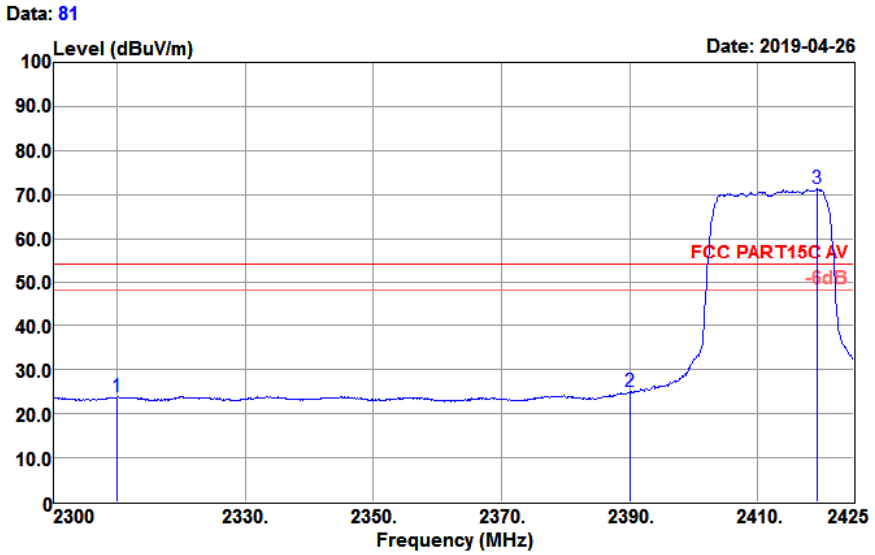
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2468.725	75.77	27.32	3.67	36.29	70.47	54.00	16.47	Average
2483.500	32.21	27.36	3.68	36.33	26.92	54.00	-27.08	Average
2500.000	29.83	27.40	3.68	36.37	24.54	54.00	-29.46	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH01(2412MHz)		



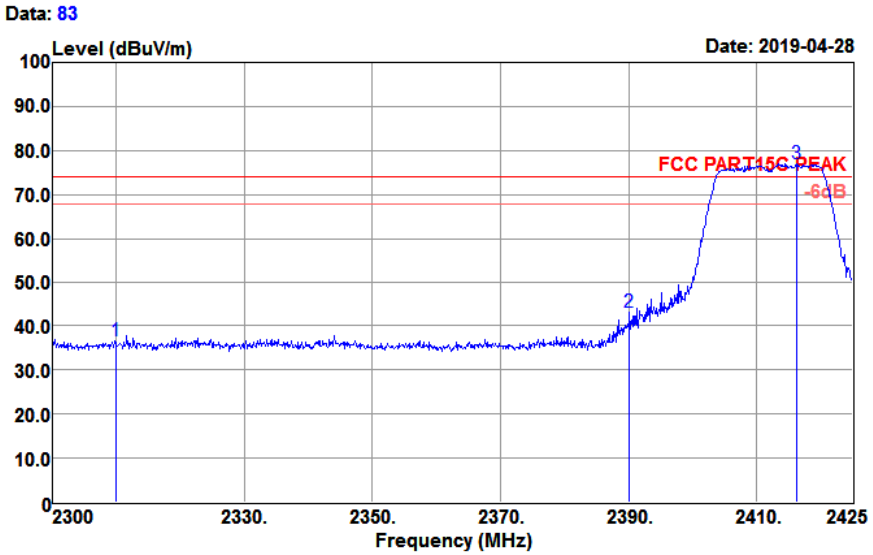
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	42.13	26.91	3.56	35.87	36.73	74.00	-37.27	Peak
2390.000	51.20	27.11	3.64	36.08	45.87	74.00	-28.13	Peak
2418.625	87.01	27.19	3.66	36.16	81.70	74.00	7.70	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH01(2412MHz)		



