TEST REPORT

of

FCC Part 15 Subpart C

☒ New Application; ☐ Class I PC; ☐ Class II PC

Product :	**G.hn Coax WiFi Gb Ethernet Bridge**
Brand:	**SendTek**
Model:	**CES-862**
Model Difference:	**N/A**
FCC ID:	**2AAM7-GHN86X**
FCC Rule Part:	**§15.247, Cat: DTS**
Applicant:	**SENDTEK CORPORATION**
Address:	**11F-1, 27, Guanxin Road, Hsinchu 30072, Taiwan**

Test Performed by:
International Standards Laboratory Corp.
<LT Lab.>
*Site Registration No.
BSMI: SL2-IN-E-0013; MRA TW1036; TAF: 0997; IC: IC4067B-4;

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Testing laboratory
0997

Report No.: **ISL-19LR292FCDTS**
Issue Date : **2020/01/10**

VERIFICATION OF COMPLIANCE

Applicant:	SENDTEK CORPORATION
Product Description:	G.hn Coax WiFi Gb Ethernet Bridge
Brand Name:	SendTek
Model No.:	CES-862
Model Difference:	N/A
FCC ID:	2AAM7-GHN86X
Date of Test:	2019/10/09 ~ 2020/01/02
Date of EUT Received:	2019/10/09

We hereby certify that:

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory Corp.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

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	Jerry Liu / Technical Manager		

Version

Version No.	Date	Description
00	2020/01/10	Initial creation of document

Uncertainty of Measurement

ISO/IEC 17025 requires that an estimate of measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Description of Test	Uncertainty
Conducted Emission (AC power line)	2.586 dB
Field Strength of Spurious Radiation	≤ 30MHz: 2.96dB 30-1GHz: 4.22 dB 1-40 GHz: 4.08 dB
Conducted Power	2.412 GHz: 1.30 dB 5.805 GHz: 1.55 dB
Power Density	2.412 GHz:1.30 dB 5.805 GHz: 1.67 dB
Frequency	0.0032%
Time	0.01%
DC Voltage	1%

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1 General Information

General:

Product Name	G.hn Coax WiFi Gb Ethernet Bridge	
Brand Name	SendTek	
Model Name	CES-862	
Model Difference	N/A	
Lan port	Two	
Connect	Two	
Power Tolerance:	+/- 1 dB	
Power Supply	12Vdc from adapter	
	Adapter:	1. DSA-12PFT-12 FUS 120100 2. 2AAJ012F

2.4GHz WLAN: 2TX/2RX SM-MIMO

Wi-Fi	Frequency Range (MHz)	Channels	Peak / Average Rated Power	Modulation Technology
802.11b	2412 – 2462(DTS)	11	25.24dBm (PK)	DSSS
802.11g	2412 – 2462(DTS)	11	25.40dBm (PK)	OFDM
802.11n (2.4G)	HT20 2412 – 2462(DTS)	11	27.89dBm (PK)	OFDM
	HT40 2422 – 2452(DTS)	7	26.29dBm (PK)	OFDM
Modulation type		CCK, DQPSK, DBPSK for DSSS 256QAM.64QAM. 16QAM, QPSK, BPSK for OFDM		
Antenna Designation		Fixed PIFA Antenna WiFi 2.4G Antenna1 : 2 dBi WiFi 2.4G Antenna2 : 2.9 dBi According to KDB662911 D01 SM-MIMO signals could be considered uncorrelated for purposes of directional gain computation. Directional gain = G_{ANT}		

Antenna Connected Construction:

The antenna type is Dipole antenna which is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

Remark: The above DUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.1 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: 2AAM7-GHN86X** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at an antenna to EUT distance 3 meters.

KDB Document: 558074 D01 15.247 Meas Guidance v05r02

1.3 Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of **International Standards Laboratory Corp.** <LT Lab.> No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.10: 2013. FCC Registration Number is: 487532; Designation Number is: TW0997, Canada Registration Number: 4067B-4.

1.4 Special Accessories

Not available for this EUT intended for grant.

1.5 Equipment Modifications

Not available for this EUT intended for grant.

2 System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

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. According to the requirements in Section 6 of ANSI C63.10: 2013 and RSS-Gen issue 5 Amendment 1: 2019. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR 16-1-1 Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m/1.5m (frequency above 1GHz) above ground plane. 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 hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 6 and 11 of ANSI C63.10: 2013.

2.4 Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed channel)

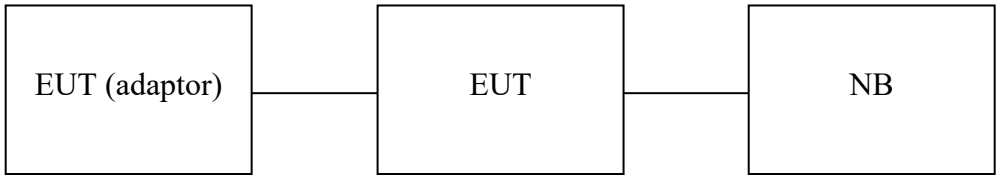


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1	EUT (adaptor)	DVE	DSA-12PFT-12 FUS 120100	NA	NA	Non-shielding
2	EUT (adaptor)	CWT	2AAJ012F	NA	NA	Non-shielding
3	NB	HP	440-G1	NA	shielding	NA

3 Summary of Test Results

FCC Rules	Description Of Test	Result
§15.207(a)	AC Power Line Conducted Emission	Compliant
§15.247(b) (3),(4)	Peak Output Power/ EIRP	Compliant
§15.247(a)(2)	6dB & 99% Power Bandwidth	Compliant
§15.247(d)	100 kHz Bandwidth Of Frequency Band Edges	Compliant
§15.247(d)	Spurious Emission	Compliant
§15.247(e)	Peak Power Density	Compliant
§15.203	Antenna Requirement	Compliant

4 Description of Test Modes

The EUT has been tested under engineering operating condition.

Test program used to control the EUT for staying in continuous transmitting mode is programmed.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channels were selected for the final test as listed below:

802.11b: Channel low (2412MHz), mid (2437MHz), high (2462MHz) with 1Mbps lowest data rate are chosen for full testing.

802.11g: Channel low (2412MHz), mid (2437MHz), high (2462MHz) with 6Mbps lowest data rate are chosen for full testing.

802.11n HT20: Channel low (2412MHz), mid (2437MHz), high (2462MHz) with 6.5Mbps lowest data rate are chosen for full testing.

802.11n HT40: Channel low (2422MHz), mid (2437MHz), high (2452MHz) with 13.5Mbps lowest data rate are chosen for full testing.

5 Conduced Emission Test

5.1 Standard Applicable:

According to §15.207 frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range (MHz)	Limits (dBuV)	
	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.		

5.2 Measurement Equipment Used:

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conduction 02	LISN 26	R&S	ENV216	102378	11/21/2018	11/21/2019
Conduction 02	LISN 20	R&S	ENV216	101477	07/31/2019	07/31/2020
Conduction 02	Conduction 02-1 Cable	WOKEN	CFD 300-NL	Conduction 02 -1	09/11/2019	09/11/2020
Conduction 02	EMI Receiver 14	ROHDE& SCHWARZ	ESCI	101034	05/31/2019	05/31/2020
Conduction 02	ISN T8 10	Teseq GmbH	ISN T800	42773	08/02/2019	08/02/2020
Conduction 02	Capacitive Voltage Probe	FCC	F-CVP-1	68	02/19/2019	02/19/2020
Conduction 02	Current Probe	SCHAFFNER	SMZ 11	18030	02/19/2019	02/19/2020

5.3 EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10-2013.
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.

5.4 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 frequency measured were complete.

5.5 Measurement Result:

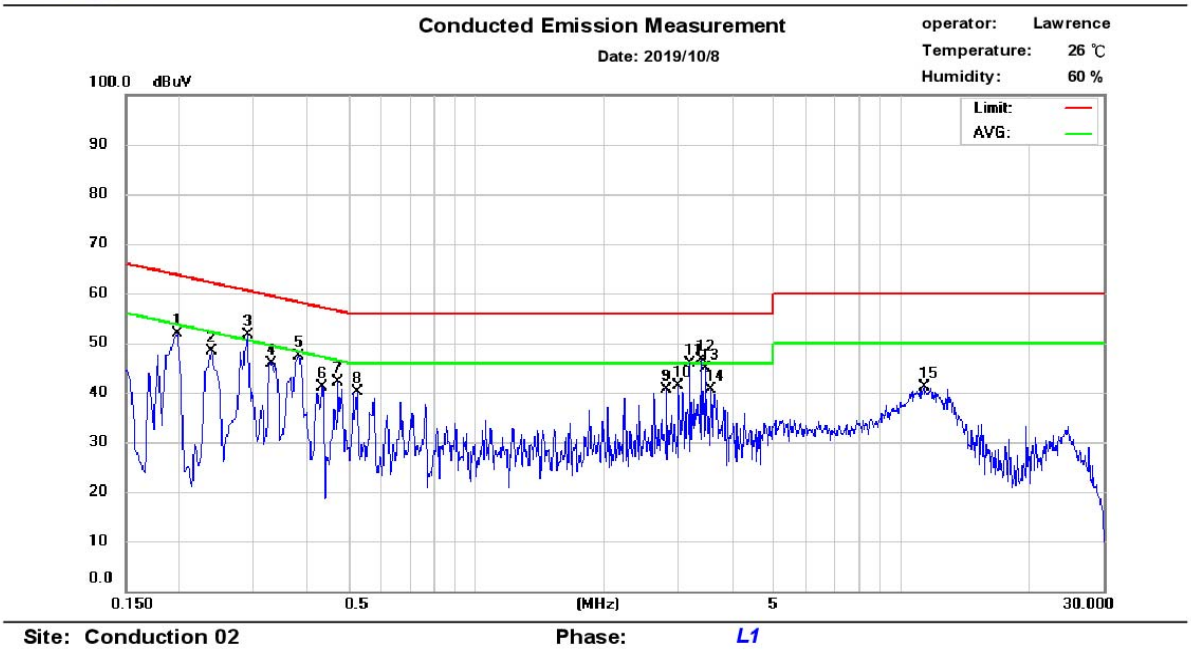
The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Note: Refer to next page for measurement data and plots.

AC POWER LINE CONDUCTED EMISSION TEST DATA

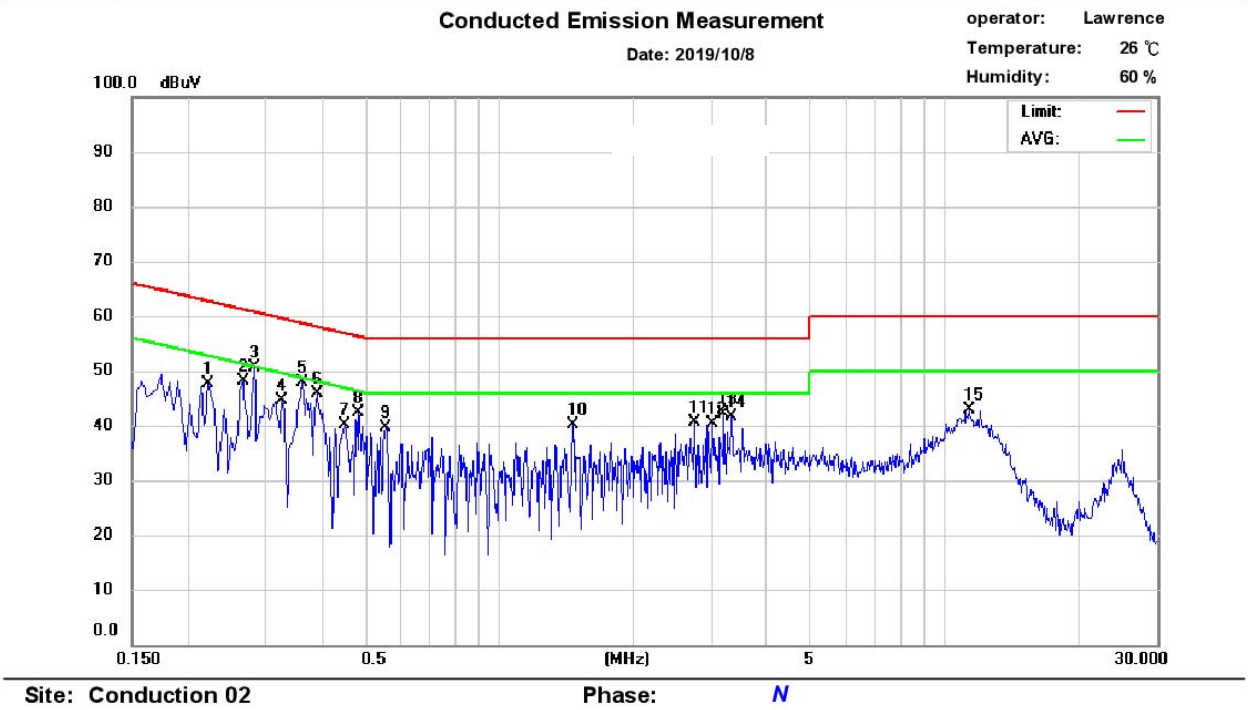
Operation Mode:	Full mode	Test Date:	2019/10/08

Address:No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist.,
Tao Yuan City 325, Taiwan.
Tel:03-4071718



No.	Frequency (MHz)	QP_R (dBuV)	AVG_R (dBuV)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)
1	0.198	36.78	22.76	9.62	46.40	63.69	-17.29	32.38	53.69	-21.31
2	0.238	34.34	20.35	9.62	43.96	62.17	-18.21	29.97	52.17	-22.20
3	0.290	32.69	21.19	9.62	42.31	60.52	-18.21	30.81	50.52	-19.71
4	0.330	30.31	18.32	9.63	39.94	59.45	-19.51	27.95	49.45	-21.50
5	0.382	33.87	25.00	9.63	43.50	58.24	-14.74	34.63	48.24	-13.61
6	0.434	26.20	12.93	9.63	35.83	57.18	-21.35	22.56	47.18	-24.62
7	0.474	27.55	17.13	9.63	37.18	56.44	-19.26	26.76	46.44	-19.68
8	0.526	24.64	14.61	9.64	34.28	56.00	-21.72	24.25	46.00	-21.75
9	2.818	24.84	15.61	9.71	34.55	56.00	-21.45	25.32	46.00	-20.68
10	3.006	27.85	17.90	9.72	37.57	56.00	-18.43	27.62	46.00	-18.38
11	3.198	30.38	22.60	9.72	40.10	56.00	-15.90	32.32	46.00	-13.68
12	3.390	28.27	19.23	9.73	38.00	56.00	-18.00	28.96	46.00	-17.04
13	3.458	26.11	16.20	9.73	35.84	56.00	-20.16	25.93	46.00	-20.07
14	3.582	23.43	15.41	9.73	33.16	56.00	-22.84	25.14	46.00	-20.86
15	11.330	25.78	15.24	9.86	35.64	60.00	-24.36	25.10	50.00	-24.90

Address:No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist.,
Tao Yuan City 325, Taiwan.
Tel:03-4071718



No.	Frequency (MHz)	QP_R (dBuV)	AVG_R (dBuV)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)
1	0.222	33.10	21.86	9.64	42.74	62.74	-20.00	31.50	52.74	-21.24
2	0.266	33.10	22.06	9.65	42.75	61.24	-18.49	31.71	51.24	-19.53
3	0.282	33.69	23.46	9.64	43.33	60.76	-17.43	33.10	50.76	-17.66
4	0.326	30.36	20.98	9.64	40.00	59.55	-19.55	30.62	49.55	-18.93
5	0.362	33.99	25.37	9.64	43.63	58.68	-15.05	35.01	48.68	-13.67
6	0.390	32.98	24.41	9.64	42.62	58.06	-15.44	34.05	48.06	-14.01
7	0.450	26.59	15.39	9.64	36.23	56.88	-20.65	25.03	46.88	-21.85
8	0.486	26.95	16.86	9.65	36.60	56.24	-19.64	26.51	46.24	-19.73
9	0.558	22.88	11.06	9.65	32.53	56.00	-23.47	20.71	46.00	-25.29
10	1.470	26.25	17.15	9.68	35.93	56.00	-20.07	26.83	46.00	-19.17
11	2.754	26.13	18.54	9.73	35.86	56.00	-20.14	28.27	46.00	-17.73
12	3.010	24.45	16.58	9.74	34.19	56.00	-21.81	26.32	46.00	-19.68
13	3.202	28.02	20.32	9.74	37.76	56.00	-18.24	30.06	46.00	-15.94
14	3.330	26.79	18.82	9.75	36.54	56.00	-19.46	28.57	46.00	-17.43
15	11.342	27.30	18.18	9.91	37.21	60.00	-22.79	28.09	50.00	-21.91

6 Peak Output Power Measurement

6.1 Standard Applicable:

According to §15.247(b)(3), (b)(4), (c)

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

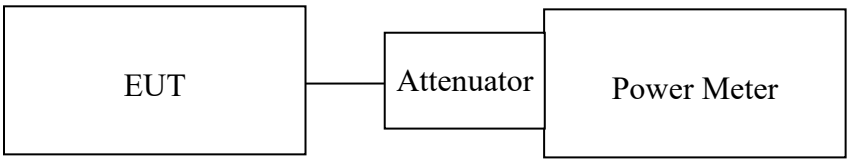
(i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

6.2 Measurement Equipment Used:

Location Conducted	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conducted	Power Meter	Anritsu	ML2495A	1116010	10/04/2019	10/04/2020
Conducted	Power Sensor	Anritsu	MA2411B	34NKF50	10/04/2019	10/04/2020
Conducted	Power Sensor	DARE	RPR3006W	13I00030SNO33	01/11/2019	01/11/2020
Conducted	Power Sensor	DARE	RPR3006W	14I00889SNO35	06/27/2019	06/27/2020
Conducted	Power Sensor	DARE	RPR3006W	14I00889SNO36	06/27/2019	06/27/2020
Conducted	Temperature Chamber	KSON	THS-B4H100	2287	02/19/2019	02/19/2020
Conducted	DC Power supply	ABM	8185D	N/A	01/10/2019	01/10/2020
Conducted	AC Power supply	EXTECH	CFC105W	NA	N/A	N/A
Conducted	Spectrum analyzer	Keysight	N9010A	MY56070257	10/05/2019	10/05/2020
Conducted	Spectrum analyzer	R&S	FSP40	100116	01/10/2019	01/10/2020
Conducted	Test Software	DARE	Radiation Ver:2013.1.23	NA	NA	NA
Conducted	Test Software	R&S	CMUGO Ver:2.0.0	N/A	N/A	N/A
Conducted	Radio Communication Analyzer	R&S	CMU200	111968	10/29/2019	10/29/2020
Conducted	Radio Communication Analyzer	R&S	CMW500	1201.002K50108 793-JG	10/11/2019	10/11/2020
Conducted	BT Simulator	Agilent	N4010A	MY48100200	NA	NA
Conducted	GPS Simulator	Welnavigate	GS-50	701523	NA	NA

6.3 Test Set-up:



6.4 Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
3. Record the max. reading.
4. Repeat above procedures until all frequency measured were complete.

6.5 Measurement Result:

802.11b

Cable loss = 0	Output Power		Limit (dBm)	**Result**
CH	Detector			
	PK	AV		
	(dBm)	(dBm)		
Low	23.48	21.19	30.00	Pass
Mid	23.45	21.06		
High	25.24	23.53		

802.11g

Cable loss = 0	Output Power		Limit (dBm)	**Result**
CH	Detector			
	PK	AV		
	(dBm)	(dBm)		
Low	25.36	18.57	30.00	Pass
Mid	25.40	18.71		
High	25.39	18.83		

802.11n HT20

Cable loss = 0	Output Power		Limit (dBm)	**Result**
CH	Detector			
	PK	AV		
	(dBm)	(dBm)		
Low	25.32	17.47	30.00	Pass
Mid	25.35	17.70		
High	25.36	17.93		

802.11n HT40

Cable loss = 0	Output Power		Limit (dBm)	**Result**
CH	Detector			
	PK	AV		
	(dBm)	(dBm)		
Low	24.90	17.54	30.00	Pass
Mid	24.99	17.71		
High	25.13	18.00		

802.11 n mode, PK FOR 2.4GHz

2*2

Channel		Output Chain (dBm)		Combined Output Power (dBm)	Limit(dBm)	**Result**
		Chain 1	chain 2			
802.11n HT20	Low	24.31	25.39	**27.89**	30.00	Pass
	Mid	24.15	24.55	27.36	30.00	
	High	24.54	24.78	27.67	30.00	
802.11n HT40	Low	23.06	23.49	26.29	30.00	
	Mid	22.89	23.34	26.13	30.00	
	High	23.41	23.09	26.26	30.00	

802.11 n mode, AV FOR 2.4GHz

2*2

Channel		Output Chain (dBm)		Combined Output Power (dBm)	Limit(dBm)	**Result**
		Chain 1	chain 2			
802.11n HT20	Low	15.38	16.26	**18.85**	30.00	Pass
	Mid	15.37	15.49	18.44	30.00	
	High	15.39	15.70	18.56	30.00	
802.11n HT40	Low	14.09	14.99	17.57	30.00	
	Mid	14.25	14.63	17.45	30.00	
	High	14.76	14.56	17.67	30.00	

7 6dB Bandwidth & 99% Bandwidth

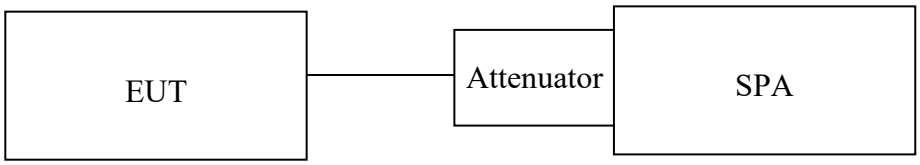
7.1 Standard Applicable:

According to §15.247(a)(2), Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500kHz.

7.2 Measurement Equipment Used:

Refer to section 6.2 for details.

7.3 Test Set-up:



7.4 Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=100kHz, VBW = 3*RBW, Span= cover the complete power envelope of the signal of the UUT Sweep=auto
4. Mark the peak frequency and –6dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured were complete.

