ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT AND INDUSTRY CANADA RSS 247

OF

Applicant:	Quanta Computer Inc. No. 188, Wenhua 2nd Road, Guishan District, Taoyuan City 33377, Taiwan
Product Name:	Clover Flex
Brand Name:	clover
Model No.:	C403
Model Difference:	N/A
FCC ID:	HFS-C403U
IC:	1787B-C403U
Report Number:	T190816W02-RP4
FCC Rule Part:	§15.247, Cat: DTS
IC Rule Part:	RSS-247 issue 2 Feb 2017
Issue Date:	Aug. 30, 2019
Date of Test:	Aug. 16, 2019 ~ Aug. 23, 2019
Date of EUT Received:	Aug. 16, 2019
Issued by	Compliance Certification Services Inc.Wugu Lab. No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) service@ccsrf.com

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.
The test results of this report relate only to the tested sample (EUT) identified in this report.
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory).

Tested By: Hone Hsieh

Hone Hsieh / Engineer

Approved By: Kevin Tsai

Kevin Tsai / Deputy Manager

Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
T190816W02-RP4	Rev.00	Initial creation of document	All	Aug. 30, 2019	Elle Chang

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1 GENERAL INFORMATION

1.1 Product description

General:

Product Name:	Clover Flex	
Brand Name:	clover	
Model No.:	C403	
Model Difference:	N/A	
Product SW/HW version:	N/A / N/A	
Radio SW/HW version:	N/A / N/A	
Test SW Version:	N/A	
RF power setting in TEST SW:	N/A	
Micro Hub:	Model No.: H400, Supplier: clover	
Docking:	Model No.: K400, Suppliler: clover	
Power Supply:	7.6V from Li-ion Polymer rechargeable battery or 12V from Adapter	
	Battery:	Model No.: CA355772HV_POS5, Supplier: CosMX Battery Co., Ltd.
	Adapter:	Model No.: FSP040-RHBN3, Supplier: FSP

WLAN 2.4GHz:

Wi-Fi	Frequency Range	Channels	HT/VHT mode	Rated Power in dBm (Peak)	Rated Power in dBm (EIRP)	Type of Emission	Modulation Technology
802.11b	2412-2462	11	--	20.34	15.72	12M7G1D	DSSS,
802.11g			--	21.26	15.00	16M9D1D	OFDM
802.11n HT20			HT	21.83	15.45	18M1D1D	
802.11n HT40	2422-2452	7	HT	22.09	14.52	36M3D1D	
Antenna Designation:	PIFA Antenna, Peak Gain: -1.47dBi P/N: DQ60AYF0002, Supplier: SAA						
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM						
Transition Rate:	802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 72.2Mbps 802.11 n_40MHz: 13.5 - 150.0Mbps						

1.2 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 v05 DTS Meas. Guidance

FCC KDB 662911 D01 Multiple Transmitter Output

Canada RSS-247 issue 2 Feb. 2017

Canada RSS-Gen issue 5 Apr. 2018

ANSI C63.10:2013

Note: All test items have been performed and record as per the above standards.

1.3 Test Facility

Compliance Certification Services Inc. Wugu Lab. No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.) (TAF code 1309)

FCC Designation number: TW1309

Canada Registration Number: 2324G

1.4 Special Accessories

AC Adapter is used while the test is conducted and there is no other accessory attached. This is the worst case condition.

1.5 Equipment Modifications

There was no modification incorporated into the EUT.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT is configured to operate in a continuous transmission mode. EUT placement and various angles were checked to find worst mode where the emission characteristics are maximized.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz,. The CISPR Quasi-Peak and Average detector mode is employed according to §15.207. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.

2.4 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 attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor. Following shows an offset computation example with cable loss and attenuator.

Offset:

= RF cable loss (dB)+ attenuation factor(dB) dB =12.6 (dB)

2.5 Configuration of Tested System

Fig. 2-1 Radiated Emission Configuration

Fig. 2-2 Conducted Emission Configuration

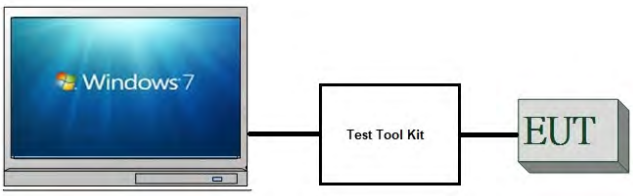


Fig.2-3 Conduction (AC Power Line) Configuration

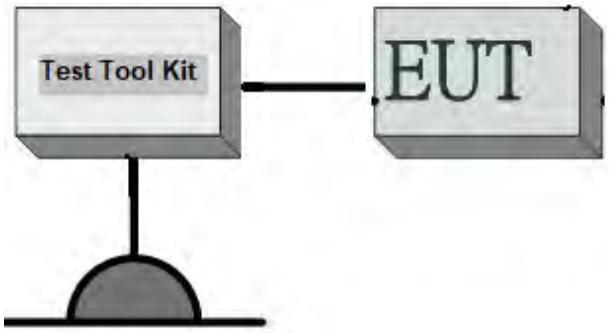


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Data Cable	Power Cord
1	WLAN Test Software	N/A	N/A	N/A	N/A	N/A
2	Notebook	Lenovo	T420	S0012483	Shielded	Unshielded
3	Test Tool Kit	N/A	N/A	N/A	N/A	N/A

3 SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §5.4(4)	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §5.2 (1) RSS-Gen §6.7	6dB & 99% Emission Bandwidth	Compliant
§15.247(d)	RSS-247 §5.5	Conducted Band Edge and Spurious Emission	Compliant
§15.247(d)	RSS-247 §5.5	Radiated Band Edge and Spurious Emission	Compliant
§15.247(e)	RSS-247 §5.2(2)	Power Spectral Density	Compliant
§15.203	RSS- Gen §6.8	Antenna Requirement	Compliant

4 DESCRIPTION OF TEST MODES

4.1 Operated in 2400 ~ 2483.5MHz Band

11 channels are provided for 802.11b, 802.11g and 802.11n_HT20

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

7 channels are provided for 802.11n_HT40

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

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case.
4. Power line conducted emission were performed with the EUT set to transimit at the channel with highest output power as worst-case scenario.

AC POWER LINE CONDUCTED EMISSION TEST:

Test Condition	AC Power line conducted emission for line and neutral
Worst Case	Operation in normal mode

RADIATED EMISSION TEST:

RADIATED EMISSION TEST (BELOW 1 GHz)					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11g	1 to 11	6	OFDM	6	MAIN

RADIATED EMISSION TEST (ABOVE 1 GHz)					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 11	1, 6, 11	DSSS	1	MAIN
802.11g	1 to 11	1, 6, 11	OFDM	6	MAIN
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS 0	MAIN
802.11n HT40	3 to 9	3, 6, 9	OFDM	MCS 0	MAIN

Note:
The field strength of radiation emission was measured as EUT stand-up position (H, E1 mode) and lie down position (E2 mode) for 802.11b/g/n WLAN Transmitter for channel Low, Mid and High, the worst case H position was reported.

ANTENNA PORT CONDUCTED MEASUREMENT:

CONDUCTED TEST					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11b	1 to 11	1, 6, 11	DSSS	1	MAIN
802.11g	1 to 11	1, 6, 11	OFDM	6	MAIN
802.11n HT20	1 to 11	1, 6, 11	OFDM	MCS 0	MAIN
802.11n HT40	3 to 9	3, 6, 9	OFDM	MCS 0	MAIN

5 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575 dB
Peak Output Power	+/- 1.92 dB
6dB Bandwidth	+/- 61.248 Hz
100 kHz Bandwidth of Frequency Band Edges	+/- 1.92 dB
Peak Power Density	+/- 1.996 dB
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12 dB
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68 dB
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18 dB
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47 dB
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81 dB
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87 dB

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

6 CONDUCTED EMISSION TEST

6.1 Standard Applicable

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
Note 1.The lower limit shall apply at the transition frequencies 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.		

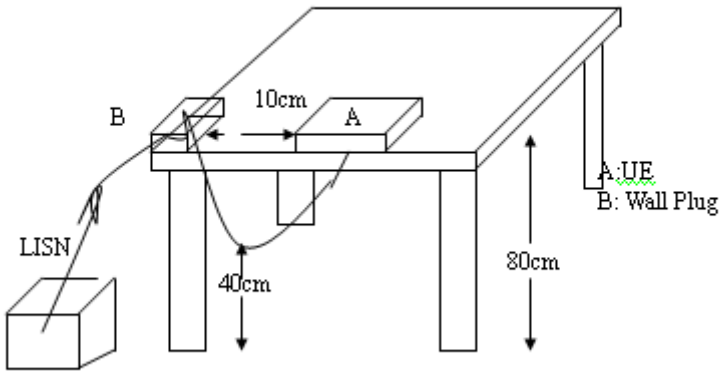
6.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
CABLE	EMCI	CFD300-NL	CERF	06/27/2019	06/26/2020
EMI Test Receiver	R&S	ESCI	101203	10/29/2018	10/28/2019
LISN	SCHWARZ-BECK	NSLK 8127	8127-541	01/31/2019	01/30/2020
LISN	SCHAFFNER	NNB 41	03/10013	02/13/2019	02/12/2020
Software	EZ-EMC(CCS-3A1-CE)				

6.3 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI 63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

6.4 Test SET-UP (Block Diagram of Configuration)



6.5 Measurement Procedure

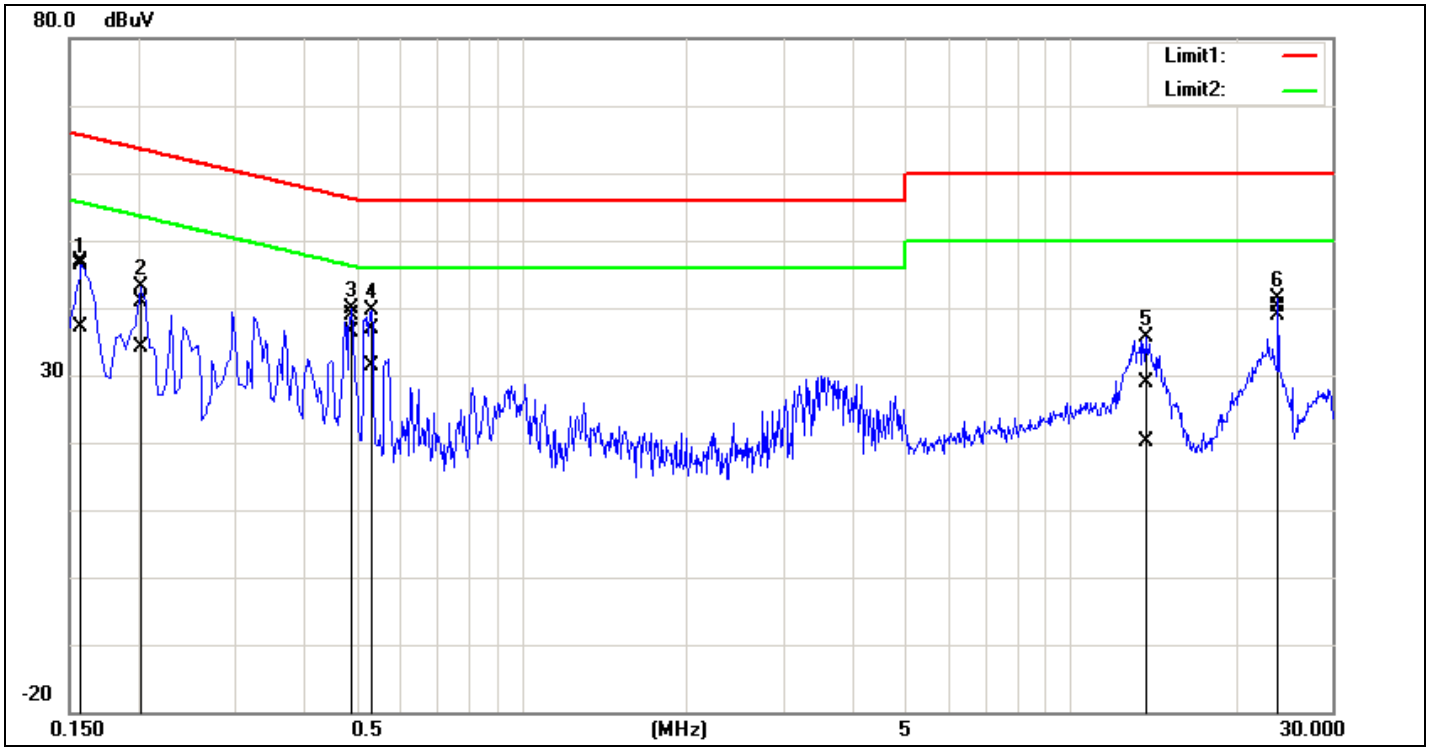
1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed

6.6 Measurement Result

Note: Refer to next page for measurement data and plots.
Note2: The * reveals the worst-case results that closet to the limit

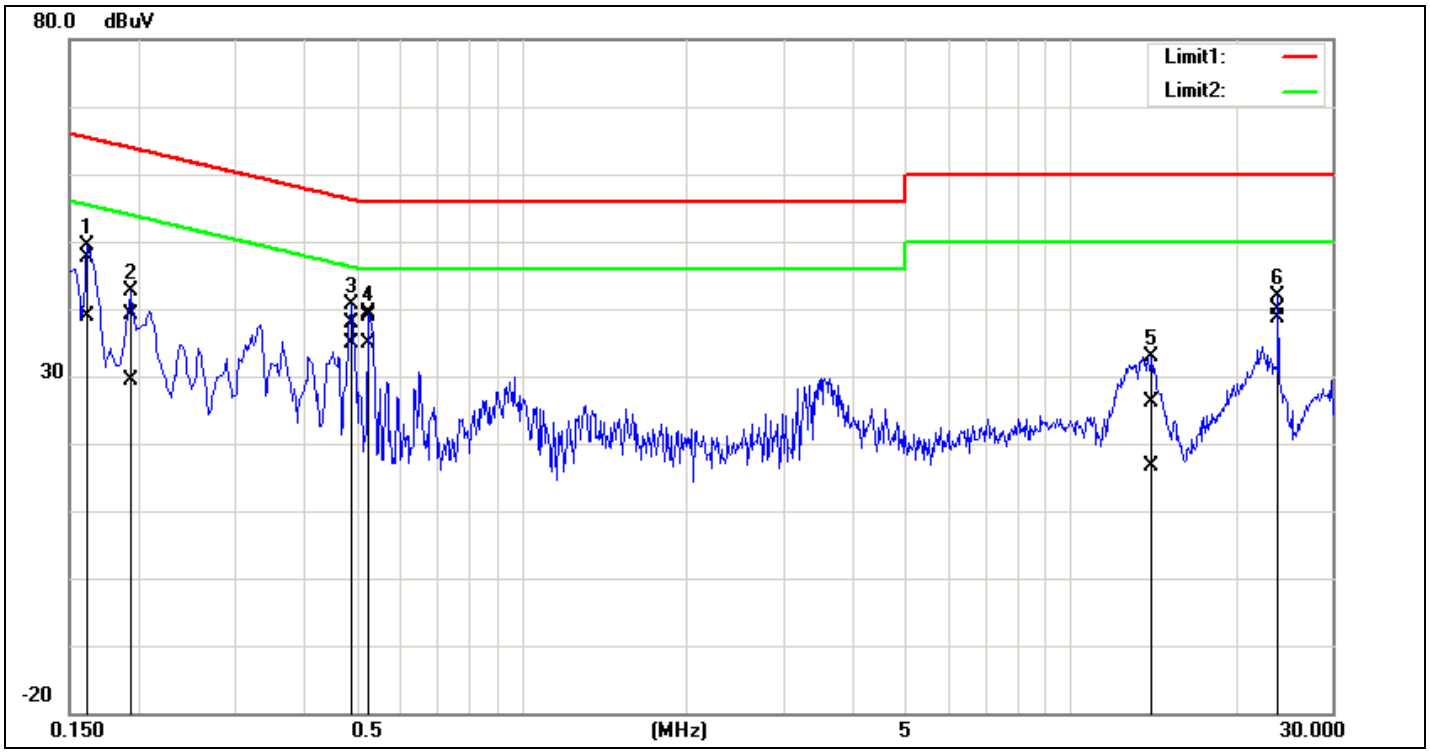
AC POWER LINE CONDUCTED EMISSION TEST DATA

Description:	**Operation**	**Date:**	**2019/8/23**
Line:	**L1**	**Temp.(℃)/Hum.(%):**	**25.3(℃)/65%**
Test Voltage:	**AC 120V/60Hz**	**Test By:**	**Henry**
Job No.:	**T190816W02**		



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1580	36.66	26.98	10.14	46.80	37.12	65.56	55.57	-18.76	-18.45	Pass
2	0.2020	30.87	24.06	10.13	41.00	34.19	63.52	53.53	-22.52	-19.34	Pass
3*	0.4900	28.72	26.23	10.14	38.86	36.37	56.17	46.17	-17.31	-9.80	Pass
4	0.5340	26.84	21.35	10.14	36.98	31.49	56.00	46.00	-19.02	-14.51	Pass
5	13.7220	18.52	9.83	10.36	28.88	20.19	60.00	50.00	-31.12	-29.81	Pass
6	23.9260	29.76	28.49	10.28	40.04	38.77	60.00	50.00	-19.96	-11.23	Pass

Description:	**Operation**	**Date:**	**2019/8/23**
Line:	**N**	**Temp.(℃)/Hum.(%):**	**25.3(℃)/65%**
Test Voltage:	**AC 120V/60Hz**	**Test By:**	**Henry**
Job No.:	**T190816W02**		



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1620	37.63	28.97	10.02	47.65	38.99	65.36	55.36	-17.71	-16.37	Pass
2	0.1940	29.16	19.40	10.02	39.18	29.42	63.86	53.86	-24.68	-24.44	Pass
3	0.4900	27.79	24.84	10.03	37.82	34.87	56.17	46.17	-18.35	-11.30	Pass
4*	0.5265	28.73	24.78	10.03	38.76	34.81	56.00	46.00	-17.24	-11.19	Pass
5	14.0900	15.91	6.33	10.25	26.16	16.58	60.00	50.00	-33.84	-33.42	Pass
6	23.9260	29.51	28.36	10.36	39.87	38.72	60.00	50.00	-20.13	-11.28	Pass

7 DUTY CYCLE OF TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

Formula:

Duty Cycle = Ton / (Ton+Toff)

Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

Duty Cycle:

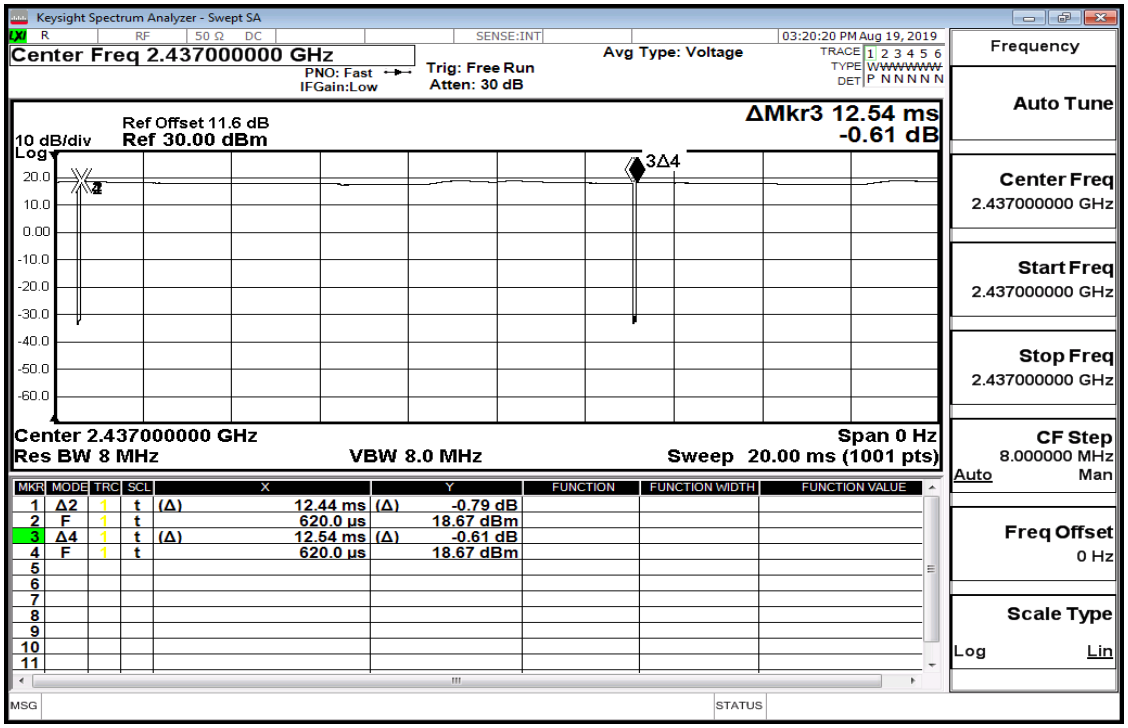
	Duty Cycle (%)	Duty Factor (dB)	1/T (kHz)	VBW setting (kHz)
802.11b	99.20	0.03	0.08	0.01
802.11g	95.47	0.20	0.48	1.00
802.11n_20	94.84	0.23	0.52	1.00
802.11n_40	91.35	0.39	1.05	2.00

b = 99.2%, g = 95.47%,n_ht_20 = 94.84%n_ht_40 = 91.35%

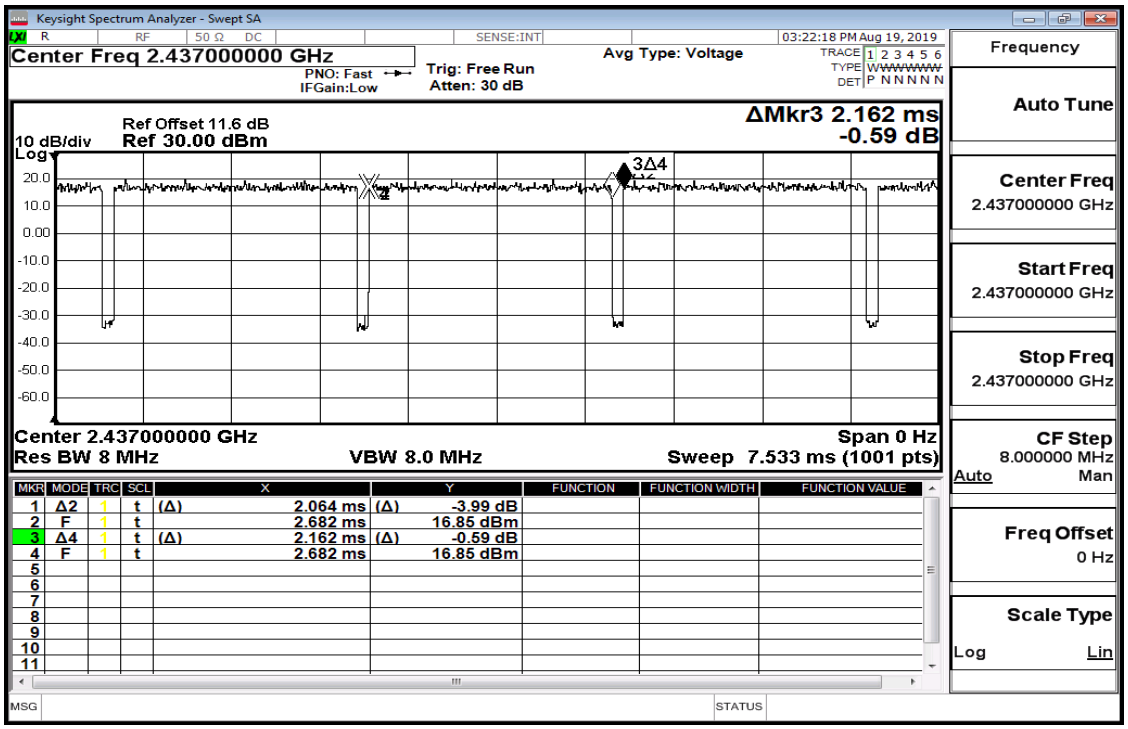
Duty Cycle Factor: 10 * log(1/0.992) = 0.03
Duty Cycle Factor: 10 * log(1/0.9547) = 0.2
Duty Cycle Factor: 10 * log(1/0.9484) = 0.23
Duty Cycle Factor: 10 * log(1/0.9135) = 0.39

7.1 DUTY CYCLE TEST SIGNAL Measurement Result

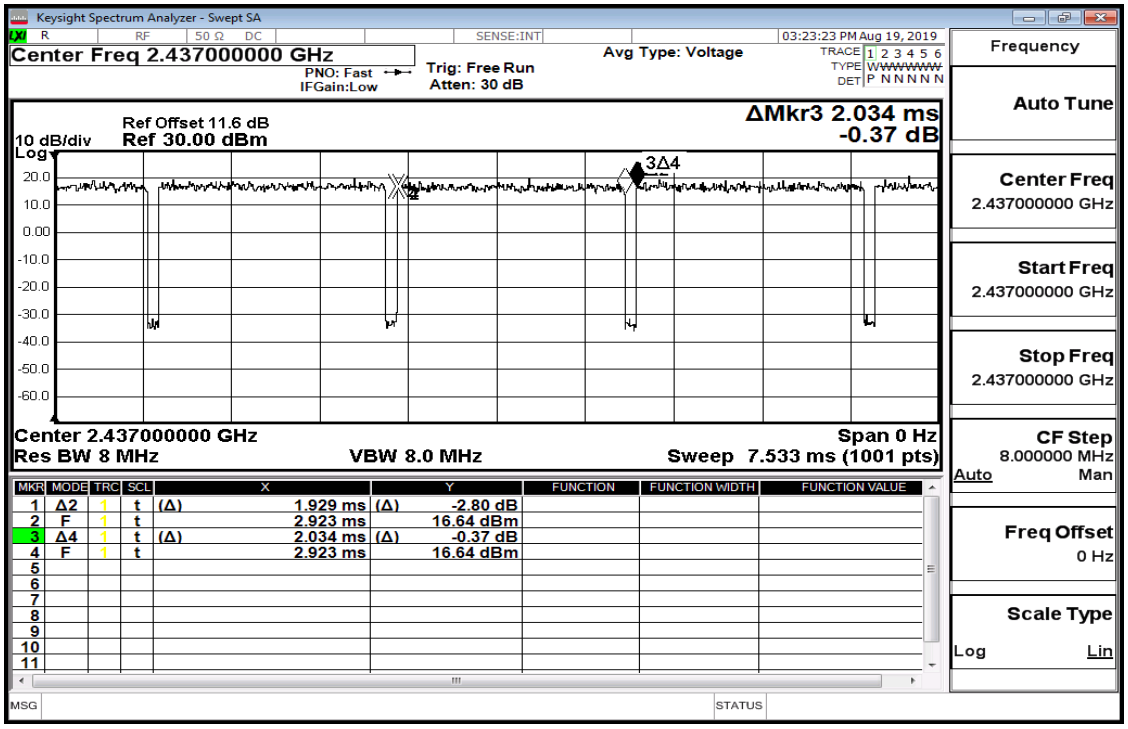
802.11 b



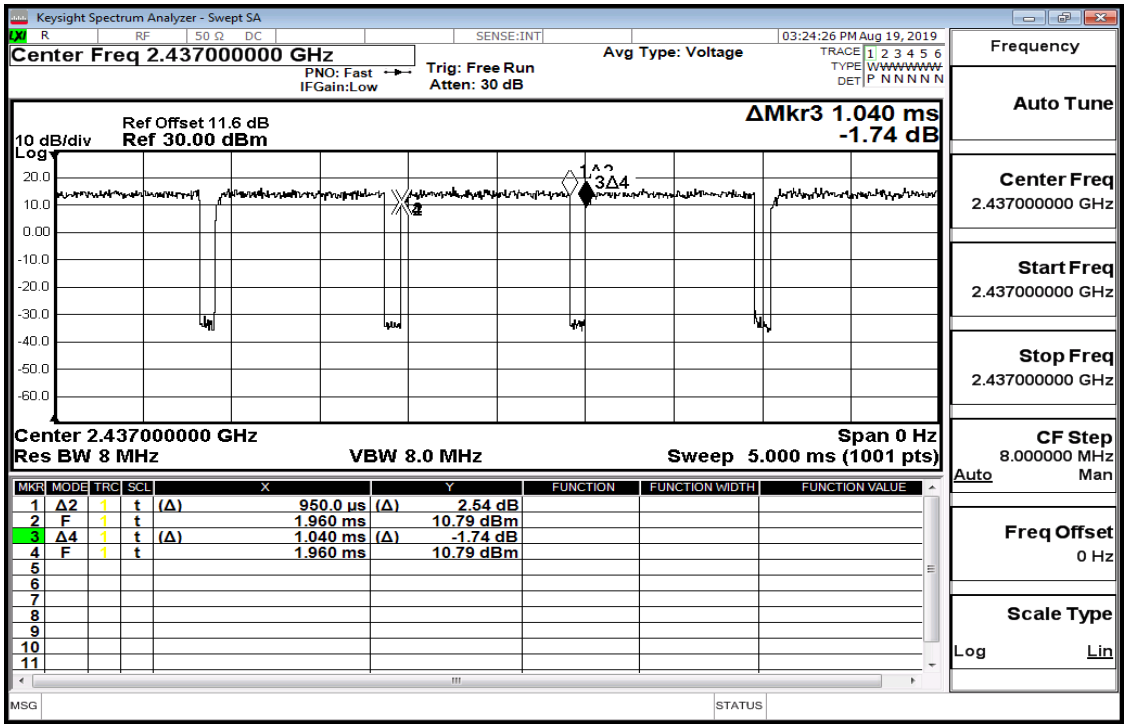
802.11 g



802.11 n_20 MHz



802.11 n_40 MHz



8 PEAK OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

Per RSS-247 §5.4(4)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power form the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,
Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

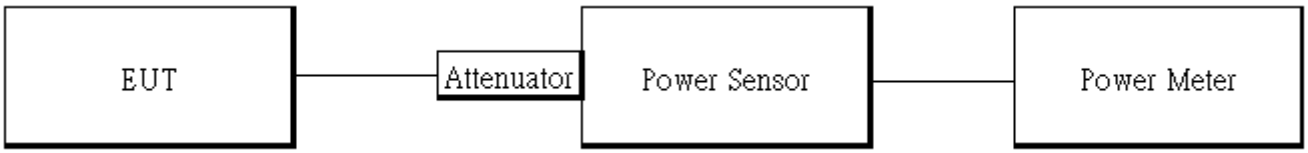
For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

8.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Power Meter	Anritsu	ML2496A	1242004	10/23/2018	10/22/2019
Power Sensor	Anritsu	MA2411B	1207365	10/23/2018	10/22/2019
Power Sensor	Anritsu	MA2411B	1207368	10/24/2018	10/23/2019
Attenuator	Marvelous	MVE2213-10	RF80	02/26/2019	02/25/2020
DC Block	PASTERNACK	PE8210	RF256	02/26/2019	02/25/2020
Spectrum Analyzer	Agilent	N9010A	MY53400256	11/21/2018	11/20/2019

8.3 Test Set-up

Power Meter:



8.4 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

   Power Meter:

   It is used as the auxiliary test equipment to conduct the output power measurement.
4. Record the max. Reading as observed from Spectrum or Power Meter.