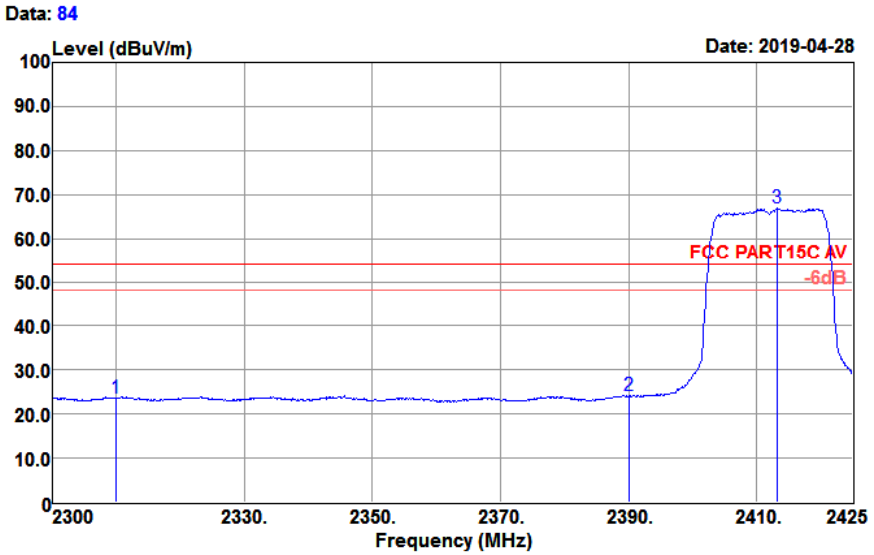
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	29.19	26.91	3.56	35.87	23.79	54.00	-30.21	Average
2390.000	30.35	27.11	3.64	36.08	25.02	54.00	-28.98	Average
2419.250	76.58	27.19	3.66	36.16	71.27	54.00	17.27	Average

Test Site	: 3m Chamber	Temp/Humi	: 21℃/63%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH01(2412MHz)		



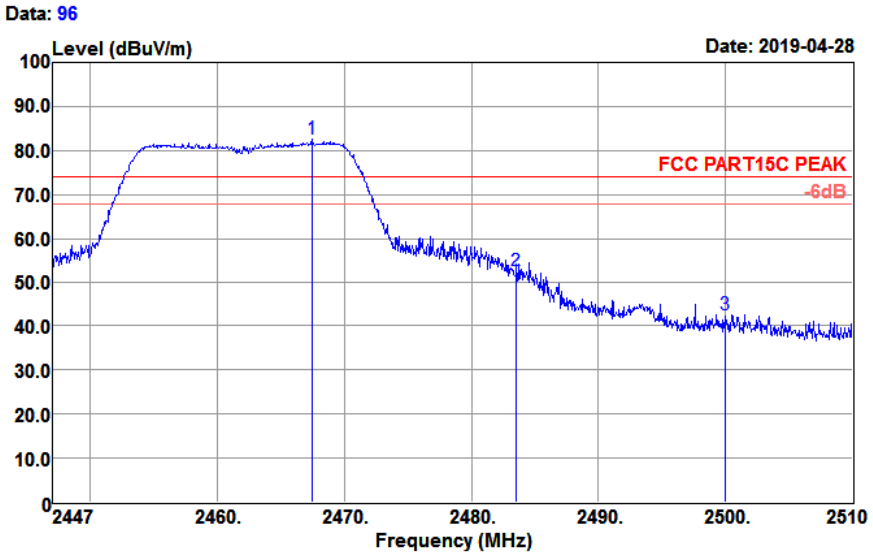
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	42.00	26.91	3.56	35.87	36.60	74.00	-37.40	Peak
2390.000	48.32	27.11	3.64	36.08	42.99	74.00	-31.01	Peak
2416.250	82.20	27.18	3.66	36.15	76.89	74.00	2.89	Peak

Test Site	: 3m Chamber	Temp/Humi	: 21℃/63%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH01(2412MHz)		



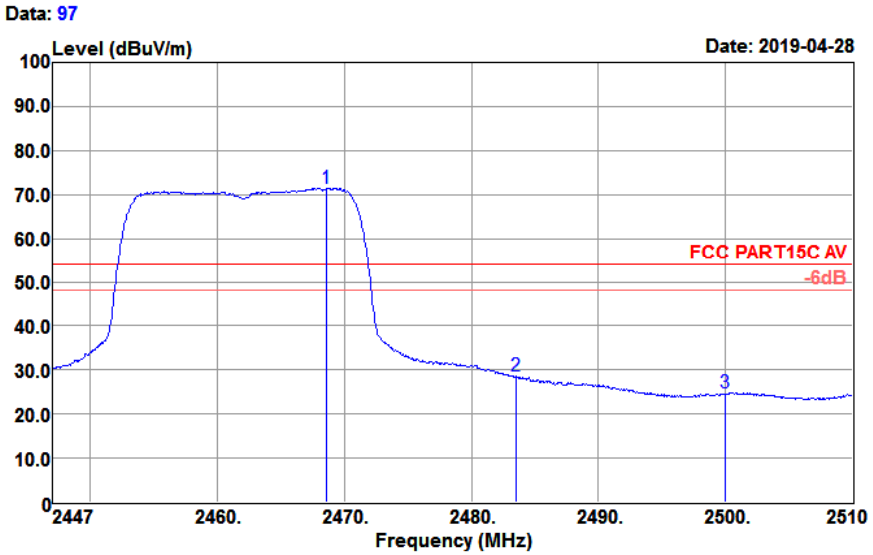
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	29.13	26.91	3.56	35.87	23.73	54.00	-30.27	Average
2390.000	29.55	27.11	3.64	36.08	24.22	54.00	-29.78	Average
2413.250	72.17	27.17	3.65	36.14	66.85	54.00	12.85	Average