7.5 Measurement Result:

802.11b

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (kHz)	Result
Low	8.10	13.20	> 500	PASS
Mid	8.10	13.22	> 500	PASS
High	9.03	13.34	> 500	PASS

802.11g

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (kHz)	Result
Low	16.37	16.53	> 500	PASS
Mid	16.36	16.50	> 500	PASS
High	16.37	16.52	> 500	PASS

802.11n HT20

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (kHz)	Result
Low	17.60	17.68	> 500	PASS
Mid	17.59	17.65	> 500	PASS
High	17.59	17.68	> 500	PASS

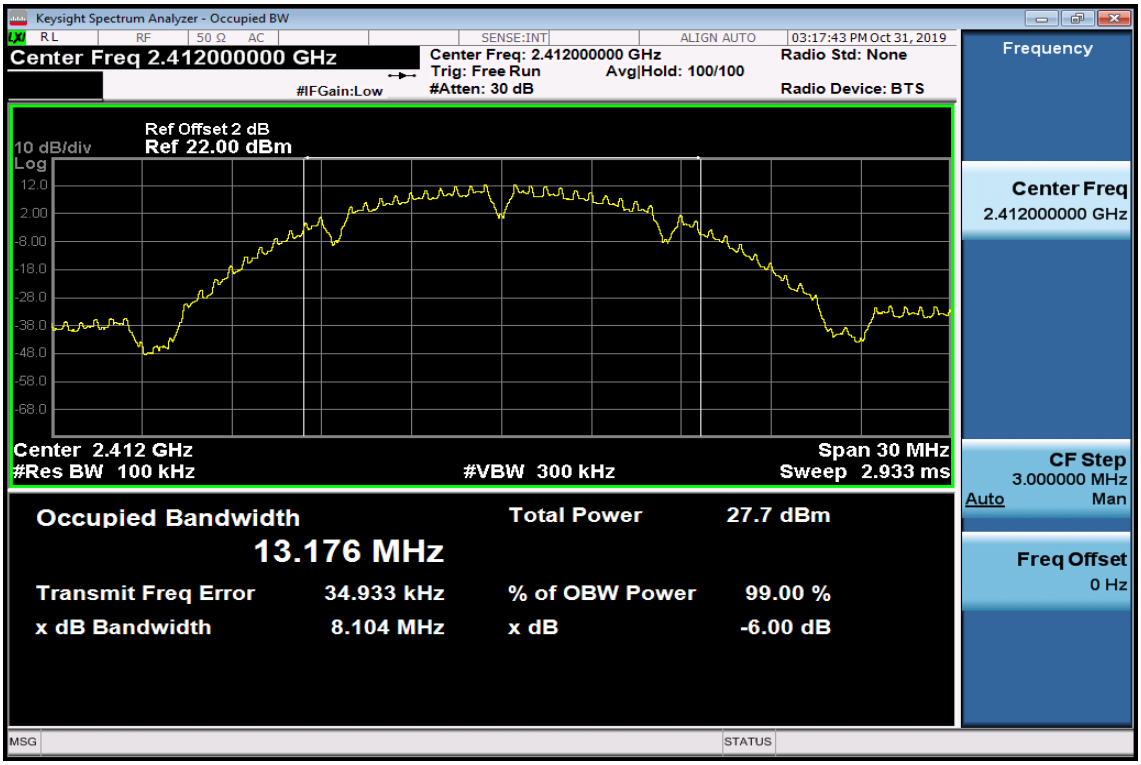
802.11n HT40

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (kHz)	Result
Low	36.50	36.73	> 500	PASS
Mid	36.50	36.69	> 500	PASS
High	36.48	36.71	> 500	PASS

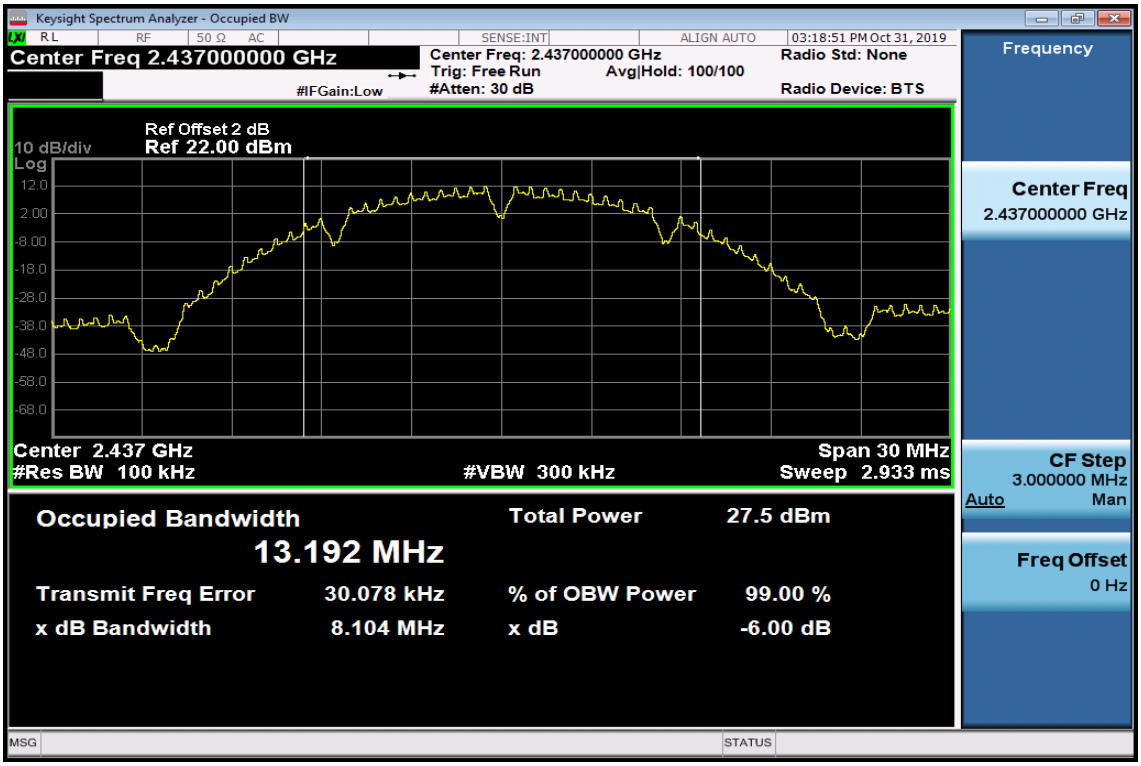
Note: Refer to next page for plots.