8.5 Measurement Result

802.11b Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	1	20.02	30.00	PASS
6	2437	1	19.87	30.00	PASS
11	2462	1	20.34	30.00	PASS
802.11b Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	1	17.10	30.00	PASS
6	2437	1	17.04	30.00	PASS
11	2462	1	17.19	30.00	PASS

802.11g Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	6	21.26	30.00	PASS
6	2437	6	21.21	30.00	PASS
11	2462	6	21.26	30.00	PASS
802.11g Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	6	16.46	30.00	PASS
6	2437	6	16.42	30.00	PASS
11	2462	6	16.47	30.00	PASS

802.11n_HT20M Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	21.68	30.00	PASS
6	2437	MCS0	21.83	30.00	PASS
11	2462	MCS0	21.66	30.00	PASS
802.11n_HT20M Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	16.92	30.00	PASS
6	2437	MCS0	16.84	30.00	PASS
11	2462	MCS0	16.90	30.00	PASS

802.11n_HT40M Ch0					
CH	Freq. (MHz)	Data Rate	Peak Output Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	22.05	30.00	PASS
6	2437	MCS0	22.06	30.00	PASS
9	2452	MCS0	22.09	30.00	PASS
802.11n_HT40M Ch0					
CH	Freq. (MHz)	Data Rate	Max. Avg. Output include tune up tolerance Power (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	15.99	30.00	PASS
6	2437	MCS0	15.93	30.00	PASS
9	2452	MCS0	15.94	30.00	PASS

**** Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.***

EIRP

802.11b Ch0							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	1	17.10	-1.47	15.63	36	PASS
6	2437	1	17.04	-1.47	15.57	36	PASS
11	2462	1	17.19	-1.47	15.72	36	PASS
802.11g Ch0							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	6	16.46	-1.47	14.99	36	PASS
6	2437	6	16.42	-1.47	14.95	36	PASS
11	2462	6	16.47	-1.47	15.00	36	PASS
802.11n_HT20M Ch0							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
1	2412	MCS0	16.92	-1.47	15.45	36	PASS
6	2437	MCS0	16.84	-1.47	15.37	36	PASS
11	2462	MCS0	16.90	-1.47	15.43	36	PASS
802.11n_HT40M Ch0							
CH	Freq. (MHz)	Data Rate	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
3	2422	MCS0	15.99	-1.47	14.52	36	PASS
6	2437	MCS0	15.93	-1.47	14.46	36	PASS
9	2452	MCS0	15.94	-1.47	14.47	36	PASS

*** *Note:*** EIRP = Average Power + Gain

9 6DB & 99% BANDWIDTH MEASUREMENT

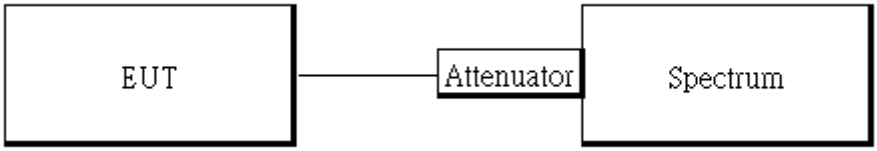
9.1 Standard Applicable

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

9.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
DC Block	PASTERNACK	PE8210	RF256	02/26/2019	02/25/2020
Spectrum Analyzer	Agilent	N9010A	MY53400256	11/21/2018	11/20/2019
Attenuator	Marvelous	MVE2213-10	RF80	02/26/2019	02/25/2020

9.3 Test Set-up



9.4 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. For 6dB Bandwidth:

   Set the spectrum analyzer as RBW = 100 kHz, VBW = 3*RBW, Span = 30M/50MHz, Detector=peak, Sweep=auto.
5. Mark the peak frequency and –6dB (upper and lower) frequency.
6. For 99% Bandwidth:

   Set the spectrum analyzer as RBW=1%, VBW = 3*RBW, Span = 30M/50MHz, Detector=Peak, Sweep=auto.
7. Turn on the 99% bandwidth function, max reading.
8. Repeat above procedures until all frequency of interest measured was complete.

9.5 Measurement Result

6dB Bandwidth

802.11b Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	**8056.00**	> 500	PASS
2437	8054.00	> 500	PASS
2462	7108.00	> 500	PASS

802.11g Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15360.00	> 500	PASS
2437	15380.00	> 500	PASS
2462	**15490.00**	> 500	PASS

802.11_n_HT20 Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15170.00	> 500	PASS
2437	15710.00	> 500	PASS
2462	**16020.00**	> 500	PASS

802.11_n_HT40 Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2422	**35750.00**	> 500	PASS
2437	35730.00	> 500	PASS
2452	35170.00	> 500	PASS

99% Bandwidth

802.11b Ch0	
Freq. (MHz)	99% BW (MHz)
2412	12.584
2437	12.592
2462	12.741

802.11g Ch0	
Freq. (MHz)	99% BW (MHz)
2412	16.711
2437	16.745
2462	16.929

802.11n_HT20M Ch0	
Freq. (MHz)	99% BW (MHz)
2412	17.889
2437	17.953
2462	18.112

802.11n_HT40M Ch0	
Freq. (MHz)	99% BW (MHz)
2422	36.302
2437	36.239
2452	36.108

Refer to next page for plots

802.11b

6dB Band Width Test Data CH-Low

6dB Band Width Test Data CH-Mid

6dB Band Width Test Data CH-High

802.11g

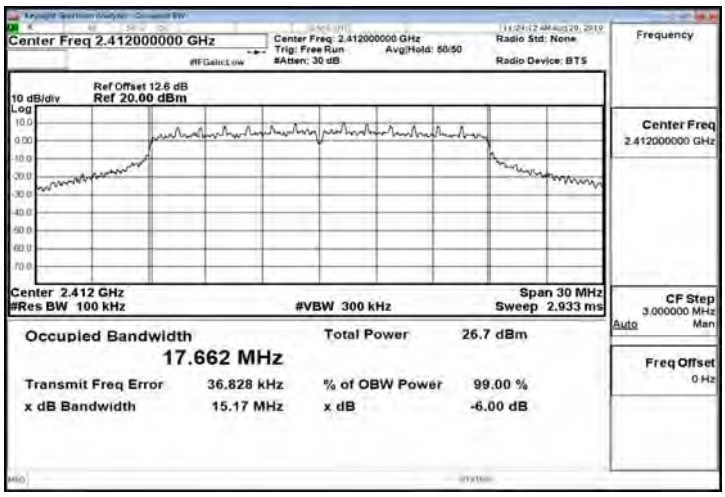
6dB Band Width Test Data CH-Low

6dB Band Width Test Data CH-Mid

6dB Band Width Test Data CH-High

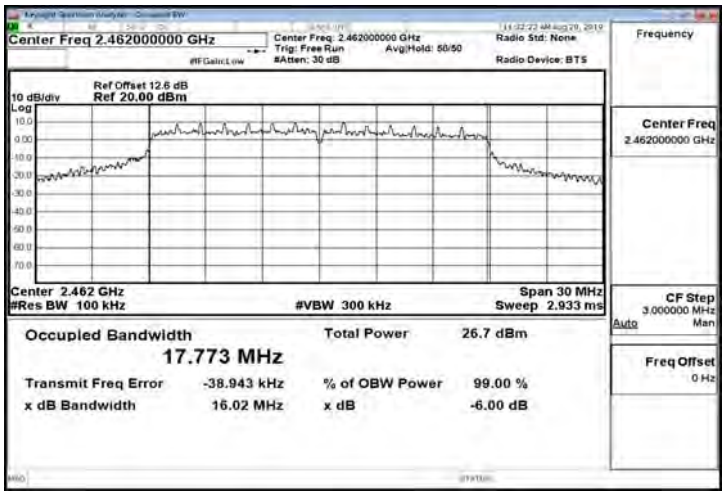
802.11n_20M

6dB Band Width Test Data CH-Low



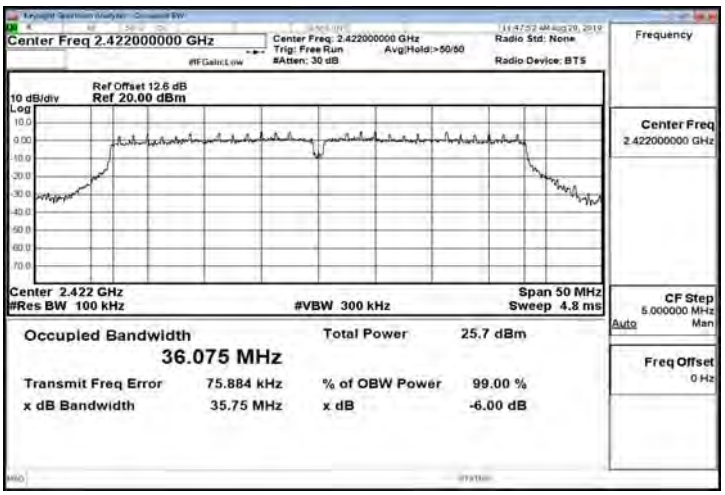
6dB Band Width Test Data CH-Mid

6dB Band Width Test Data CH-High



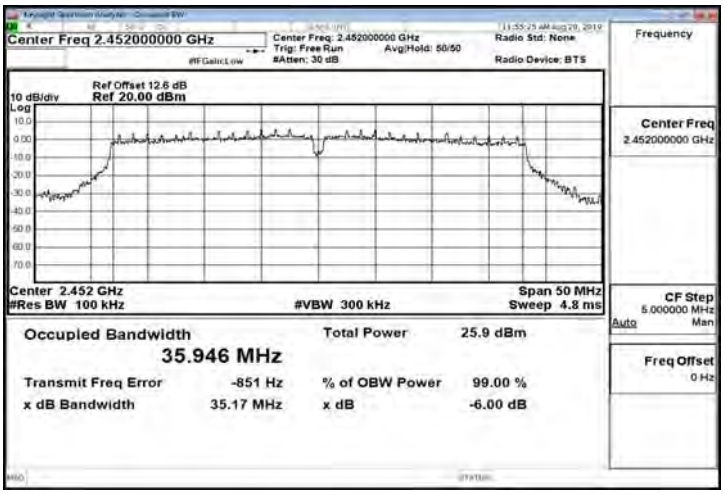
802.11n_40M

6dB Band Width Test Data CH-Low



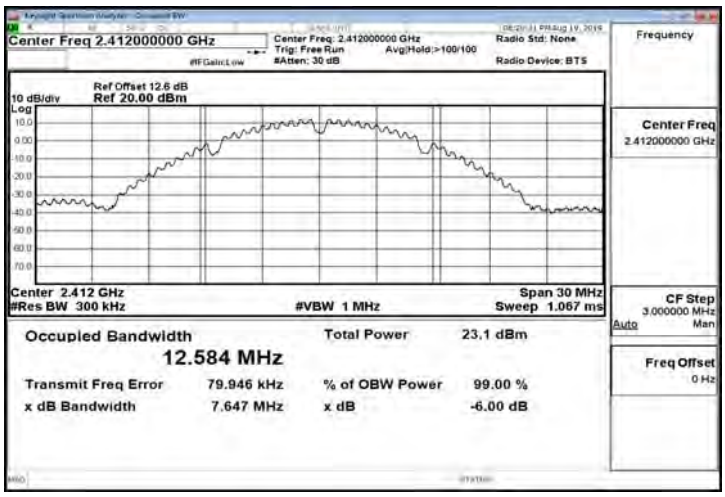
6dB Band Width Test Data CH-Mid

6dB Band Width Test Data CH-High

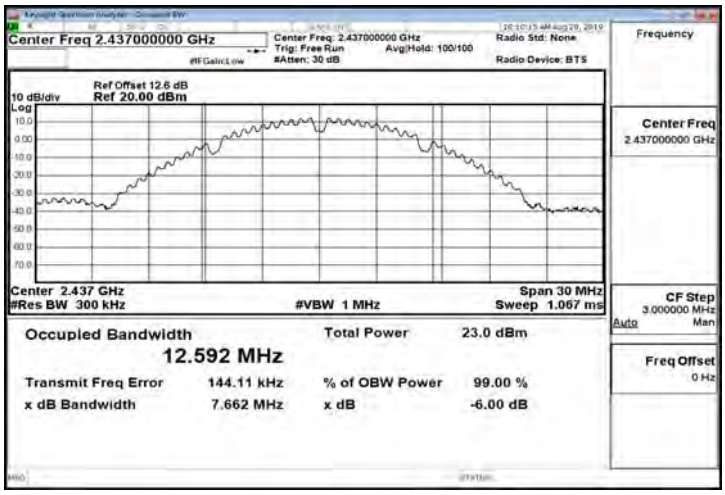


802.11b

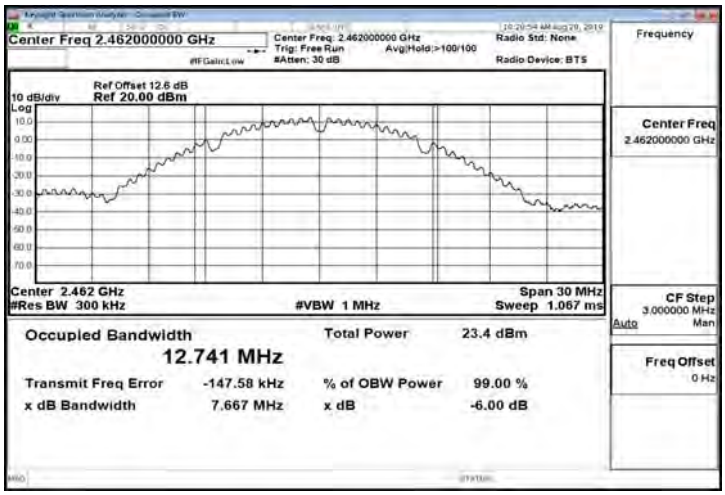
99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid

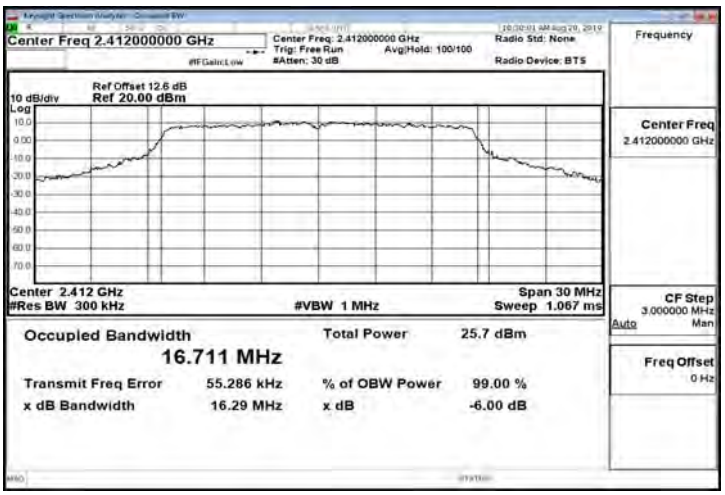


99% Band Width Test Data CH-High

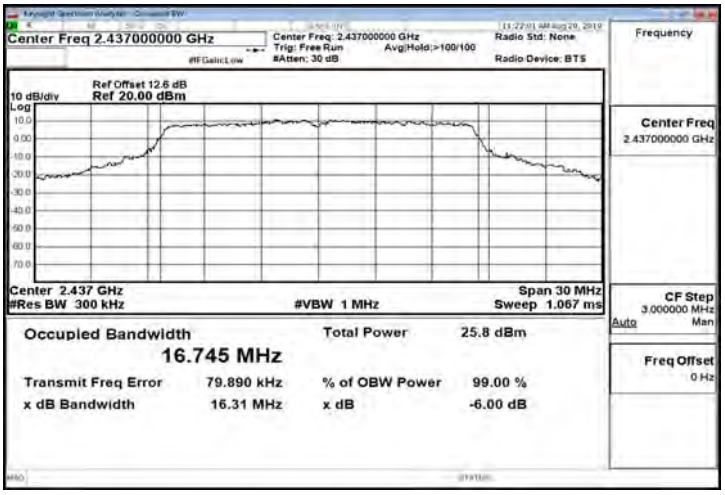


802.11g

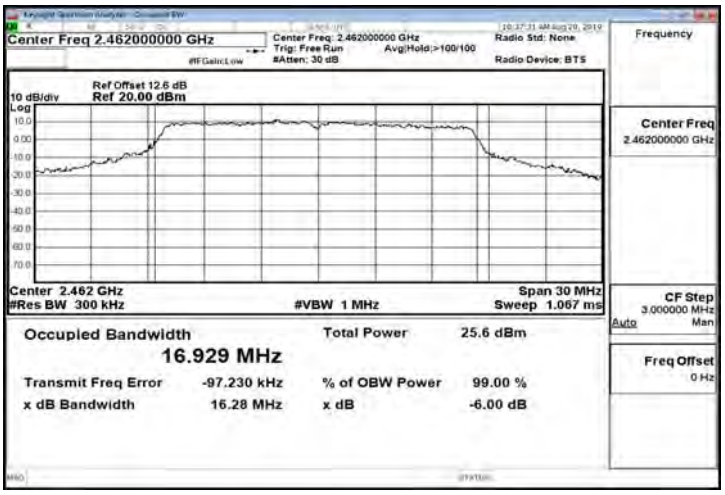
99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid

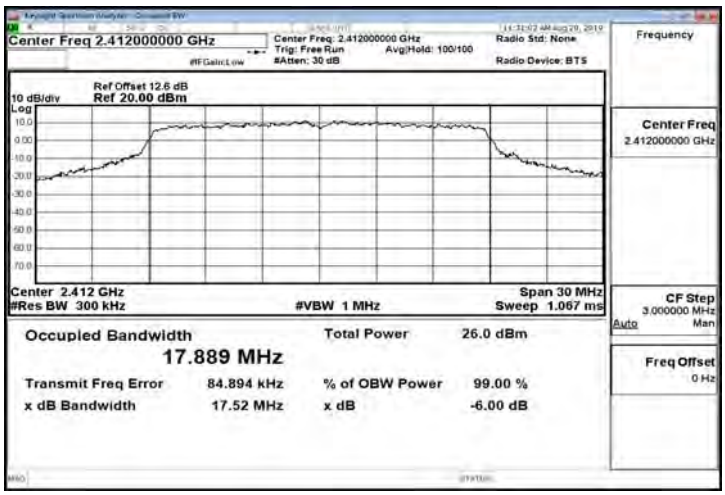


99% Band Width Test Data CH-High

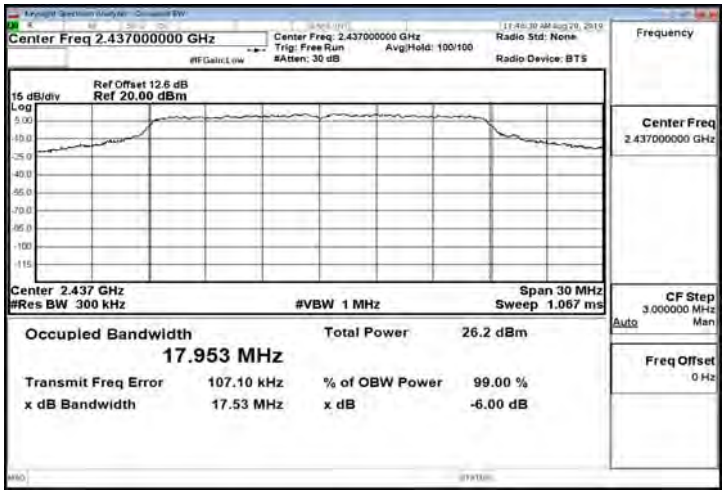


802.11n_20M

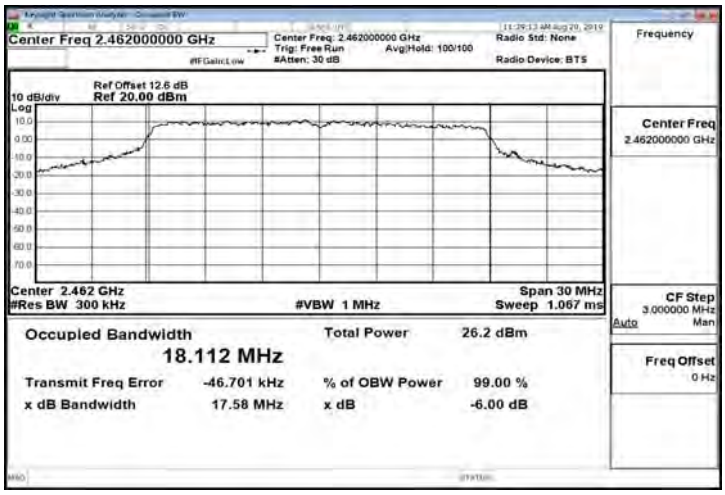
99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid

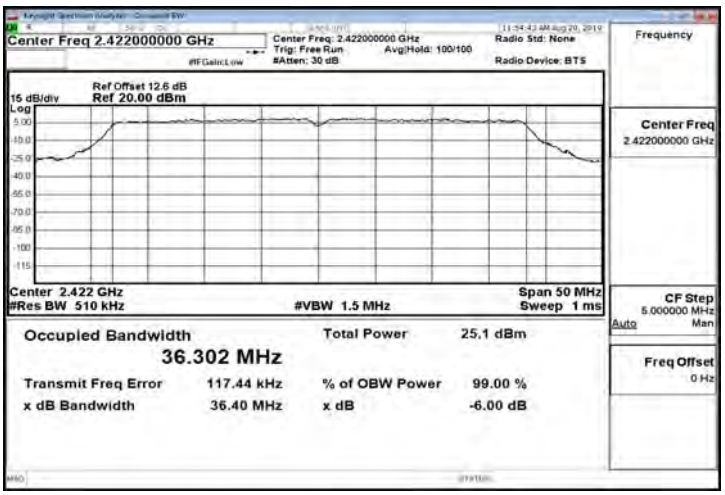


99% Band Width Test Data CH-High

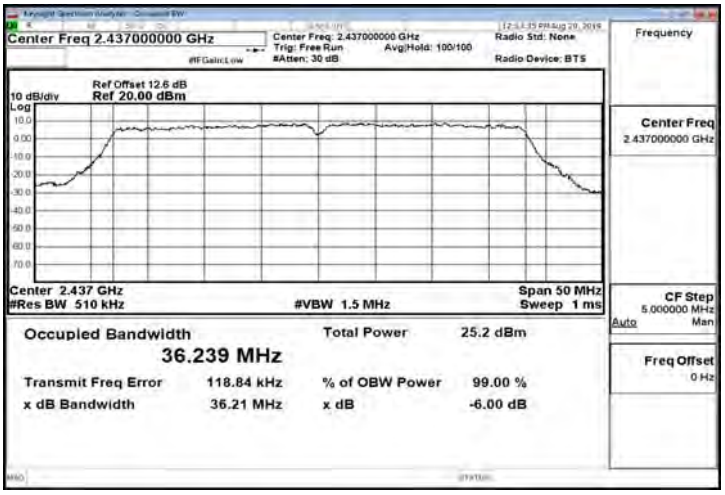


802.11n_40M

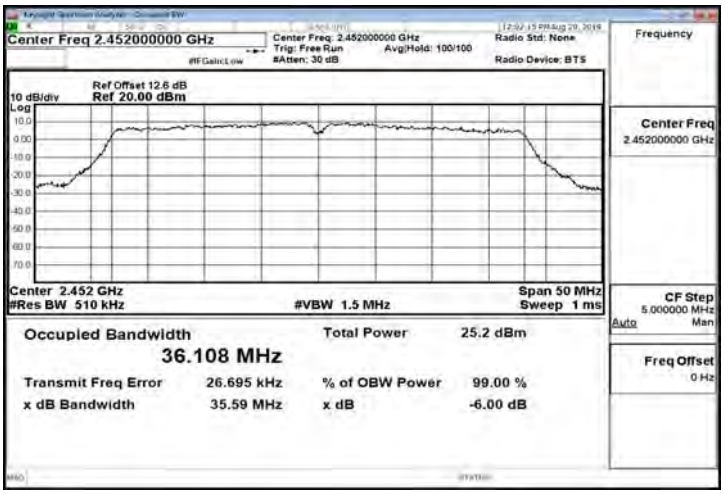
99% Band Width Test Data CH-Low



99% Band Width Test Data CH-Mid



99% Band Width Test Data CH-High



10 CONDUCTED BAND EDGE AND SPURIOUS EMISSION MEASUREMENT

10.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

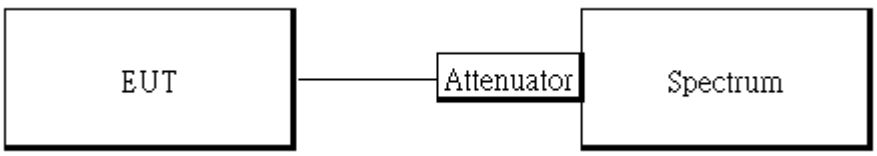
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) & RSS-Gen §8.10, must also comply with the radiated emission limits specified in §15.209(a) & RSS-Gen §8.8.