Test Site	: 3m Chamber	Temp/Humi	: 21℃/63%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH11(2462MHz)		



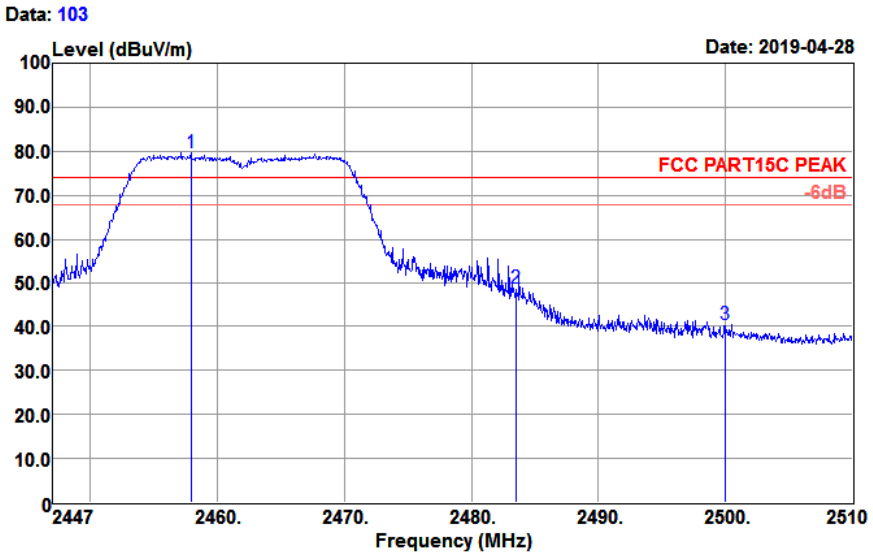
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2467.412	87.85	27.32	3.67	36.28	82.56	74.00	8.56	Peak
2483.500	57.86	27.36	3.68	36.33	52.57	74.00	-21.43	Peak
2500.000	47.74	27.40	3.68	36.37	42.45	74.00	-31.55	Peak

Test Site	: 3m Chamber	Temp/Humi	: 21℃/63%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH11(2462MHz)		



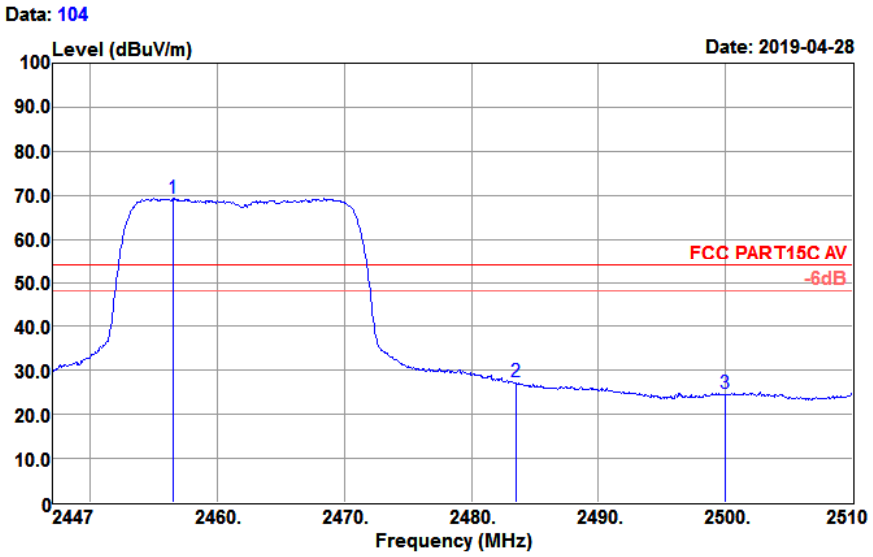
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2468.609	76.76	27.32	3.67	36.29	71.46	54.00	17.46	Average
2483.500	33.89	27.36	3.68	36.33	28.60	54.00	-25.40	Average
2500.000	30.02	27.40	3.68	36.37	24.73	54.00	-29.27	Average