802.11b

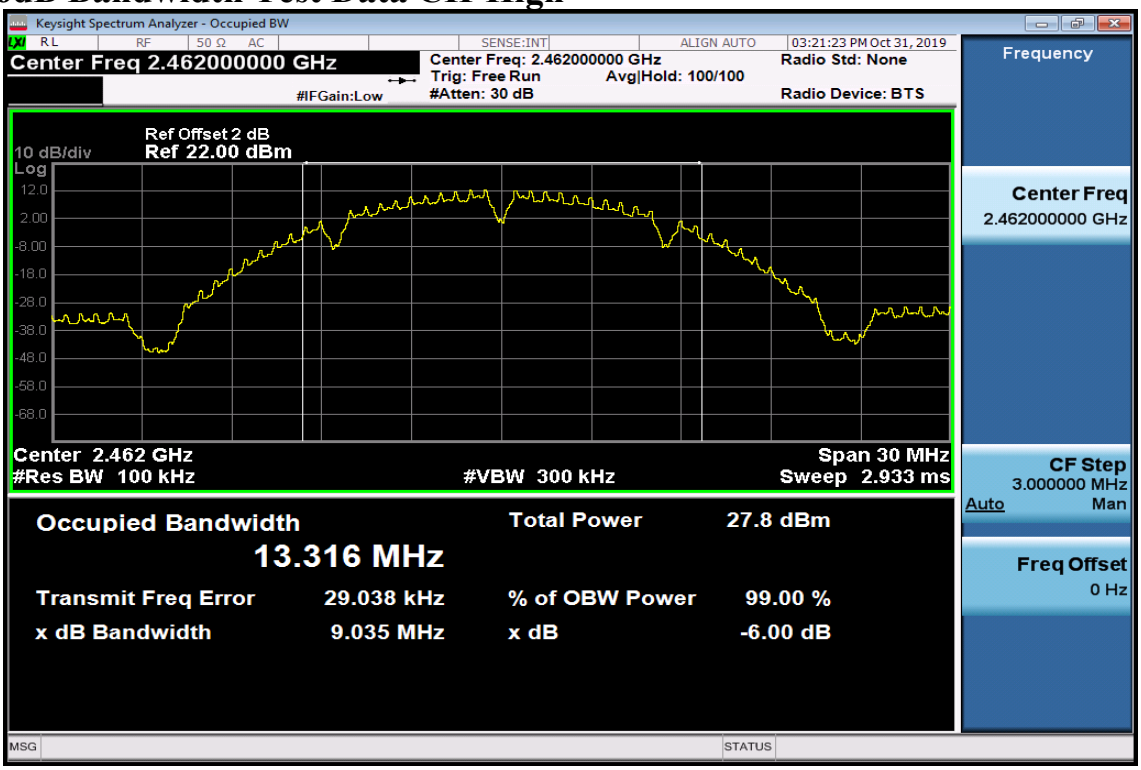
6dB Bandwidth Test Data CH-Low



6dB Bandwidth Test Data CH-Mid

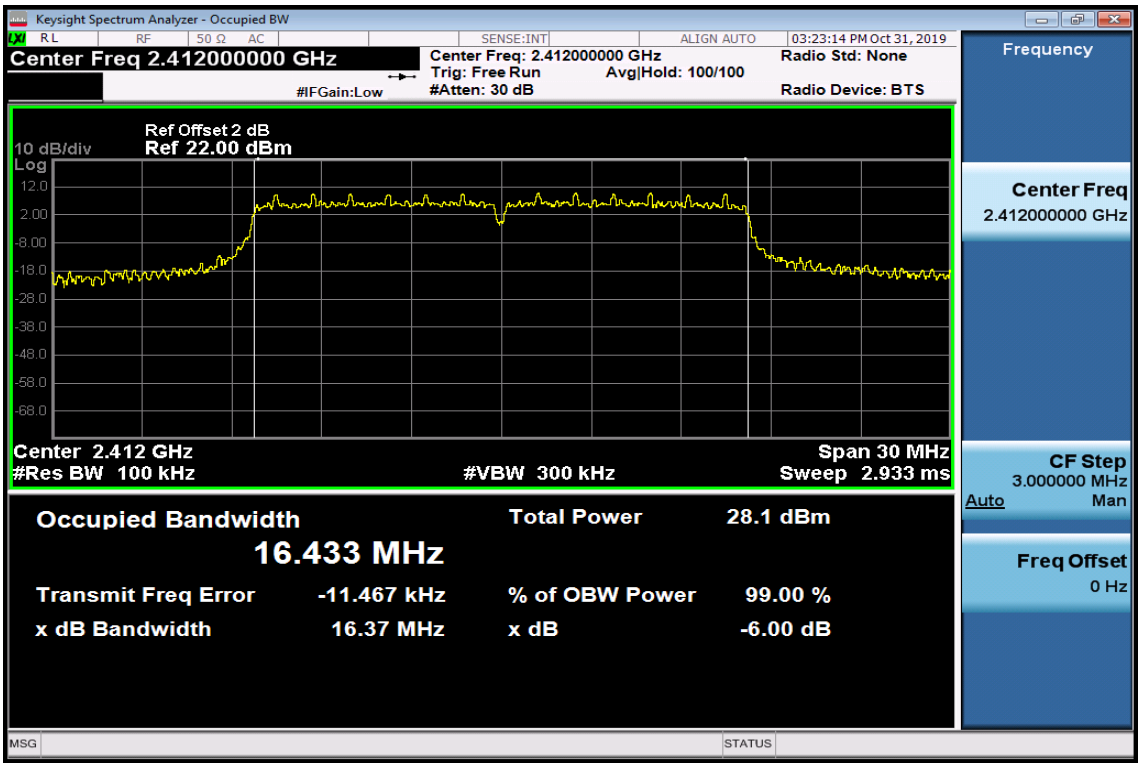


6dB Bandwidth Test Data CH-High

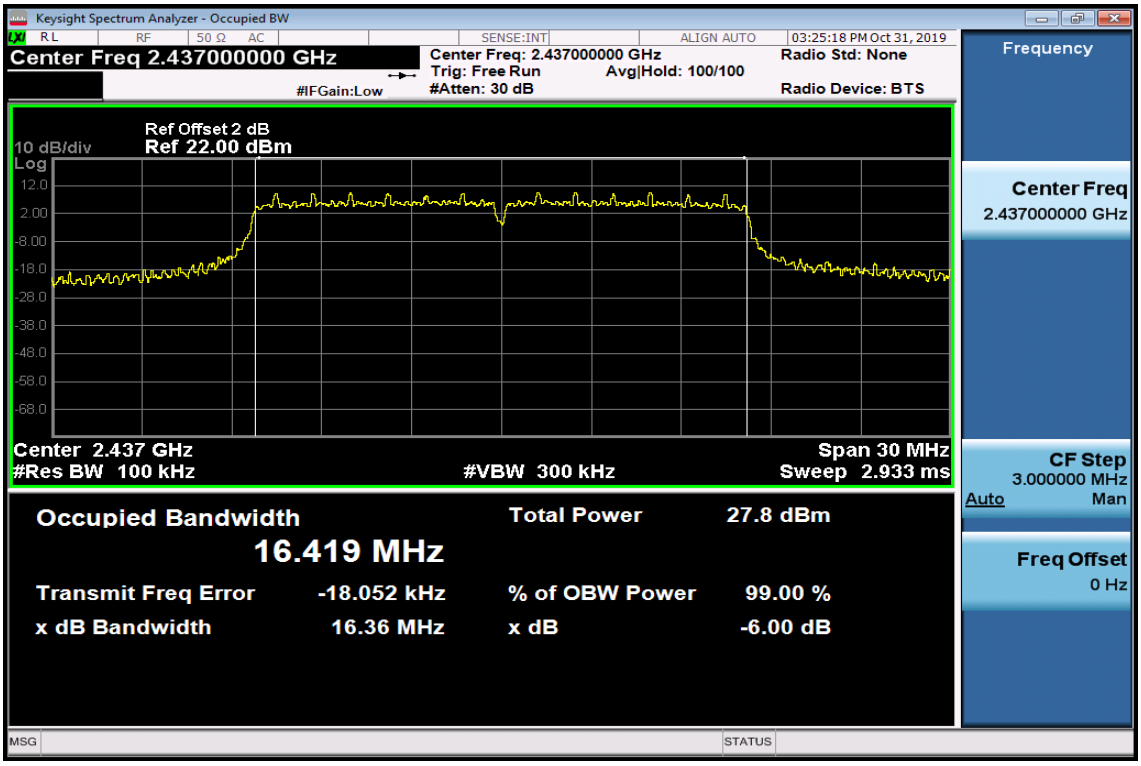


802.11g

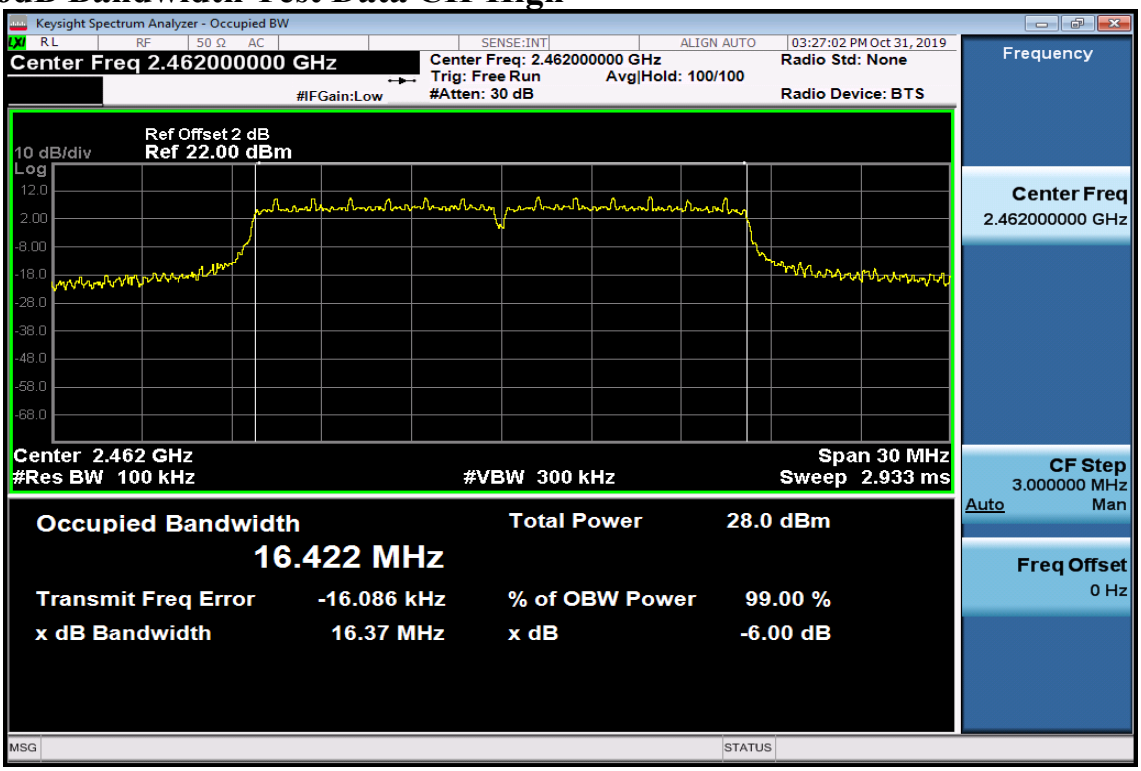
6dB Bandwidth Test Data CH-Low



6dB Bandwidth Test Data CH-Mid

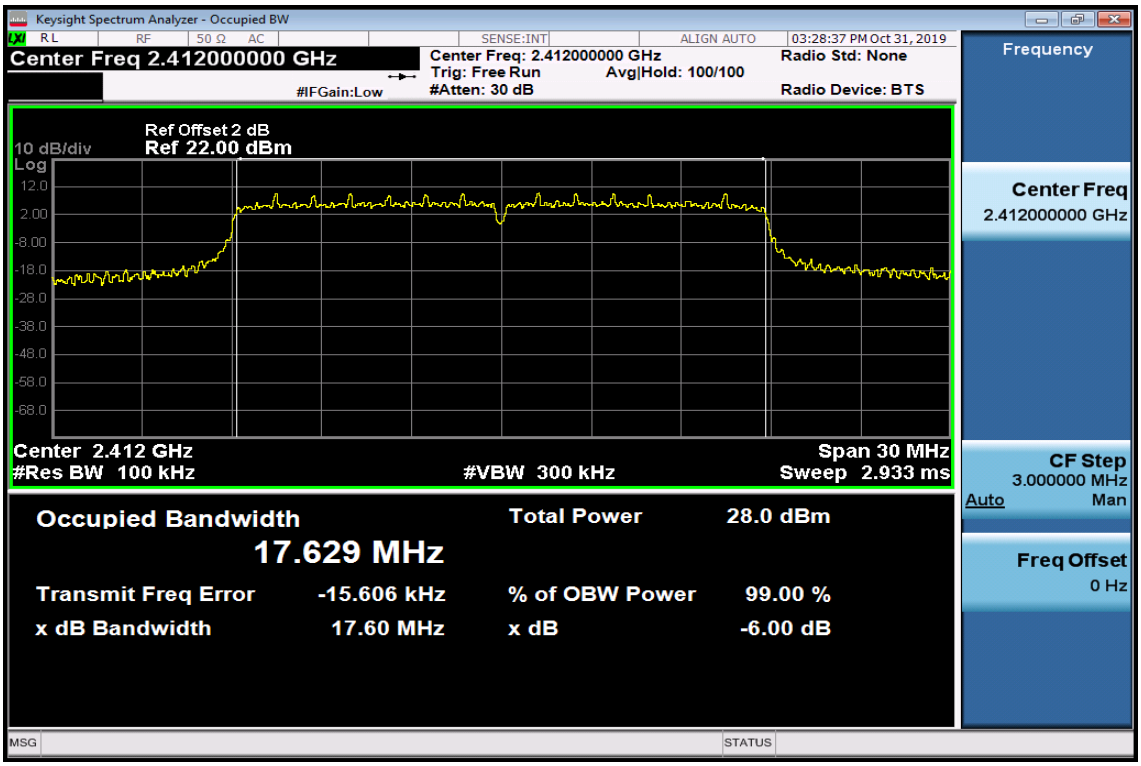


6dB Bandwidth Test Data CH-High

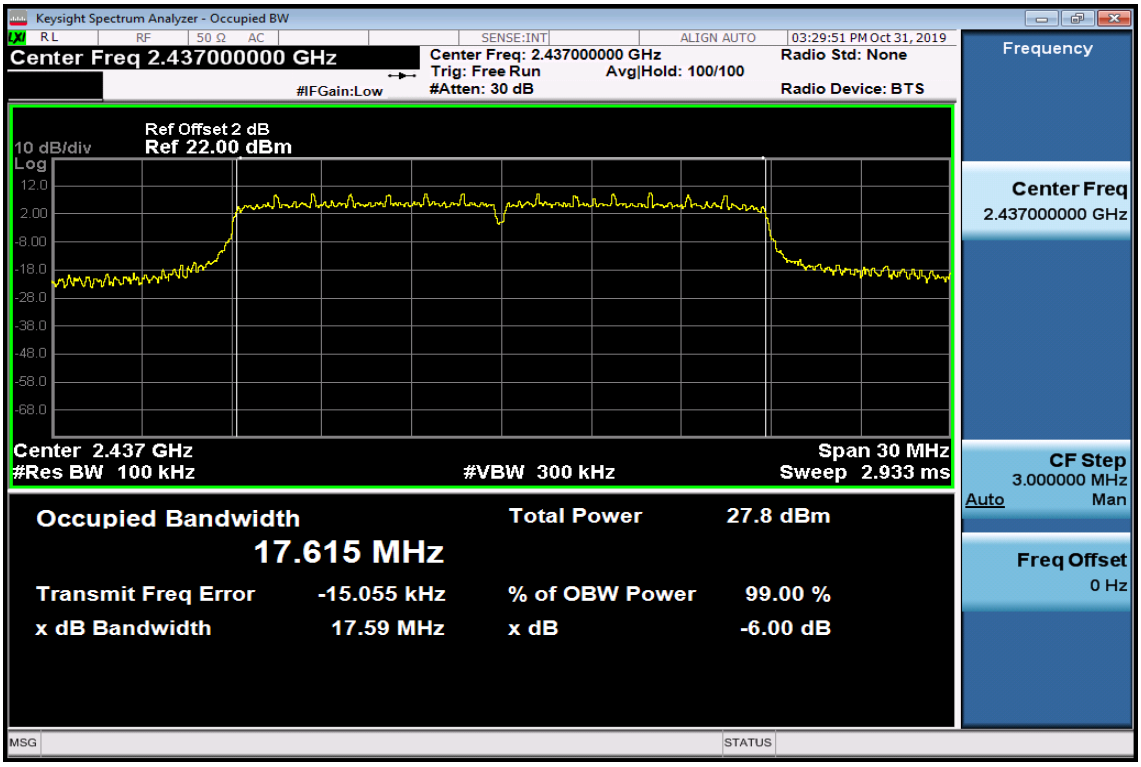


802.11n_HT20

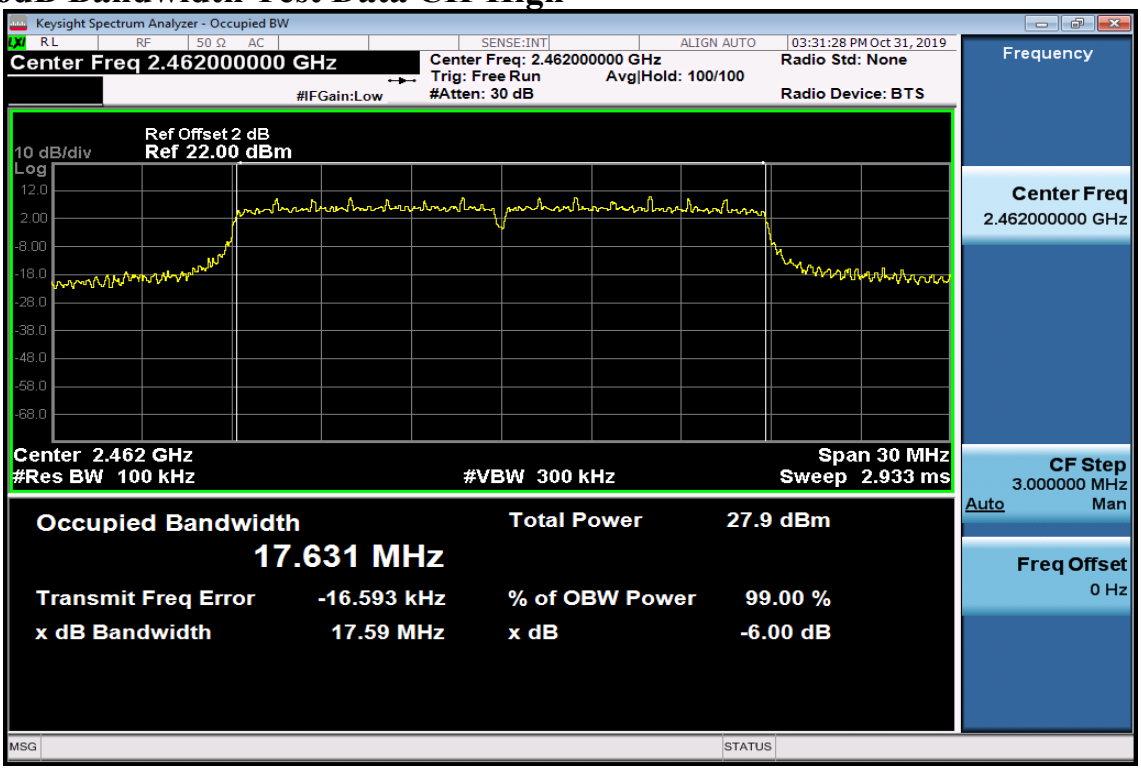
6dB Bandwidth Test Data CH-Low



6dB Bandwidth Test Data CH-Mid

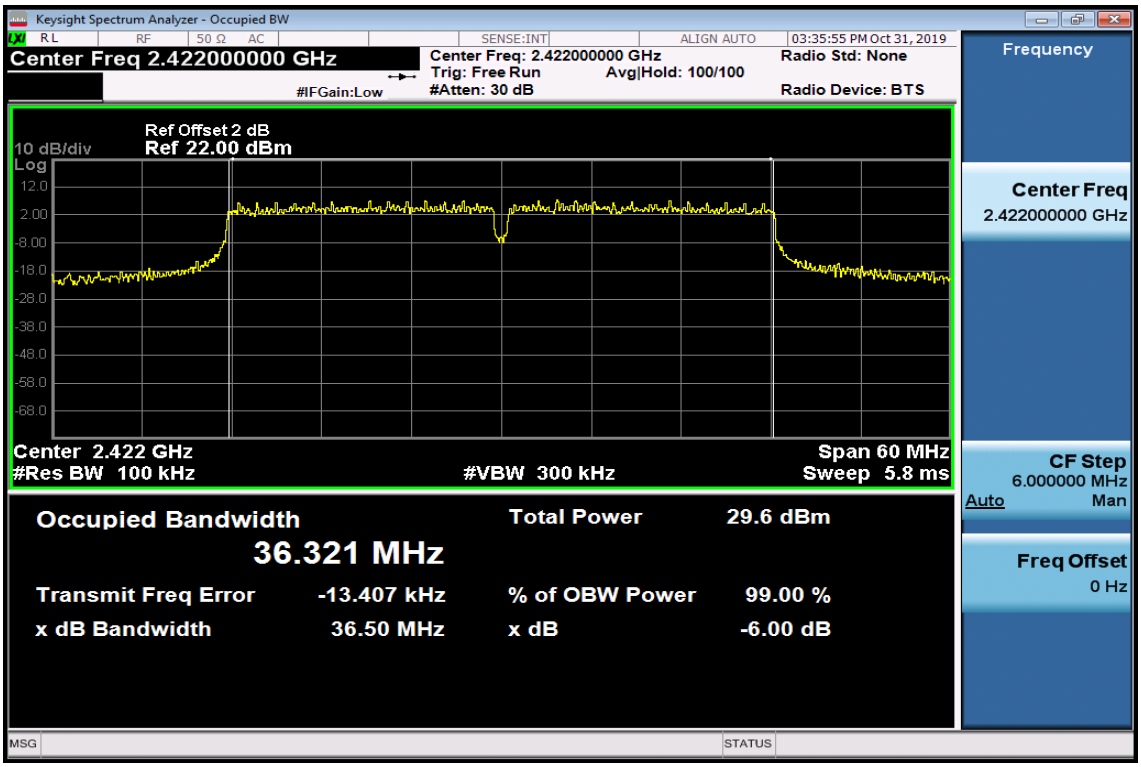


6dB Bandwidth Test Data CH-High

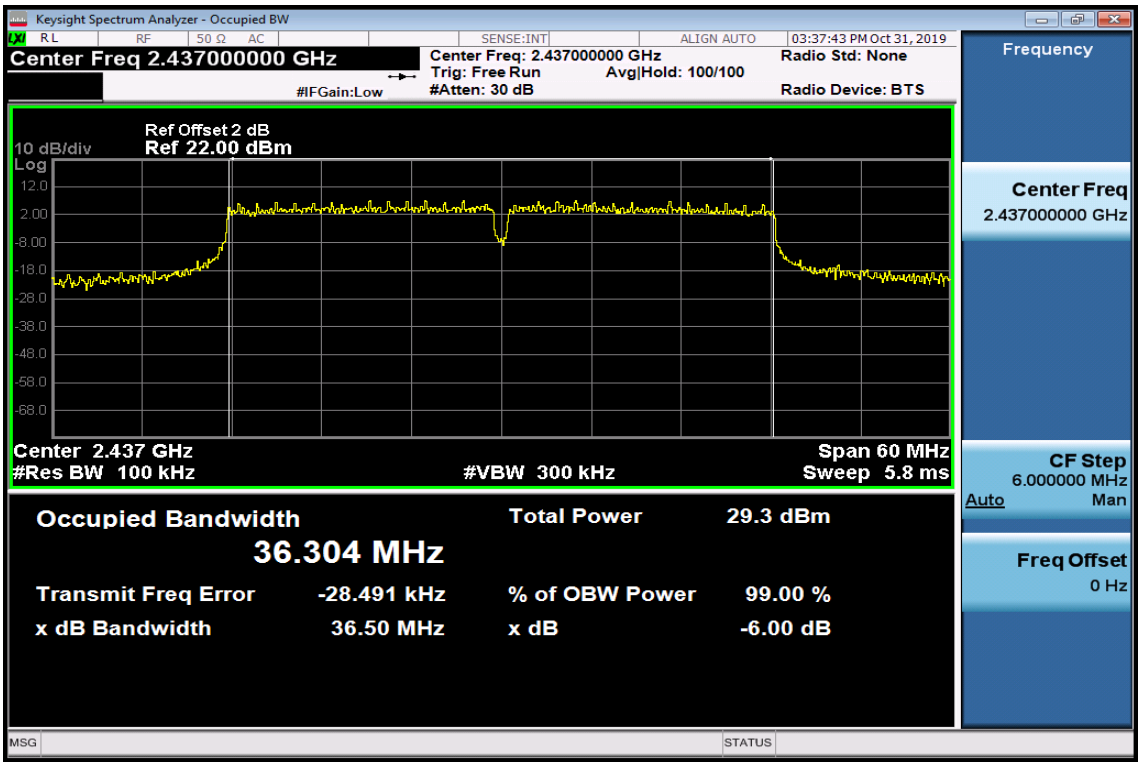


802.11n_HT40

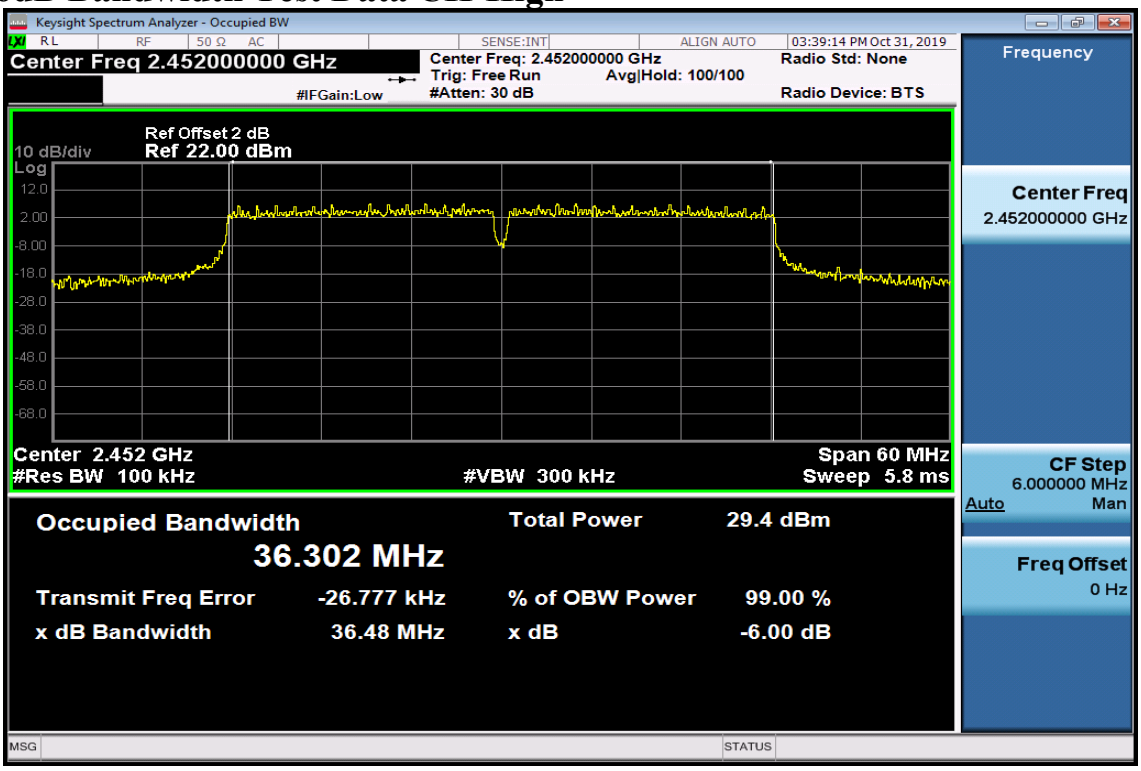
6dB Bandwidth Test Data CH-Low



6dB Bandwidth Test Data CH-Mid



6dB Bandwidth Test Data CH-High



8 Spurious Radiated Emission Test

8.1 Standard Applicable

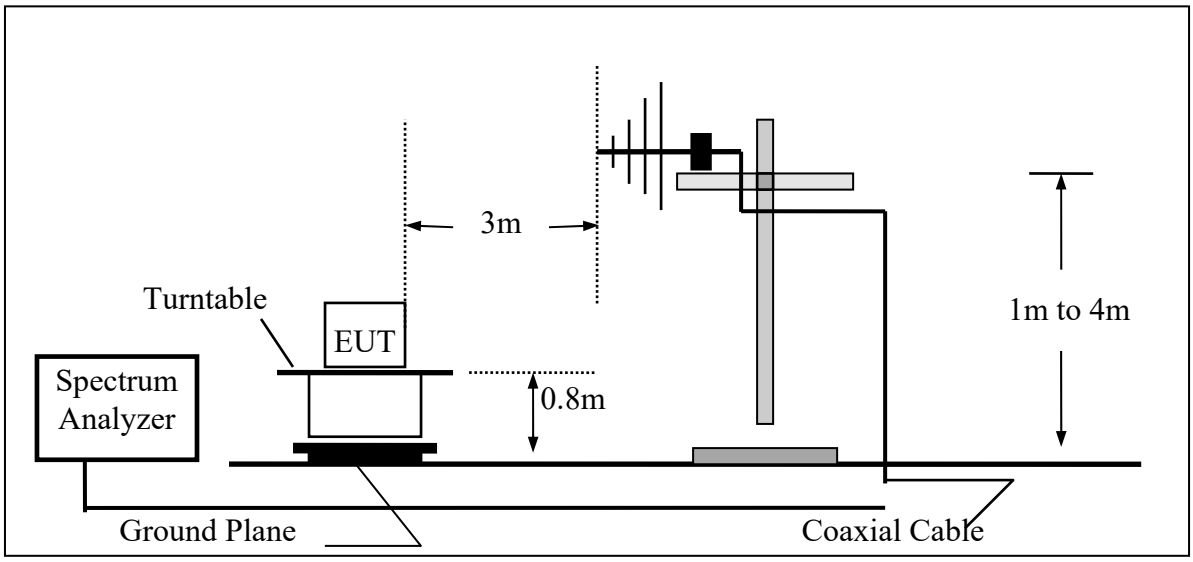
According to §15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

8.2 Measurement Equipment Used:

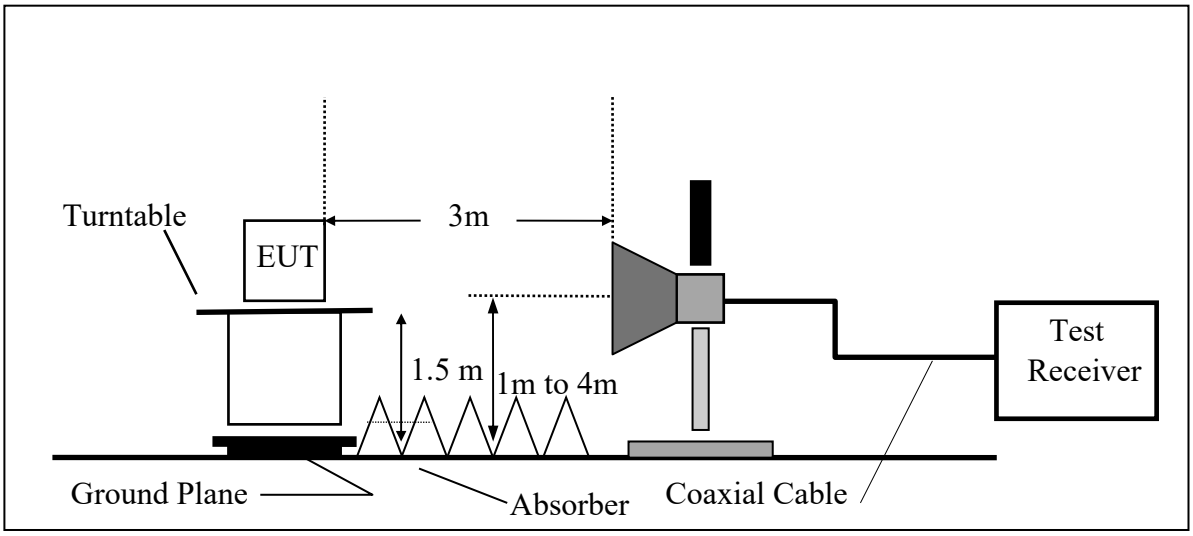
Chamber 19(966)					
Equipment Type	**Manufacturer**	**Model Number**	**Serial Number**	**Last Cal.**	**Cal Due.**
Spectrum analyzer	R&S	FSP40	100116	01/10/2019	01/10/2020
EMI Receiver	R&S	ESR3	102461	08/08/2018	08/08/2020
Loop Antenna	EM	EM-6879	271	05/31/2019	05/31/2020
Bilog Antenna (30MHz-1GHz)	Schwarzbeck	VULB9168 w 5dB Att.	736	01/29/2019	01/29/2020
Horn antenna (1GHz-18GHz)	Schwarzbeck	9120D	9120D-1627	06/17/2019	06/17/2020
Horn antenna (18GHz-26GHz)	Com-power	AH-826	081001	11/21/2019	11/21/2020
Horn antenna (26GHz-40GHz)	Com-power	AH-640	100A	03/29/2019	03/29/2021
Preamplifier (9kHz-1GHz)	HP	8447F	3113A06362	01/14/2019	01/14/2020
Preamplifier (1GHz-26GHz)	Agilent	8449B	3008A02471	10/05/2019	10/05/2020
Preamplifier (26GHz-40GHz)	MITEQ	JS4-26004000-27-5A	818471	05/06/2019	05/06/2020
RF Cable (9kHz-18GHz)	HUBER SUHNER	Sucoflex 104A	MY1397/4A	01/17/2019	01/17/2020
RF Cable (18GHz-40GHz)	HUBER SUHNER	Sucoflex 102	27963/2&37421/2	11/27/2019	11/27/2021
Signal Generator	Anritsu	MG3692A	20311	01/09/2019	01/09/2020
Test Software	Audix	E3 Ver:6.12023	N/A	N/A	N/A
Magnetic Field Meter	Combinova	MFM-10	645	10/16/2019	10/16/2020
Magnetic Field Meter	Combinova	MFM-1000	619	12/06/2019	12/06/2020
Electric Field Meter	Combinova	EFM-200	402	10/16/2019	10/16/2020
E-field probe	Narda / Wandel & Goltermann	EF-0691 + NBM-520	D-0135 + D-0526	03/02/2019	03/02/2020

8.3 Test SET-UP:

(A) Radiated Emission Test Setup for frequency below 1000MHz



(B) Radiated Emission Test Setup Frequency above 1 GHz



8.4 Measurement Procedure:

1 According 414788 section 2, Either OATS or chamber for radiated emission below 30MHz, the test was done at 966 chamber, the test site was evaluated with OATS and the Chamber has test signals level greater than OATS's.