If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

10.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
DC Block	PASTERNACK	PE8210	RF256	02/26/2019	02/25/2020
Spectrum Analyzer	Agilent	N9010A	MY53400256	11/21/2018	11/20/2019
Attenuator	Marvelous	MVE2213-10	RF80	02/26/2019	02/25/2020

10.3 Test SET-UP



10.4 Measurement Procedure

Conducted Band Edge Limt

1. Set analyzer center frequency to DTS channel center frequency.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW = 100kHz & VBW = 300 kHz.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.

8.Allow trace to fully stabilize.

9.Use the peak marker function to determine the maximum amplitude level.

Conducted Band Edge:

1. To connect Antenna Port of EUT to Spectrum.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
4. Set start to edge frequency, and stop frequency of spectrum analyzer so as to encompass the spectrum to be examined.
5. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Detector = Peak, Sweep = auto
6. Mark the highest reading of the emission as the reference level measurement.
7. Set DL as the limit = reading on marker 1 – 20dBm
8. Marker on frequency, 2.3999GHz and 2.4836GHz, and examine shall 100 kHz immediately outside the authorized (2400~2483.5) be attenuated by 20dB at least relative to the maximum emission of power.
9. Repeat above procedures until all default test channel (low, middle, and high) was complete.

Conducted Spurious Emission:

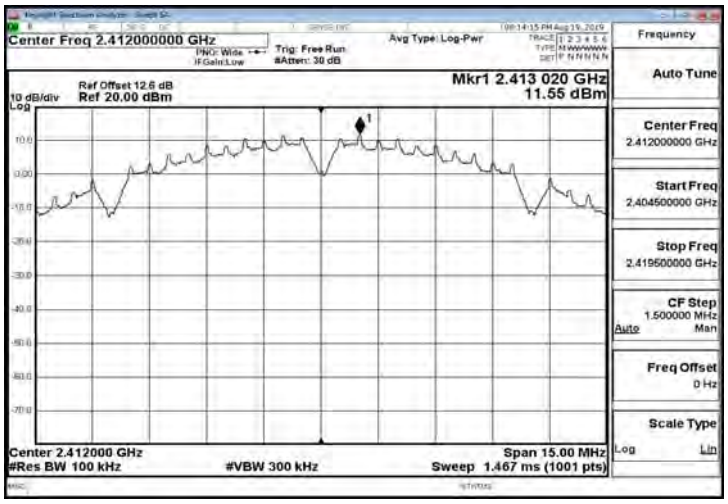
1. To connect Antenna Port of EUT to Spectrum
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Set RBW = 100 kHz & VBW= 300 kHz, Detector =Peak, Sweep = Auto.
4. Allow trace to fully stabilize.
5. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Repeat above procedures until all default test channel measured were complete.

10.5 Measurement Result

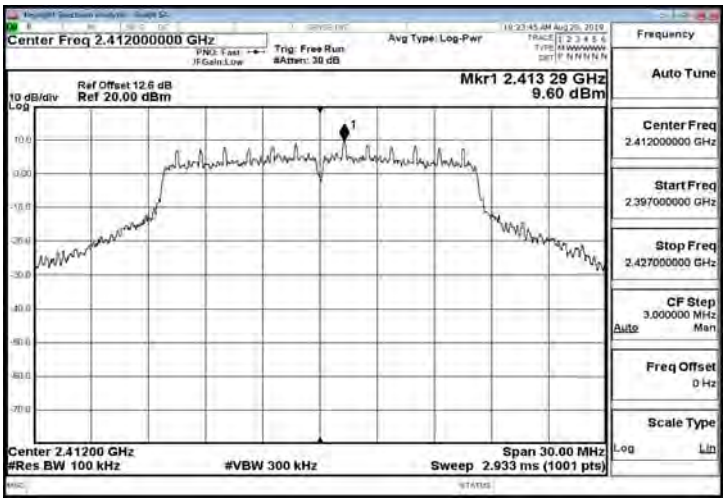
Reference Level of Limit 802.11b mode			Reference Level of Limit 802.11g mode		
Freq. (MHz)	PSD (dBm)	Reference Level of Limit (dBm)	Freq. (MHz)	PSD (dBm)	Reference Level of Limit (dBm)
2412	11.55	-8.45	2412	9.60	-10.40
2437	11.45	-8.55	2437	9.70	-10.30
2462	11.96	-8.04	2462	9.16	-10.84

Reference Level of Limit 802.11n20 mode			Reference Level of Limit 802.11n40 MODE		
Freq. (MHz)	PSD (dBm)	Reference Level of Limit (dBm)	Freq. (MHz)	PSD (dBm)	Reference Level of Limit (dBm)
2412	10.13	-9.87	2422	5	-15.00
2437	10.27	-9.73	2437	5.43	-14.57
2462	9.79	-10.21	2452	5.91	-14.09

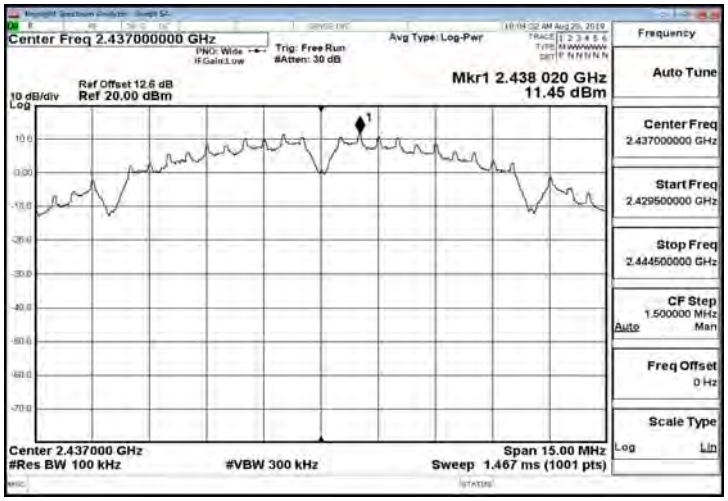
802.11b Band Edge Limit Test Data CH-Low



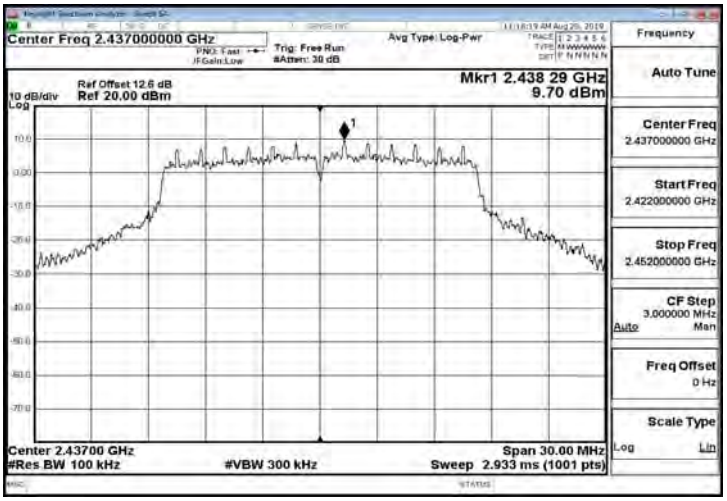
802.11g Band Edge Limit Test Data CH-Low



802.11b Band Edge Limit Test Data CH-Mid

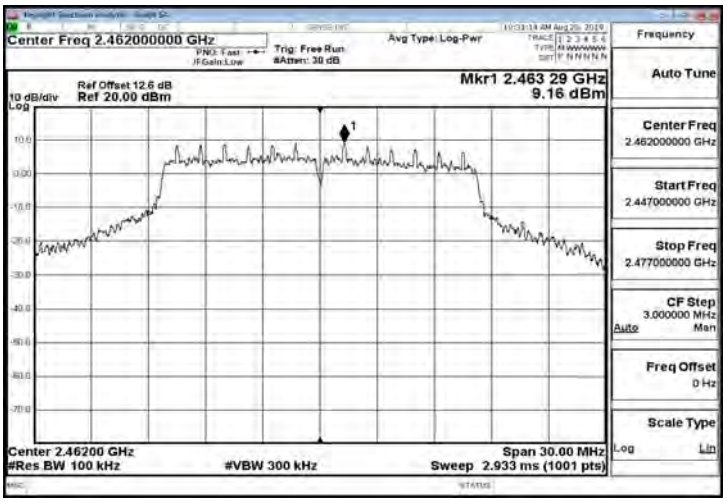


802.11g Band Edge Limit Test Data CH-Mid

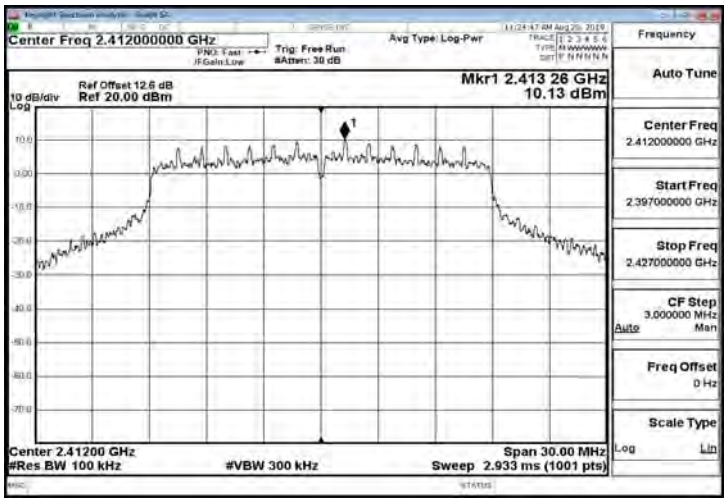


802.11b Band Edge Limit Test Data CH-High

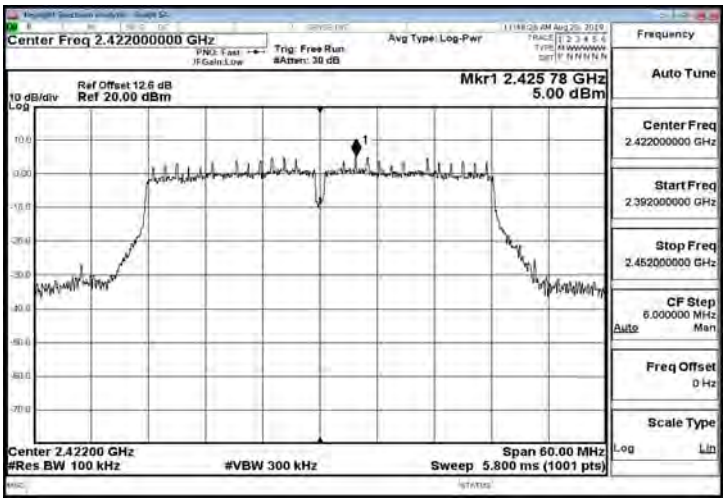
802.11g Band Edge Limit Test Data CH-High



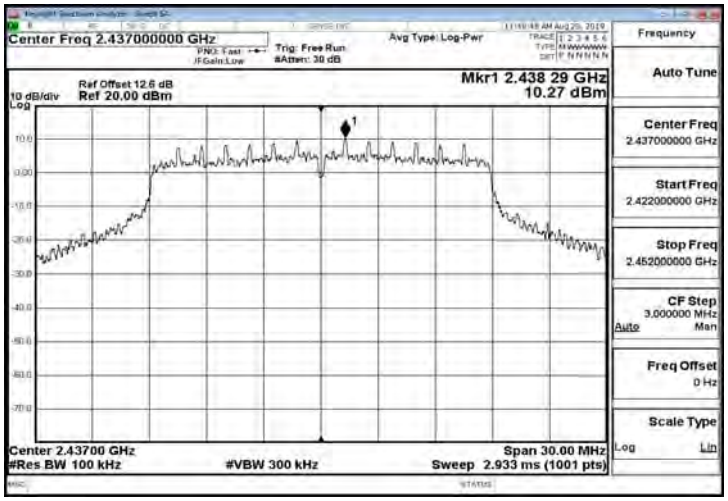
802.11n_HT20 Band Edge Limit Test Data CH-Low



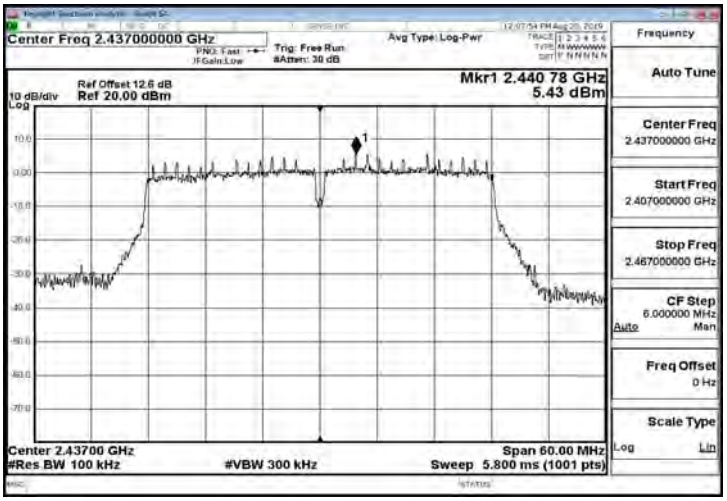
802.11n_HT40 Band Edge Limit Test Data CH-Low



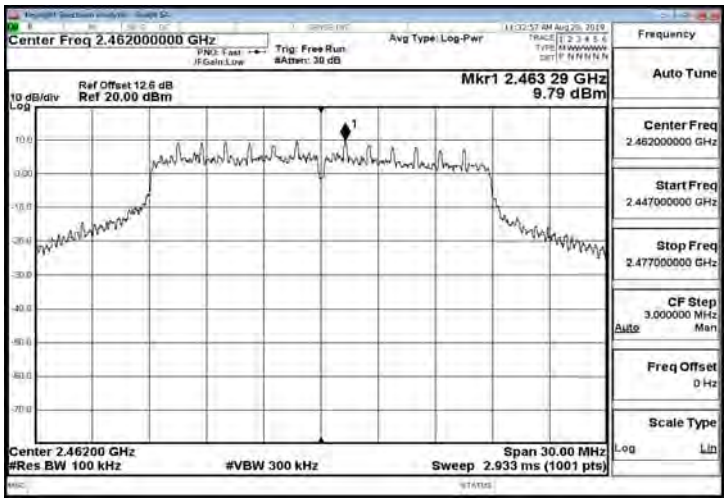
802.11n_HT20 Band Edge Limit Test Data CH-Mid



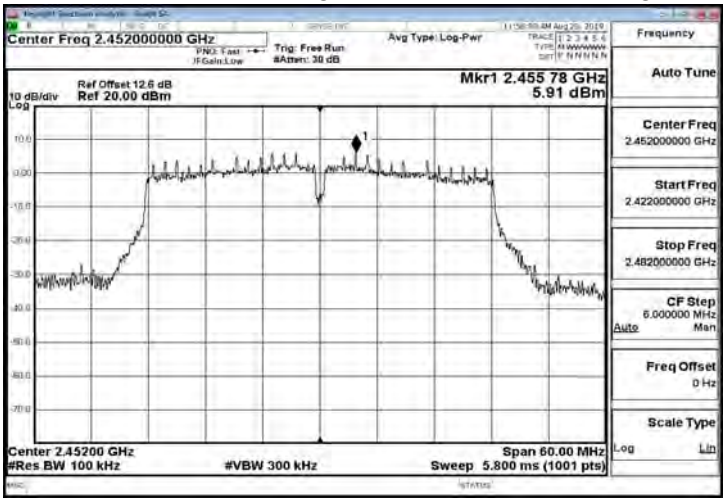
802.11n_HT40 Band Edge Limit Test Data CH-Mid



