FCC TEST REPORT

Test report
On Behalf of
CPR GLOBAL TECH LTD
For
WATCHU
Model No.: WUCPR01, WUCPR02 , WUCPR03, WUCPR04

FCC ID: 2AJ29-WATCHUGPS1

Prepared for :	**CPR GLOBAL TECH LTD** **York Chambers, York Street, Swansea, SA1 3LZ, United Kingdom**
Prepared By :	**Laboratory of Shenzhen United Testing Technology Co., Ltd** **Room 316-319, Block B, Honghualing Industrial Park of the Fifth Zone, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China**
Date of Test:	**November. 6, 2016 ~ November. 11, 2016**
Date of Report:	**November. 11, 2016**
Report Number:	**UNI1601006050-E**

TEST RESULT CERTIFICATION

Applicant's name	:	CPR GLOBAL TECH LTD
Address	:	York Chambers, York Street, Swansea, SA1 3LZ, United Kingdom
Manufacture's Name	:	Shenzhen OneMeter Sunshine Technology Co., Ltd
Address	:	7F/B, Baoju Bldg, Baoneng Science and Technology Industrial Park, No.1 Qingxiang Road, Longhua New Zone, Shenzhen 518001, China

Product description

Trade Mark:		Watchu
Product name	:	WATCHU
Model and/or type reference	:	WUCPR01, WUCPR02 , WUCPR03, WUCPR04
Standards	:	FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.10: 2013

Date of Test	:	
Date (s) of performance of tests	:	**November. 6, 2016 ~ November. 11, 2016**
Date of Issue	:	**November. 11, 2016**
Test Result	:	**Pass**

Testing Engineer **:** Eric Xie

(Eric Xie)

Technical Manager **:** Dora Qin

(Dora Qin)

Authorized Signatory **:**

(Kait Chen)

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OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
POWER SPECTRAL DENSITY	COMPLIANT
PEAK OUTPUT POWEReak	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

1.2 TEST FACILITY

Test Firm : Dongguan Dongdian Testing Service Co., Ltd
Certificated by FCC, Registration No.: 270092

Address : No.17 Zongbu road 2, Songshan Lake Sci&Tech Park, DongGuan City, Guangdong province,523808 China

1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty(9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty(30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty(Above 1GHz)	=	4.06dB, k=2

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	WATCHU
Model Name	WUCPR01
Serial No	WUCPR02 , WUCPR03, WUCPR04
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: WUCPR01.
FCC ID	**2AJ29-WATCHUGPS1**
Antenna Type	Integrated Antenna
Antenna Gain	1 dBi
Operation Band:	GSM850, PCS1900
Operation frequency	GSM/GPRS 850: 824~849MHz GSM/GPRS 1900: 1850~1910MHz
Modulation Type	GMSK for GSM/GPRS
Power Source	N/A
Power Rating	DC 3.7V from battery or DC 5V from adapter

Equipment	WATCHU
Model Name	WUCPR01
Serial No	WUCPR02 , WUCPR03, WUCPR04
Model Difference	All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: WUCPR01.
FCC ID	**2AJ29-WATCHUGPS1**
Antenna Type	Integrated Antenna
Antenna Gain	1 dBi
Operation frequency	802.11b/g/n 20:2412~2462 MHz 802.11n 40: 2422~2452MHz
Number of Channels	802.11b/g/n20: 11CH 802.11n 40: 7CH
Modulation Type	CCK/OFDM/DBPSK/DAPSK
Power Source	N/A
Power Rating	DC 3.7V from battery or DC 5V from adapter

Note: This report only WIFI test report, GSM transmitters see the other test report.

2.1.1 Carrier Frequency of Channels

Channel List for 802.11b/g/n(20MHz)							
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

Channel List for 802.11n(40MHz)							
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
03	2422	06	2437	09	2452		
04	2427	07	2442				
05	2432	08	2447				

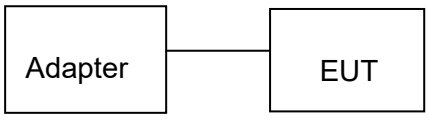
Operation of EUT during testing

Operating Mode
The mode is used: **Transmitting mode for 802.11b/g/n(20MHz)**
Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

Transmitting mode for 802.11n(40MHz)
Low Channel: 2422MHz
Middle Channel: 2437MHz
High Channel: 2452MHz