2 The EUT was placed on a turn table which is 0.8m/1.5m above ground plane in 966 chamber.

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 Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

7 And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

8 Repeat above procedures until all frequency measured were complete.

Test receiver setting	:	Blew 1GHz
Detector	:	Average(9kHz – 90kHz, 110kHz – 90kHz), Quasi-Peak
Bandwidth	:	200Hz, 120kHz
Test spectrum setting	:	Above 1GHz
Peak	:	RBW=1MHz, VBW=3MHz,Sweep=auto
Average (for Wi-Fi)	:	RBW=1MHz, VBW=10Hz, Sweep=auto

Average Measurement Setting (VBW)

Mode	Duty Cycle (%)	Ton (us)	Toff (us)	1/Ton (kHz)	VBW Setting	Duty factor
802.11b	99	12180	120	0.82	300Hz	0.04
802.11 g	95	2019	90	0.495	500Hz	0.22
802.11 HT20 (2.4G)	98	4960	90	0.201	300Hz	0.08
802.11 HT40 (2.4G)	95.5	2380	110	0.420	500Hz	0.2

8.5 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	

8.6 Measurement Result:

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

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11b TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.01	-7.47	40.54	43.50	-2.96	Peak	VERTICAL
2	302.57	37.70	-3.77	33.93	46.00	-12.07	Peak	VERTICAL
3	497.54	43.39	-0.67	42.72	46.00	-3.28	Peak	VERTICAL
4	520.82	41.85	0.08	41.93	46.00	-4.07	Peak	VERTICAL
5	600.36	37.16	1.52	38.68	46.00	-7.32	Peak	VERTICAL
6	700.27	34.80	3.15	37.95	46.00	-8.05	Peak	VERTICAL
1	228.85	45.08	-6.59	38.49	46.00	-7.51	Peak	HORIZONTAL
2	489.78	44.65	-0.72	43.93	46.00	-2.07	Peak	HORIZONTAL
3	493.66	43.83	-0.69	43.14	46.00	-2.86	Peak	HORIZONTAL
4	649.83	40.38	1.99	42.37	46.00	-3.63	Peak	HORIZONTAL
5	700.27	40.36	3.15	43.51	46.00	-2.49	Peak	HORIZONTAL
6	944.71	35.40	6.80	42.20	46.00	-3.80	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11b TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.06	-7.47	40.59	43.50	-2.91	Peak	VERTICAL
2	489.78	43.78	-0.72	43.06	46.00	-2.94	Peak	VERTICAL
3	500.45	44.25	-0.64	43.61	46.00	-2.39	Peak	VERTICAL
4	518.88	42.07	0.02	42.09	46.00	-3.91	Peak	VERTICAL
5	944.71	35.18	6.80	41.98	46.00	-4.02	Peak	VERTICAL
6	959.26	35.91	7.11	43.02	46.00	-2.98	Peak	VERTICAL
1	499.48	43.39	-0.66	42.73	46.00	-3.27	Peak	HORIZONTAL
2	520.82	43.03	0.08	43.11	46.00	-2.89	Peak	HORIZONTAL
3	649.83	39.40	1.99	41.39	46.00	-4.61	Peak	HORIZONTAL
4	700.27	40.70	3.15	43.85	46.00	-2.15	Peak	HORIZONTAL
5	733.25	39.89	3.60	43.49	46.00	-2.51	Peak	HORIZONTAL
6	959.26	35.36	7.11	42.47	46.00	-3.53	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9MHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11b TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.52	-7.47	41.05	43.50	-2.45	Peak	VERTICAL
2	496.57	43.16	-0.67	42.49	46.00	-3.51	Peak	VERTICAL
3	522.76	42.27	0.13	42.40	46.00	-3.60	Peak	VERTICAL
4	729.37	39.24	3.48	42.72	46.00	-3.28	Peak	VERTICAL
5	746.83	38.62	3.94	42.56	46.00	-3.44	Peak	VERTICAL
6	944.71	36.30	6.80	43.10	46.00	-2.90	Peak	VERTICAL
1	125.06	45.05	-7.47	37.58	43.50	-5.92	Peak	HORIZONTAL
2	250.19	43.29	-5.51	37.78	46.00	-8.22	Peak	HORIZONTAL
3	491.72	43.91	-0.71	43.20	46.00	-2.80	Peak	HORIZONTAL
4	500.45	43.88	-0.64	43.24	46.00	-2.76	Peak	HORIZONTAL
5	517.91	42.26	-0.02	42.24	46.00	-3.76	Peak	HORIZONTAL
6	700.27	40.82	3.15	43.97	46.00	-2.03	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11g TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.14	-7.47	40.67	43.50	-2.83	Peak	VERTICAL
2	500.45	42.46	-0.64	41.82	46.00	-4.18	Peak	VERTICAL
3	517.91	43.14	-0.02	43.12	46.00	-2.88	Peak	VERTICAL
4	600.36	36.29	1.52	37.81	46.00	-8.19	Peak	VERTICAL
5	730.34	35.55	3.50	39.05	46.00	-6.95	Peak	VERTICAL
6	959.26	35.76	7.11	42.87	46.00	-3.13	Peak	VERTICAL
1	125.06	45.16	-7.47	37.69	43.50	-5.81	Peak	HORIZONTAL
2	250.19	43.43	-5.51	37.92	46.00	-8.08	Peak	HORIZONTAL
3	489.78	42.65	-0.72	41.93	46.00	-4.07	Peak	HORIZONTAL
4	500.45	42.64	-0.64	42.00	46.00	-4.00	Peak	HORIZONTAL
5	522.76	42.17	0.13	42.30	46.00	-3.70	Peak	HORIZONTAL
6	959.26	34.99	7.11	42.10	46.00	-3.90	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11g TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	47.90	-7.47	40.43	43.50	-3.07	Peak	VERTICAL
2	490.75	43.60	-0.71	42.89	46.00	-3.11	Peak	VERTICAL
3	499.48	42.91	-0.66	42.25	46.00	-3.75	Peak	VERTICAL
4	517.91	41.36	-0.02	41.34	46.00	-4.66	Peak	VERTICAL
5	729.37	38.63	3.48	42.11	46.00	-3.89	Peak	VERTICAL
6	944.71	35.77	6.80	42.57	46.00	-3.43	Peak	VERTICAL
1	125.06	45.89	-7.47	38.42	43.50	-5.08	Peak	HORIZONTAL
2	499.48	44.44	-0.66	43.78	46.00	-2.22	Peak	HORIZONTAL
3	518.88	41.78	0.02	41.80	46.00	-4.20	Peak	HORIZONTAL
4	734.22	40.32	3.63	43.95	46.00	-2.05	Peak	HORIZONTAL
5	944.71	36.60	6.80	43.40	46.00	-2.60	Peak	HORIZONTAL
6	959.26	36.41	7.11	43.52	46.00	-2.48	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11g TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	47.89	-7.47	40.42	43.50	-3.08	Peak	VERTICAL
2	491.72	43.89	-0.71	43.18	46.00	-2.82	Peak	VERTICAL
3	518.88	41.78	0.02	41.80	46.00	-4.20	Peak	VERTICAL
4	700.27	35.78	3.15	38.93	46.00	-7.07	Peak	VERTICAL
5	734.22	39.32	3.63	42.95	46.00	-3.05	Peak	VERTICAL
6	959.26	36.41	7.11	43.52	46.00	-2.48	Peak	VERTICAL
1	125.06	44.70	-7.47	37.23	43.50	-6.27	Peak	HORIZONTAL
2	229.82	44.76	-6.53	38.23	46.00	-7.77	Peak	HORIZONTAL
3	489.78	43.41	-0.72	42.69	46.00	-3.31	Peak	HORIZONTAL
4	520.82	43.25	0.08	43.33	46.00	-2.67	Peak	HORIZONTAL
5	700.27	40.59	3.15	43.74	46.00	-2.26	Peak	HORIZONTAL
6	745.86	38.10	3.92	42.02	46.00	-3.98	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11n HT20 TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.00	-7.47	40.53	43.50	-2.97	Peak	VERTICAL
2	498.51	44.14	-0.65	43.49	46.00	-2.51	Peak	VERTICAL
3	520.82	41.52	0.08	41.60	46.00	-4.40	Peak	VERTICAL
4	730.34	40.48	3.50	43.98	46.00	-2.02	Peak	VERTICAL
5	745.86	38.36	3.92	42.28	46.00	-3.72	Peak	VERTICAL
6	944.71	35.64	6.80	42.44	46.00	-3.56	Peak	VERTICAL
1	499.48	41.08	-0.66	40.42	46.00	-5.58	Peak	HORIZONTAL
2	517.91	42.83	-0.02	42.81	46.00	-3.19	Peak	HORIZONTAL
3	625.58	38.09	1.77	39.86	46.00	-6.14	Peak	HORIZONTAL
4	700.27	40.45	3.15	43.60	46.00	-2.40	Peak	HORIZONTAL
5	733.25	39.12	3.60	42.72	46.00	-3.28	Peak	HORIZONTAL
6	959.26	36.36	7.11	43.47	46.00	-2.53	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11n HT20 TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.29	-7.47	40.82	43.50	-2.68	Peak	VERTICAL
2	493.66	44.03	-0.69	43.34	46.00	-2.66	Peak	VERTICAL
3	496.57	43.98	-0.67	43.31	46.00	-2.69	Peak	VERTICAL
4	517.91	42.75	-0.02	42.73	46.00	-3.27	Peak	VERTICAL
5	729.37	39.30	3.48	42.78	46.00	-3.22	Peak	VERTICAL
6	944.71	36.54	6.80	43.34	46.00	-2.66	Peak	VERTICAL
1	125.06	45.21	-7.47	37.74	43.50	-5.76	Peak	HORIZONTAL
2	490.75	44.53	-0.71	43.82	46.00	-2.18	Peak	HORIZONTAL
3	700.27	40.23	3.15	43.38	46.00	-2.62	Peak	HORIZONTAL
4	729.37	39.68	3.48	43.16	46.00	-2.84	Peak	HORIZONTAL
5	745.86	38.16	3.92	42.08	46.00	-3.92	Peak	HORIZONTAL
6	959.26	35.82	7.11	42.93	46.00	-3.07	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11n HT20 TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.09	-7.47	40.62	43.50	-2.88	Peak	VERTICAL
2	495.60	43.17	-0.68	42.49	46.00	-3.51	Peak	VERTICAL
3	522.76	41.96	0.13	42.09	46.00	-3.91	Peak	VERTICAL
4	731.31	39.89	3.54	43.43	46.00	-2.57	Peak	VERTICAL
5	746.83	39.39	3.94	43.33	46.00	-2.67	Peak	VERTICAL
6	959.26	36.46	7.11	43.57	46.00	-2.43	Peak	VERTICAL
1	490.75	42.85	-0.71	42.14	46.00	-3.86	Peak	HORIZONTAL
2	498.51	43.43	-0.65	42.78	46.00	-3.22	Peak	HORIZONTAL
3	522.76	43.61	0.13	43.74	46.00	-2.26	Peak	HORIZONTAL
4	700.27	40.52	3.15	43.67	46.00	-2.33	Peak	HORIZONTAL
5	745.86	39.97	3.92	43.89	46.00	-2.11	Peak	HORIZONTAL
6	959.26	36.07	7.11	43.18	46.00	-2.82	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11n HT40 TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	47.70	-7.47	40.23	43.50	-3.27	Peak	VERTICAL
2	492.69	43.43	-0.70	42.73	46.00	-3.27	Peak	VERTICAL
3	495.60	44.06	-0.68	43.38	46.00	-2.62	Peak	VERTICAL
4	518.88	44.41	0.02	44.43	46.00	-1.57	Peak	VERTICAL
5	730.34	40.28	3.50	43.78	46.00	-2.22	Peak	VERTICAL
6	746.83	39.15	3.94	43.09	46.00	-2.91	Peak	VERTICAL
1	497.54	42.76	-0.67	42.09	46.00	-3.91	Peak	HORIZONTAL
2	518.88	42.41	0.02	42.43	46.00	-3.57	Peak	HORIZONTAL
3	649.83	39.91	1.99	41.90	46.00	-4.10	Peak	HORIZONTAL
4	700.27	40.00	3.15	43.15	46.00	-2.85	Peak	HORIZONTAL
5	746.83	38.88	3.94	42.82	46.00	-3.18	Peak	HORIZONTAL
6	959.26	35.52	7.11	42.63	46.00	-3.37	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11n HT40 TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.61	-7.47	41.14	43.50	-2.36	Peak	VERTICAL
2	496.57	43.22	-0.67	42.55	46.00	-3.45	Peak	VERTICAL
3	500.45	44.46	-0.64	43.82	46.00	-2.18	Peak	VERTICAL
4	517.91	42.08	-0.02	42.06	46.00	-3.94	Peak	VERTICAL
5	739.07	39.98	3.80	43.78	46.00	-2.22	Peak	VERTICAL
6	959.26	36.34	7.11	43.45	46.00	-2.55	Peak	VERTICAL
1	491.72	42.62	-0.71	41.91	46.00	-4.09	Peak	HORIZONTAL
2	500.45	43.93	-0.64	43.29	46.00	-2.71	Peak	HORIZONTAL
3	700.27	40.31	3.15	43.46	46.00	-2.54	Peak	HORIZONTAL
4	744.89	39.54	3.90	43.44	46.00	-2.56	Peak	HORIZONTAL
5	944.71	35.14	6.80	41.94	46.00	-4.06	Peak	HORIZONTAL
6	959.26	36.60	7.11	43.71	46.00	-2.29	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (below 1GHz)

Operation Mode	802.11n HT40 TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	125.06	48.20	-7.47	40.73	43.50	-2.77	Peak	VERTICAL
2	493.66	42.98	-0.69	42.29	46.00	-3.71	Peak	VERTICAL
3	517.91	40.87	-0.02	40.85	46.00	-5.15	Peak	VERTICAL
4	731.31	38.52	3.54	42.06	46.00	-3.94	Peak	VERTICAL
5	743.92	38.49	3.89	42.38	46.00	-3.62	Peak	VERTICAL
6	959.26	36.96	7.11	44.07	46.00	-1.93	Peak	VERTICAL
1	125.06	44.81	-7.47	37.34	43.50	-6.16	Peak	HORIZONTAL
2	518.88	41.26	0.02	41.28	46.00	-4.72	Peak	HORIZONTAL
3	600.36	37.50	1.52	39.02	46.00	-6.98	Peak	HORIZONTAL
4	649.83	39.56	1.99	41.55	46.00	-4.45	Peak	HORIZONTAL
5	700.27	40.53	3.15	43.68	46.00	-2.32	Peak	HORIZONTAL
6	959.26	35.91	7.11	43.02	46.00	-2.98	Peak	HORIZONTAL

Remark:

1 No further spurious emissions detected from the lowest internal frequency and 30MHz.

2 Measuring frequencies from the lowest internal frequency to the 1GHz.

3 Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP

4 Measurement result within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	801.11b TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4824.00	59.53	-9.35	50.18	74.00	-23.82	Peak	VERTICAL
2	7236.00	47.91	-1.81	46.10	74.00	-27.90	Peak	VERTICAL
1	4824.00	56.78	-9.35	47.43	74.00	-26.57	Peak	HORIZONTAL
2	7236.00	46.57	-1.81	44.76	74.00	-29.24	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency

2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.

3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11b TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4874.00	56.26	-9.22	47.04	74.00	-26.96	Peak	VERTICAL
2	7311.00	45.58	-1.77	43.81	74.00	-30.19	Peak	VERTICAL
1	4874.00	52.88	-9.22	43.66	74.00	-30.34	Peak	HORIZONTAL
2	7311.00	45.16	-1.77	43.39	74.00	-30.61	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency

2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.

3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11b TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4924.00	55.96	-9.10	46.86	74.00	-27.14	Peak	VERTICAL
2	7386.00	45.19	-1.72	43.47	74.00	-30.53	Peak	VERTICAL
1	4924.00	56.31	-9.10	47.21	74.00	-26.79	Peak	HORIZONTAL
2	7386.00	43.62	-1.72	41.90	74.00	-32.10	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency

2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.

3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	801.11g TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4824.00	48.27	-9.35	38.92	74.00	-35.08	Peak	VERTICAL
2	7236.00	45.40	-1.81	43.59	74.00	-30.41	Peak	VERTICAL
1	4824.00	48.73	-9.35	39.38	74.00	-34.62	Peak	HORIZONTAL
2	7236.00	44.95	-1.81	43.14	74.00	-30.86	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.1g TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4874.00	47.75	-9.22	38.53	74.00	-35.47	Peak	VERTICAL
2	7311.00	43.52	-1.77	41.75	74.00	-32.25	Peak	VERTICAL
1	4874.00	44.69	-9.22	35.47	74.00	-38.53	Peak	HORIZONTAL
2	7311.00	43.07	-1.77	41.30	74.00	-32.70	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11g TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4924.00	47.15	-9.10	38.05	74.00	-35.95	Peak	VERTICAL
2	7386.00	45.39	-1.72	43.67	74.00	-30.33	Peak	VERTICAL
1	4924.00	45.63	-9.10	36.53	74.00	-37.47	Peak	HORIZONTAL
2	7386.00	45.01	-1.72	43.29	74.00	-30.71	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11n HT20 TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4824.00	50.61	-9.35	41.26	74.00	-32.74	Peak	VERTICAL
2	7236.00	42.89	-1.81	41.08	74.00	-32.92	Peak	VERTICAL
1	4824.00	47.35	-9.35	38.00	74.00	-36.00	Peak	HORIZONTAL
2	7236.00	42.39	-1.81	40.58	74.00	-33.42	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11n HT20 TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4874.00	50.33	-9.22	41.11	74.00	-32.89	Peak	VERTICAL
2	7311.00	46.99	-1.77	45.22	74.00	-28.78	Peak	VERTICAL
1	4874.00	49.08	-9.22	39.86	74.00	-34.14	Peak	HORIZONTAL
2	7311.00	43.17	-1.77	41.40	74.00	-32.60	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11n HT20 TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4924.00	50.15	-9.10	41.05	74.00	-32.95	Peak	VERTICAL
2	7386.00	43.51	-1.72	41.79	74.00	-32.21	Peak	VERTICAL
1	4924.00	46.77	-9.10	37.67	74.00	-36.33	Peak	HORIZONTAL
2	7386.00	43.23	-1.72	41.51	74.00	-32.49	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11n HT40 TX mode	Test Date	2019/12/23
Channel number	CH Low	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4844.00	47.44	-9.31	38.13	74.00	-35.87	Peak	VERTICAL
2	7266.00	44.43	-1.79	42.64	74.00	-31.36	Peak	VERTICAL
1	4844.00	45.39	-9.31	36.08	74.00	-37.92	Peak	HORIZONTAL
2	7266.00	42.92	-1.79	41.13	74.00	-32.87	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11n HT40 TX mode	Test Date	2019/12/23
Channel number	CH Mid	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4874.00	50.50	-9.22	41.28	74.00	-32.72	Peak	VERTICAL
2	7311.00	43.81	-1.77	42.04	74.00	-31.96	Peak	VERTICAL
1	4874.00	46.72	-9.22	37.50	74.00	-36.50	Peak	HORIZONTAL
2	7311.00	43.26	-1.77	41.49	74.00	-32.51	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Radiated Spurious Emission Measurement Result (above 1GHz)

Operation Mode	802.11n HT40 TX mode	Test Date	2019/12/23
Channel number	CH High	Test By	Weitin
Temperature	25 ℃	Pol	Ver./Hor
Humidity	60 %		

No	Freq MHz	Reading dBuV	Factor dB	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4904.00	50.68	-9.14	41.54	74.00	-32.46	Peak	VERTICAL
2	7356.00	46.27	-1.74	44.53	74.00	-29.47	Peak	VERTICAL
1	4904.00	48.89	-9.14	39.75	74.00	-34.25	Peak	HORIZONTAL
2	7356.00	45.58	-1.74	43.84	74.00	-30.16	Peak	HORIZONTAL

Remark:

1 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency

2 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.

3 Measurement of data within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

9 100kHz Bandwidth of Band Edges Measurement

9.1 Standard Applicable:

According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in15.209(a).

9.2 Measurement Equipment Used:

Refer to section 8.2 for details.

9.3 Test Setup

Refer to section 8.3 for details.

9.4 Measurement Procedure:

Refer to section 8.4 for details.

9.5 Field Strength Calculation:

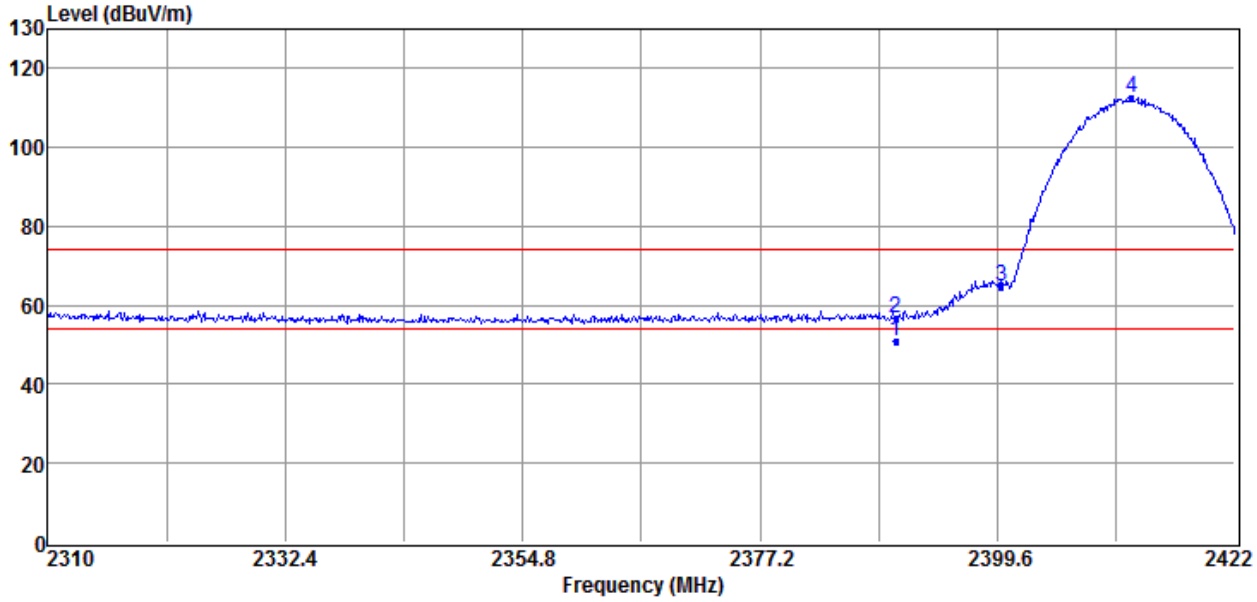
Refer to section 8.5 for details.