802.11n_HT20 Band Edge Limit Test Data CH-High

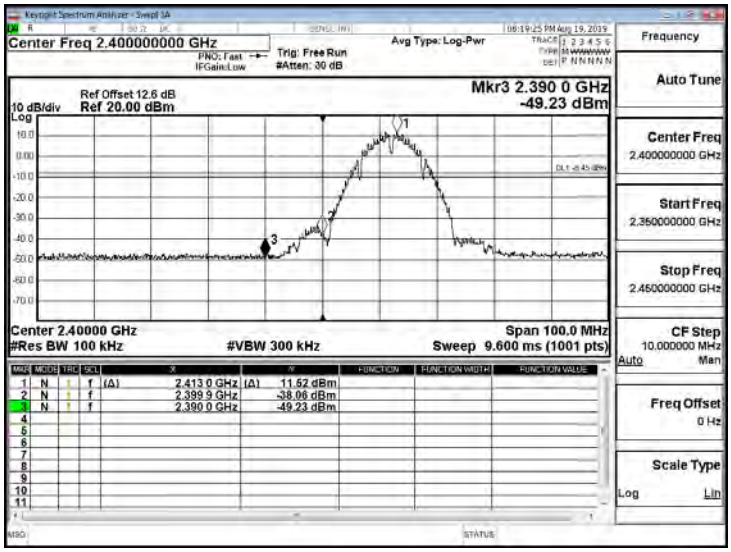


802.11n_HT40 Band Edge Limit Test Data CH-High



802.11b

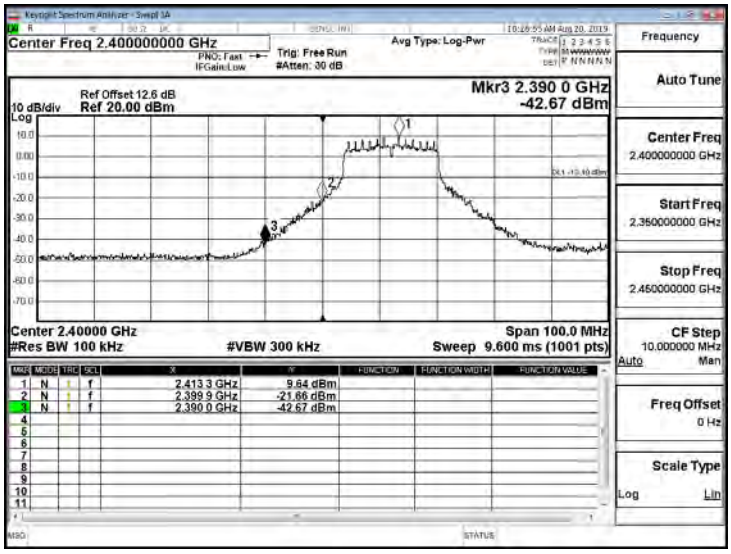
Band Edge Test Data CH-Low



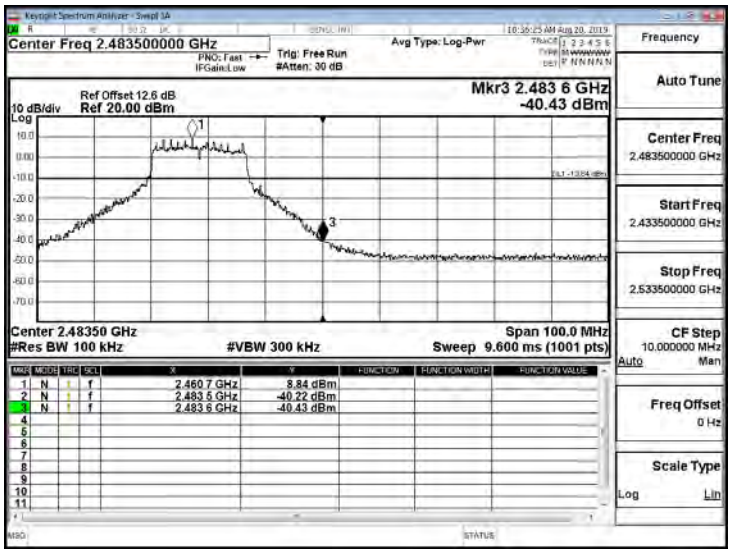
Band Edge Test Data CH-High

802.11g

Band Edge Test Data CH-Low

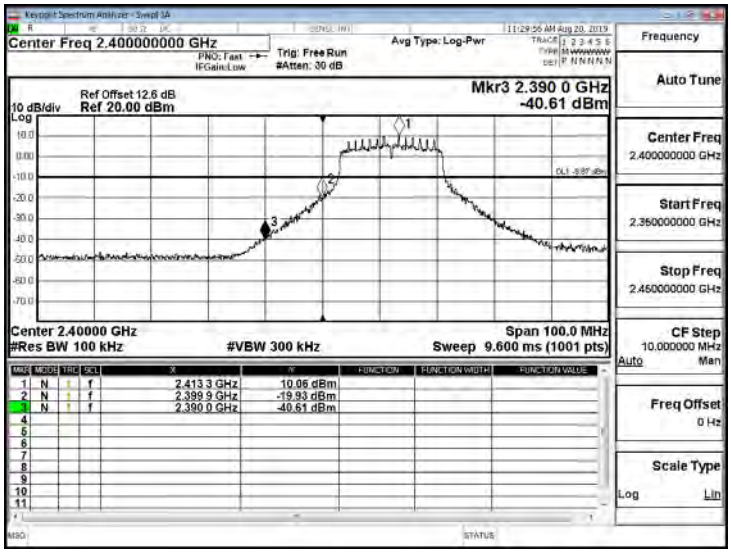


Band Edge Test Data CH-High

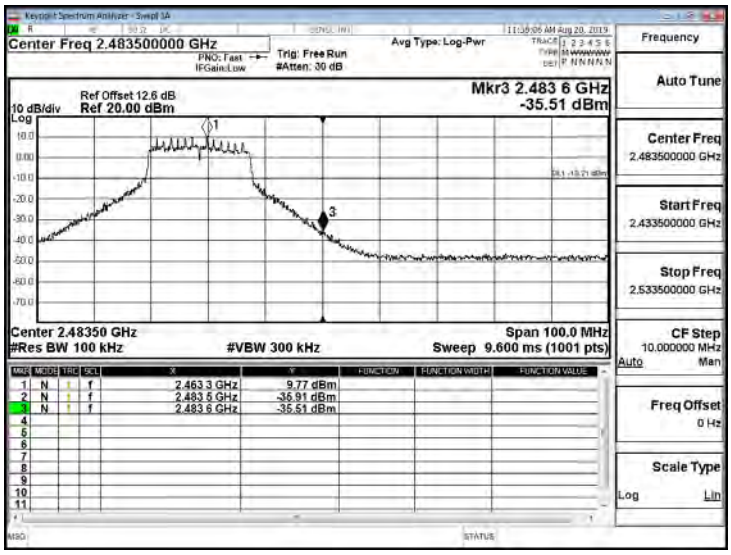


802.11n_HT20

Band Edge Test Data CH-Low

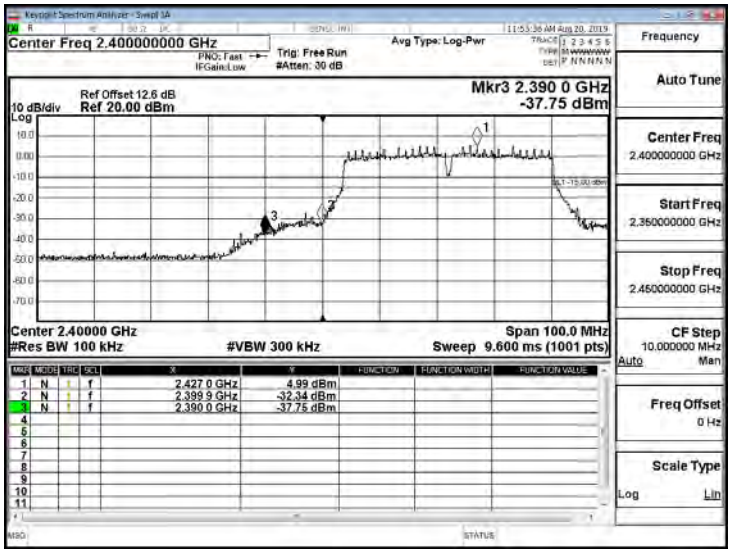


Band Edge Test Data CH-High

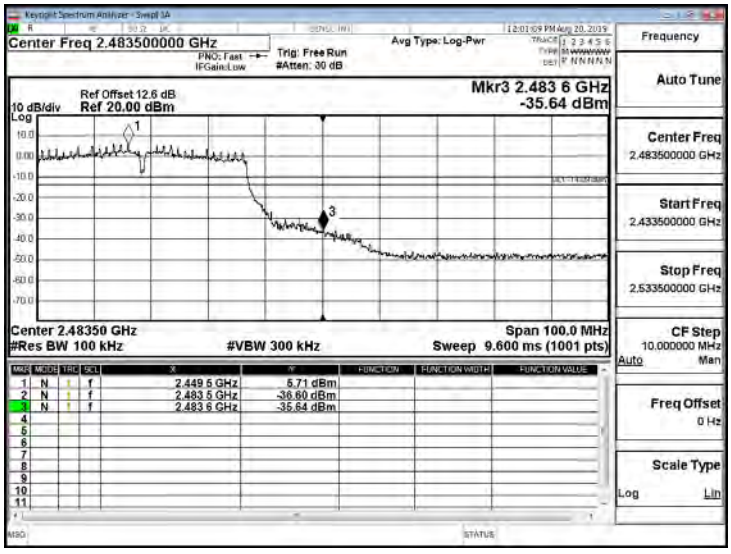


802.11n_HT40

Band Edge Test Data CH-Low

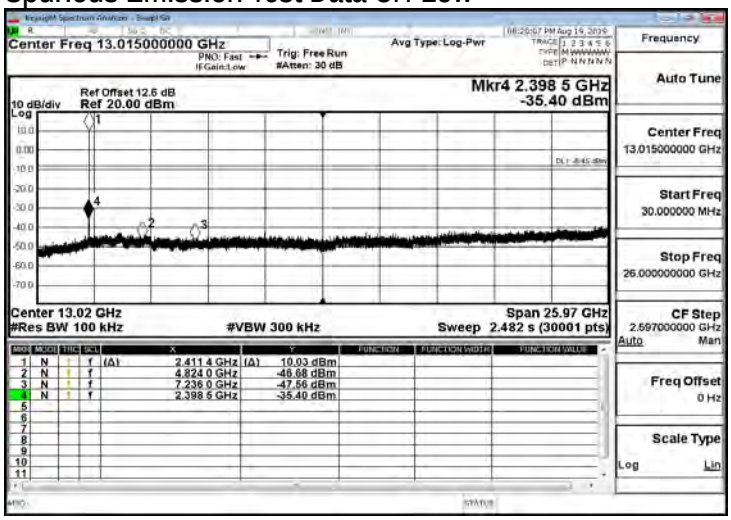


Band Edge Test Data CH-High

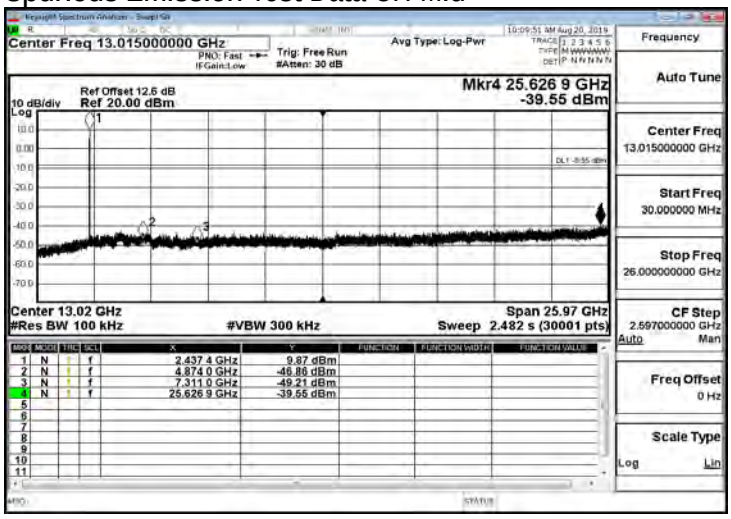


802.11b

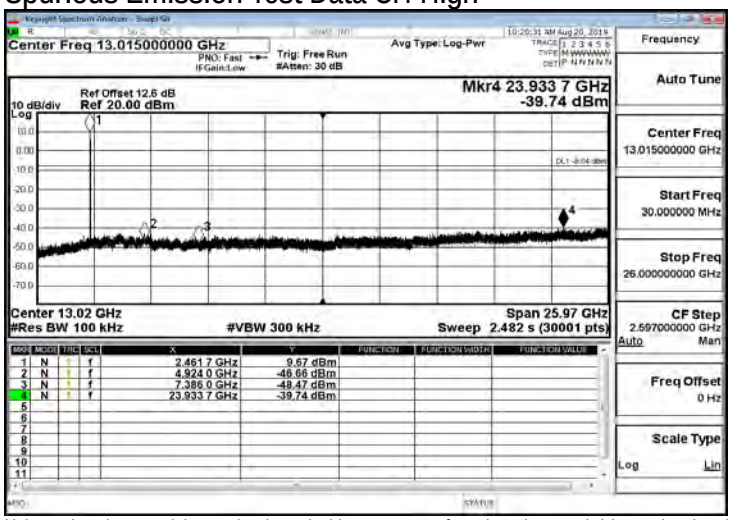
Spurious Emission Test Data CH-Low



Spurious Emission Test Data CH-Mid

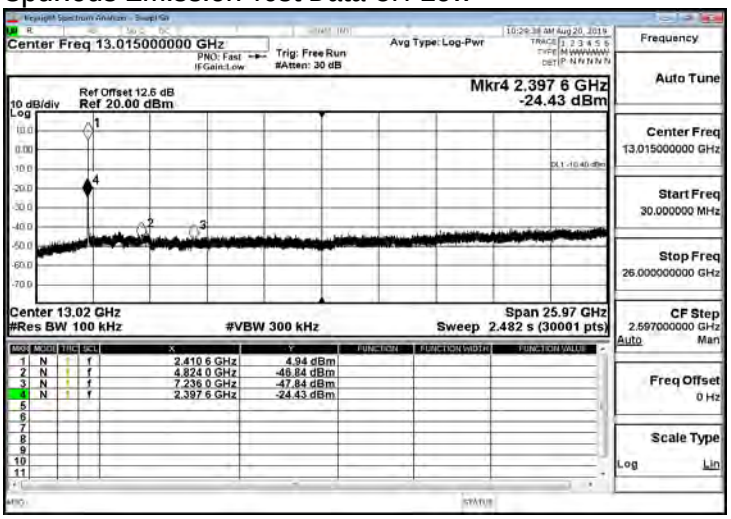


Spurious Emission Test Data CH-High

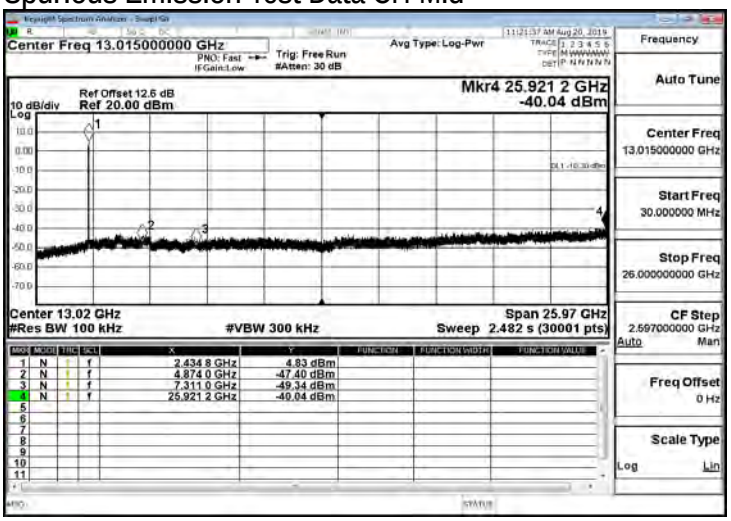


802.11g

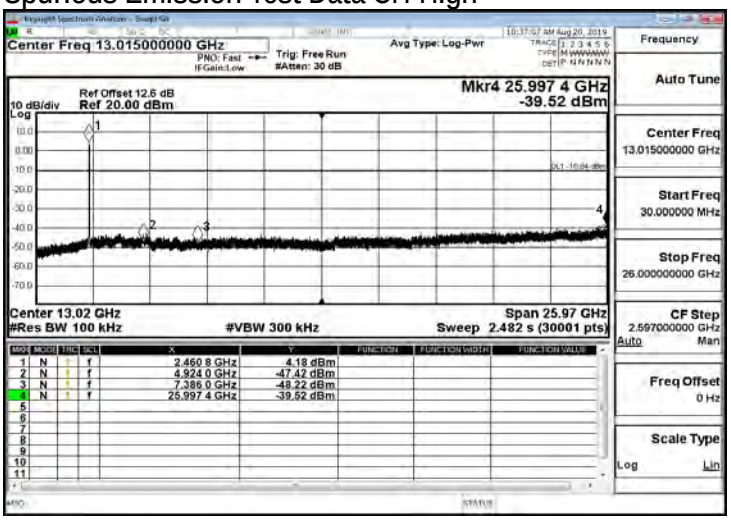
Spurious Emission Test Data CH-Low



Spurious Emission Test Data CH-Mid

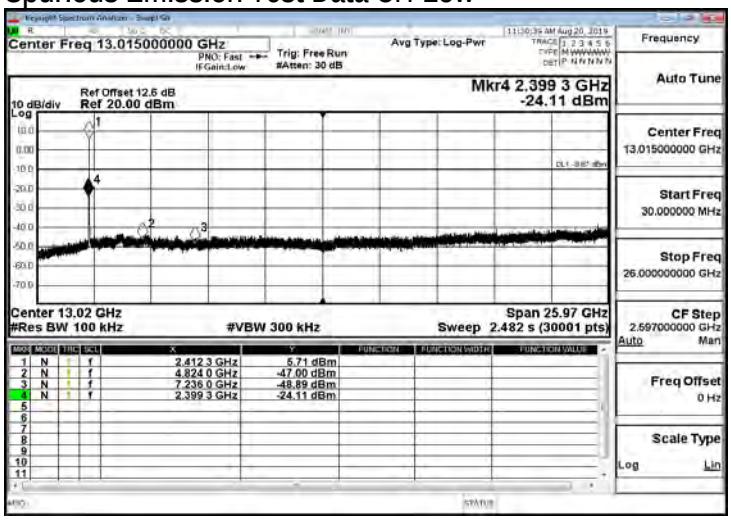


Spurious Emission Test Data CH-High

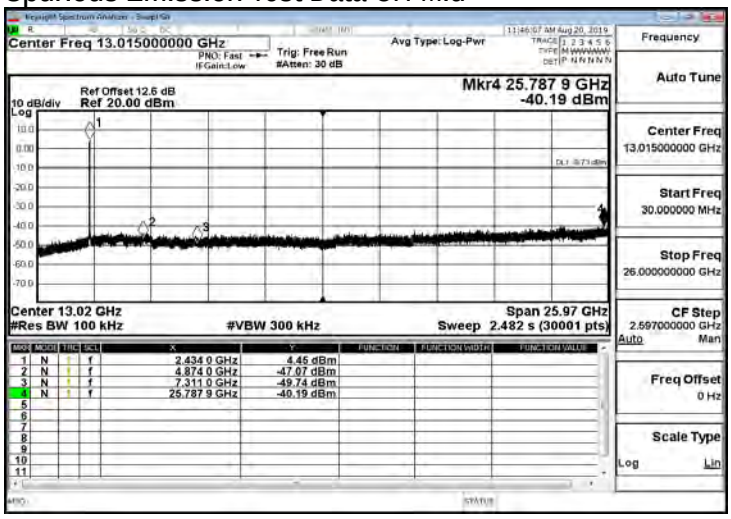


802.11n_HT20

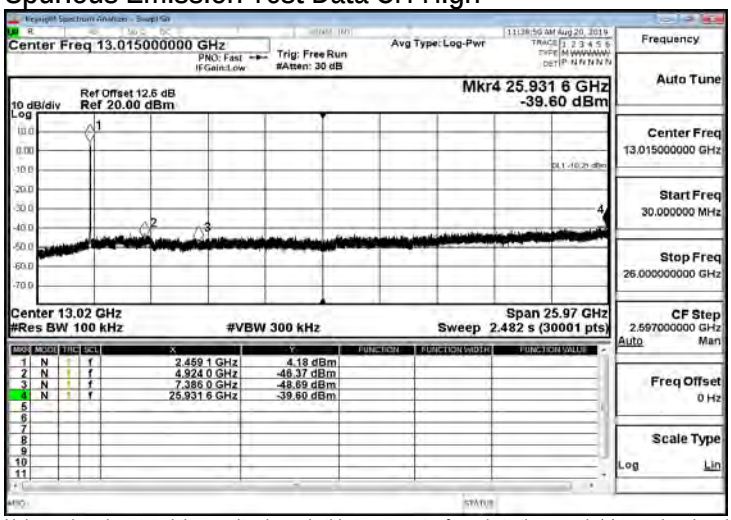
Spurious Emission Test Data CH-Low



Spurious Emission Test Data CH-Mid

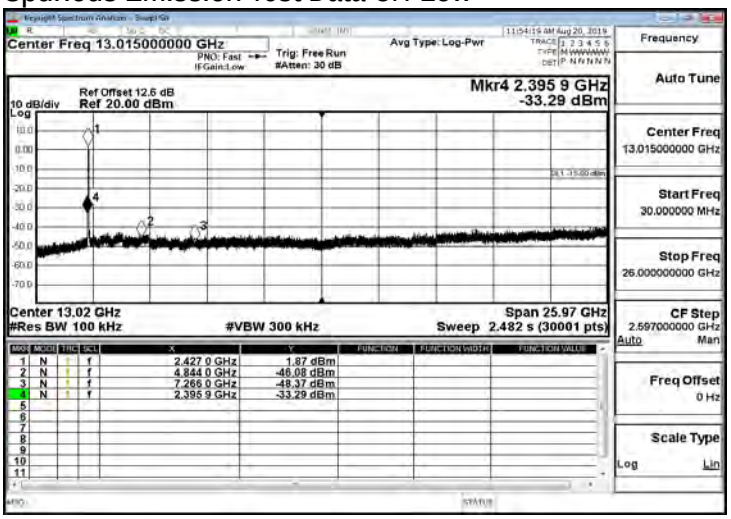


Spurious Emission Test Data CH-High

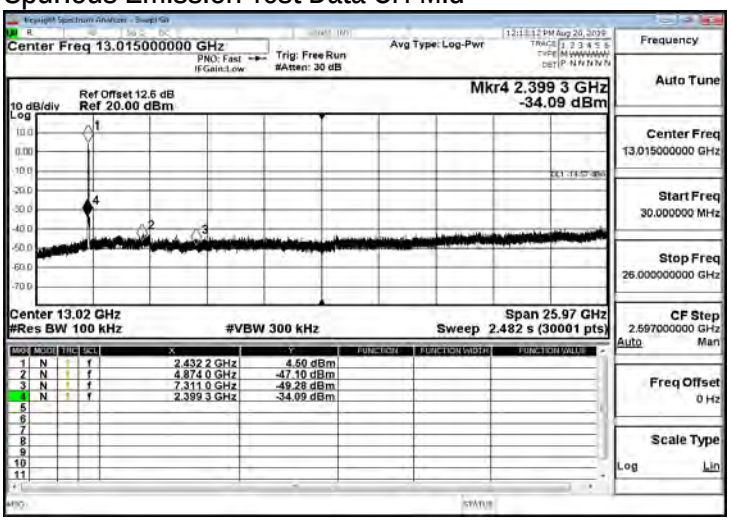


802.11n_HT40

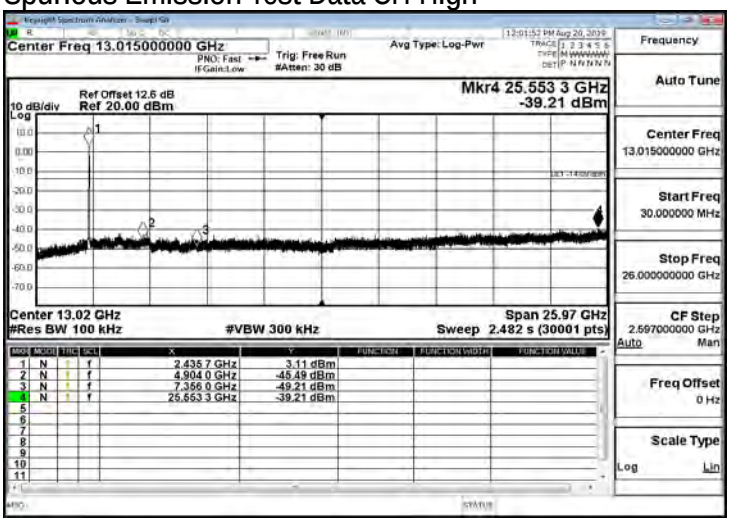
Spurious Emission Test Data CH-Low



Spurious Emission Test Data CH-Mid



Spurious Emission Test Data CH-High



11 RADIATED BANDEDGE AND SPURIOUS EMISSION MEASUREMENT

11.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 & RSS-Gen §8.8, 8.9 limit as below.

And according to §15.33(a) (1) & RSS-Gen §6.13(a), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

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

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBμV/m) = 20 log Emission level (μV/m)

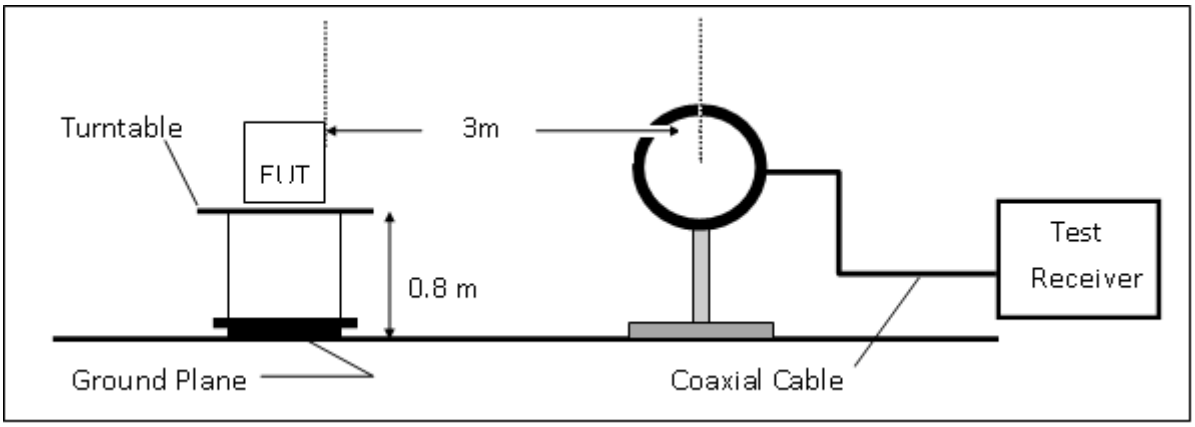
11.2 Measurement Equipment Used:

966A Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Low Pass Filter	EWT	EWT-56-0019	RF46	02/26/2019	02/25/2020
High Pass Filter	R&S	F13 HPF 3GHz	RF64	02/26/2019	02/25/2020
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/26/2019	02/25/2020
Bilog Antenna	Sunol Sciences	JB3	A030105	07/26/2019	07/25/2020
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	02/26/2019	02/25/2020
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/26/2019	02/25/2020
Digital Ther-mo-Hygro Meter	WISEWIND	1206	D07	01/30/2019	01/29/2020
Loop Antenna	COM-POWER	AL-130	121051	03/22/2019	03/21/2020
Horn Antenna	SCHWARZBECK	BBHA 9120D	779	03/09/2019	03/08/2020
Pre-Amplifier	EMEC	EM330	060609	02/26/2019	02/25/2020
Pre-Amplifier	HP	8449B	3008A00965	02/26/2019	02/25/2020
PSA Series Spec-trum Analyzer	Agilent	E4446A	MY46180323	05/29/2019	05/28/2020
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 V6.11-20180413				

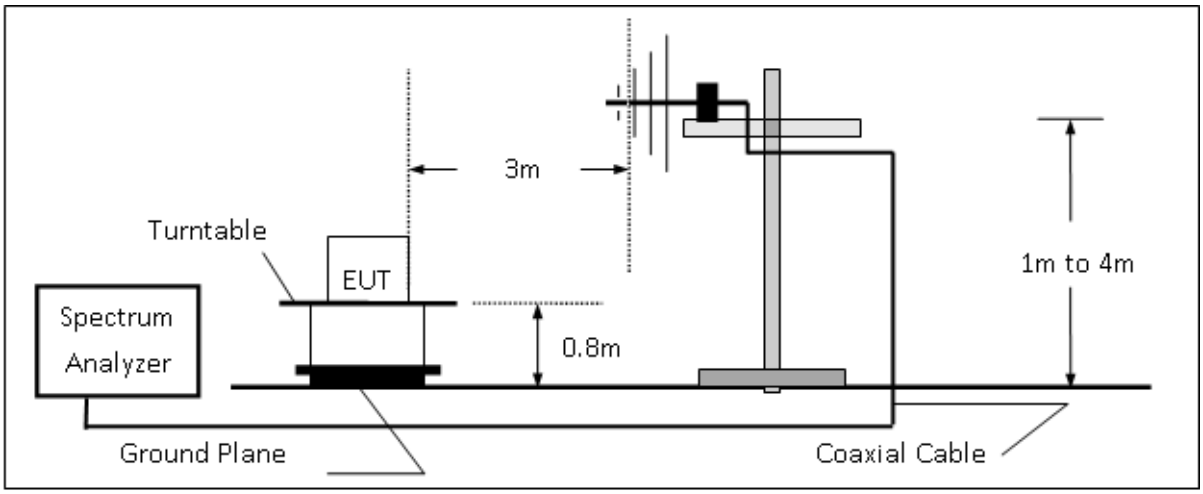
N.C.R refers to Not Calibrated Required.

11.3 Test SET-UP

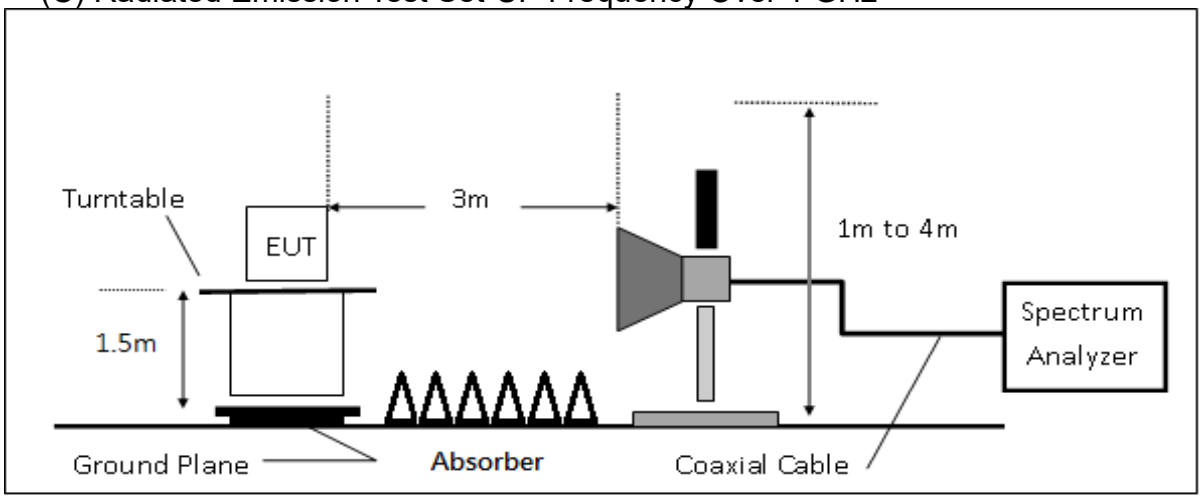
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



11.4 Measurement Procedure

1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
2. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 1.5m for frequency> 1GHz above ground plane.
3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
5. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
6. Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and Quasi-peak (QP) at frequency below 1 GHz.
7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
10. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
11. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
12. Repeat above procedures until all default test channel measured were complete.

11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Actual FS(dBμV/m) = SPA. Reading level(dBμV) + Factor(dB)

Factor(dB) = Antenna Factor(dB/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

Note :

"**F**" : denotes Fundamental Frequency. ; "**H**" : denotes Harmonic Frequency.

"**E**" : denotes Band Edge Frequency. ; "**S**" : denotes Spurious Frequency.

11.6 Test Results of Radiated Spurious Emissions form 9 kHz to 30 MHz

Radiated emission below 30MHz is measured in a 9m*9m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site. And there is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

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

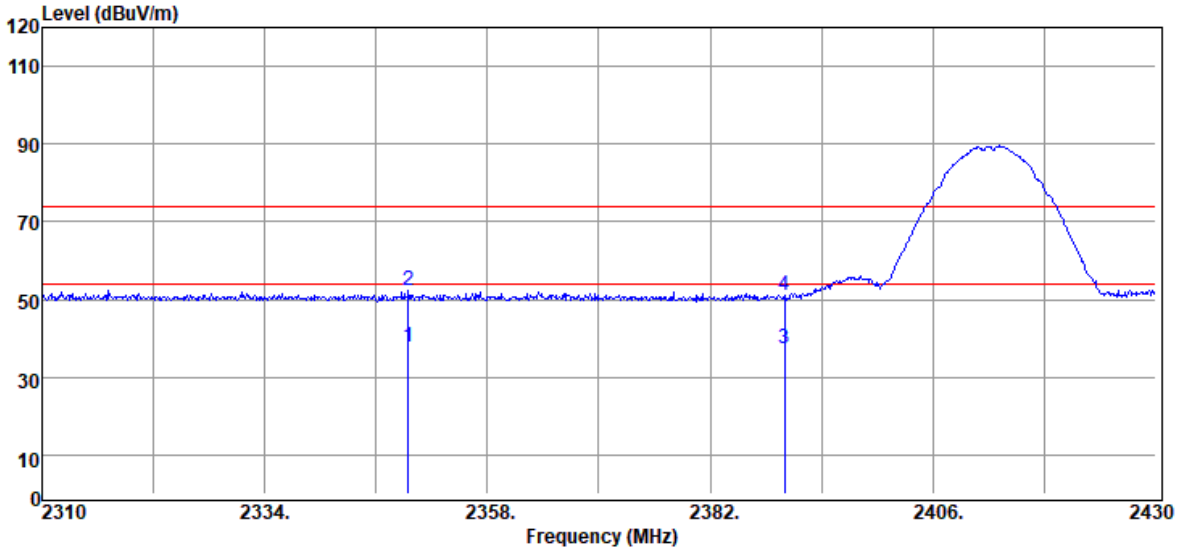
11.7 Measurement Result

Note: WLAN/BT coexistence cases were investigated and there are no new emissions to report.

Refer to next page spectrum analyzer data chart and tabular data sheets.