2.2 DESCRIPTION OF TEST SETUP

Operation of EUT during conducted testing:



Operation of EUT during Radiation testing:

2.3 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 19, 2016	1 Year
2.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 19, 2016	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 19, 2016	1 Year
4.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
5.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Feb. 19, 2016	1 Year
6.	Trilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Feb. 19, 2016	1 Year
7.	Pre-amplifier	Compliance Direction	PAP-0203	22008	Feb. 19, 2016	1 Year
8.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
9.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 19, 2016	1 Year
10.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 19, 2016	1 Year
11.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 19, 2016	1 Year
12.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
13.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 19, 2016	1 Year
14.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 19, 2016	1 Year
15.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 19, 2016	1 Year
16.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 19, 2016	1 Year
17.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
18.	Power Meter	R&S	NRVD	SEL0069	Feb. 19, 2016	1 Year
19.	Power Sensor	R&S	URV5-Z2	SEL0071	Feb. 19, 2016	1 Year
20.	Power Sensor	R&S	URV5-Z2	SEL0072	Feb. 19, 2016	1 Year
21.	Software EMC32	R&S	EMC32-S	SEL0082	N/A	N/A
22.	Log-periodic Antenna	Amplifier Reasearch	AWUCPR0180	SEL0073	N/A	N/A
23.	Antenna Tripod	Amplifier Reasearch	TP1000A	SEL0074	N/A	N/A
24.	High Gain Horn Antenna(0.8-5GHz)	Amplifier Reasearch	AT4002A	SEL0075	N/A	N/A
25.	Spectrum analyzer	Agilent	N9020A	MY49911048	Feb. 19, 2016	1 Year
26.	Spectrum analyzer	Agilent	E4407B	MY46184326	Feb. 19, 2016	1 Year

3. CONDUCTED EMISSIONS TEST

3.1 Conducted Power Line Emission Limit

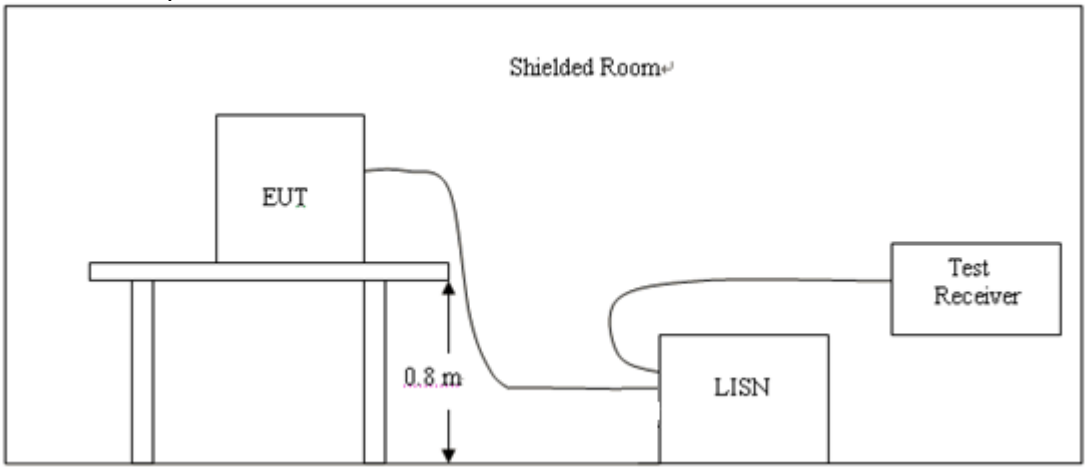
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 Test Setup