9.6 Measurement Result:

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

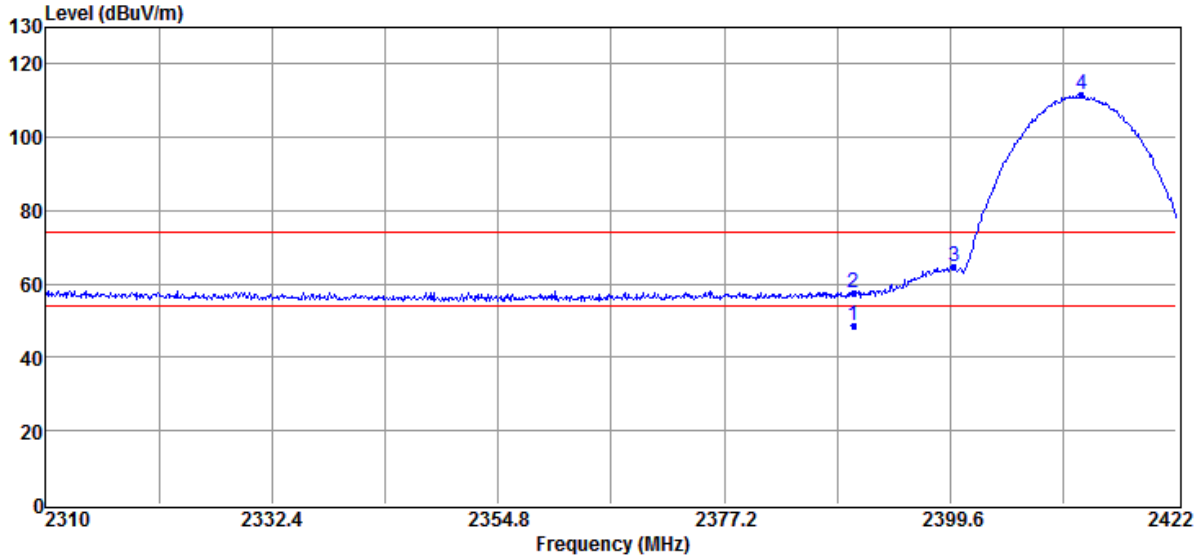
Radiated Emission: 802.11 b mode

Operation Mode	TX CH Low	Test Date	2019/12/23
Fundamental Frequency	2412 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	18.24	32.59	50.83	54.00	-3.17	Average	VERTICAL
2	2390.00	24.01	32.59	56.60	74.00	-17.40	Peak	VERTICAL
3	2400.00	32.33	32.58	64.91	92.43	-27.52	Peak	VERTICAL
4	2412.26	79.84	32.59	112.43	F	--	Peak	VERTICAL

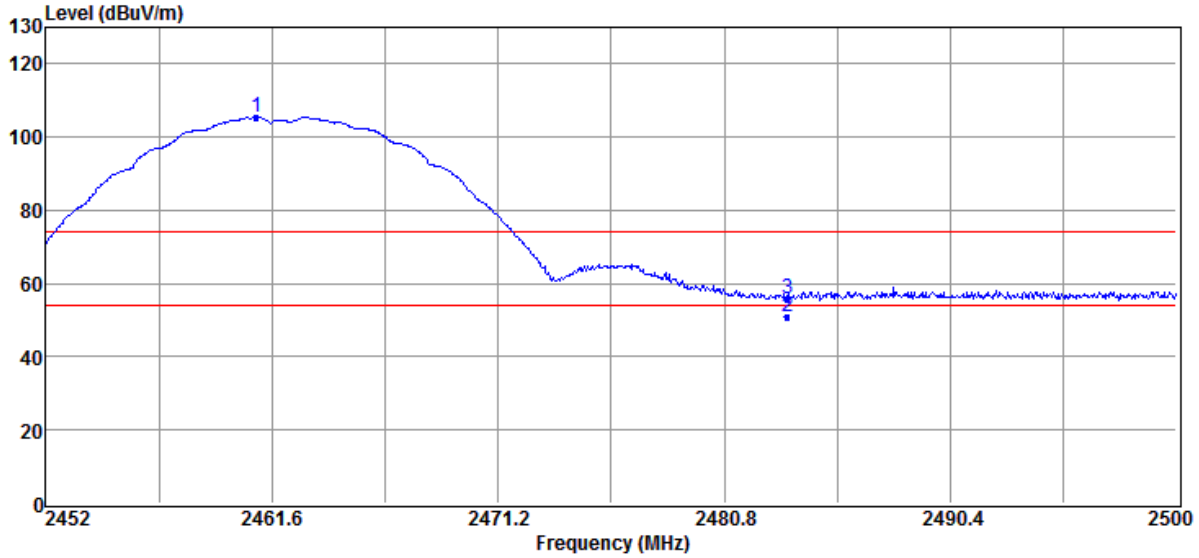
Remark: F" denotes fundamental frequency



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	16.24	32.59	48.83	54.00	-5.17	Average	HORIZONTAL
2	2390.00	25.02	32.59	57.61	74.00	-16.39	Peak	HORIZONTAL
3	2400.00	32.33	32.58	64.91	91.59	-26.68	Peak	HORIZONTAL
4	2412.59	79.01	32.58	111.59	F	--	Peak	HORIZONTAL

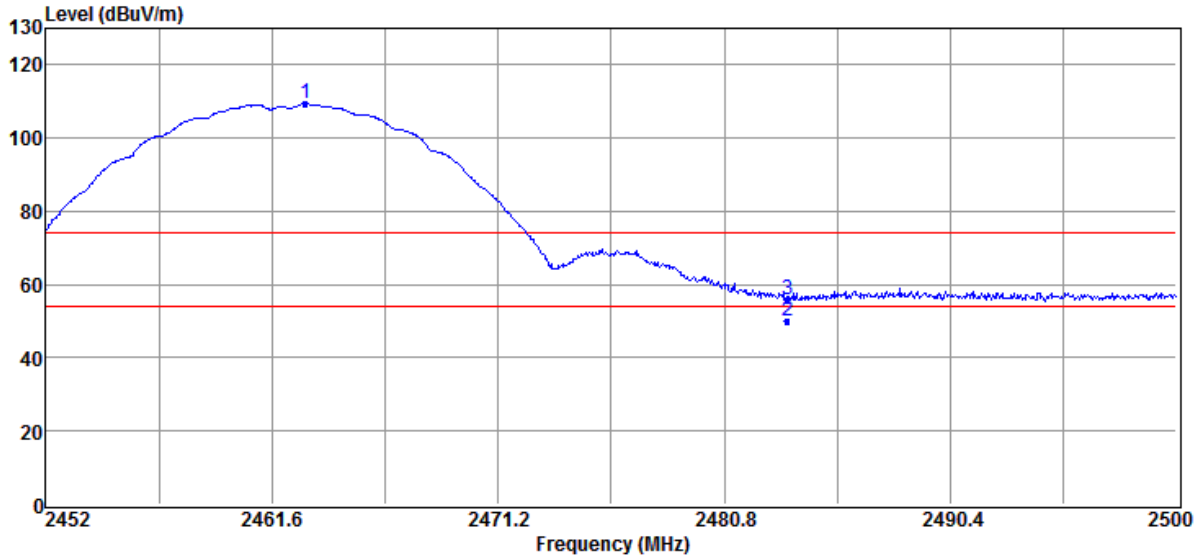
Remark: F" denotes fundamental frequency

Operation Mode	TX CH High	Test Date	2019/12/23
Fundamental Frequency	2462 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2460.93	72.89	32.62	105.51	F	--	Peak	VERTICAL
2	2483.50	18.23	32.63	50.86	54.00	-3.14	Average	VERTICAL
3	2483.50	23.40	32.63	56.03	74.00	-17.97	Peak	VERTICAL

Remark: “F” denotes fundamental frequency

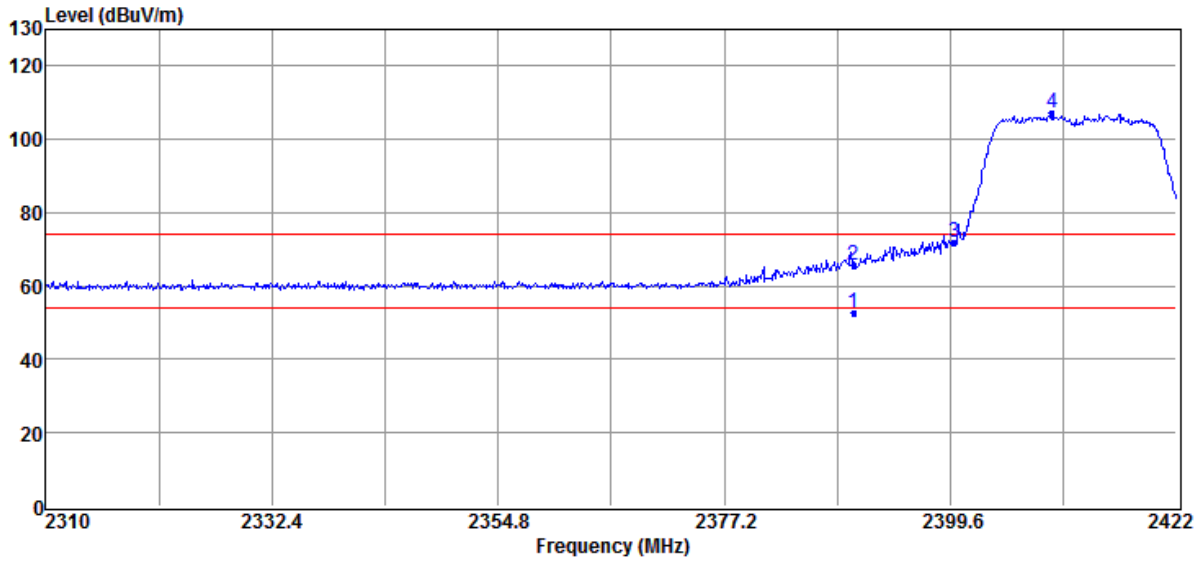


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2463.04	76.88	32.61	109.49	F	--	Peak	HORIZONTAL
2	2483.50	17.26	32.63	49.89	54.00	-4.11	Average	HORIZONTAL
3	2483.50	23.36	32.63	55.99	74.00	-18.01	Peak	HORIZONTAL

Remark: “F” denotes fundamental frequency

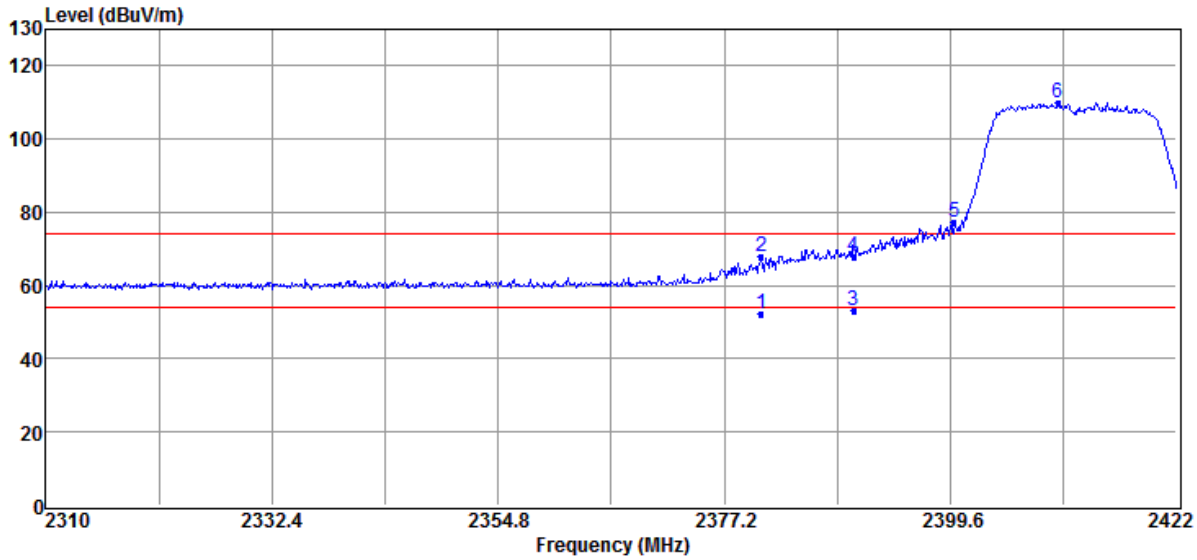
Radiated Emission: 802.11 g mode

Operation Mode	TX CH Low	Test Date	2019/12/23
Fundamental Frequency	2412 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	19.91	32.59	52.50	54.00	-1.50	Average	VERTICAL
2	2390.00	33.22	32.59	65.81	74.00	-8.19	Peak	VERTICAL
3	2400.00	39.46	32.58	72.04	87.25	-15.21	Peak	VERTICAL
4	2409.68	74.66	32.59	107.25	F	--	Peak	VERTICAL

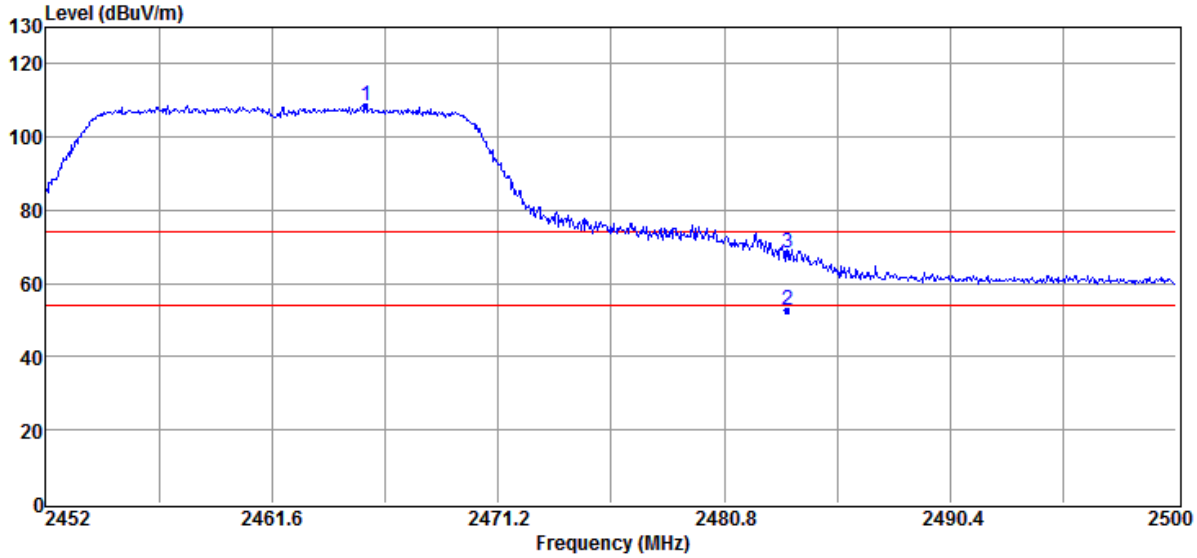
Remark: “F” denotes fundamental frequency



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2380.90	19.90	32.59	52.49	54.00	-1.51	Average	HORIZONTAL
2	2380.90	35.21	32.59	67.80	74.00	-6.20	Peak	HORIZONTAL
3	2390.00	20.43	32.59	53.02	54.00	-0.98	Average	HORIZONTAL
4	2390.00	35.51	32.59	68.10	74.00	-5.90	Peak	HORIZONTAL
5	2400.00	44.66	32.58	77.24	89.9	-12.66	Peak	HORIZONTAL
6	2410.24	77.31	32.59	109.90	F	--	Peak	HORIZONTAL

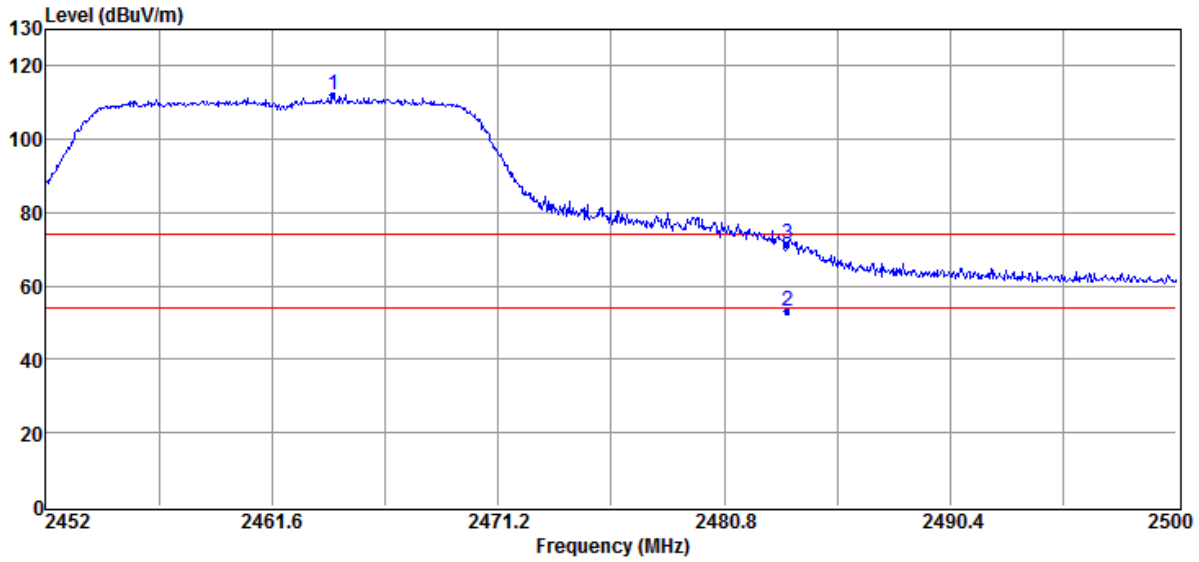
Remark: “F” denotes fundamental frequency

Operation Mode	TX CH High	Test Date	2019/12/23
Fundamental Frequency	2462 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2465.58	75.89	32.62	108.51	F	--	Peak	VERTICAL
2	2483.49	20.13	32.63	52.76	54.00	-1.24	Average	VERTICAL
3	2483.49	35.58	32.63	68.21	74.00	-5.79	Peak	VERTICAL

Remark: “F” denotes fundamental frequency

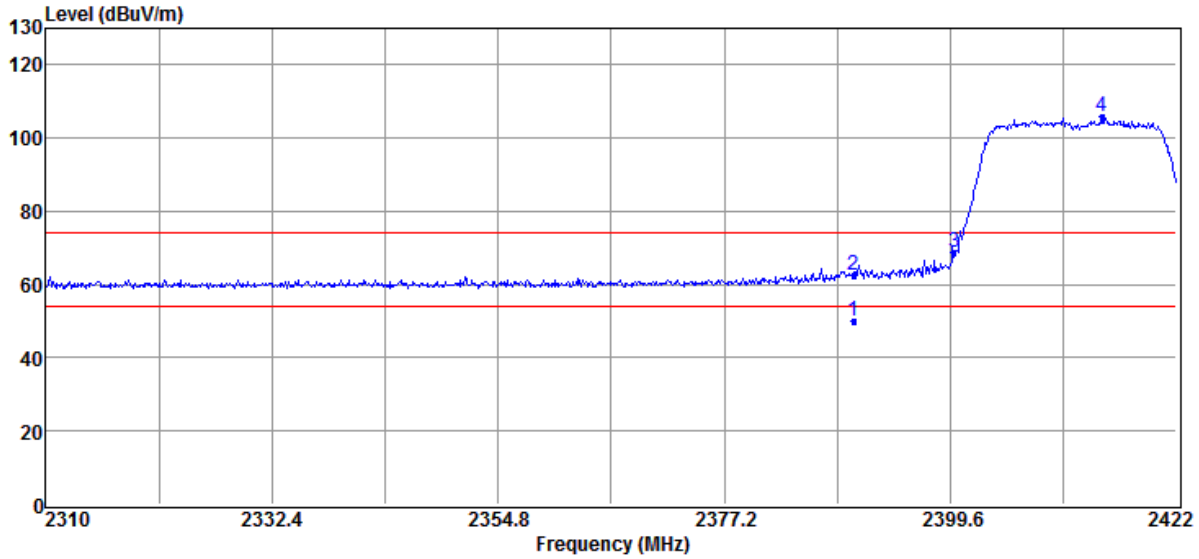


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2464.19	79.48	32.61	112.09	F	--	Peak	HORIZONTAL
2	2483.50	20.57	32.63	53.20	54.00	-0.80	Average	HORIZONTAL
3	2483.50	38.90	32.63	71.53	74.00	-2.47	Peak	HORIZONTAL

Remark: “F” denotes fundamental frequency

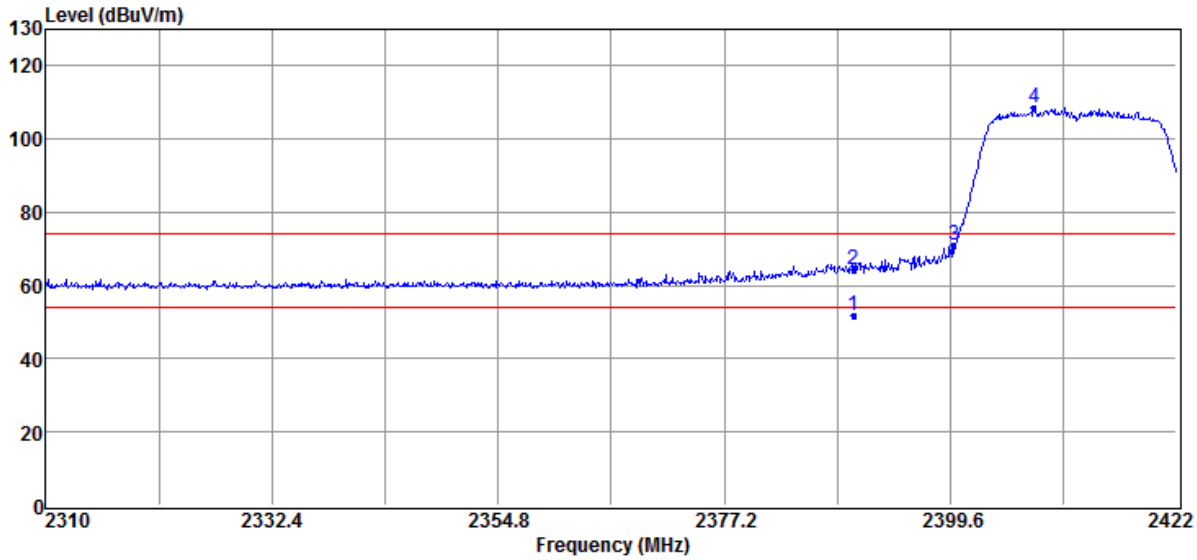
Radiated Emission: 802.11 n_HT20 mode

Operation Mode	TX CH Low	Test Date	2019/12/23
Fundamental Frequency	2412 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	17.35	32.59	49.94	54.00	-4.06	Average	VERTICAL
2	2390.00	29.92	32.59	62.51	74.00	-11.49	Peak	VERTICAL
3	2400.00	36.00	32.58	68.58	85.96	-17.38	Peak	VERTICAL
4	2414.61	73.38	32.58	105.96	F	--	Peak	VERTICAL