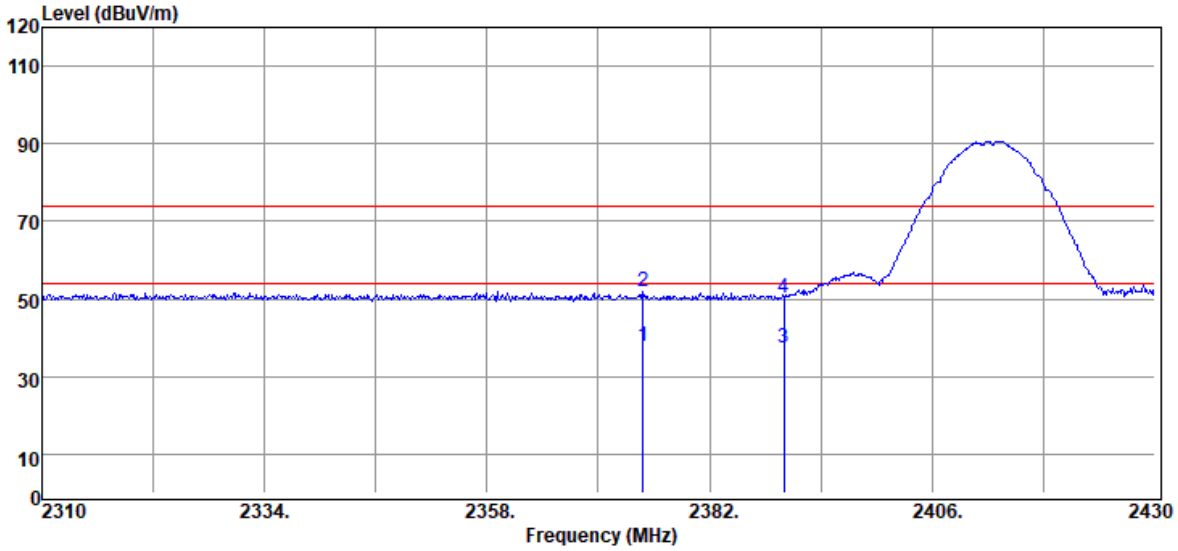
Radiated Band Edge Measurement Result (802.11b)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



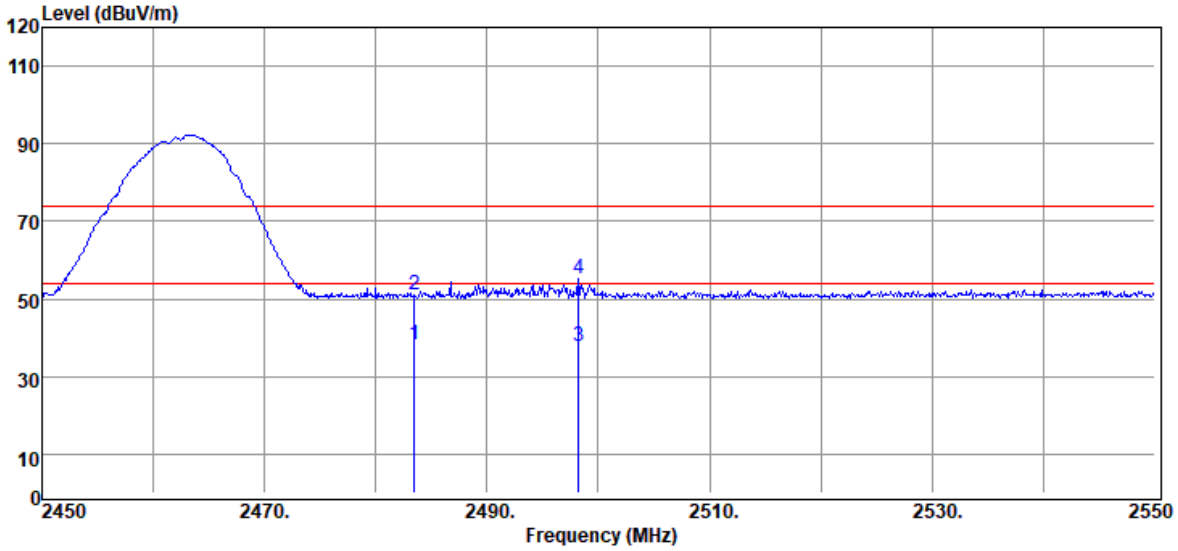
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBµV	Factor dB	Actual FS dBµV/m	Limit @3m dBµV/m	Margin dB
2349.48	Average	41.03	-3.31	37.72	54.00	-16.28
2349.48	Peak	55.74	-3.31	52.43	74.00	-21.57
2390.00	Average	40.95	-3.38	37.57	54.00	-16.43
2390.00	Peak	54.65	-3.38	51.27	74.00	-22.73

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



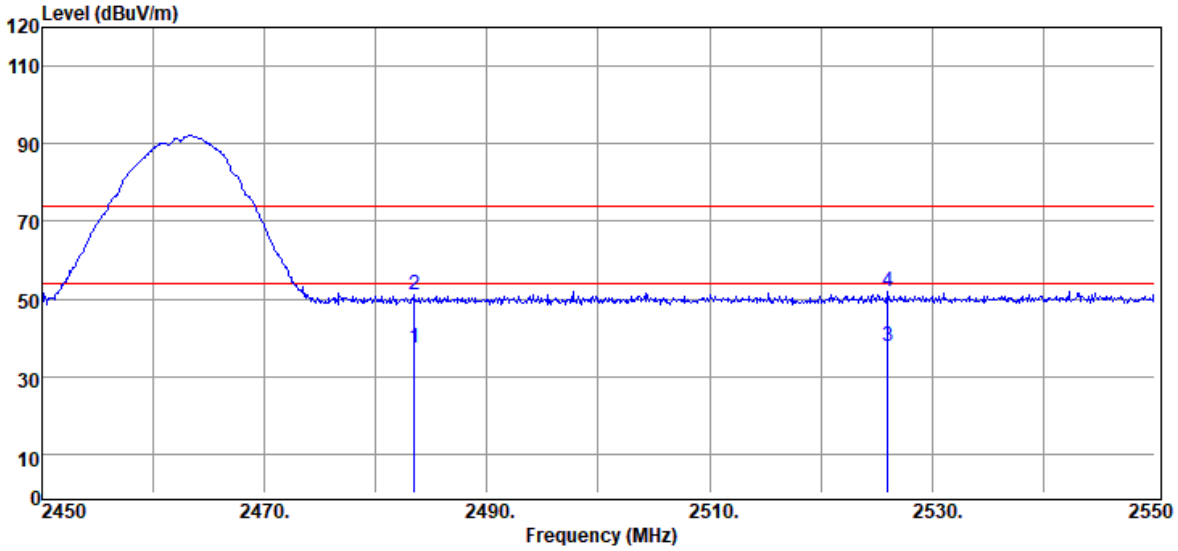
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2374.80	Average	41.00	-3.36	37.64	54.00	-16.36
2374.80	Peak	55.11	-3.36	51.75	74.00	-22.25
2390.00	Average	40.61	-3.38	37.23	54.00	-16.77
2390.00	Peak	53.48	-3.38	50.10	74.00	-23.90

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	41.06	-2.83	38.23	54.00	-15.77
2483.50	Peak	53.80	-2.83	50.97	74.00	-23.03
2498.20	Average	40.65	-2.73	37.92	54.00	-16.08
2498.20	Peak	57.83	-2.73	55.10	74.00	-18.90

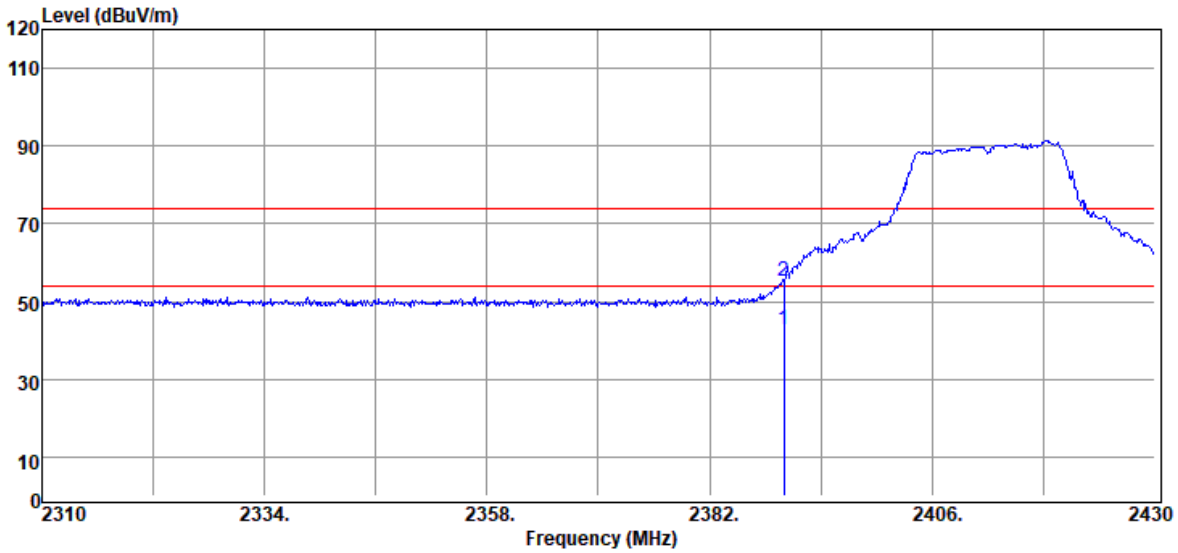
Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	40.20	-2.83	37.37	54.00	-16.63
2483.50	Peak	53.86	-2.83	51.03	74.00	-22.97
2526.00	Average	40.17	-2.53	37.64	54.00	-16.36
2526.00	Peak	54.36	-2.53	51.83	74.00	-22.17

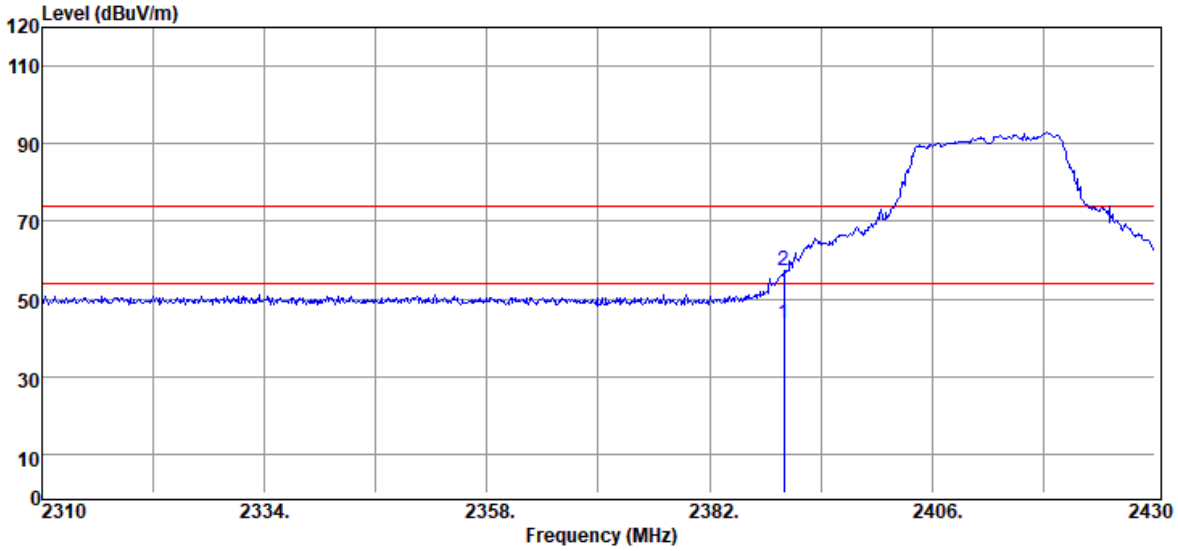
Radiated Band Edge Measurement Result (802.11g)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



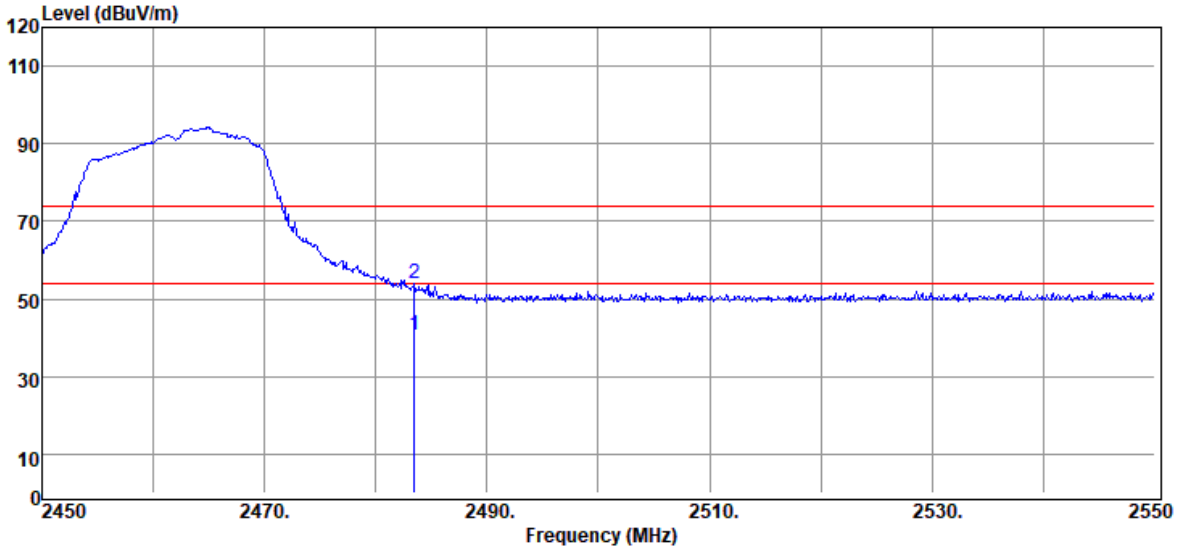
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	45.95	-3.38	42.57	54.00	-11.43
2390.00	Peak	58.56	-3.38	55.18	74.00	-18.82

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



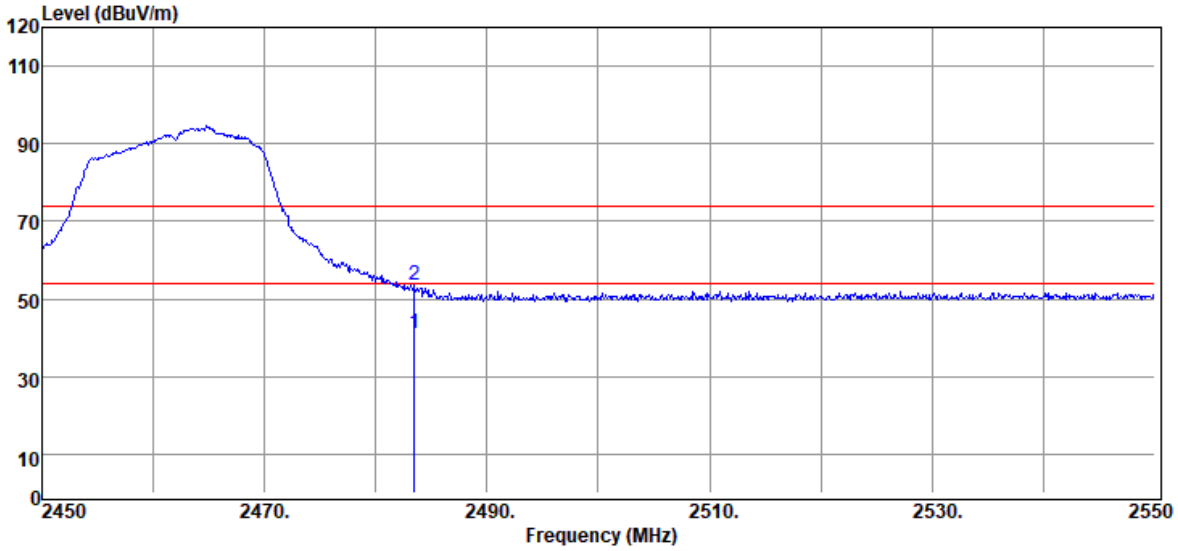
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	46.94	-3.38	43.56	54.00	-10.44
2390.00	Peak	60.80	-3.38	57.42	74.00	-16.58

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	43.61	-2.83	40.78	54.00	-13.22
2483.50	Peak	56.75	-2.83	53.92	74.00	-20.08

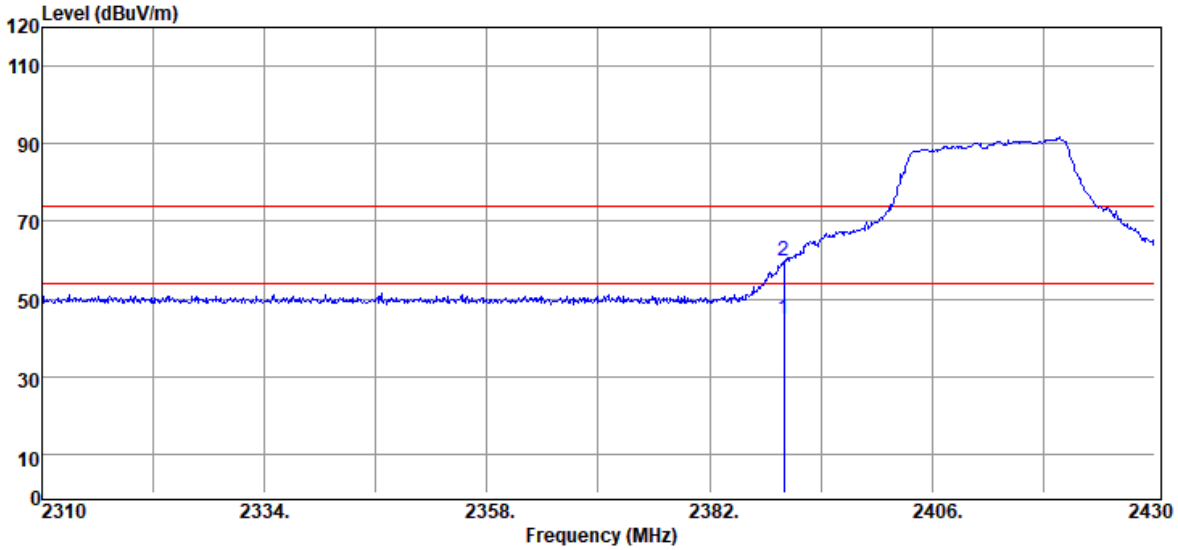
Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	44.07	-2.83	41.24	54.00	-12.76
2483.50	Peak	56.29	-2.83	53.46	74.00	-20.54

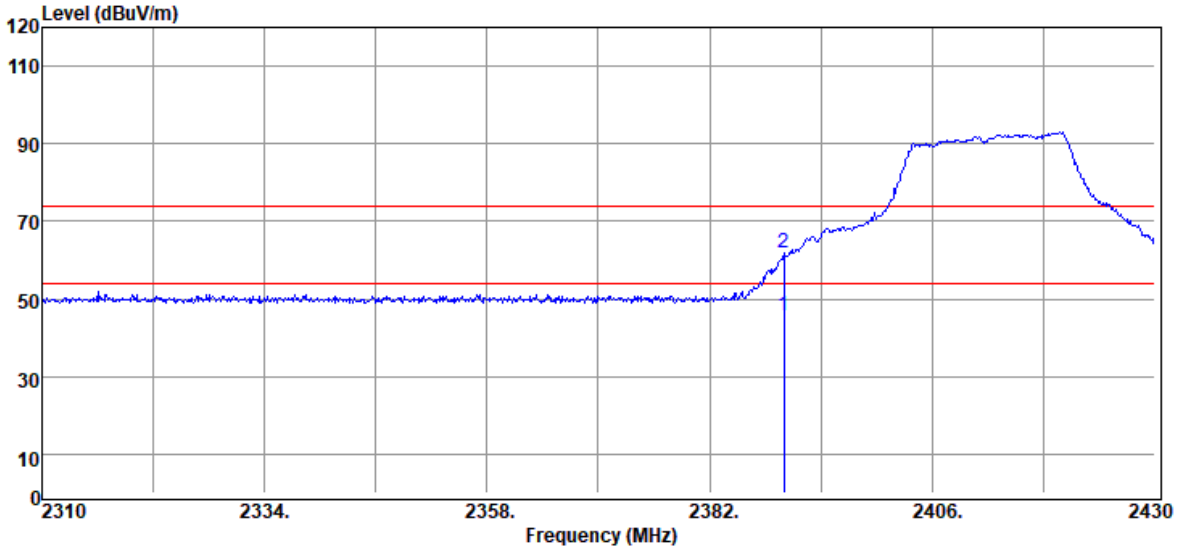
Radiated Band Edge Measurement Result (802.11_HT20)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



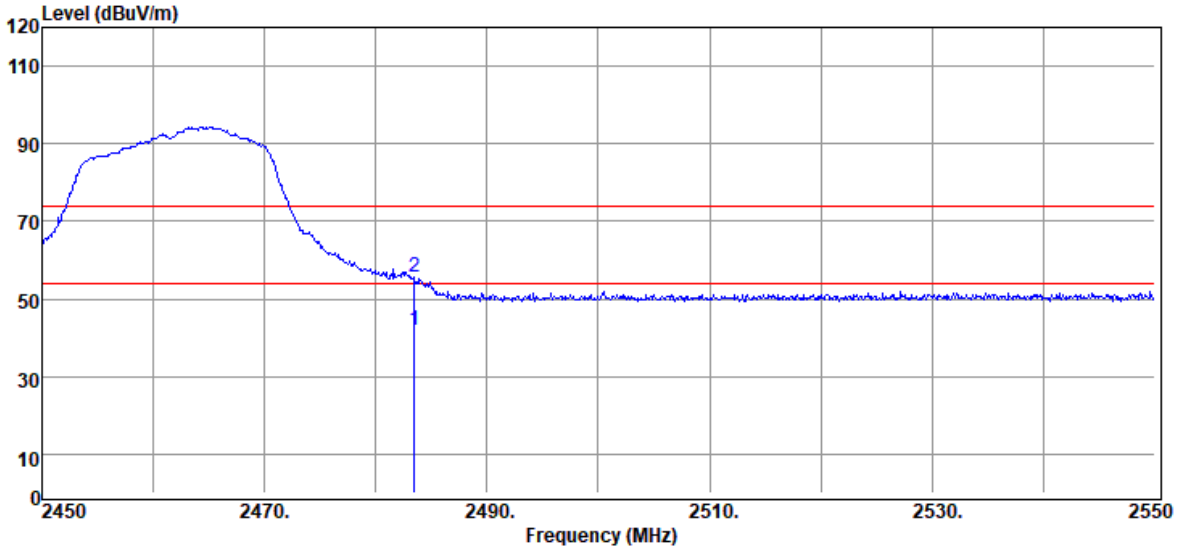
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	48.05	-3.38	44.67	54.00	-9.33
2390.00	Peak	63.04	-3.38	59.66	74.00	-14.34

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



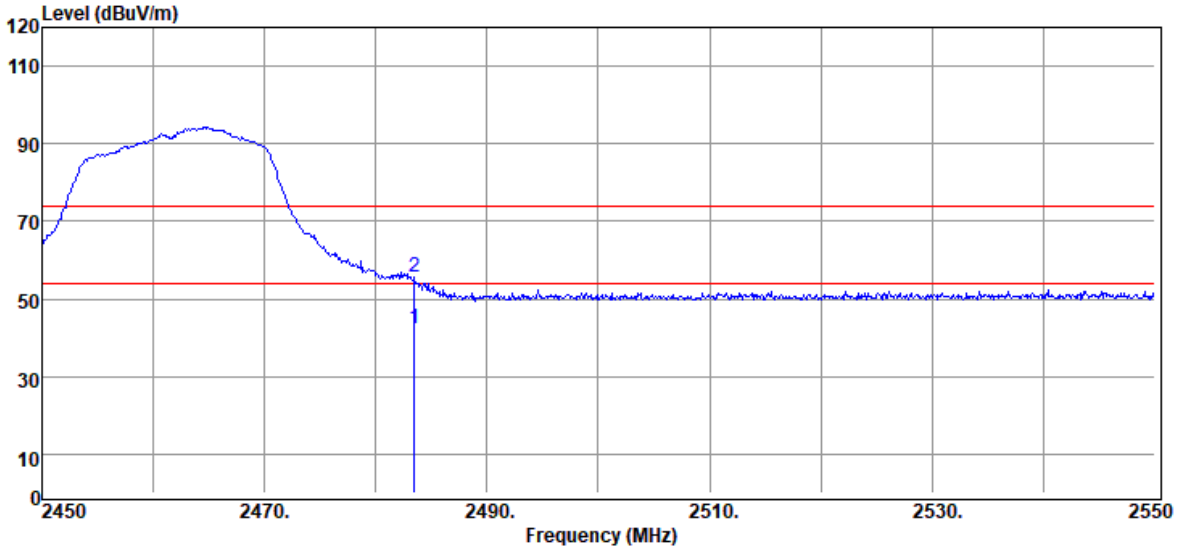
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	48.86	-3.38	45.48	54.00	-8.52
2390.00	Peak	65.22	-3.38	61.84	74.00	-12.16

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	44.95	-2.83	42.12	54.00	-11.88
2483.50	Peak	58.43	-2.83	55.60	74.00	-18.40

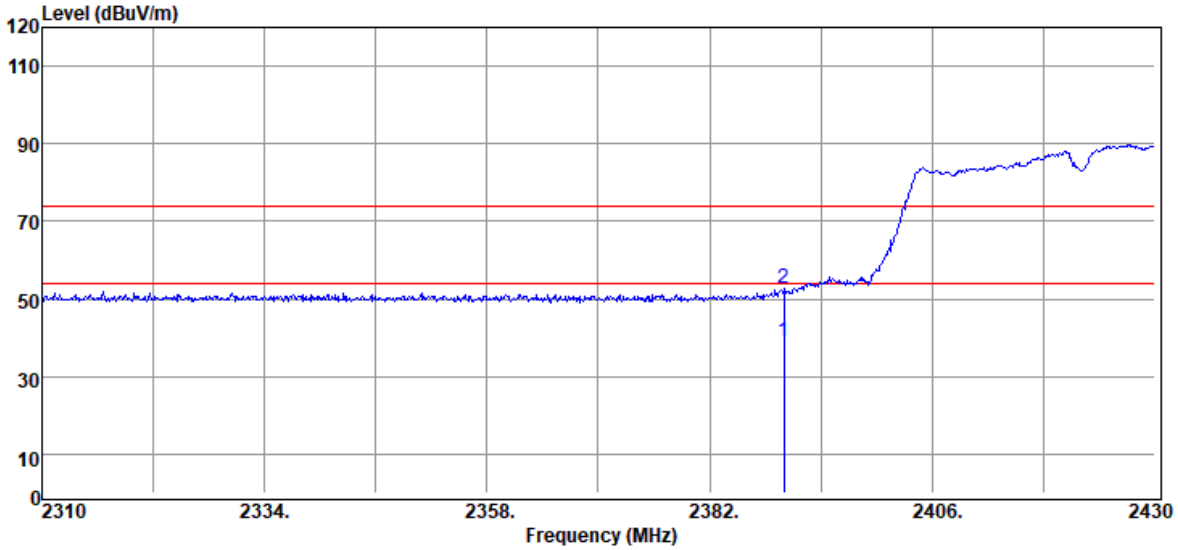
Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	45.26	-2.83	42.43	54.00	-11.57
2483.50	Peak	58.30	-2.83	55.47	74.00	-18.53

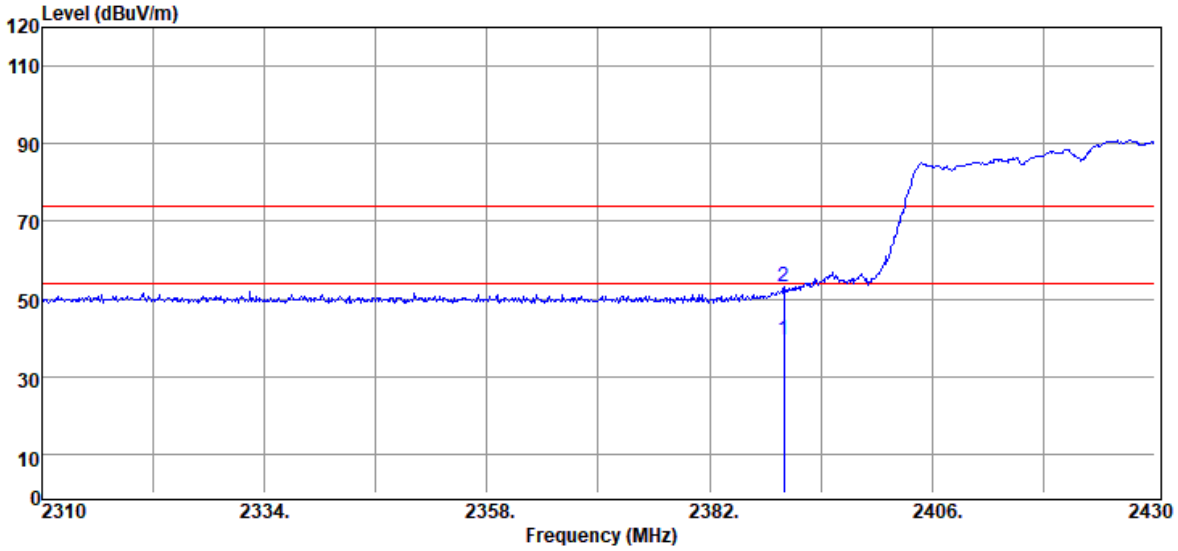
Radiated Band Edge Measurement Result (802.11_HT40)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.1/52
Frequency	:2422 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