Test Site	: 3m Chamber	Temp/Humi	: 21℃/63%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH11(2462MHz)		



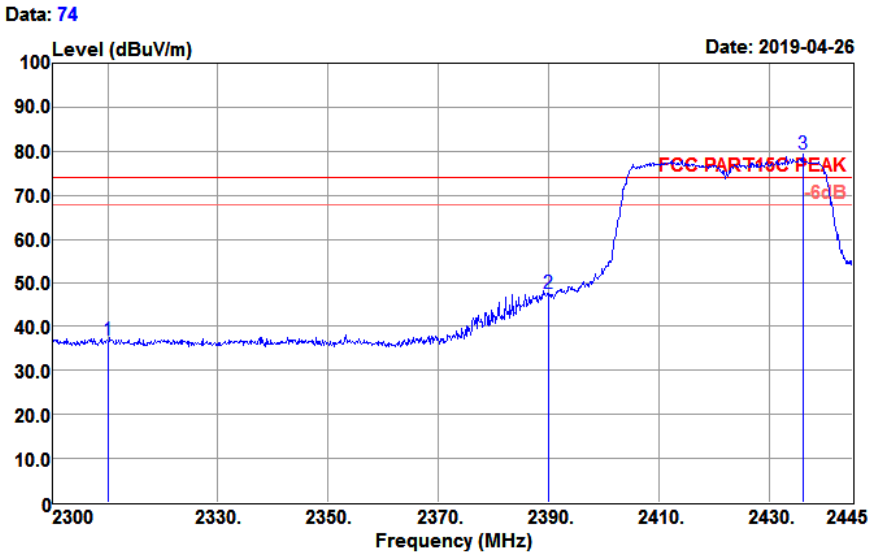
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2457.899	84.94	27.29	3.67	36.26	79.64	74.00	5.64	Peak
2483.500	53.87	27.36	3.68	36.33	48.58	74.00	-25.42	Peak
2500.000	45.70	27.40	3.68	36.37	40.41	74.00	-33.59	Peak

Test Site	: 3m Chamber	Temp/Humi	: 21℃/63%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT20 CH11(2462MHz)		



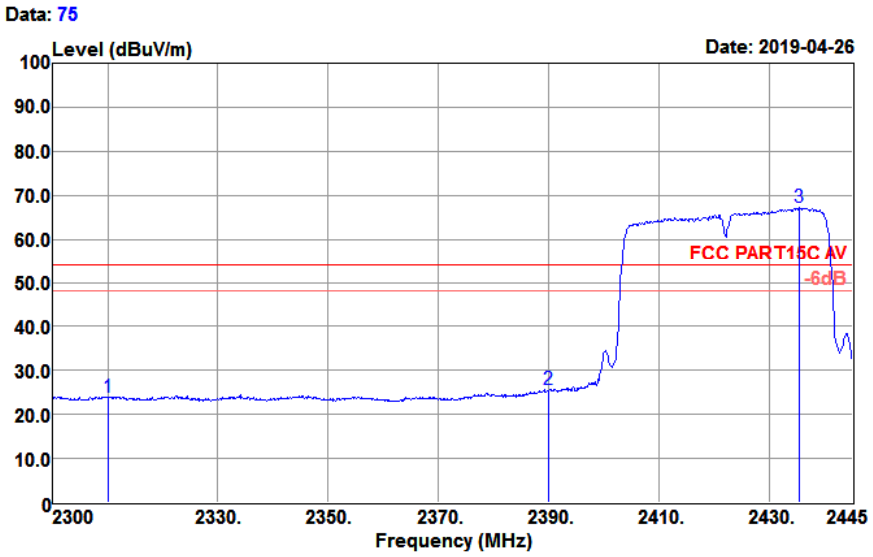
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2456.513	74.59	27.29	3.67	36.26	69.29	54.00	15.29	Average
2483.500	32.68	27.36	3.68	36.33	27.39	54.00	-26.61	Average
2500.000	29.94	27.40	3.68	36.37	24.65	54.00	-29.35	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT40 CH03(2422MHz)		