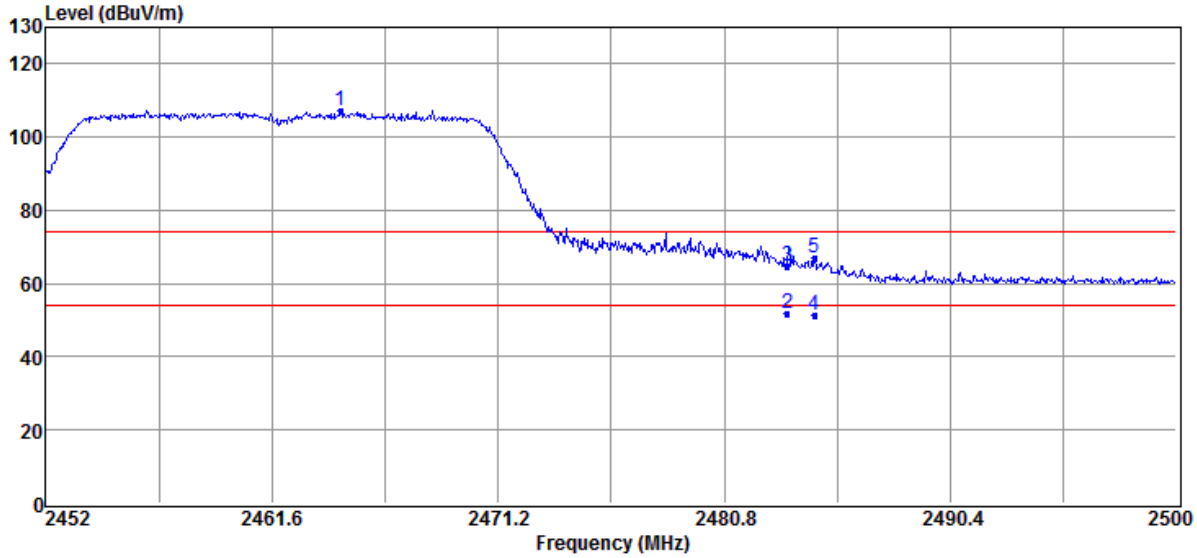
Remark: “F” denotes fundamental frequency



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	19.24	32.59	51.83	54.00	-2.17	Average	HORIZONTAL
2	2390.00	31.77	32.59	64.36	74.00	-9.64	Peak	HORIZONTAL
3	2400.00	38.47	32.58	71.05	88.55	-17.5	Peak	HORIZONTAL
4	2407.89	75.96	32.59	108.55	F	--	Peak	HORIZONTAL

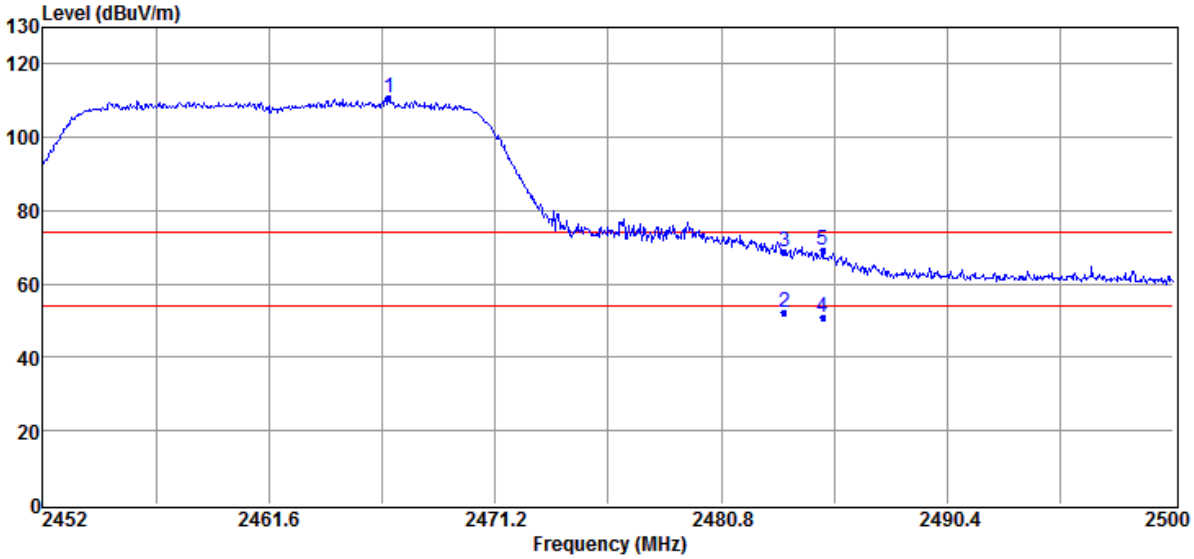
Remark: “F” denotes fundamental frequency

Operation Mode	TX CH High	Test Date	2019/12/23
Fundamental Frequency	2462 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2464.53	74.47	32.61	107.08	F	--	Peak	VERTICAL
2	2483.49	19.00	32.63	51.63	54.00	-2.37	Average	VERTICAL
3	2483.49	31.97	32.63	64.60	74.00	-9.40	Peak	VERTICAL
4	2484.64	18.89	32.63	51.52	54.00	-2.48	Average	VERTICAL
5	2484.64	34.46	32.63	67.09	74.00	-6.91	Peak	VERTICAL

Remark: “F” denotes fundamental frequency

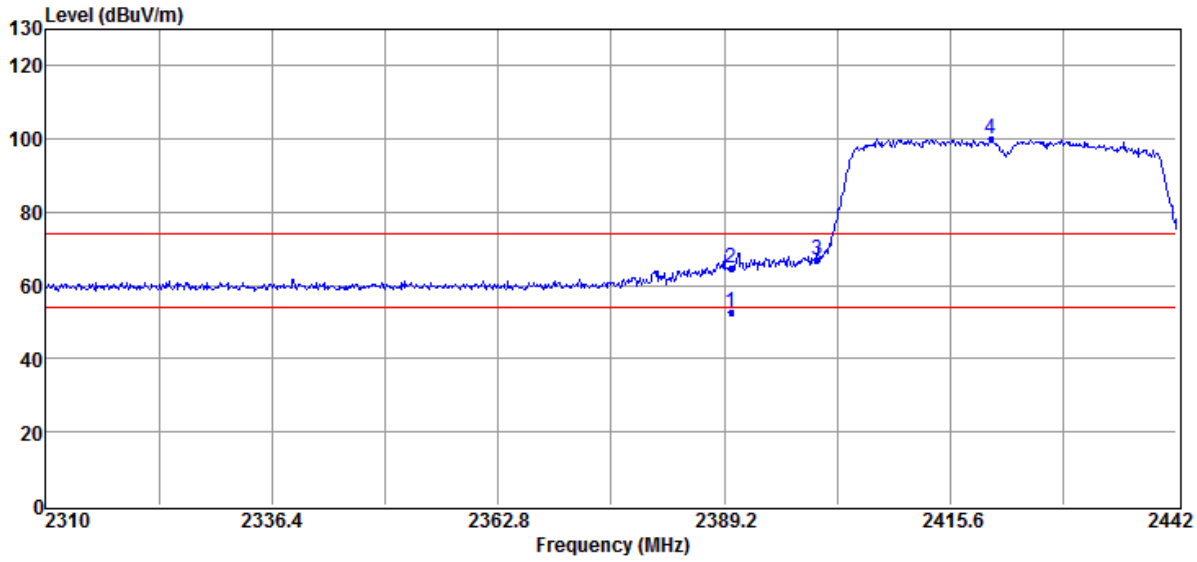


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2466.69	78.34	32.62	110.96	F	--	Peak	HORIZONTAL
2	2483.50	19.73	32.63	52.36	54.00	-1.64	Average	HORIZONTAL
3	2483.50	36.39	32.63	69.02	74.00	-4.98	Peak	HORIZONTAL
4	2485.12	18.12	32.64	50.76	54.00	-3.24	Average	HORIZONTAL
5	2485.12	36.46	32.64	69.10	74.00	-4.90	Peak	HORIZONTAL

Remark: “F” denotes fundamental frequency

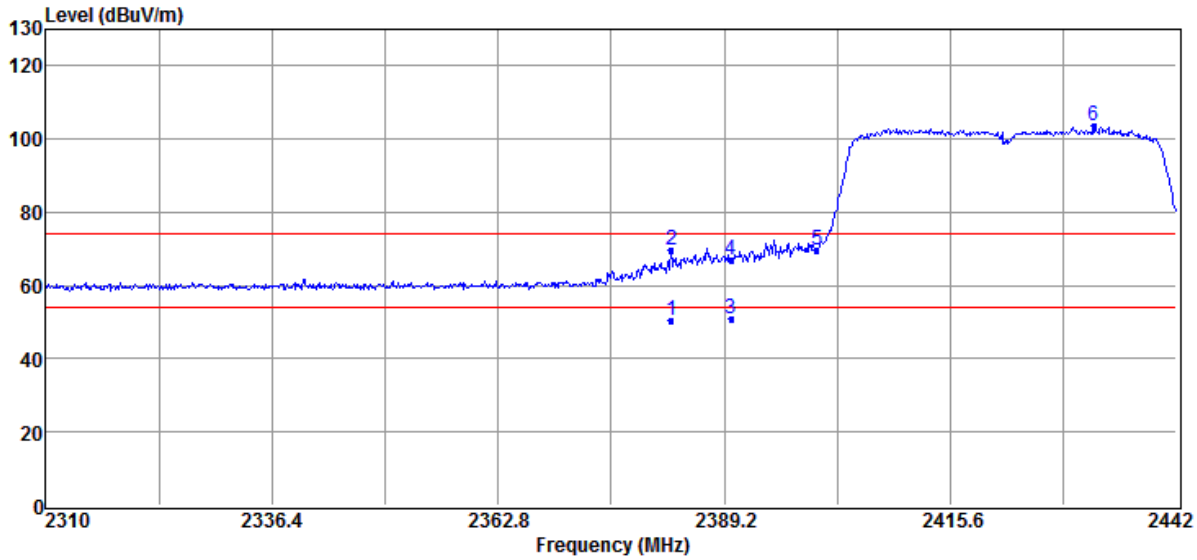
Radiated Emission: 802.11 n_HT40 mode

Operation Mode	TX CH Low	Test Date	2019/12/23
Fundamental Frequency	2412 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	20.15	32.59	52.74	54.00	-1.26	Average	VERTICAL
2	2390.00	32.11	32.59	64.70	74.00	-9.30	Peak	VERTICAL
3	2400.00	34.23	32.58	66.81	80.15	-13.34	Peak	VERTICAL
4	2420.35	67.56	32.59	100.15	F	--	Peak	VERTICAL

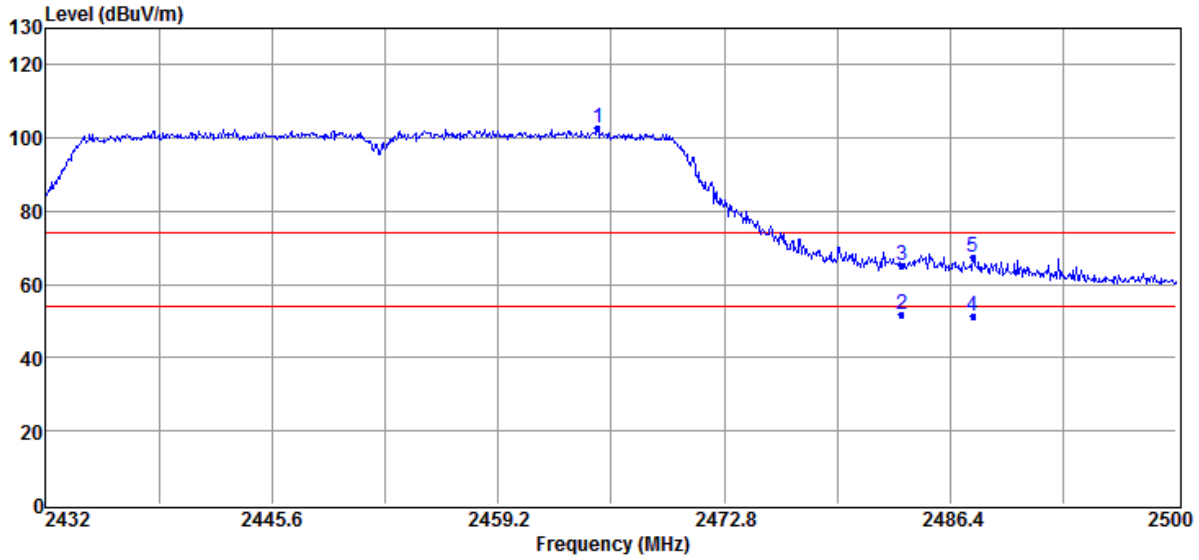
Remark: “F” denotes fundamental frequency



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2383.00	17.95	32.59	50.54	54.00	-3.46	Average	HORIZONTAL
2	2383.00	36.96	32.59	69.55	74.00	-4.45	Peak	HORIZONTAL
3	2390.00	18.23	32.59	50.82	54.00	-3.18	Average	HORIZONTAL
4	2390.00	34.53	32.59	67.12	74.00	-6.88	Peak	HORIZONTAL
5	2400.00	37.23	32.58	69.81	83.43	-13.62	Peak	HORIZONTAL
6	2432.36	70.83	32.60	103.43	F	--	Peak	HORIZONTAL

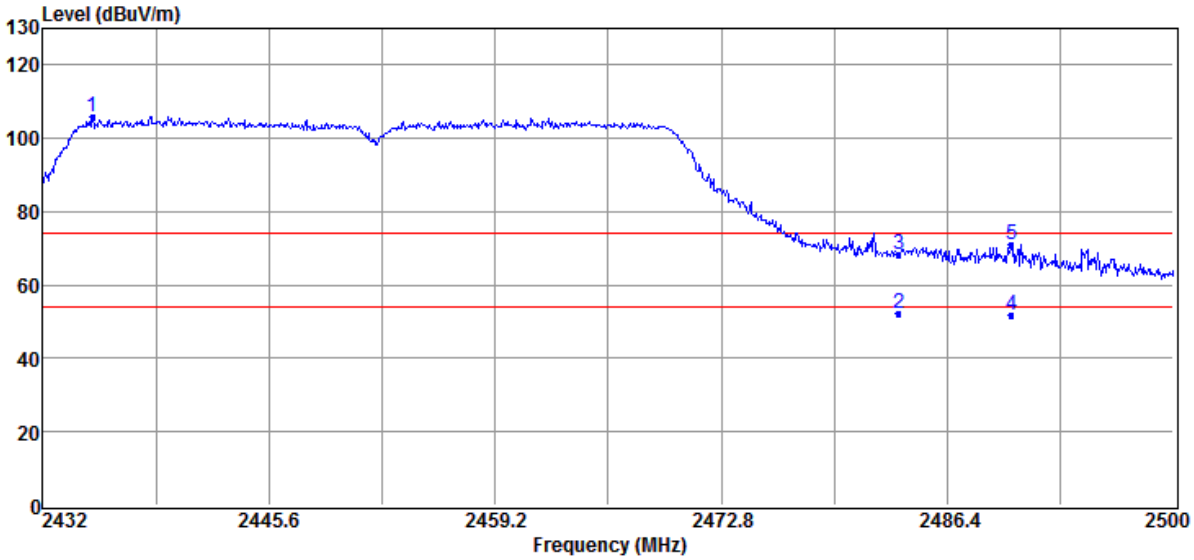
Remark: “F” denotes fundamental frequency

Operation Mode	TX CH High	Test Date	2019/12/23
Fundamental Frequency	2462 MHz	Test By	Weitin
Temperature	25 ℃	Humidity	60 %



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2465.18	69.97	32.62	102.59	F	--	Peak	VERTICAL
2	2483.50	18.99	32.63	51.62	54.00	-2.38	Average	VERTICAL
3	2483.50	32.63	32.63	65.26	74.00	-8.74	Peak	VERTICAL
4	2487.76	18.91	32.63	51.54	54.00	-2.46	Average	VERTICAL
5	2487.76	34.96	32.63	67.59	74.00	-6.41	Peak	VERTICAL

Remark: “F” denotes fundamental frequency



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2434.99	73.19	32.61	105.80	F	--	Peak	HORIZONTAL
2	2483.50	19.68	32.63	52.31	54.00	-1.69	Average	HORIZONTAL
3	2483.50	35.80	32.63	68.43	74.00	-5.57	Peak	HORIZONTAL
4	2490.28	19.16	32.63	51.79	54.00	-2.21	Average	HORIZONTAL
5	2490.28	38.56	32.63	71.19	74.00	-2.81	Peak	HORIZONTAL

Remark: “F” denotes fundamental frequency

10 Peak Power Spectral Density

10.1 Standard Applicable:

According to §15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

10.2 Measurement Equipment Used:

Refer to section 6.2 for details.

10.3 Test Set-up:

Refer to section 7.3 for details.

10.4 Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW =3kHz, VBW = 10kHz, Set the span to 1.5 DTS bandwidth., Sweep=Auto
4. Record the max. reading.
5. Repeat above procedures until all frequency measured were complete.

10.5 Measurement Result:

802.11b Mode

CH	Power Density Level dBm/3KHz	Maximum Limit (dBm)	Result
Low	-2.08	8	Pass
Mid	-2.00	8	
High	-2.98	8	

802.11g Mode

CH	Power Density Level dBm/3KHz	Maximum Limit (dBm)	Result
Low	-3.07	8	Pass
Mid	-4.59	8	
High	-5.00	8	

802.11n HT20

CH	Power Density Level dBm/3KHz	Maximum Limit (dBm)	Result
Low	-3.83	8	Pass
Mid	-4.98	8	
High	-4.05	8	

802.11n HT40

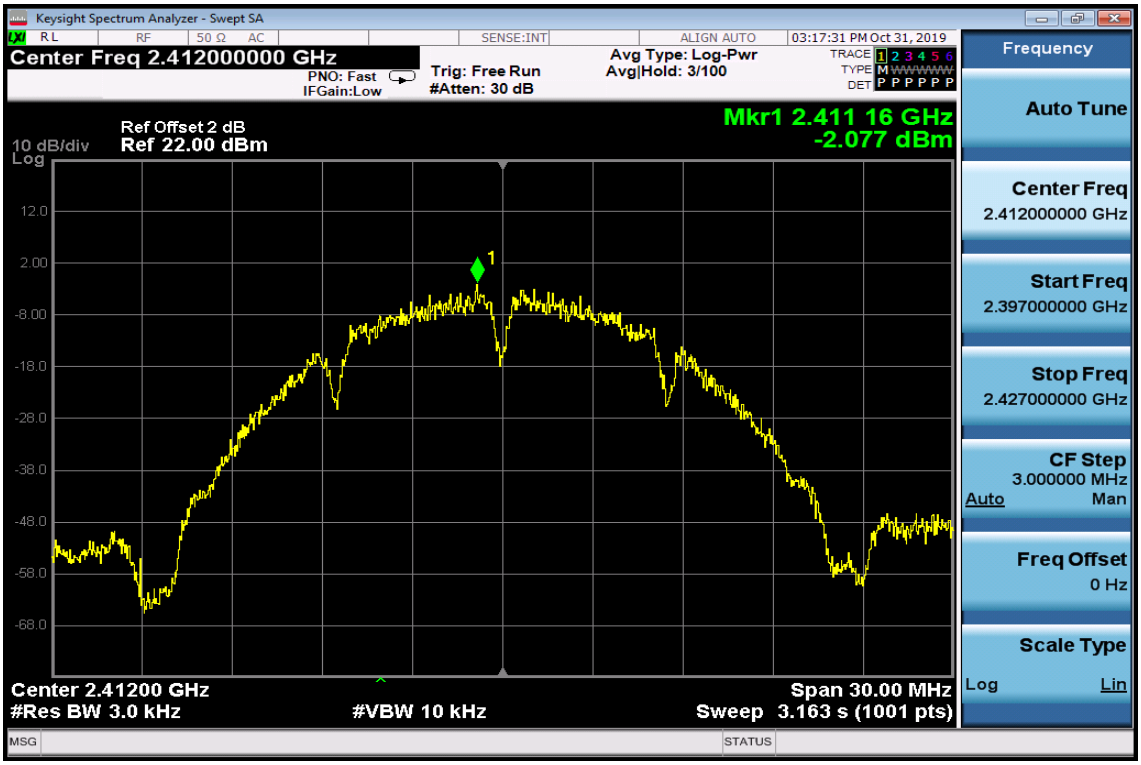
CH	Power Density Level dBm/3KHz	Maximum Limit (dBm)	Result
Low	-7.86	8	Pass
Mid	-7.42	8	
High	-7.04	8	

802.11 n mode, For 2.4GHz
2*2

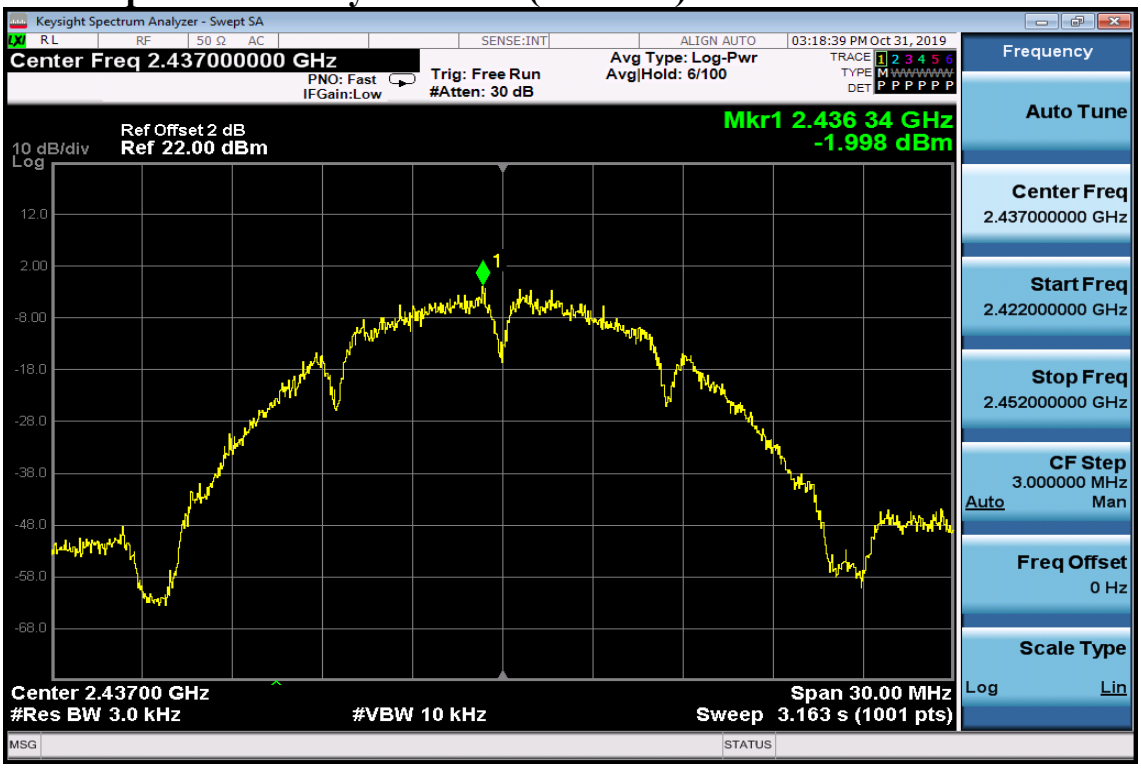
	CH	Output Chain dbm		Combine Power Density (dBm/3KHz)	Limit(dBm)	**Result**
		Chain 1	chain 2			
802.11n HT20	Low	-5.33	-5.07	-2.19	8.00	Pass
	Mid	-4.74	-4.49	-1.60	8.00	
	High	-4.94	-5.26	-2.09	8.00	
802.11n HT40	Low	-7.74	-7.43	-4.57	8.00	
	Mid	-8.05	-7.93	-4.97	8.00	
	High	-7.32	-7.16	-4.23	8.00	