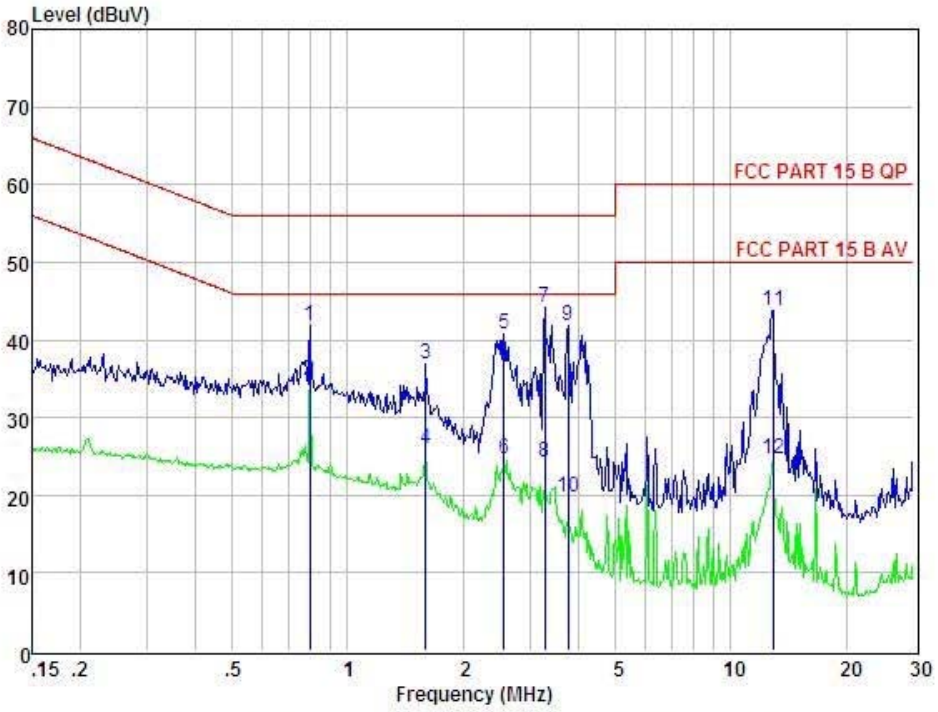
3.3 Test Procedure

1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2, Support equipment, if needed, was placed as per ANSI C63.10.
3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5, All support equipments received AC power from a second LISN, if any.
6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

3.4 Test Result

PASS

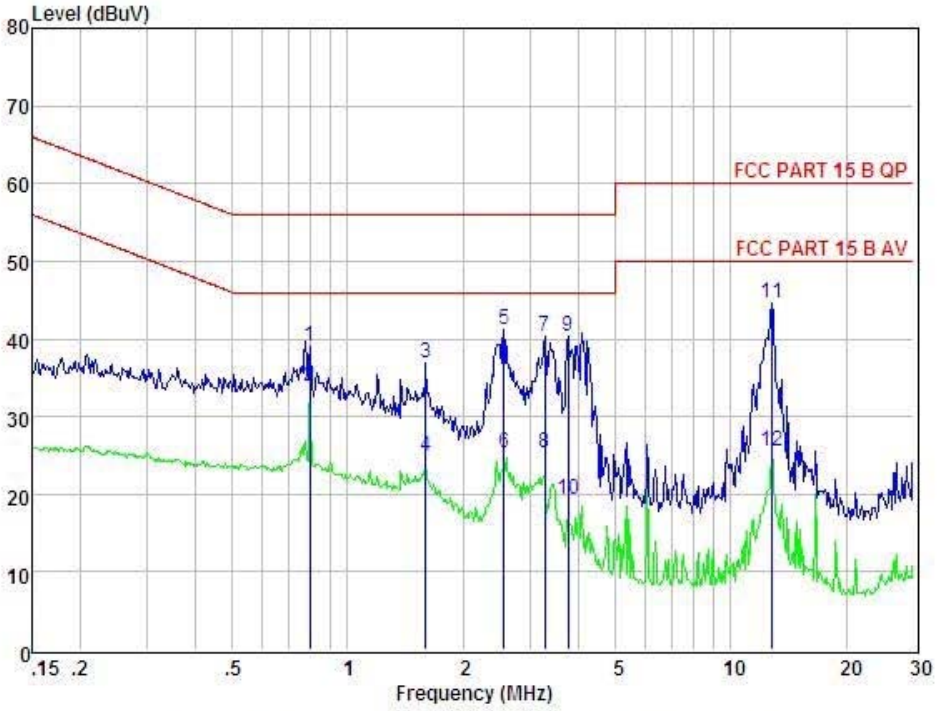
All the test modes completed for test.