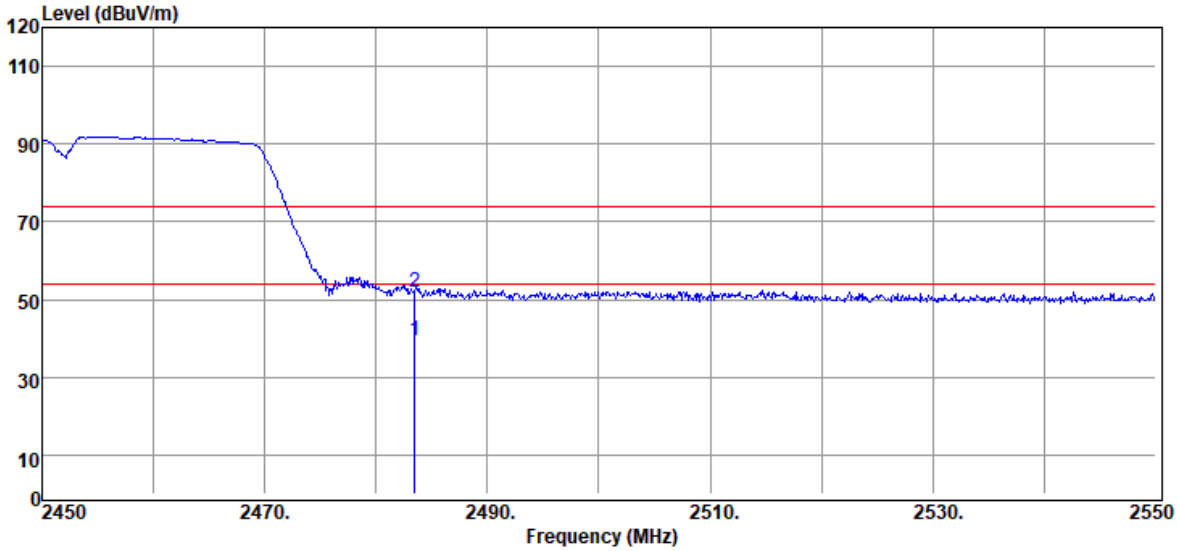
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	42.32	-3.38	38.94	54.00	-15.06
2390.00	Peak	56.20	-3.38	52.82	74.00	-21.18

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.1/52
Frequency	:2422 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



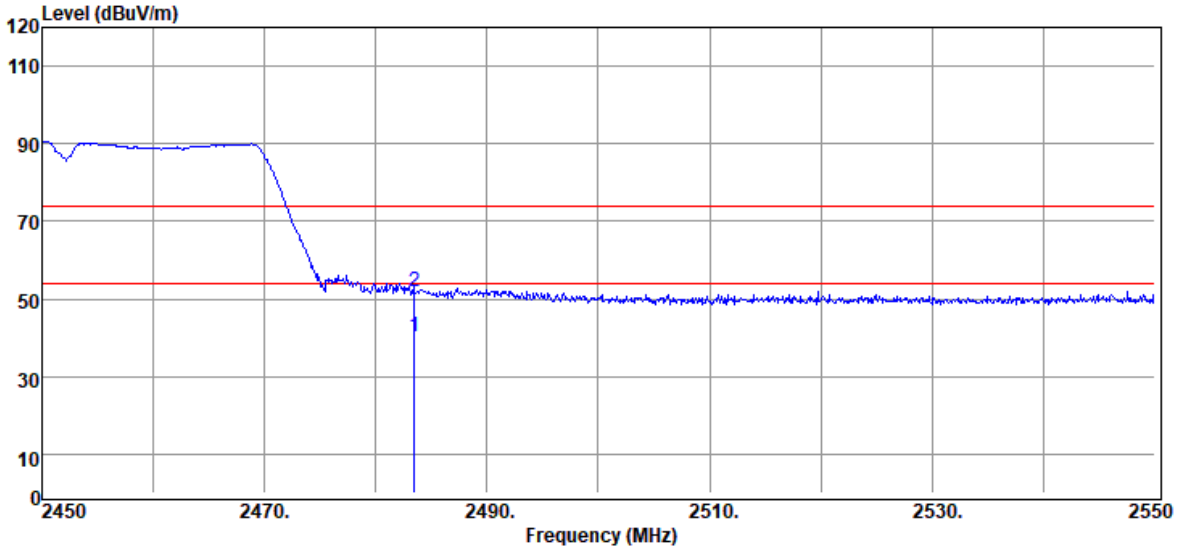
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2390.00	Average	42.76	-3.38	39.38	54.00	-14.62
2390.00	Peak	56.68	-3.38	53.30	74.00	-20.70

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.1/52
Frequency	:2452 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	42.11	-2.83	39.28	54.00	-14.72
2483.50	Peak	54.77	-2.83	51.94	74.00	-22.06

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.1/52
Frequency	:2452 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:BE CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		

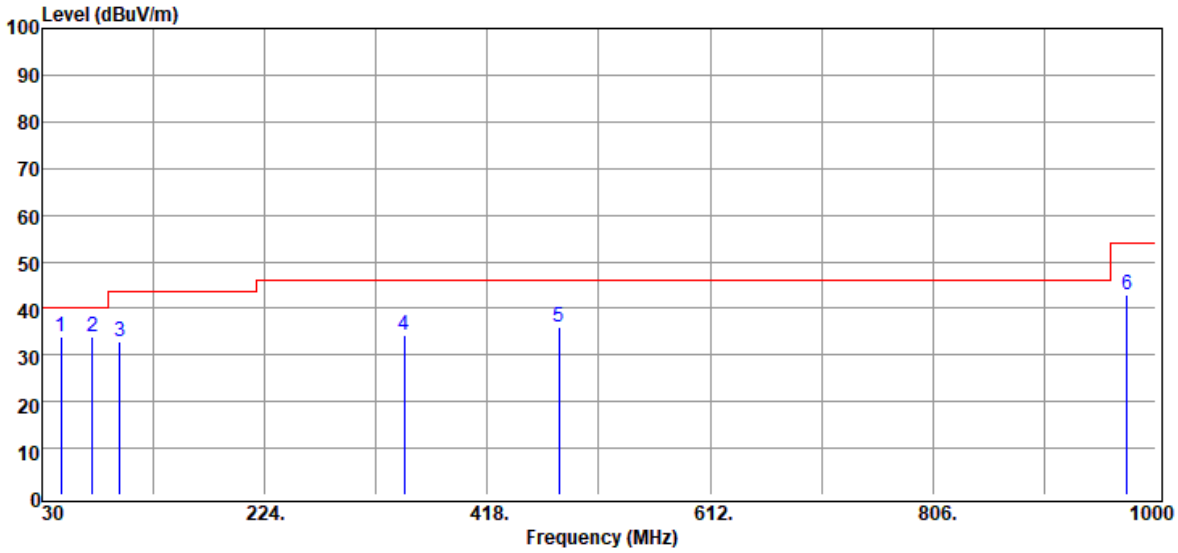


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
2483.50	Average	43.26	-2.83	40.43	54.00	-13.57
2483.50	Peak	54.62	-2.83	51.79	74.00	-22.21

Below 1GHz Worst-Case Data:

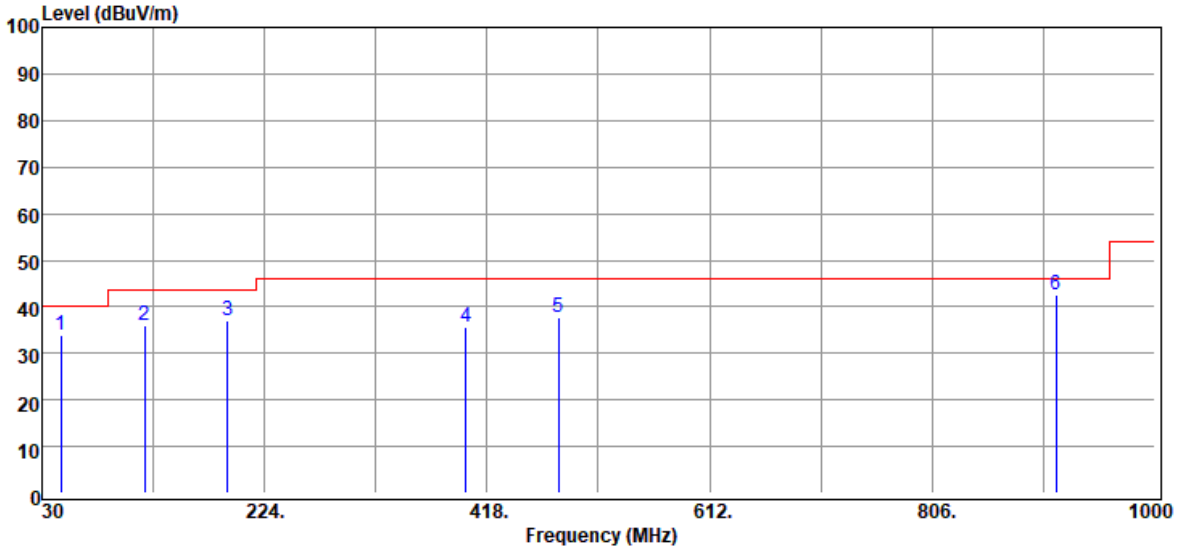
Radiated Spurious Emission Measurement Result (802.11 g)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
46.49	Peak	47.59	-13.77	33.82	40.00	-6.18
73.65	Peak	48.93	-14.96	33.97	40.00	-6.03
97.90	Peak	46.17	-13.24	32.93	43.50	-10.57
345.25	Peak	41.40	-7.12	34.28	46.00	-11.72
480.08	Peak	38.93	-2.98	35.95	46.00	-10.05
974.78	Peak	37.32	5.61	42.93	54.00	-11.07

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		

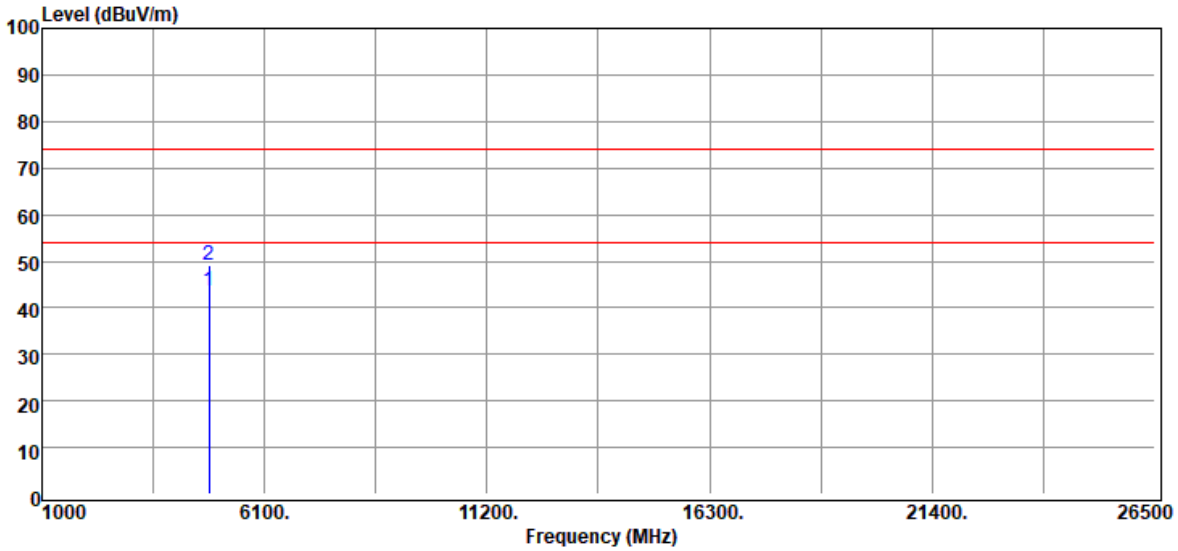


Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
46.49	Peak	47.63	-13.77	33.86	40.00	-6.14
119.24	Peak	44.90	-8.94	35.96	43.50	-7.54
191.99	Peak	47.42	-10.55	36.87	43.50	-6.63
399.57	Peak	41.32	-5.65	35.67	46.00	-10.33
480.08	Peak	40.57	-2.98	37.59	46.00	-8.41
913.67	Peak	38.51	3.90	42.41	46.00	-3.59

Above 1GHz Data:

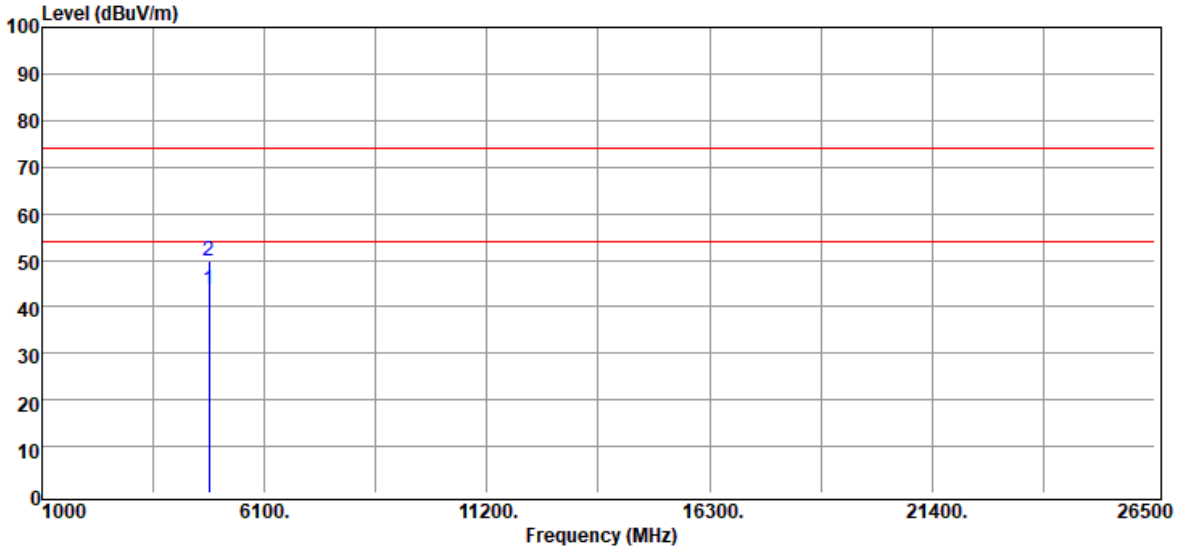
Radiated Spurious Emission Measurement Result (802.11 b)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



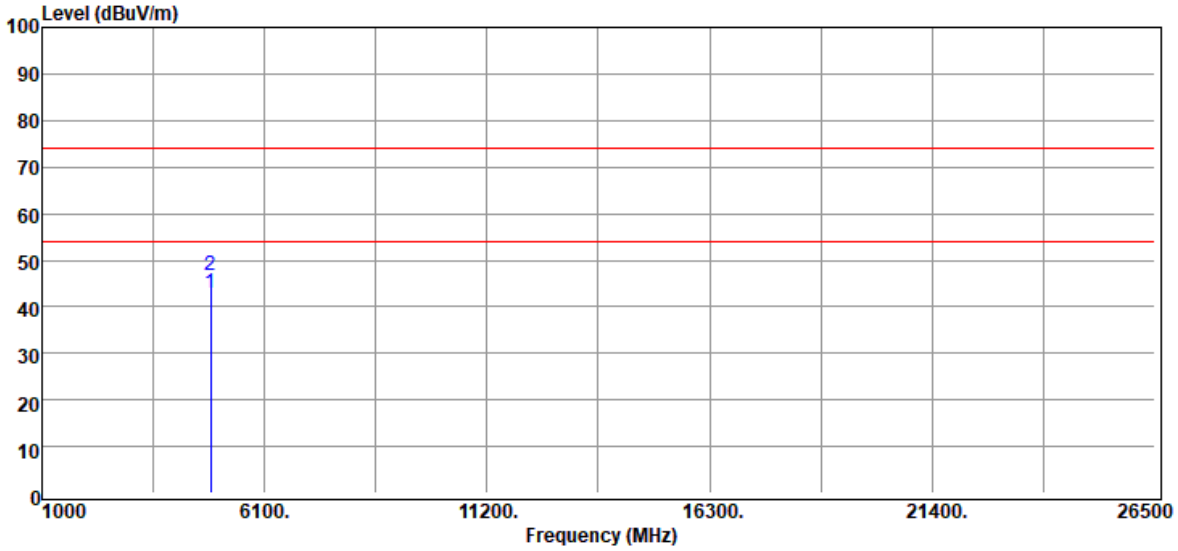
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4824.00	Average	40.78	2.84	43.62	54.00	-10.38
4824.00	Peak	46.22	2.84	49.06	74.00	-24.94

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



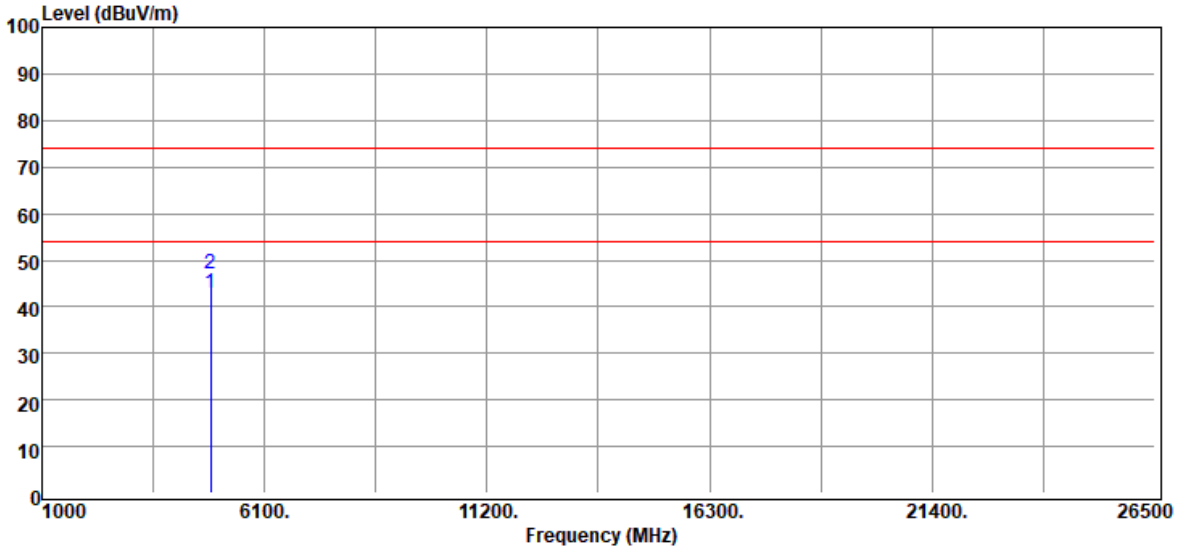
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4824.00	Average	40.65	2.84	43.49	54.00	-10.51
4824.00	Peak	46.95	2.84	49.79	74.00	-24.21

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2437 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



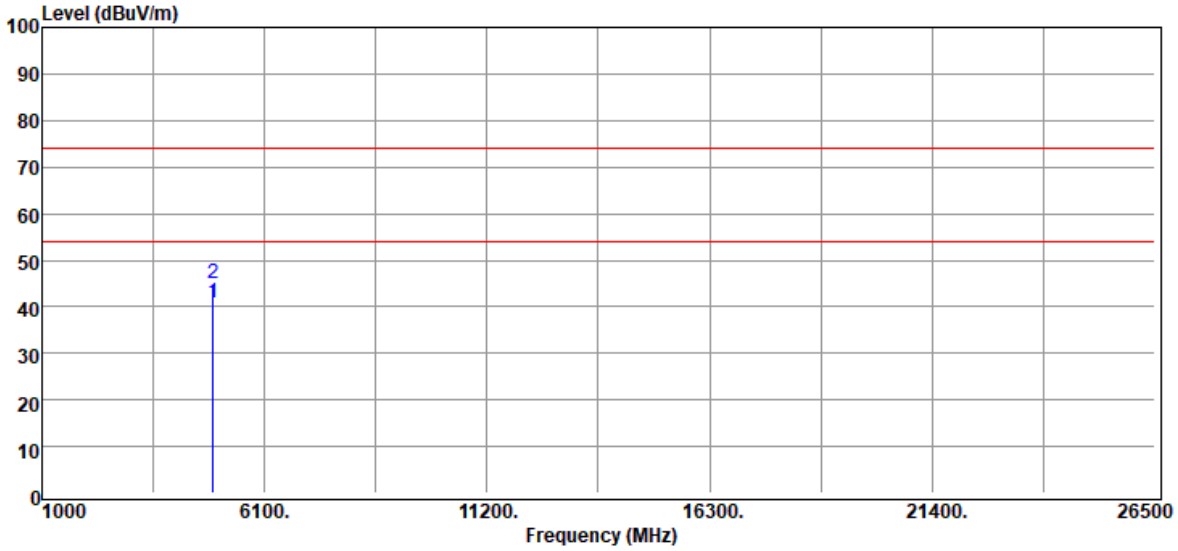
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	39.80	2.98	42.78	54.00	-11.22
4874.00	Peak	43.63	2.98	46.61	74.00	-27.39

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2437 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



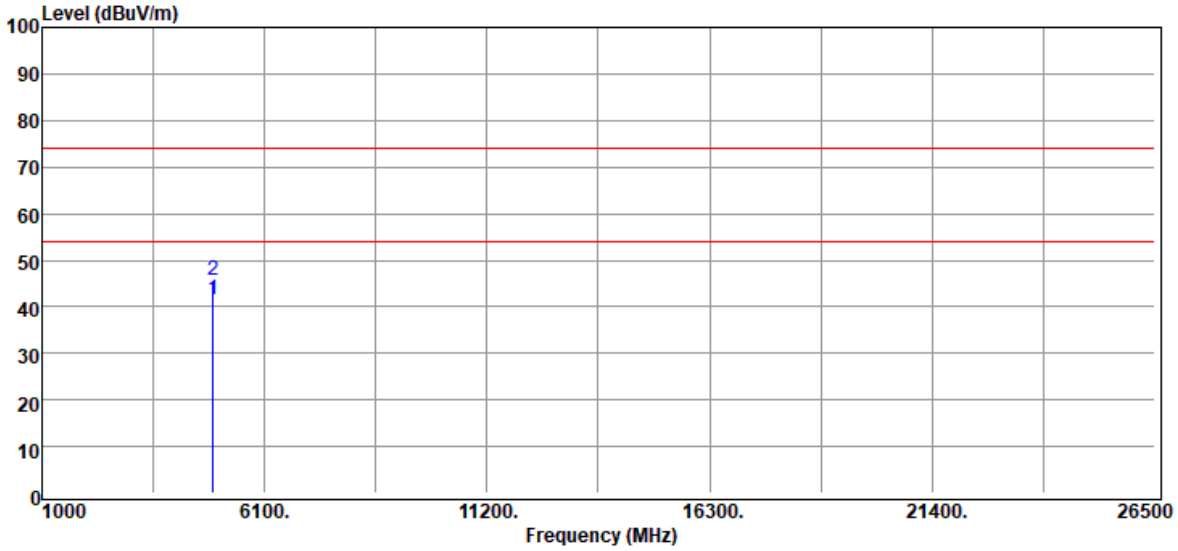
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	40.08	2.98	43.06	54.00	-10.94
4874.00	Peak	44.09	2.98	47.07	74.00	-26.93

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	37.26	3.46	40.72	54.00	-13.28
4924.00	Peak	41.59	3.46	45.05	74.00	-28.95

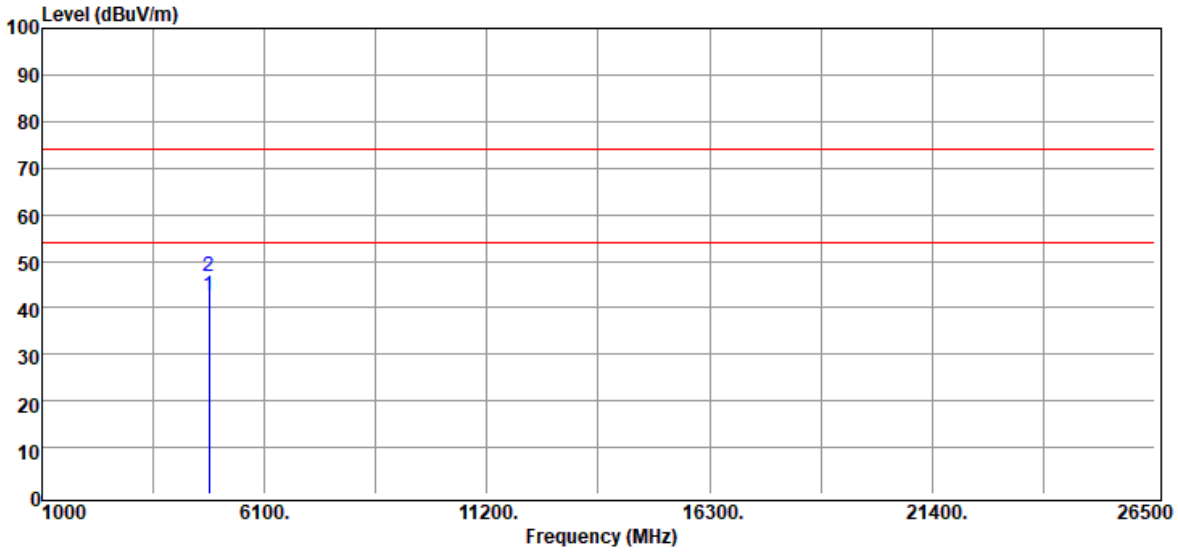
Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11b	Temp./Humi.	:26.1/52
Frequency	:2462 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	38.05	3.46	41.51	54.00	-12.49
4924.00	Peak	42.35	3.46	45.81	74.00	-28.19

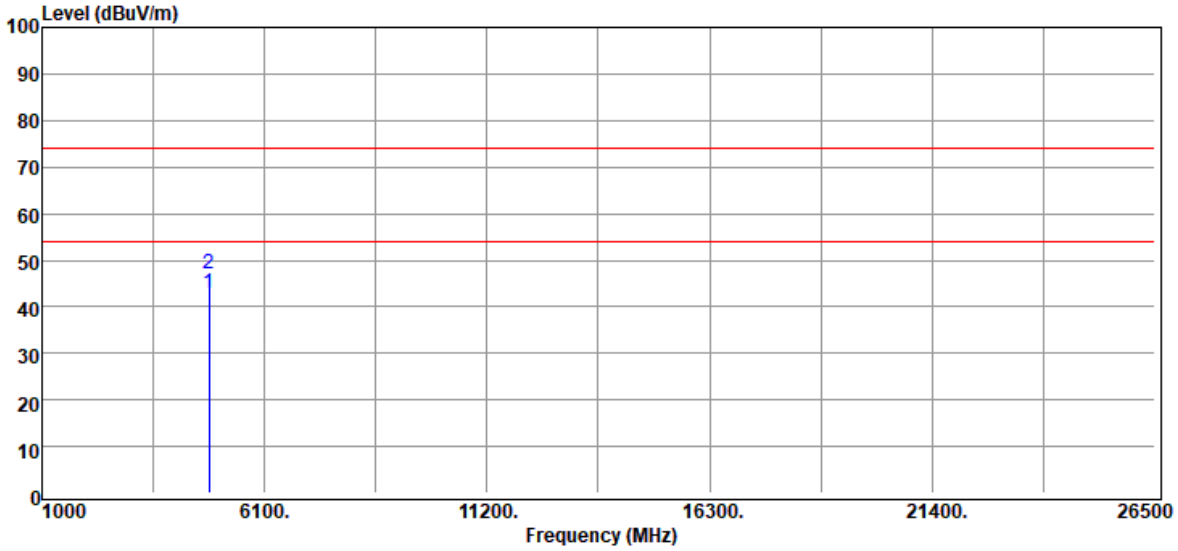
Radiated Spurious Emission Measurement Result (802.11 g)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