802.11b

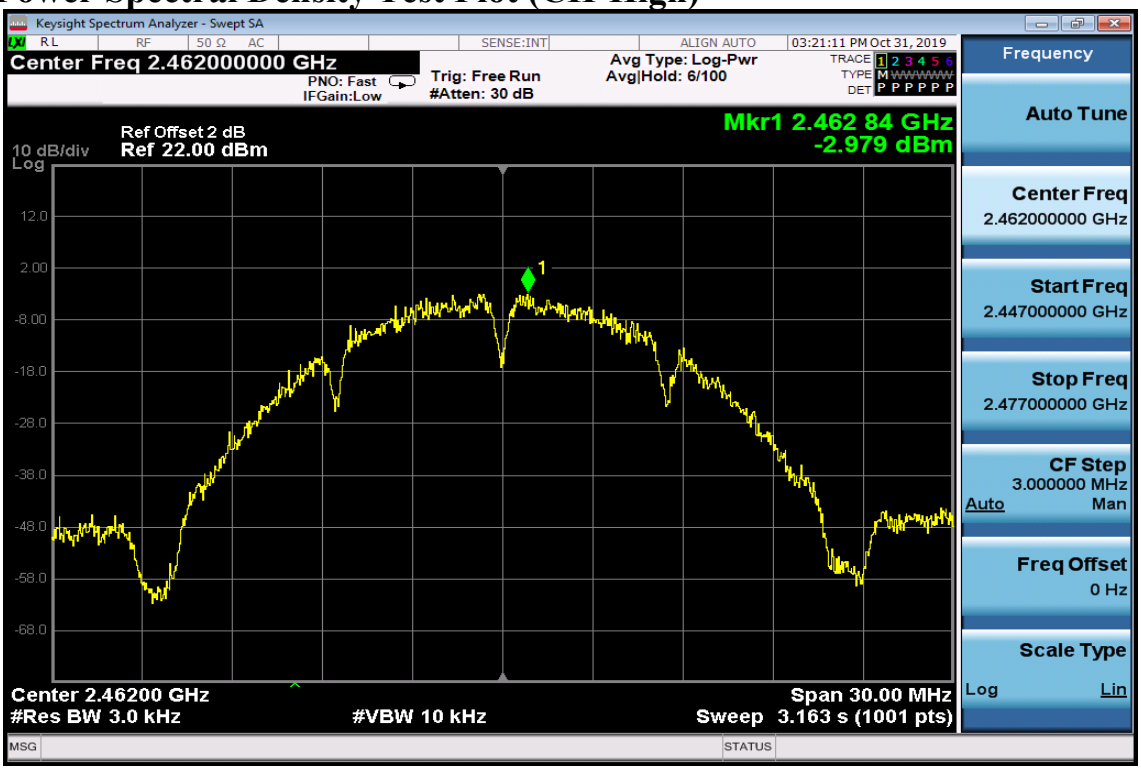
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

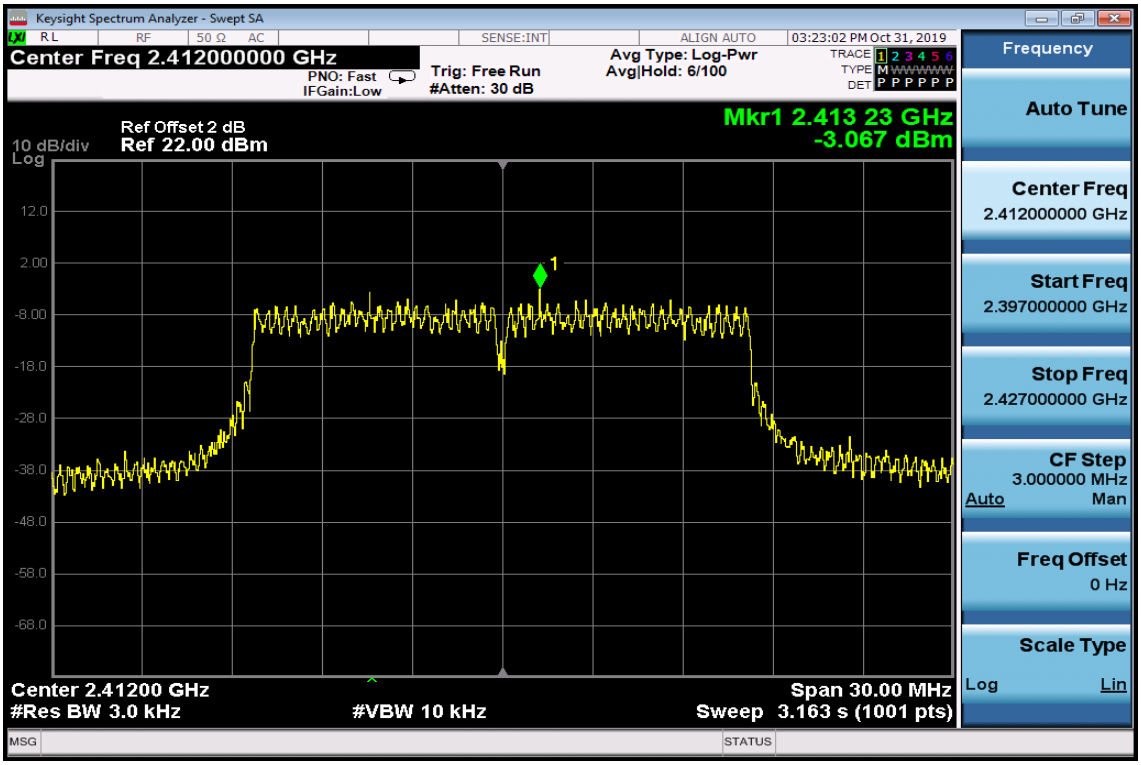


Power Spectral Density Test Plot (CH-High)

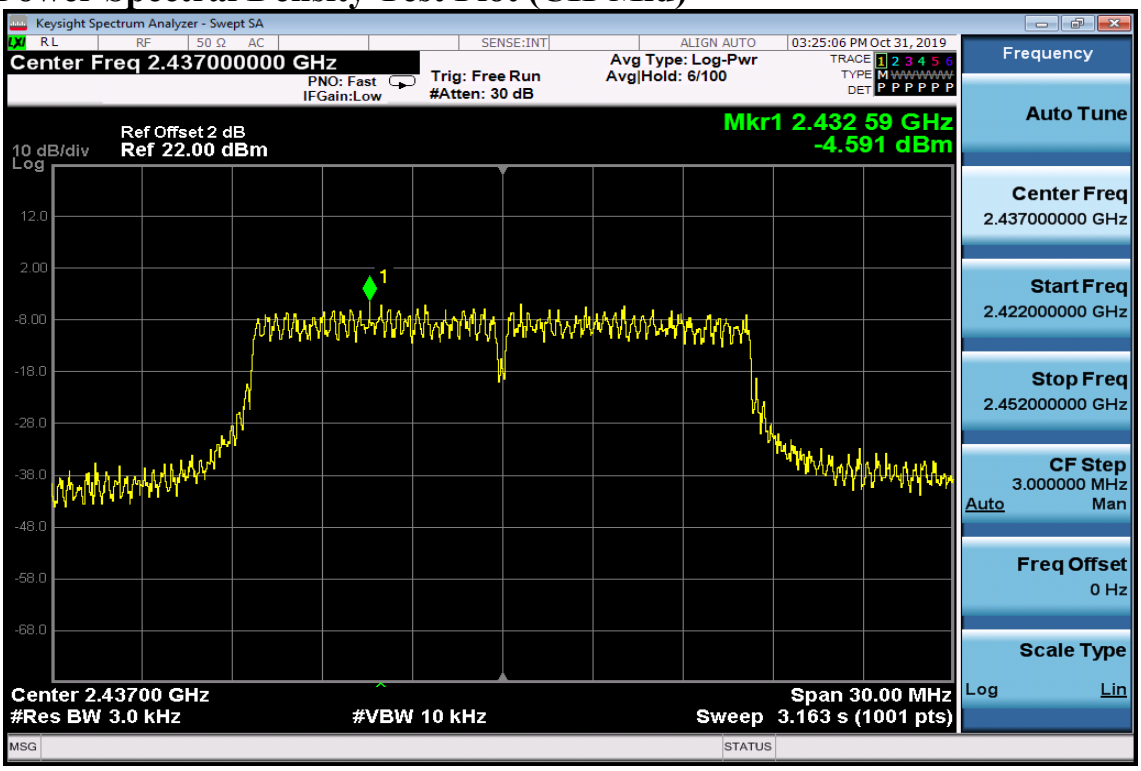


802.11g

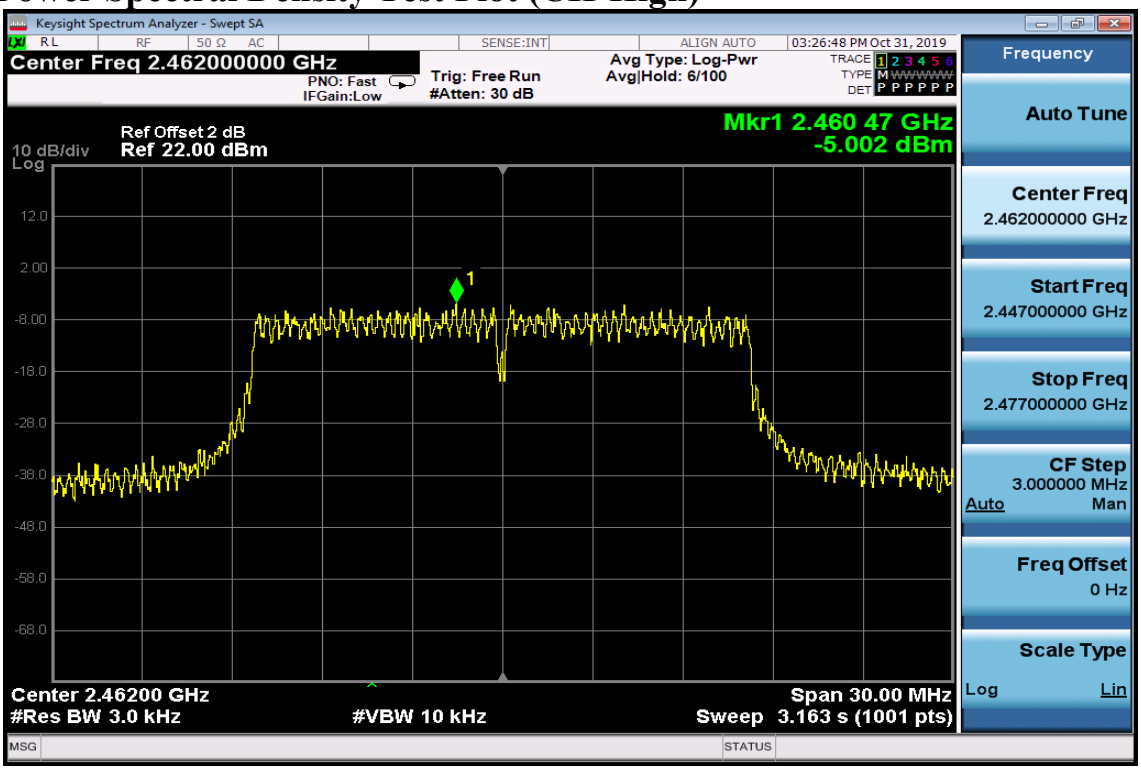
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

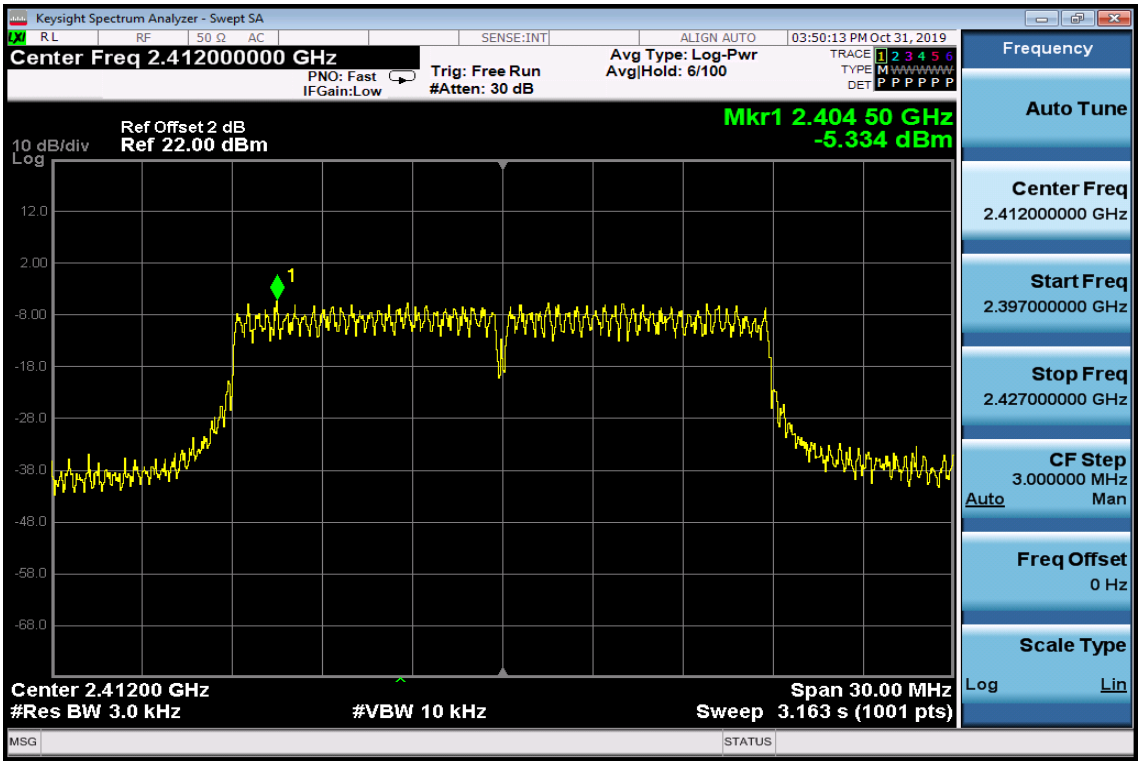


Power Spectral Density Test Plot (CH-High)

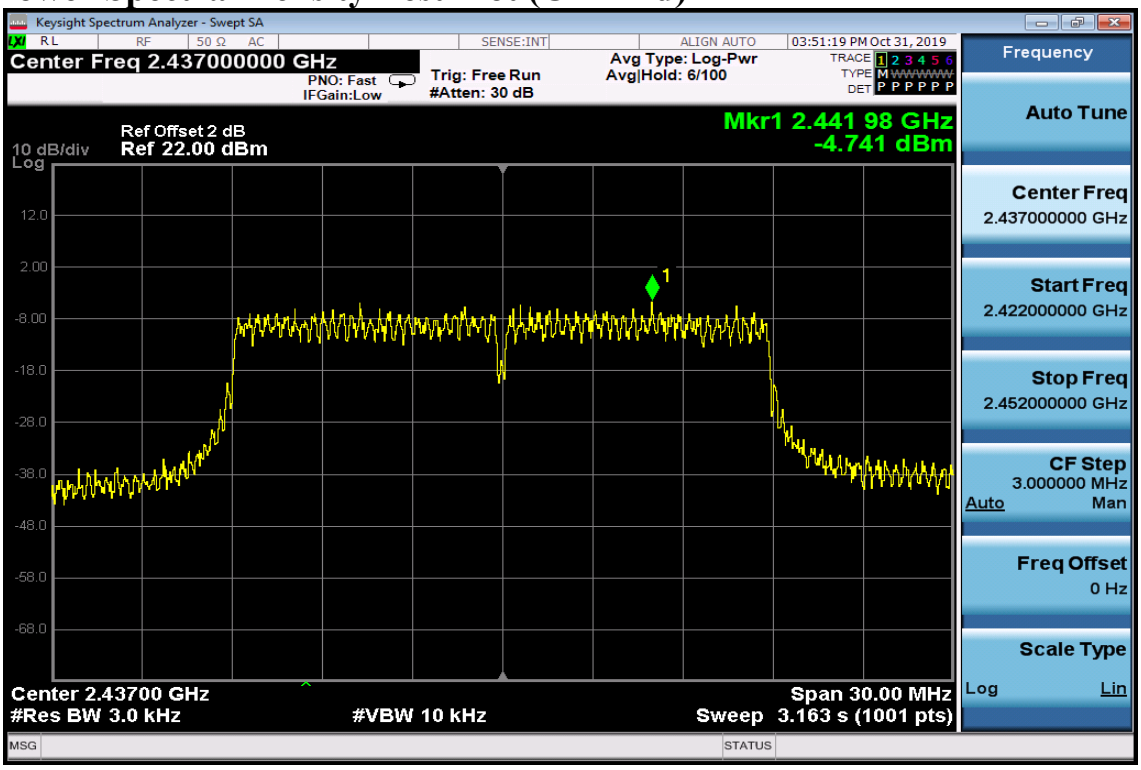


802.11n_HT20 (Antenna 1)

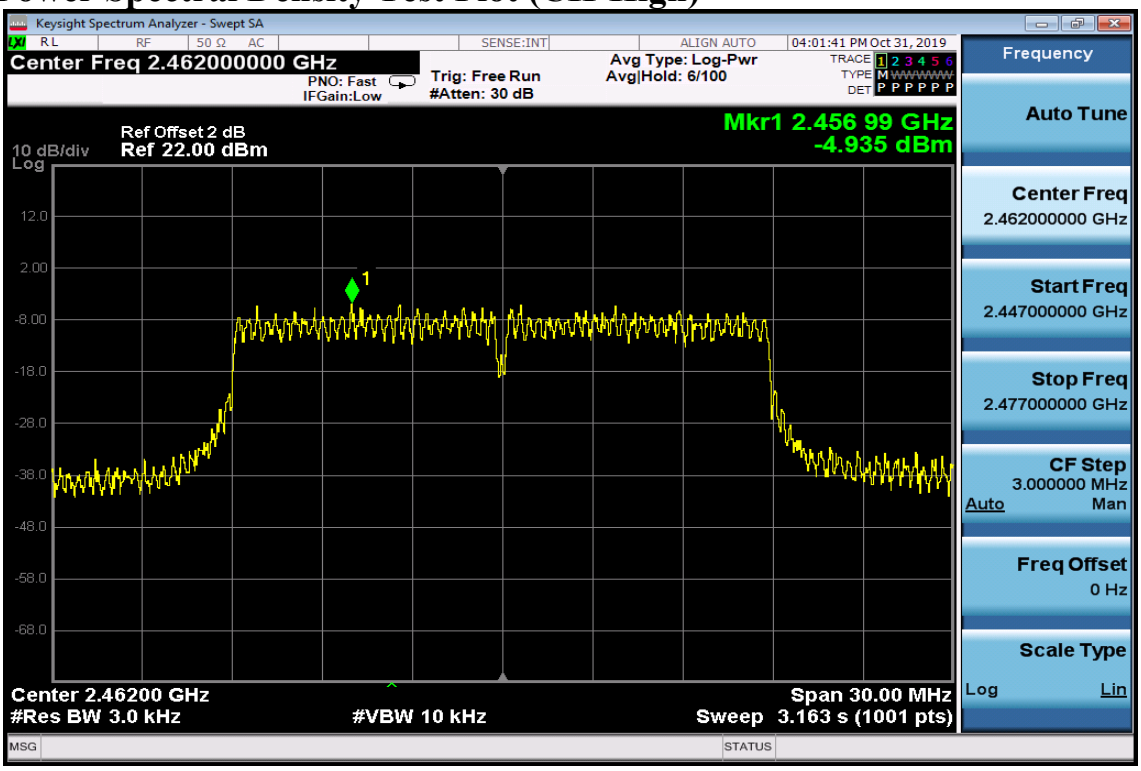
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