Condition : FCC PART 15 B QP POL: NEUTRAL Temp:26 ℃ Hum:48 %

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.796	31.98	0.00	-9.71	0.10	41.79	56.00	-14.21	QP
2	0.796	24.98	0.00	-9.71	0.10	34.79	46.00	-11.21	Average
3	1.602	27.08	0.05	-9.71	0.10	36.94	56.00	-19.06	QP
4	1.602	16.08	0.05	-9.71	0.10	25.94	46.00	-20.06	Average
5	2.554	30.84	0.06	-9.70	0.11	40.71	56.00	-15.29	QP
6	2.554	14.84	0.06	-9.70	0.11	24.71	46.00	-21.29	Average
7	3.276	34.37	0.07	-9.69	0.12	44.25	56.00	-11.75	QP
8	3.276	14.37	0.07	-9.69	0.12	24.25	46.00	-21.75	Average
9	3.759	31.85	0.08	-9.69	0.12	41.74	56.00	-14.26	QP
10	3.759	9.85	0.08	-9.69	0.12	19.74	46.00	-26.26	Average
11	12.920	33.81	0.23	-9.44	0.22	43.70	60.00	-16.30	QP
12	12.920	14.81	0.23	-9.44	0.22	24.70	50.00	-25.30	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Condition : FCC PART 15 B QP POL: LINE Temp:26 ℃ Hum:48 %

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.796	29.17	0.00	-9.71	0.10	38.98	56.00	-17.02	QP
2	0.796	24.17	0.00	-9.71	0.10	33.98	46.00	-12.02	Average
3	1.602	27.09	0.05	-9.71	0.10	36.95	56.00	-19.05	QP
4	1.602	15.09	0.05	-9.71	0.10	24.95	46.00	-21.05	Average
5	2.554	31.39	0.06	-9.70	0.11	41.26	56.00	-14.74	QP
6	2.554	15.39	0.06	-9.70	0.11	25.26	46.00	-20.74	Average
7	3.276	30.38	0.07	-9.69	0.12	40.26	56.00	-15.74	QP
8	3.276	15.38	0.07	-9.69	0.12	25.26	46.00	-20.74	Average
9	3.759	30.43	0.08	-9.69	0.12	40.32	56.00	-15.68	QP
10	3.759	9.43	0.08	-9.69	0.12	19.32	46.00	-26.68	Average
11	12.784	34.71	0.24	-9.44	0.22	44.61	60.00	-15.39	QP
12	12.784	15.71	0.24	-9.44	0.22	25.61	50.00	-24.39	Average

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

4 RADIATED EMISSION TEST

4.1 Radiation Limit

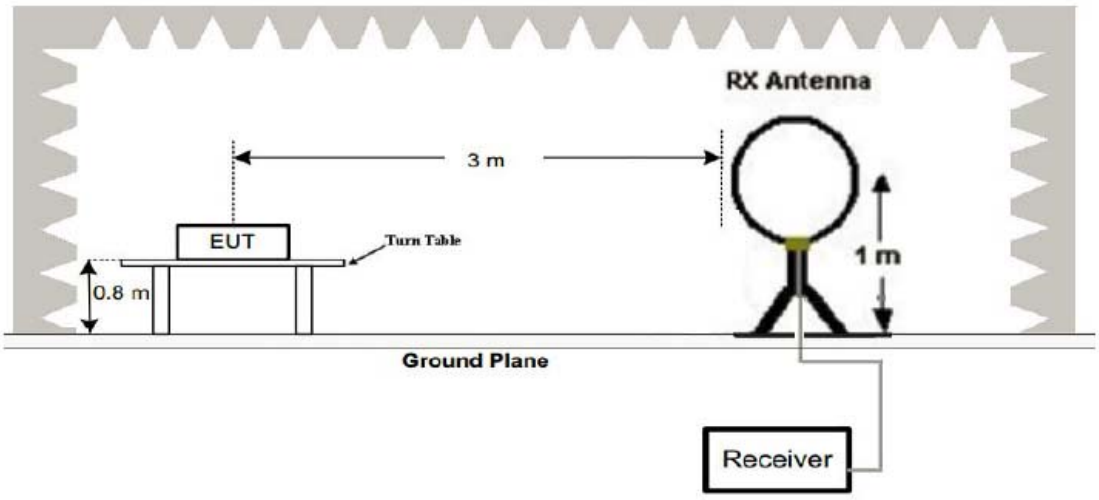
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