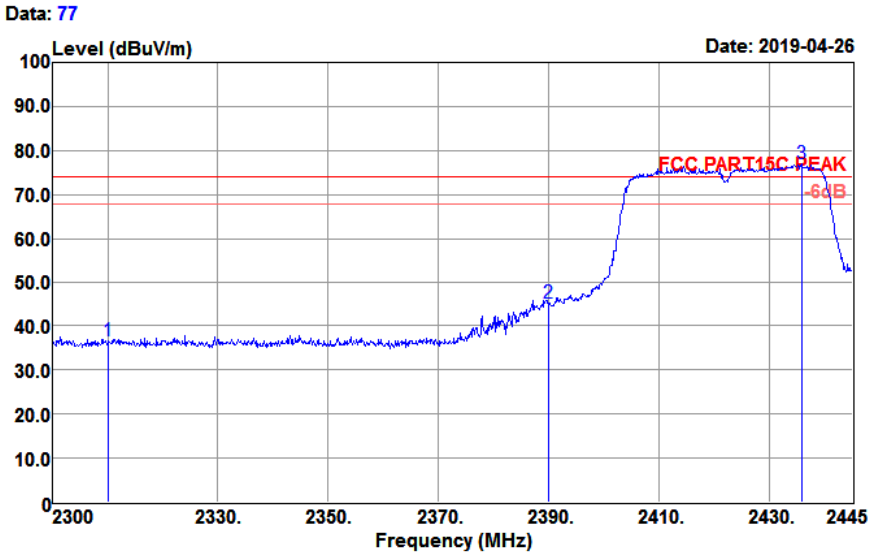
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	42.18	26.91	3.56	35.87	36.78	74.00	-37.22	Peak
2390.000	52.94	27.11	3.64	36.08	47.61	74.00	-26.39	Peak
2436.010	84.55	27.23	3.66	36.20	79.24	74.00	5.24	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: HORIZONTAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT40 CH03(2422MHz)		



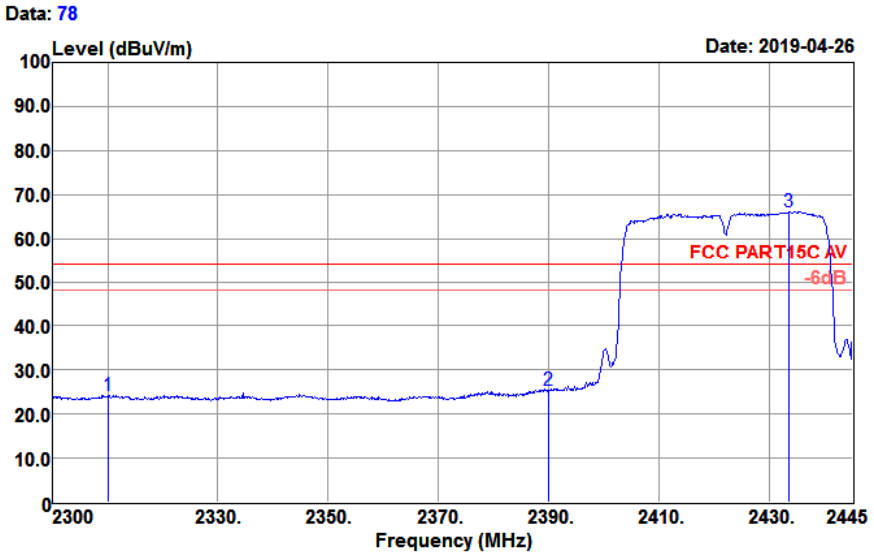
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	29.36	26.91	3.56	35.87	23.96	54.00	-30.04	Average
2390.000	30.96	27.11	3.64	36.08	25.63	54.00	-28.37	Average
2435.430	72.43	27.23	3.66	36.20	67.12	54.00	13.12	Average

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT40 CH03(2422MHz)		



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	41.97	26.91	3.56	35.87	36.57	74.00	-37.43	Peak
2390.000	50.60	27.11	3.64	36.08	45.27	74.00	-28.73	Peak
2435.720	82.42	27.23	3.66	36.20	77.11	74.00	3.11	Peak

Test Site	: 3m Chamber	Temp/Humi	: 23℃/64%
Tested by	: Julie Deng	Power rating	: AC120V/60Hz
Model No.	: 50054	Pol/Phase	: VERTICAL
EUT	: WiFi Security Camera		
Test Mode	: 802.11n HT40 CH03(2422MHz)		



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	Level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	29.68	26.91	3.56	35.87	24.28	54.00	-29.72	Average
2390.000	30.82	27.11	3.64	36.08	25.49	54.00	-28.51	Average
2433.400	71.43	27.23	3.66	36.19	66.13	54.00	12.13	Average