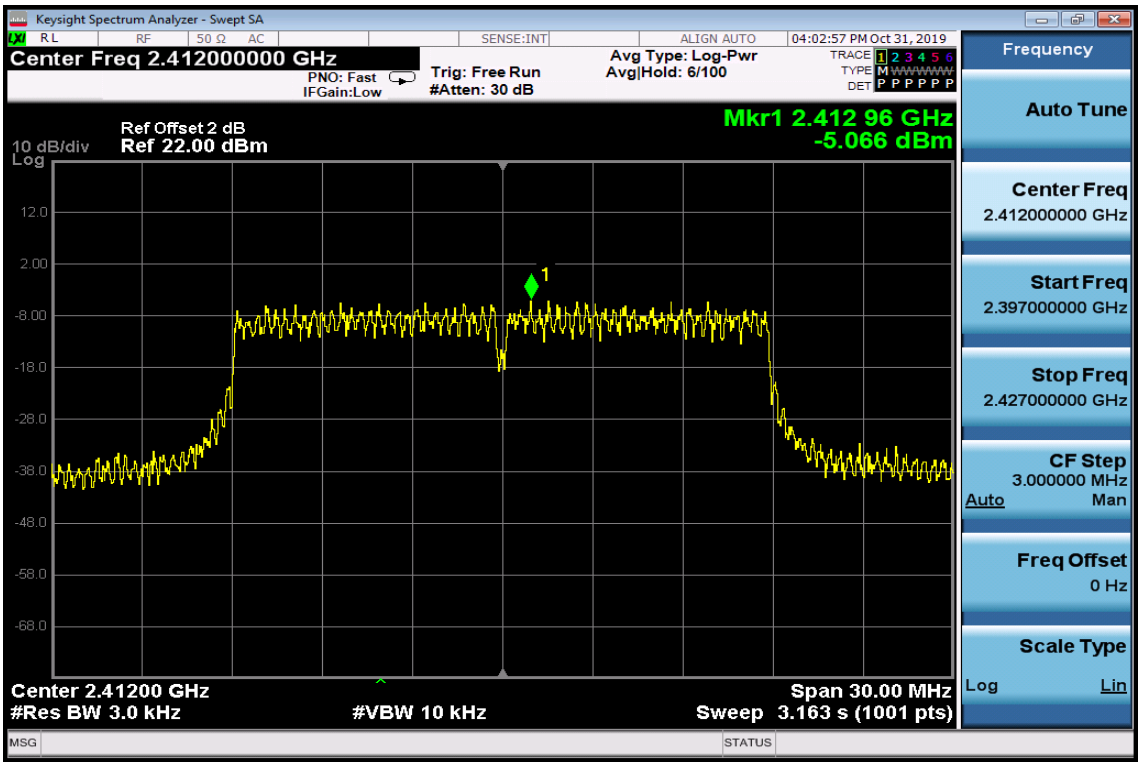


Power Spectral Density Test Plot (CH-High)

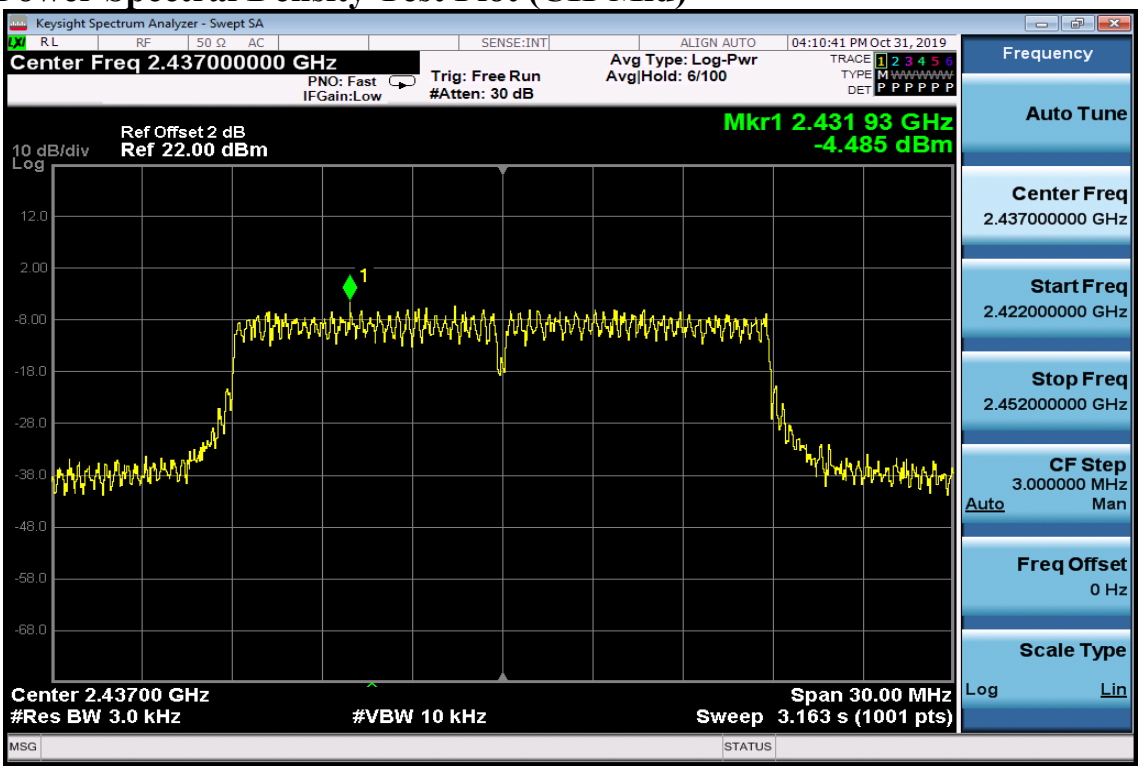


802.11n_HT20 (Antenna 2)

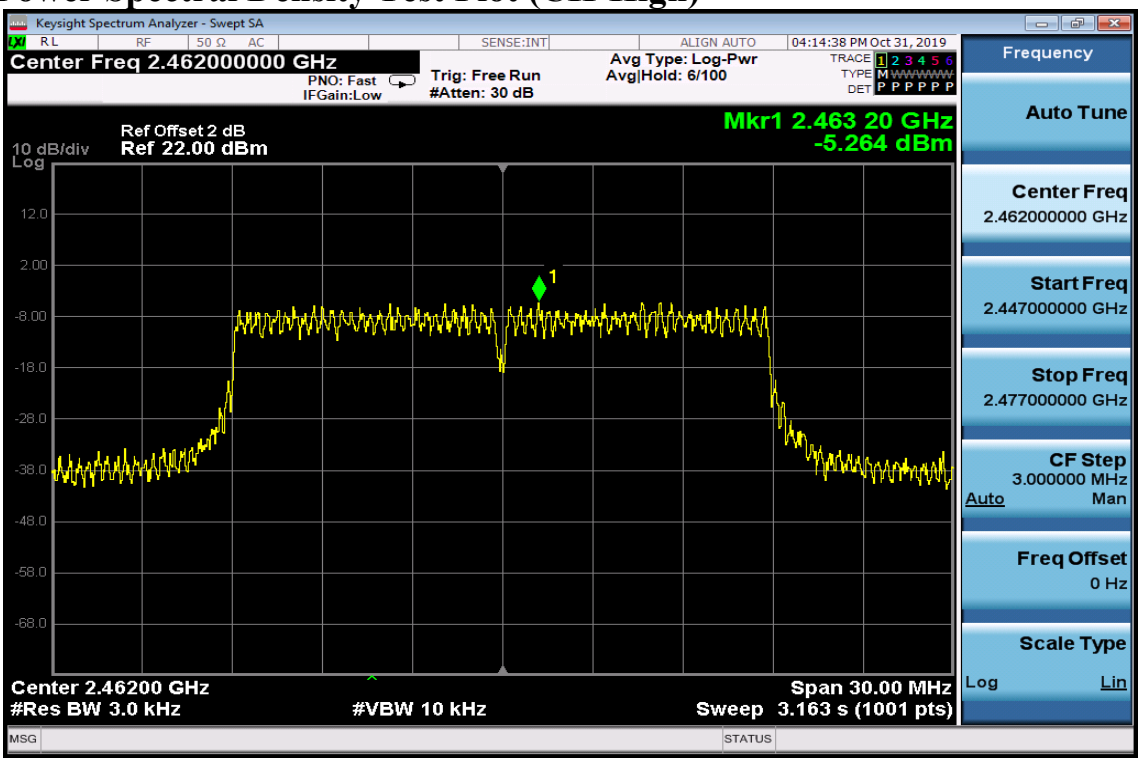
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

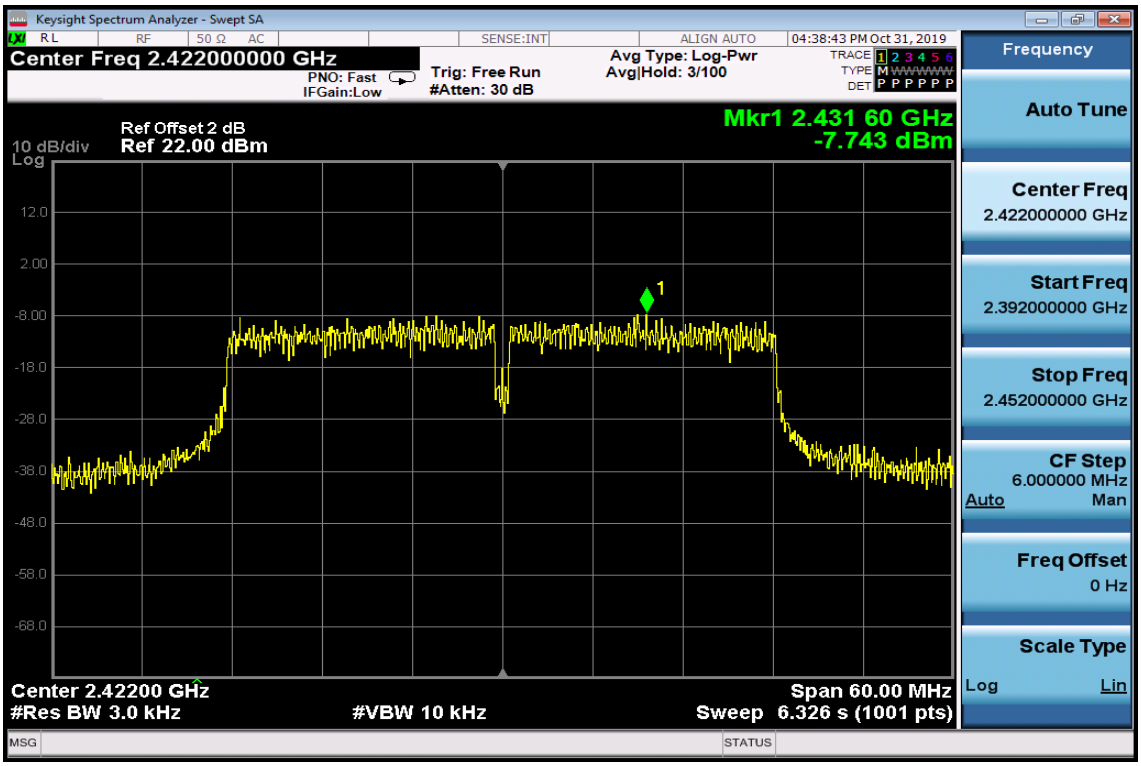


Power Spectral Density Test Plot (CH-High)

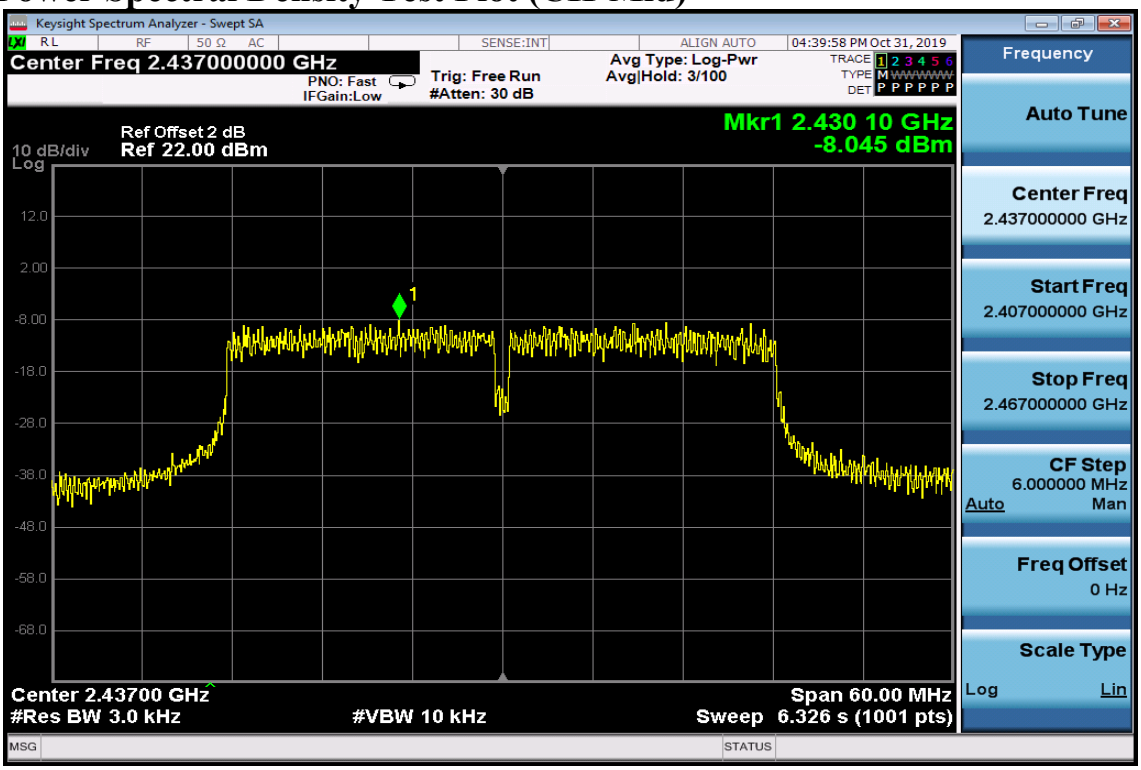


802.11n_HT40 (Antenna 1)

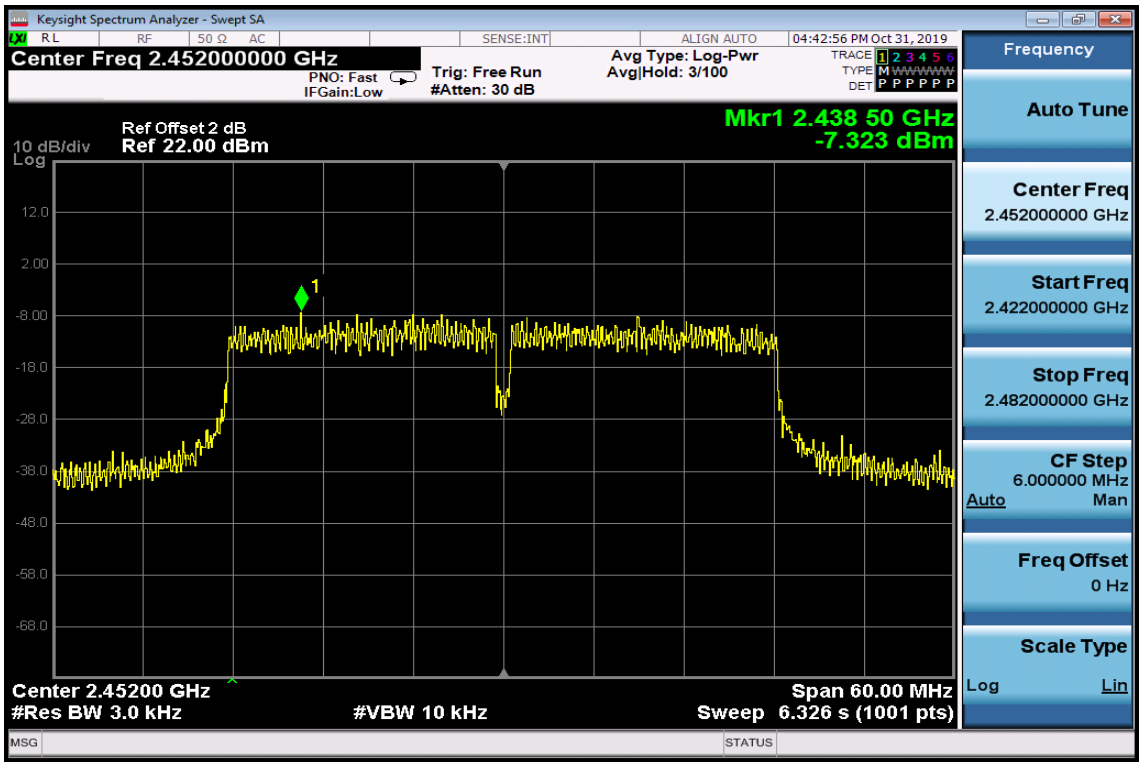
Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)

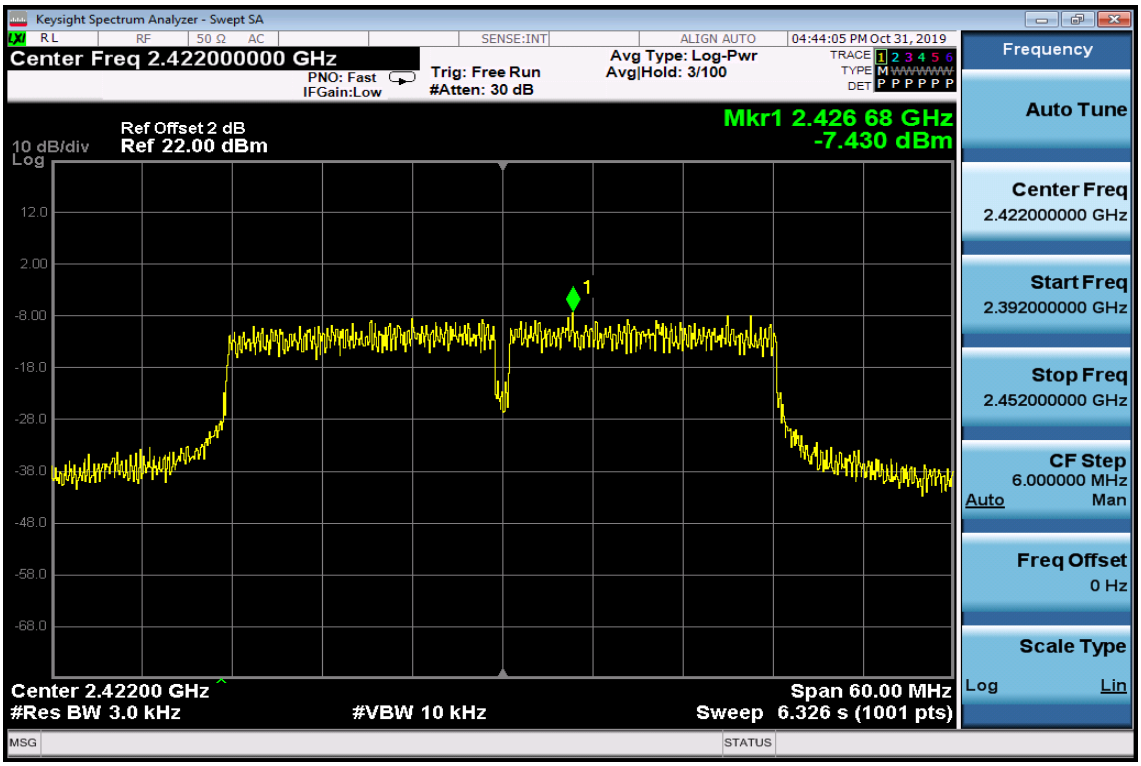


Power Spectral Density Test Plot (CH-High)

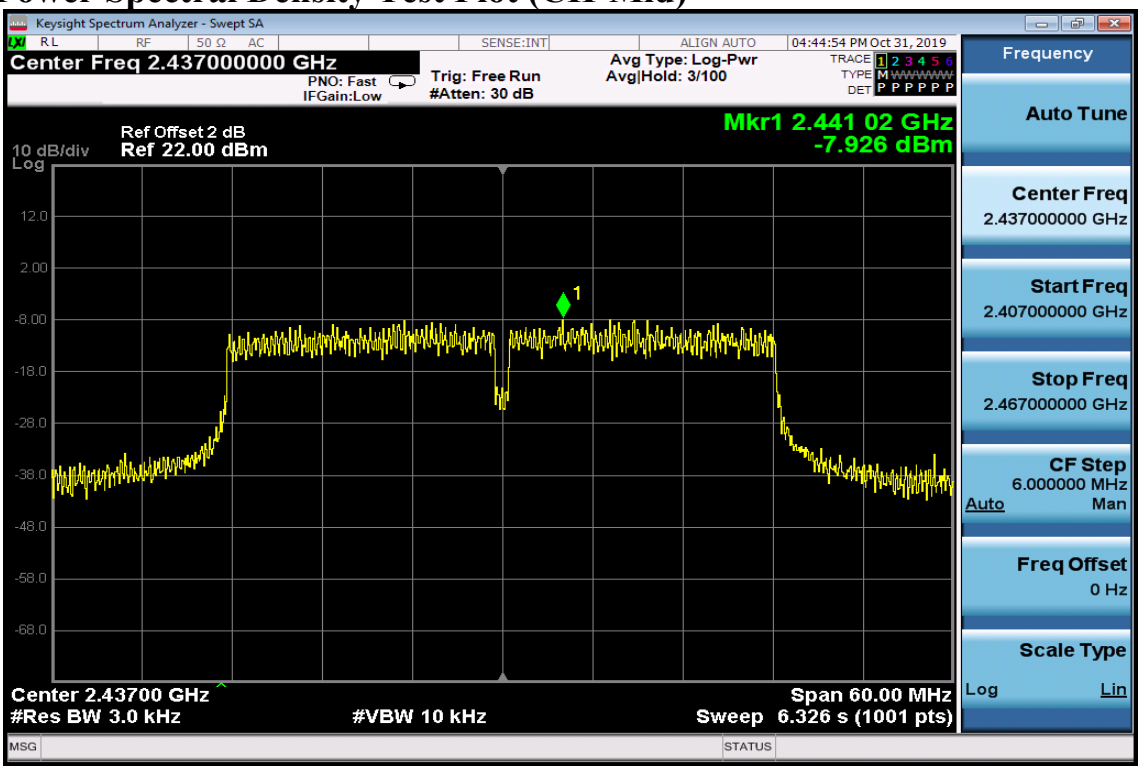


802.11n_HT40 (Antenna 2)

Power Spectral Density Test Plot (CH-Low)



Power Spectral Density Test Plot (CH-Mid)



Power Spectral Density Test Plot (CH-High)