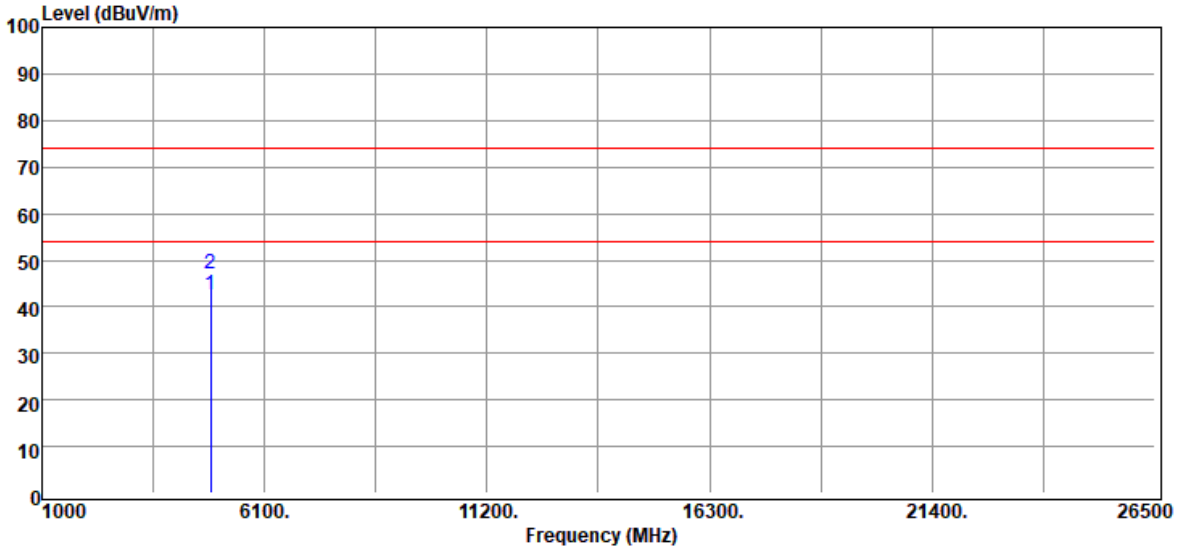
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4824.00	Average	39.89	2.84	42.73	54.00	-11.27
4824.00	Peak	43.95	2.84	46.79	74.00	-27.21

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



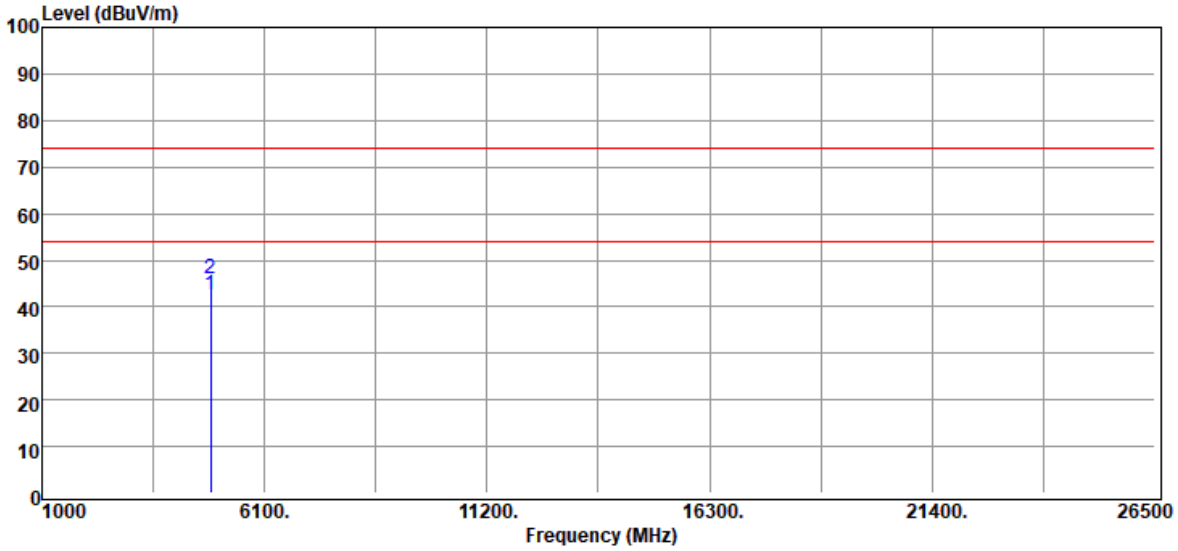
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4824.00	Average	40.02	2.84	42.86	54.00	-11.14
4824.00	Peak	44.31	2.84	47.15	74.00	-26.85

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



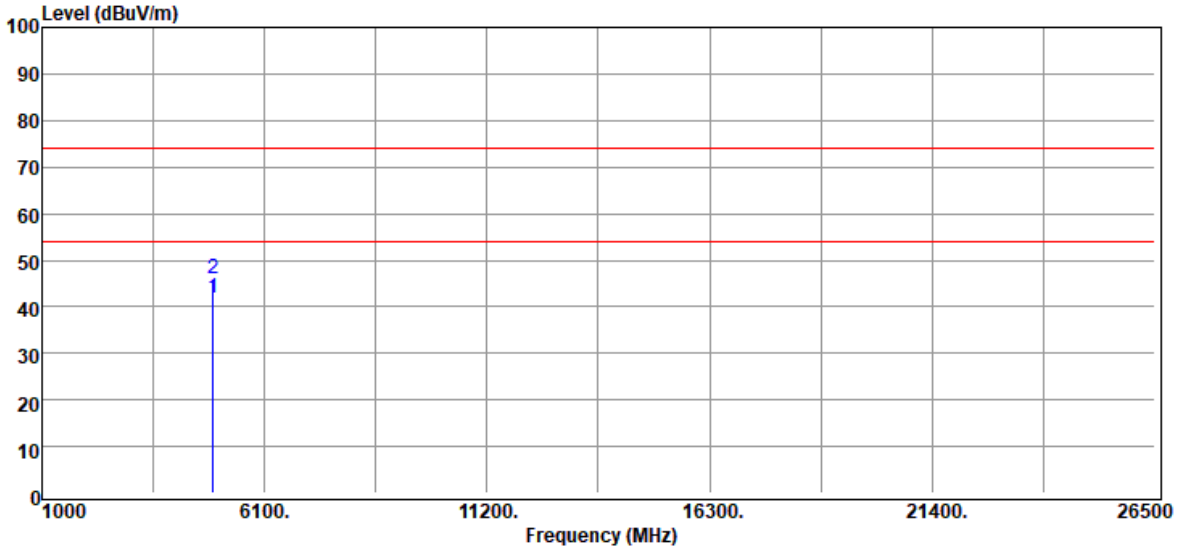
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	39.63	2.98	42.61	54.00	-11.39
4874.00	Peak	43.92	2.98	46.90	74.00	-27.10

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



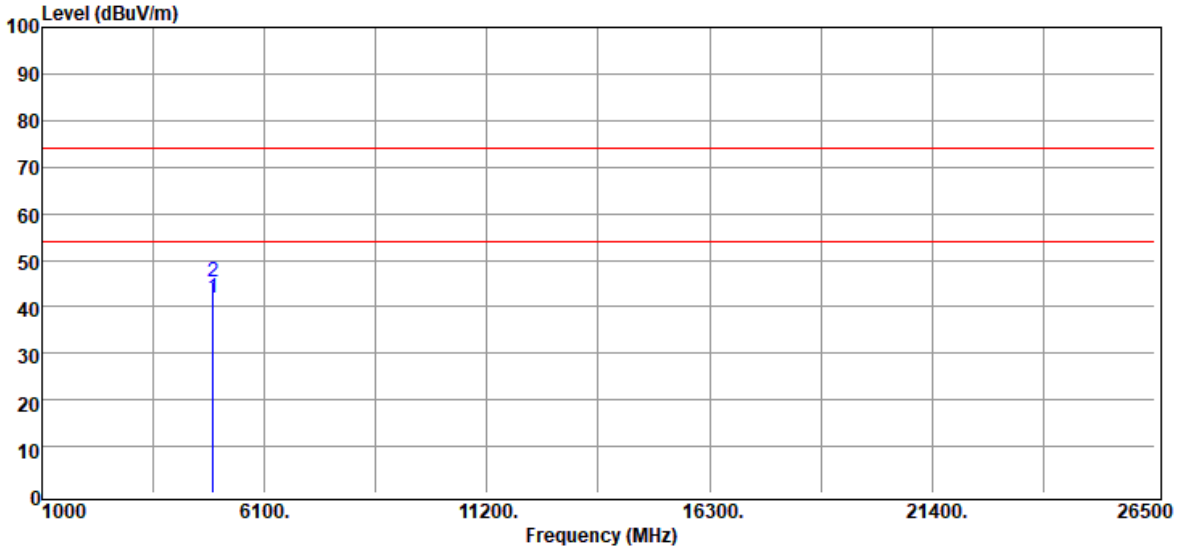
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	39.45	2.98	42.43	54.00	-11.57
4874.00	Peak	43.07	2.98	46.05	74.00	-27.95

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	38.49	3.46	41.95	54.00	-12.05
4924.00	Peak	42.59	3.46	46.05	74.00	-27.95

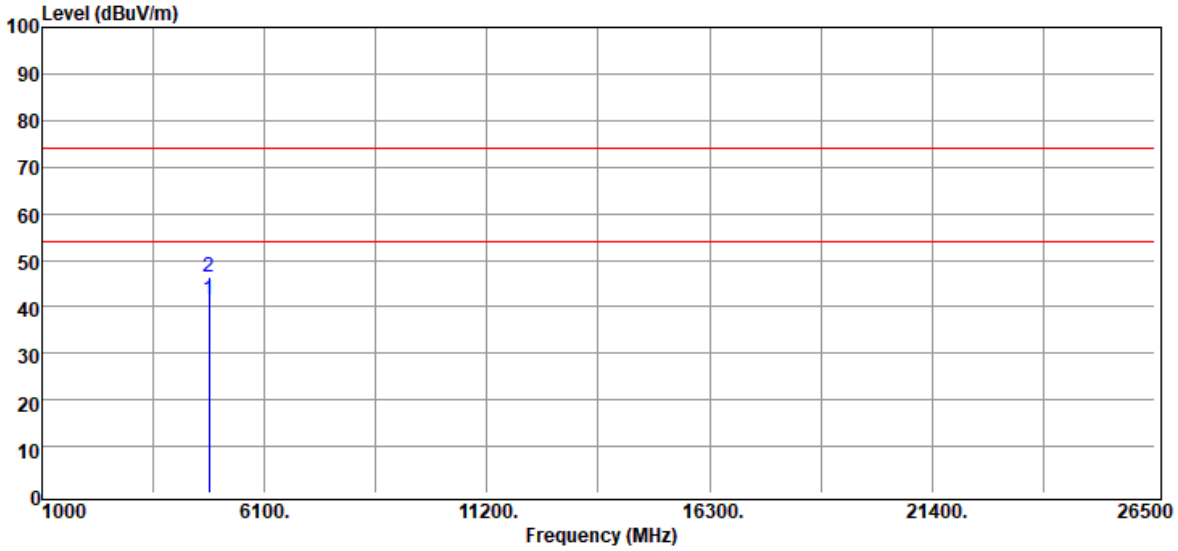
Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11g	Temp./Humi.	:26.2/51
Frequency	:2462 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	38.46	3.46	41.92	54.00	-12.08
4924.00	Peak	42.03	3.46	45.49	74.00	-28.51

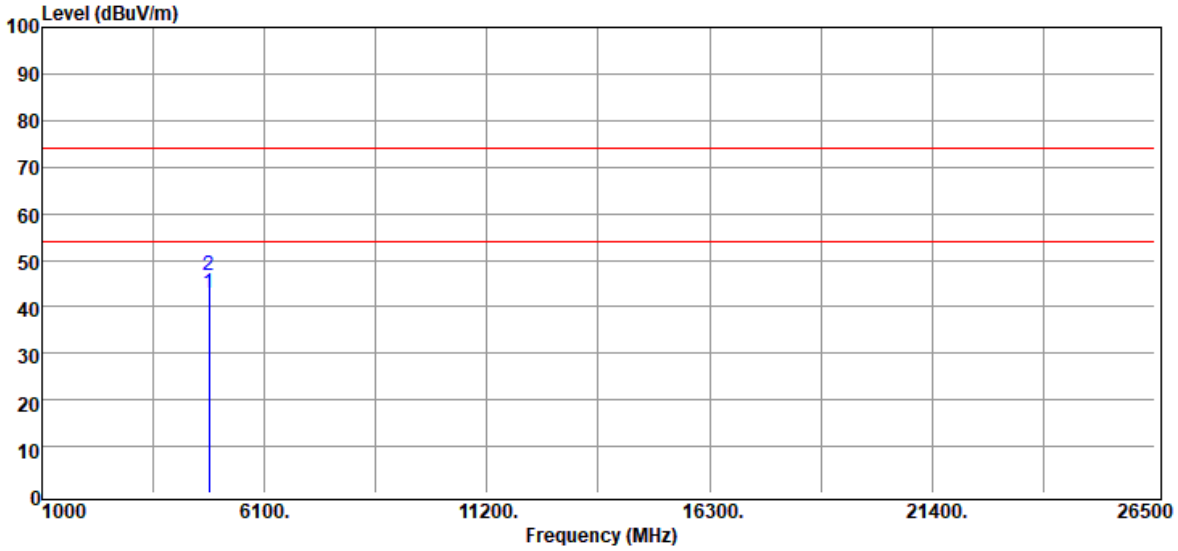
Radiated Spurious Emission Measurement Result (802.11n_HT20)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.2/51
Frequency	:2412 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



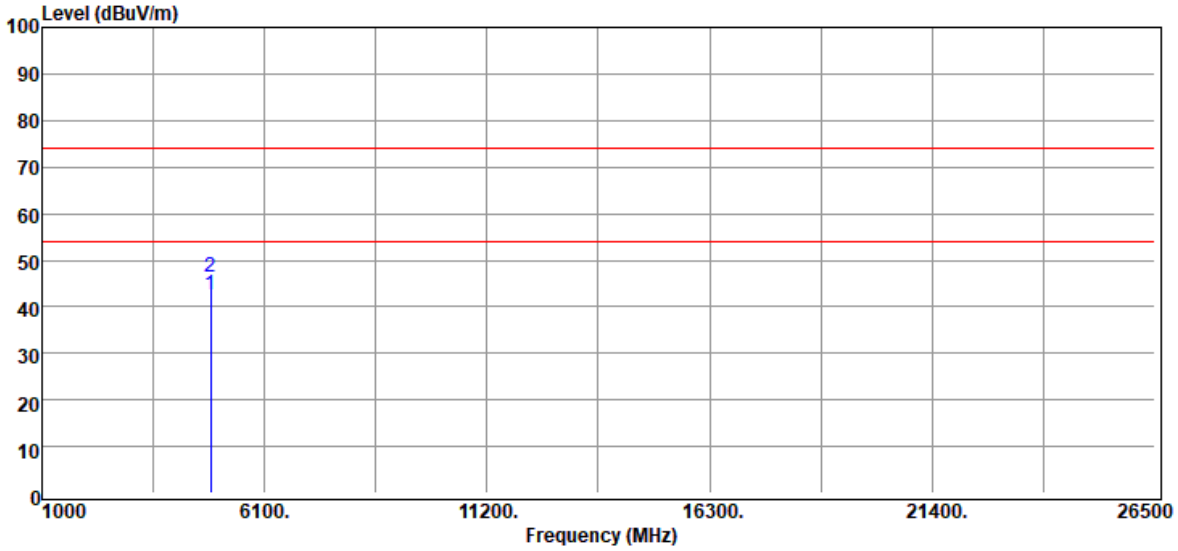
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4824.00	Average	38.68	2.84	41.52	54.00	-12.48
4824.00	Peak	43.40	2.84	46.24	74.00	-27.76

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.2/51
Frequency	:2412 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



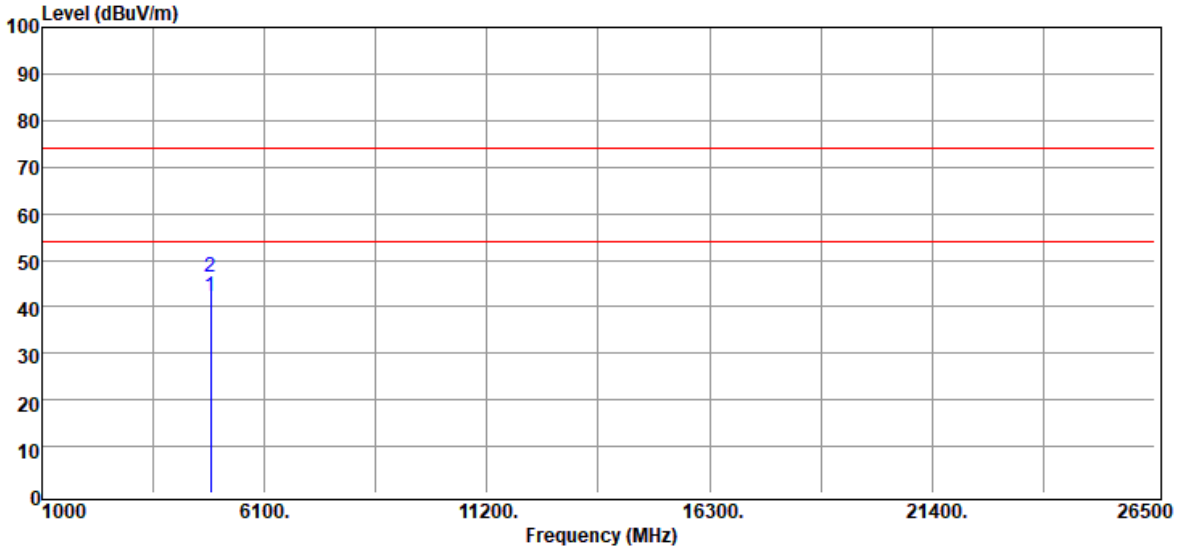
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4824.00	Average	40.16	2.84	43.00	54.00	-11.00
4824.00	Peak	44.00	2.84	46.84	74.00	-27.16

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



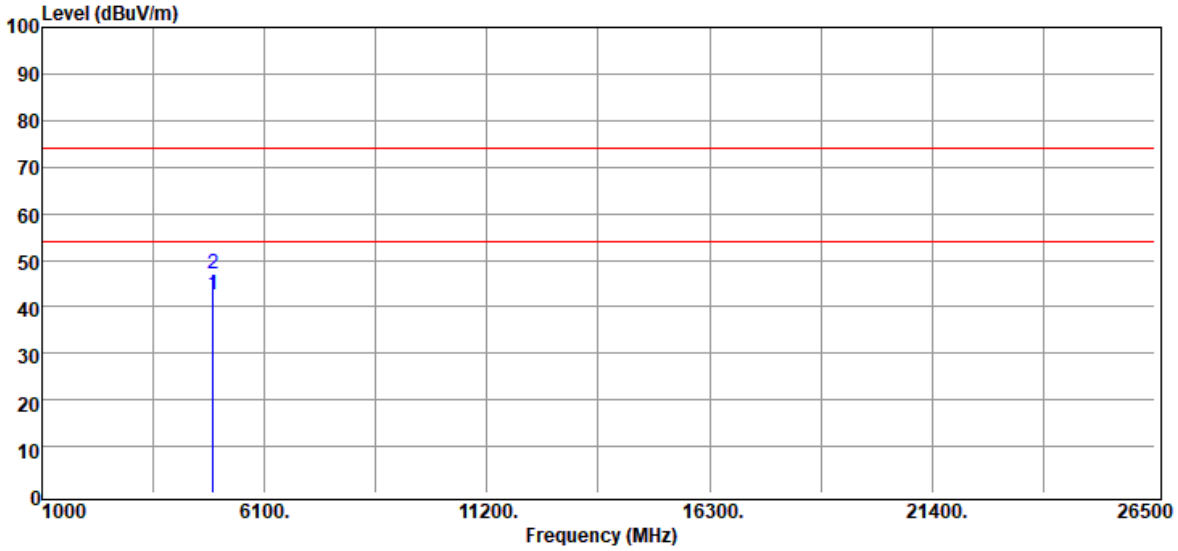
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	39.47	2.98	42.45	54.00	-11.55
4874.00	Peak	43.54	2.98	46.52	74.00	-27.48

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



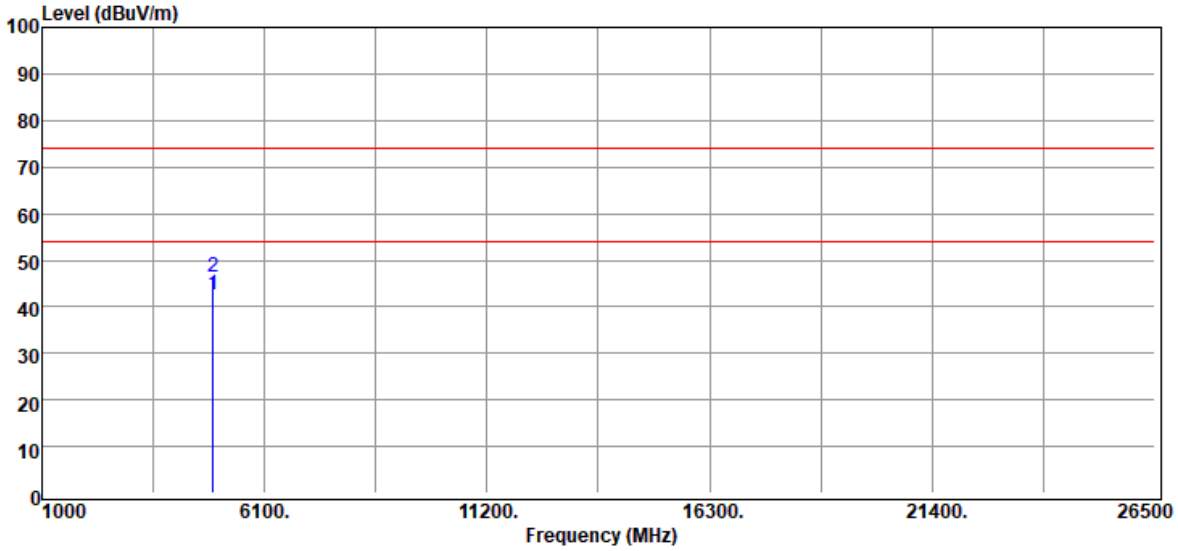
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	39.27	2.98	42.25	54.00	-11.75
4874.00	Peak	43.51	2.98	46.49	74.00	-27.51

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.2/51
Frequency	:2462 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	38.97	3.46	42.43	54.00	-11.57
4924.00	Peak	43.55	3.46	47.01	74.00	-26.99

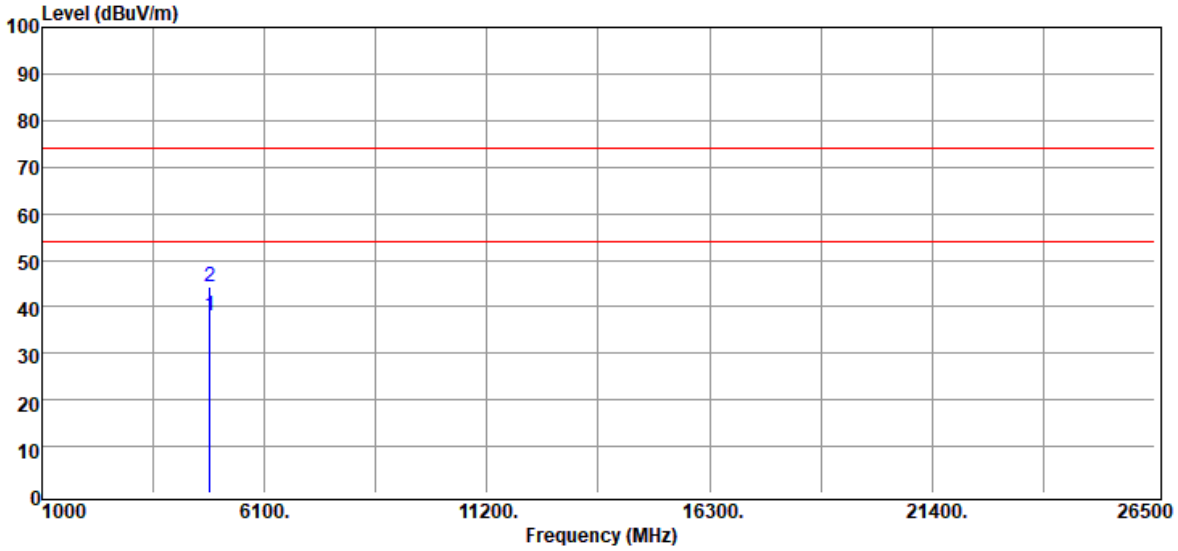
Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n20	Temp./Humi.	:26.2/51
Frequency	:2462 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4924.00	Average	39.12	3.46	42.58	54.00	-11.42
4924.00	Peak	42.95	3.46	46.41	74.00	-27.59

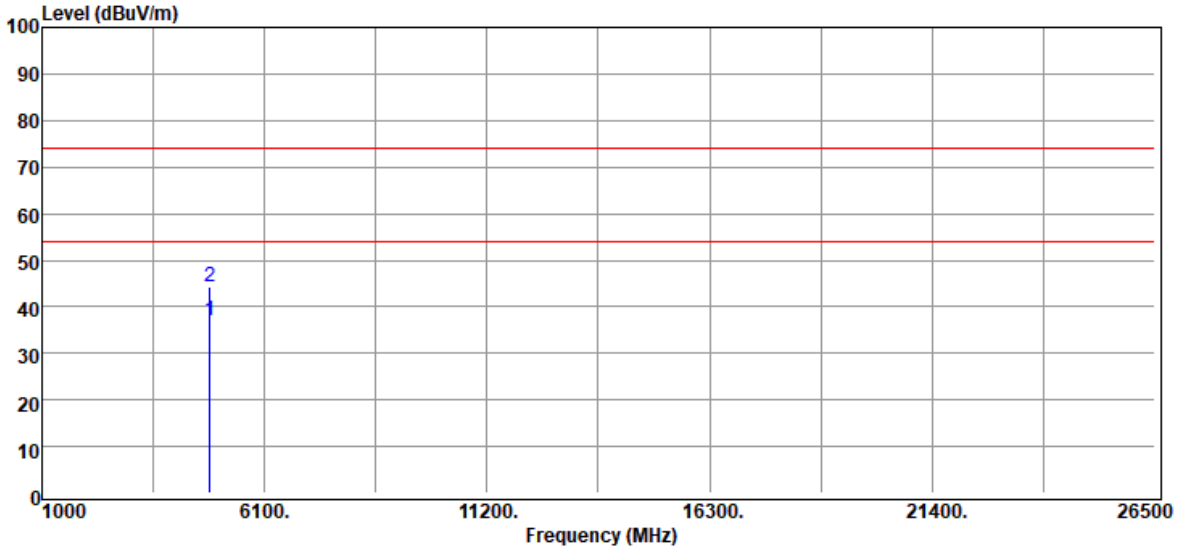
Radiated Spurious Emission Measurement Result (802.11n_HT40)

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.2/51
Frequency	:2422 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



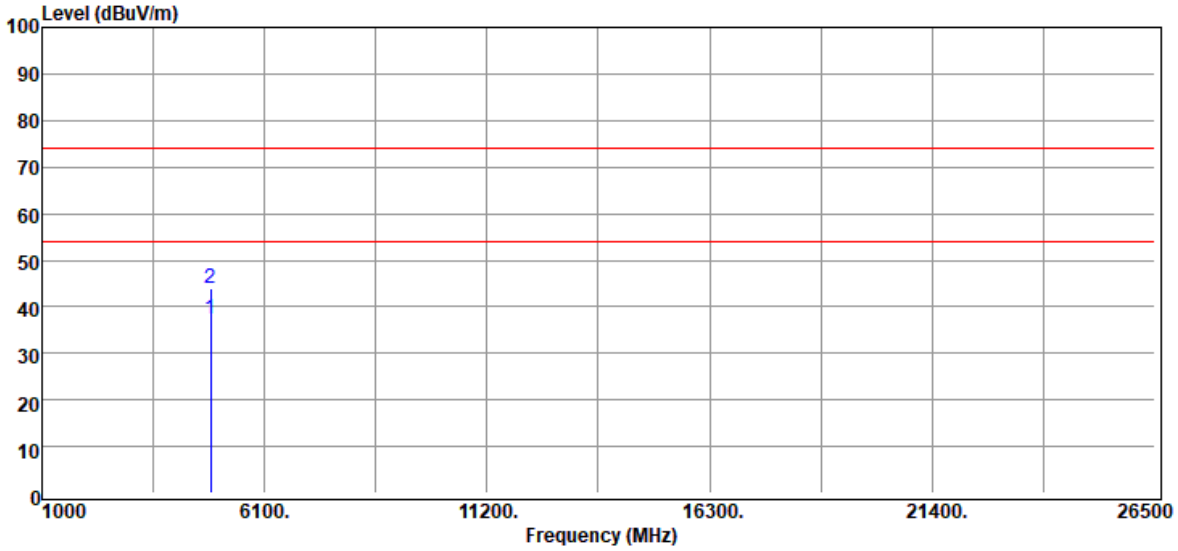
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4844.00	Average	35.16	2.84	38.00	54.00	-16.00
4844.00	Peak	41.62	2.84	44.46	74.00	-29.54

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.2/51
Frequency	:2422 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH LOW	Engineer	:Kailin
EUT Pol.	:H Plan		



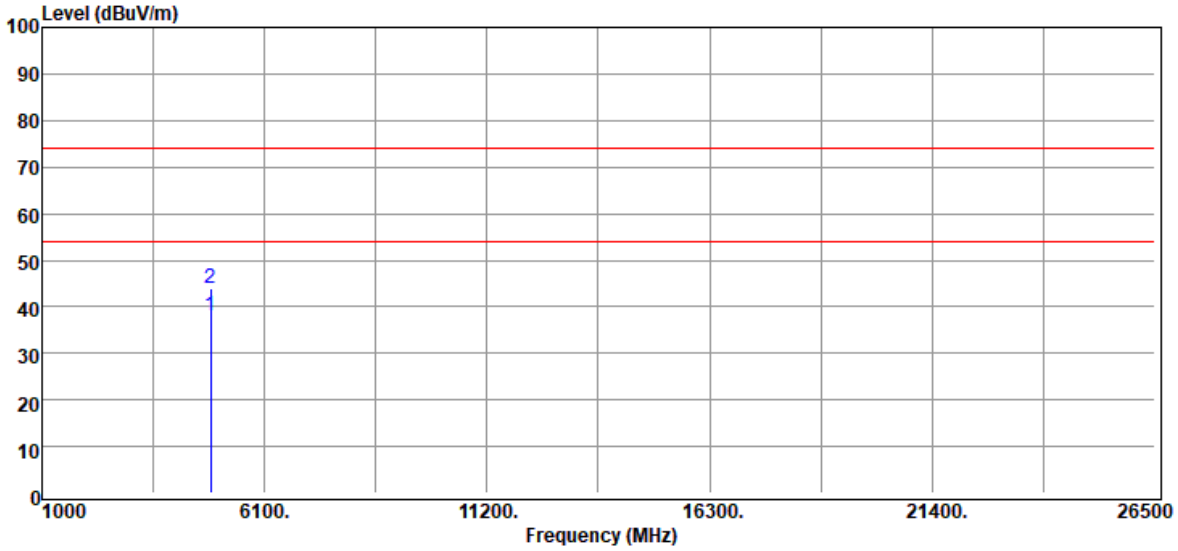
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4844.00	Average	34.27	2.84	37.11	54.00	-16.89
4844.00	Peak	41.38	2.84	44.22	74.00	-29.78

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



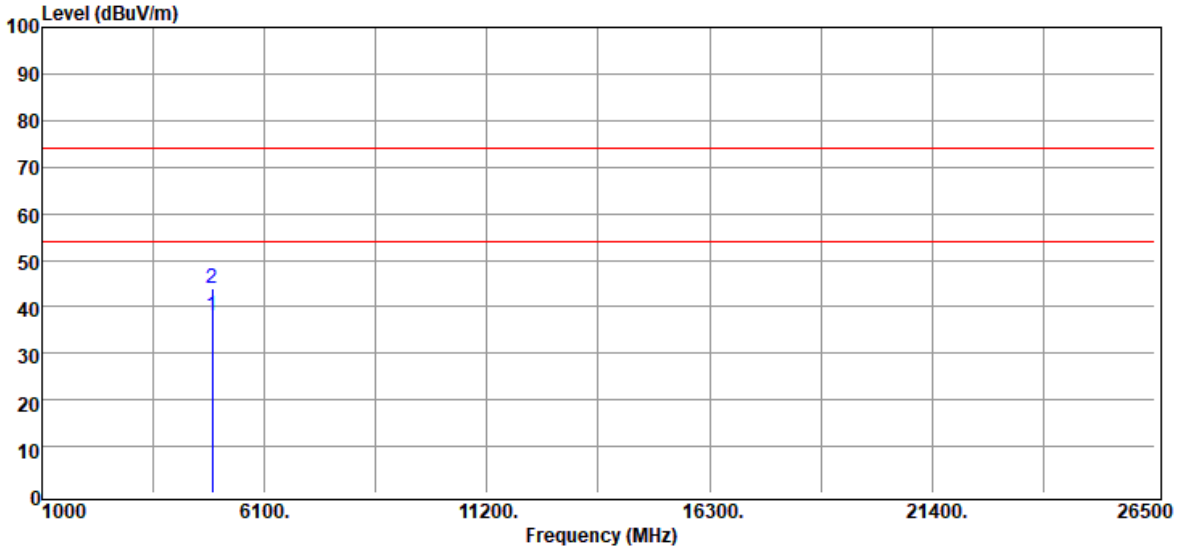
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	34.27	2.98	37.25	54.00	-16.75
4874.00	Peak	40.83	2.98	43.81	74.00	-30.19

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.2/51
Frequency	:2437 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH MID	Engineer	:Kailin
EUT Pol.	:H Plan		



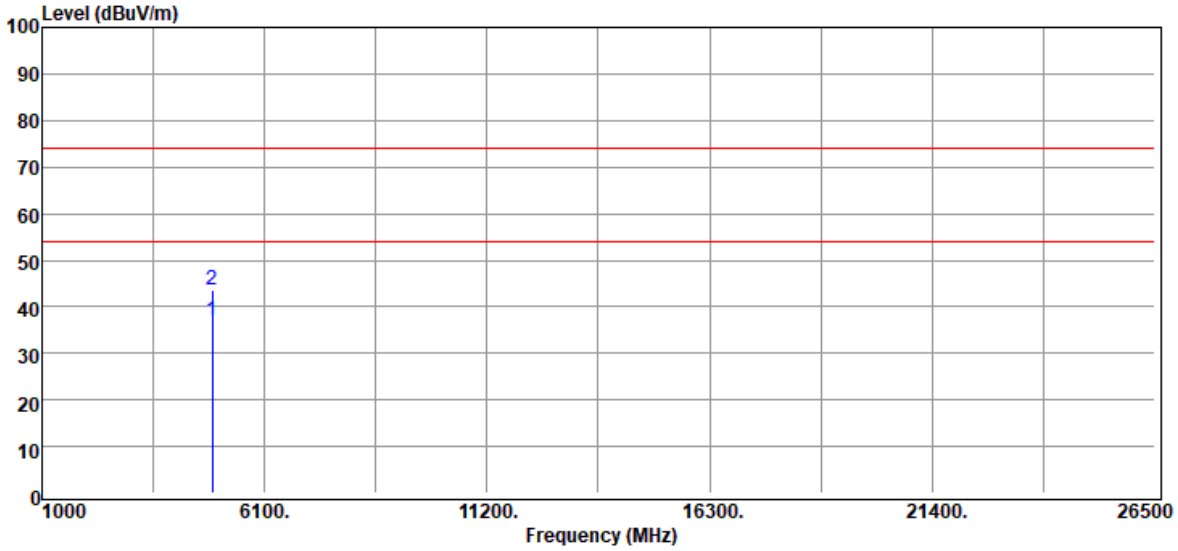
Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4874.00	Average	35.04	2.98	38.02	54.00	-15.98
4874.00	Peak	40.96	2.98	43.94	74.00	-30.06

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.2/51
Frequency	:2452 MHz	Antenna Pol.	:VERTICAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4904.00	Average	34.72	3.22	37.94	54.00	-16.06
4904.00	Peak	40.58	3.22	43.80	74.00	-30.20

Report Number	:T1900816W02	Test Date	:2019-08-17
Operation Band	:802.11n40	Temp./Humi.	:26.2/51
Frequency	:2452 MHz	Antenna Pol.	:HORIZONTAL
Operation Mode	:TX CH HIGH	Engineer	:Kailin
EUT Pol.	:H Plan		



Freq.	Detector Mode	Spectrum Reading Level	Factor	Actual FS	Limit @3m	Margin
MHz	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
4904.00	Average	33.94	3.22	37.16	54.00	-16.84
4904.00	Peak	40.47	3.22	43.69	74.00	-30.31

12 MAXIMUM POWER SPECTRAL DENSITY

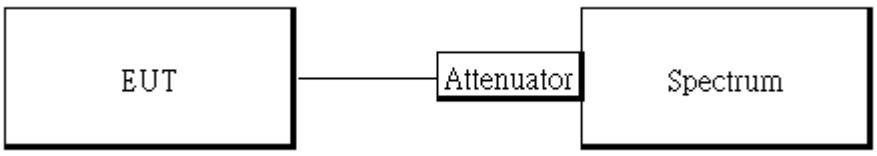
12.1 Standard Applicable

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

12.2 Measurement Equipment Used

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
DC Block	PASTERNACK	PE8210	RF256	02/26/2019	02/25/2020
Spectrum Analyzer	Agilent	N9010A	MY53400256	11/21/2018	11/20/2019
Attenuator	Marvelous	MVE2213-10	RF80	02/26/2019	02/25/2020

12.3 Test Set-up



12.4 Measurement Procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance .
3. Set the span to 1.5 times the DTS channel bandwidth.
4. Set the RBW = 3 kHz. & the VBW = 10 kHz
5. For defining Restricted Band Edge Limit:
   Set the RBW = 100kHz & VBW = 300 kHz.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.

POWER DENSITY 802.11b				POWER DENSITY 802.11g			
Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-5.68	8.00	PASS	2412	-8.04	8.00	PASS
2437	-6.01	8.00	PASS	2437	-7.50	8.00	PASS
2462	-5.86	8.00	PASS	2462	-8.41	8.00	PASS

POWER DENSITY 802.11n HT20				POWER DENSITY 802.11n HT40			
Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result	Freq. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-7.34	8.00	PASS	2422	-11.66	8.00	PASS
2437	-8.05	8.00	PASS	2437	-11.44	8.00	PASS
2462	-6.71	8.00	PASS	2452	-11.49	8.00	PASS

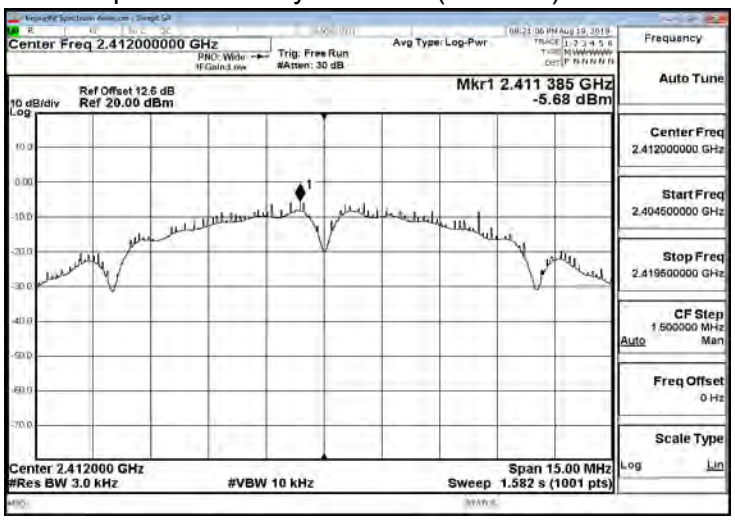
Note

Cable Loss 12.60 dB

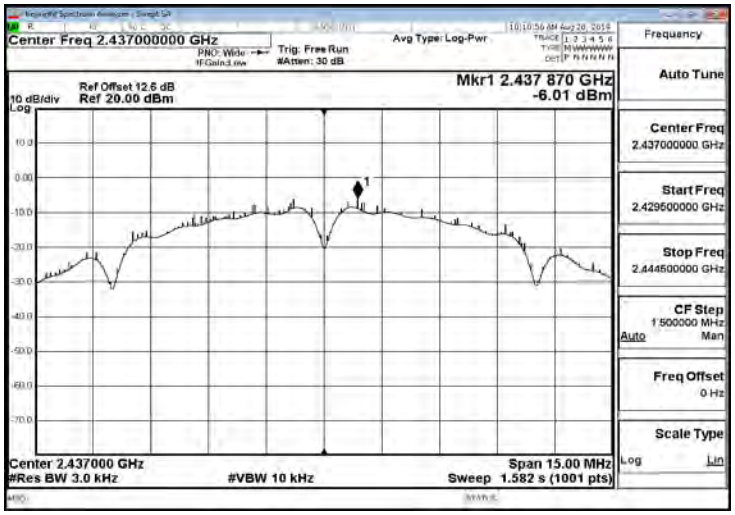
**Refer to next page for plots*

802.11b

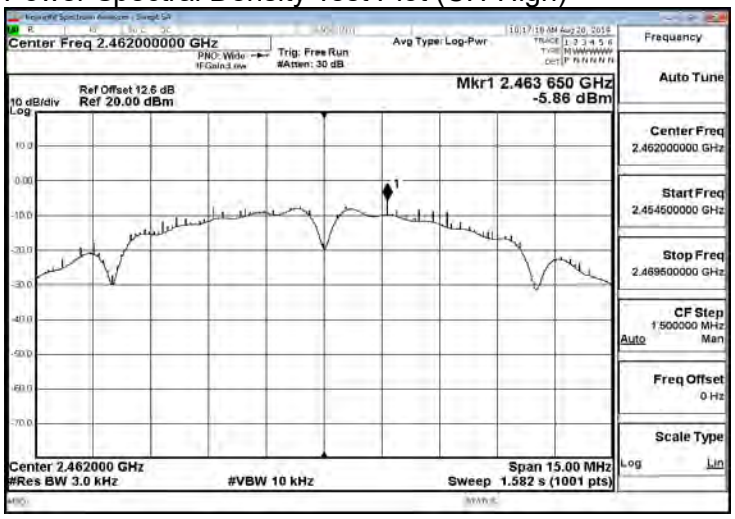
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

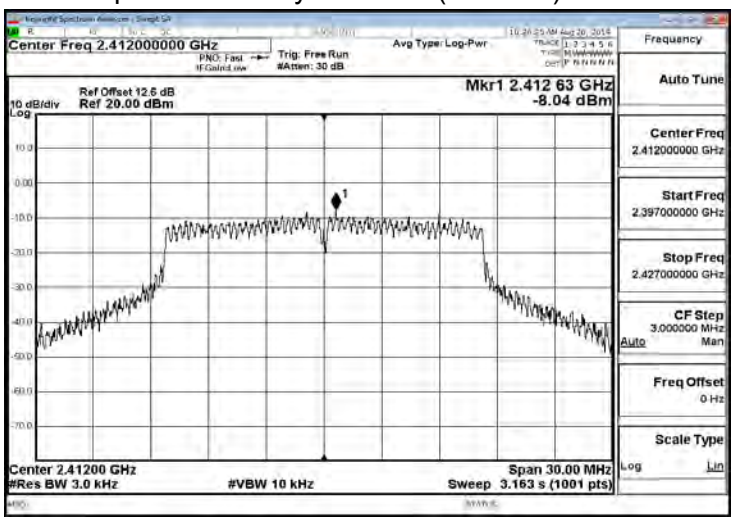


Power Spectral Density Test Plot (CH-High)

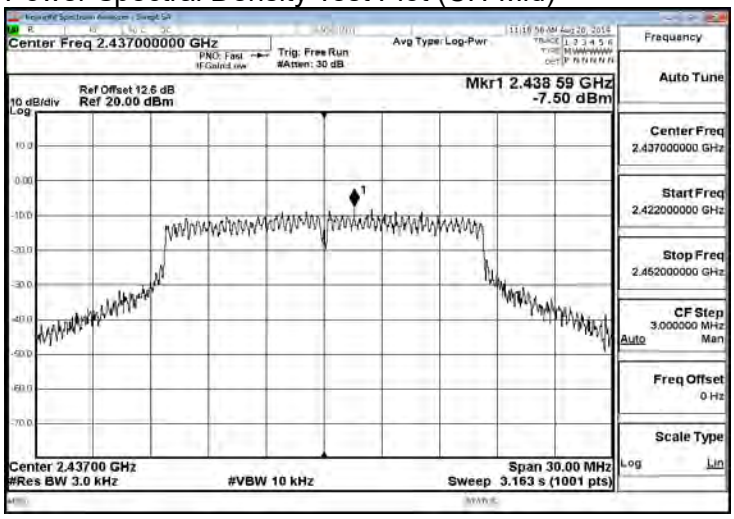


802.11g

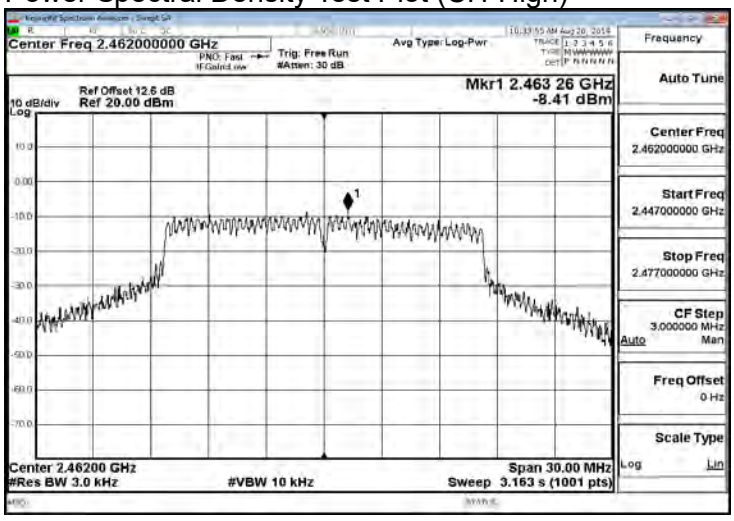
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

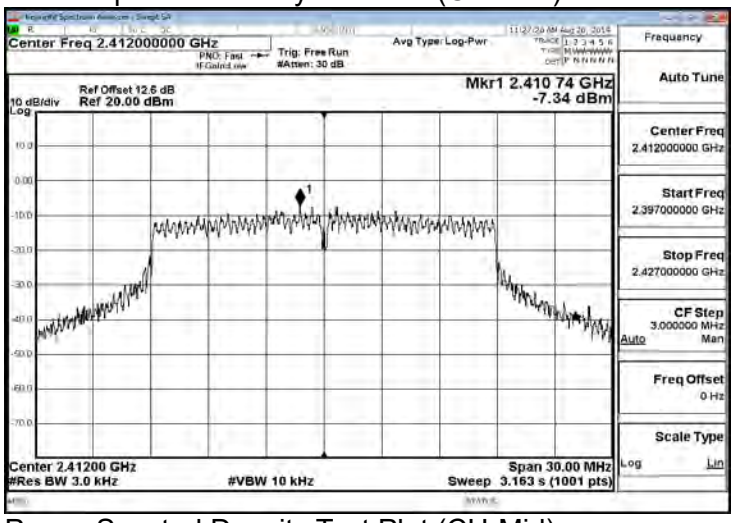


Power Spectral Density Test Plot (CH-High)

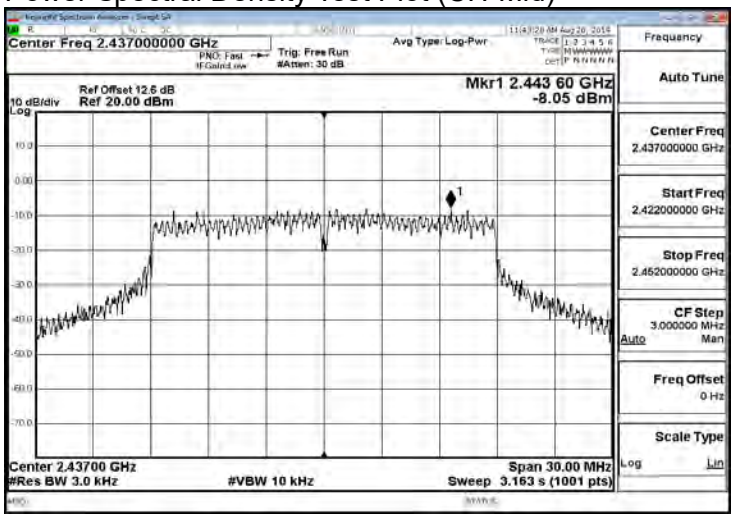


802.11n_HT20

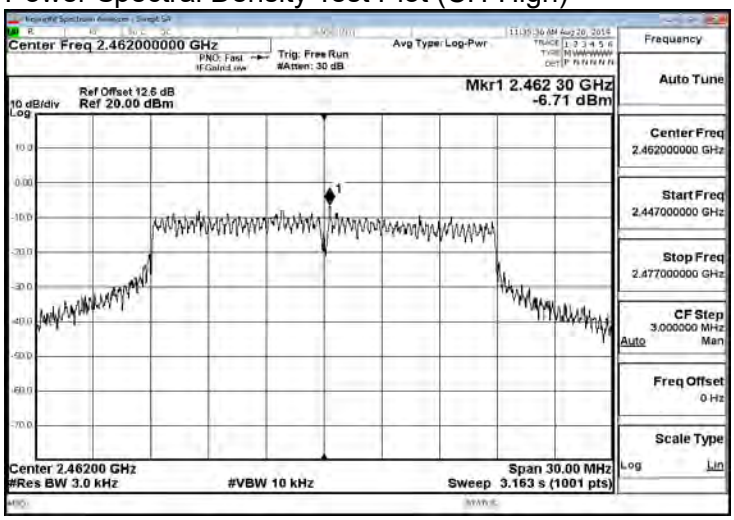
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

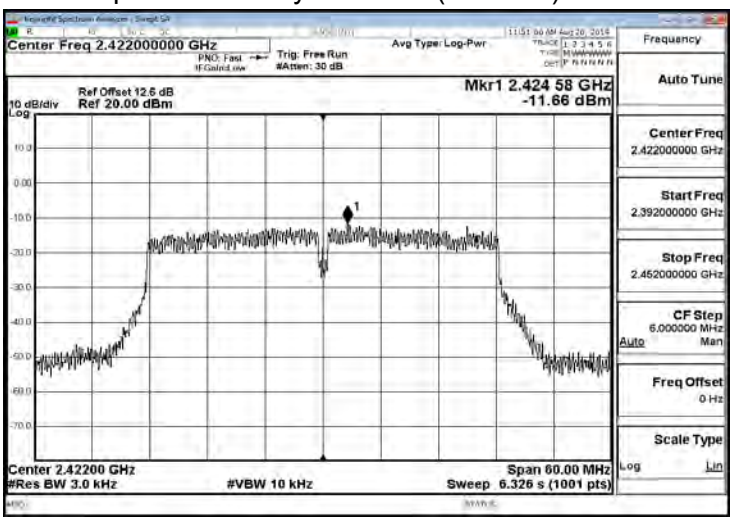


Power Spectral Density Test Plot (CH-High)

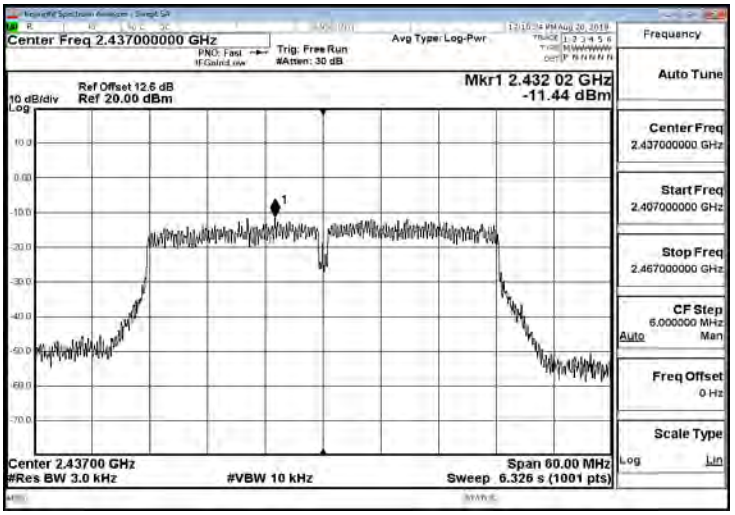


802.11n_HT40

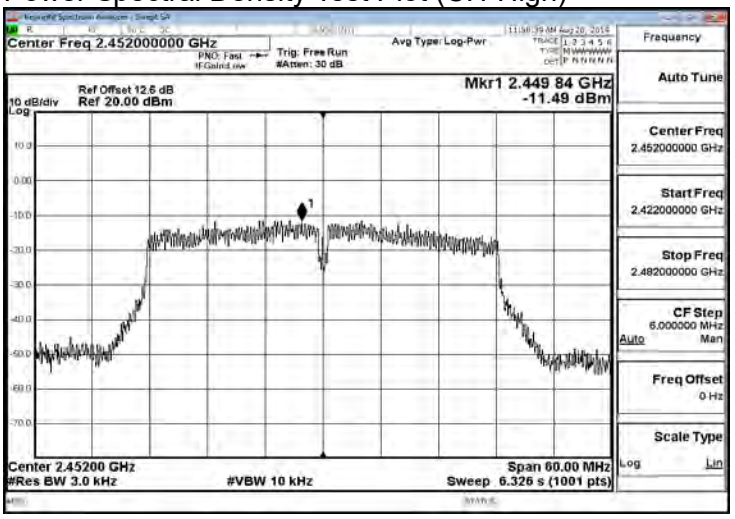
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)



13 ANTENNA REQUIREMENT

13.1 Standard Applicable

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

13.2 Antenna Connected Construction

An embedded-in antenna design is used.

The antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

~ End of Report ~