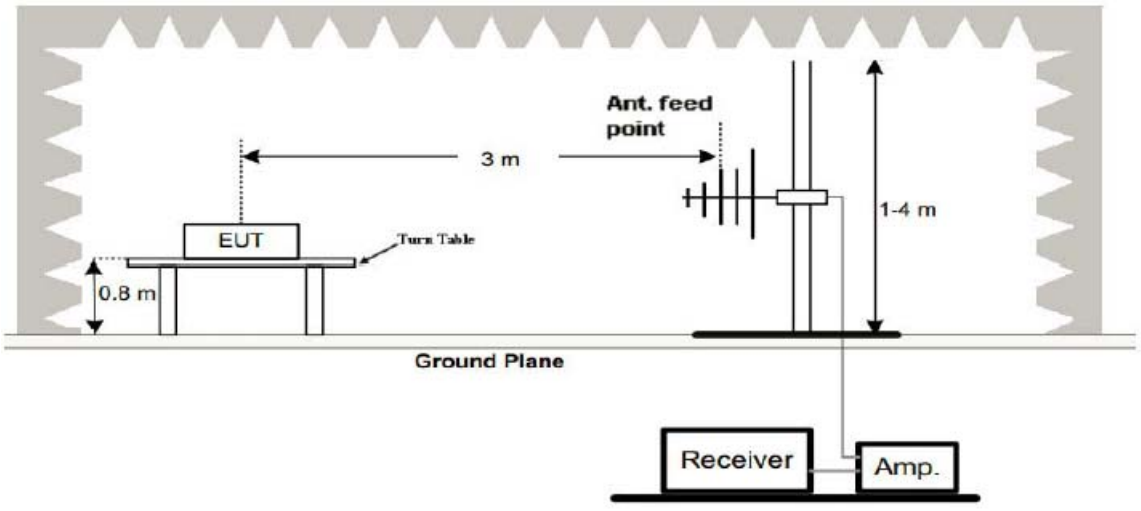
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

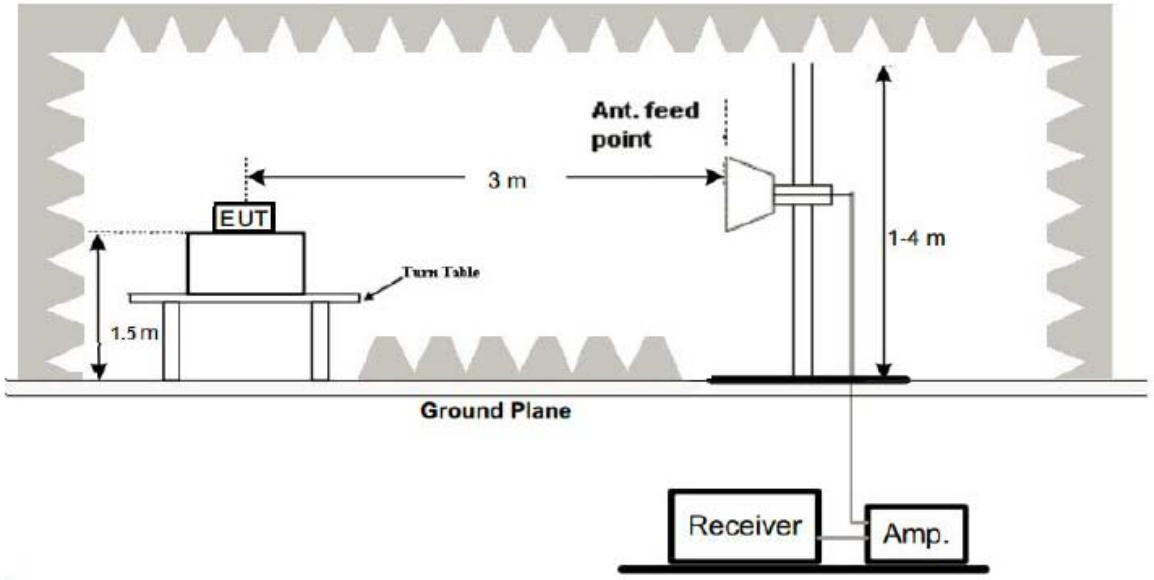
（1）Radiated Emission Test-Up Frequency Below 30MHz



（2）Radiated Emission Test-Up Frequency 30MHz~1GHz



（3）Radiated Emission Test-Up Frequency Above 1GHz



4.3 Test Procedure

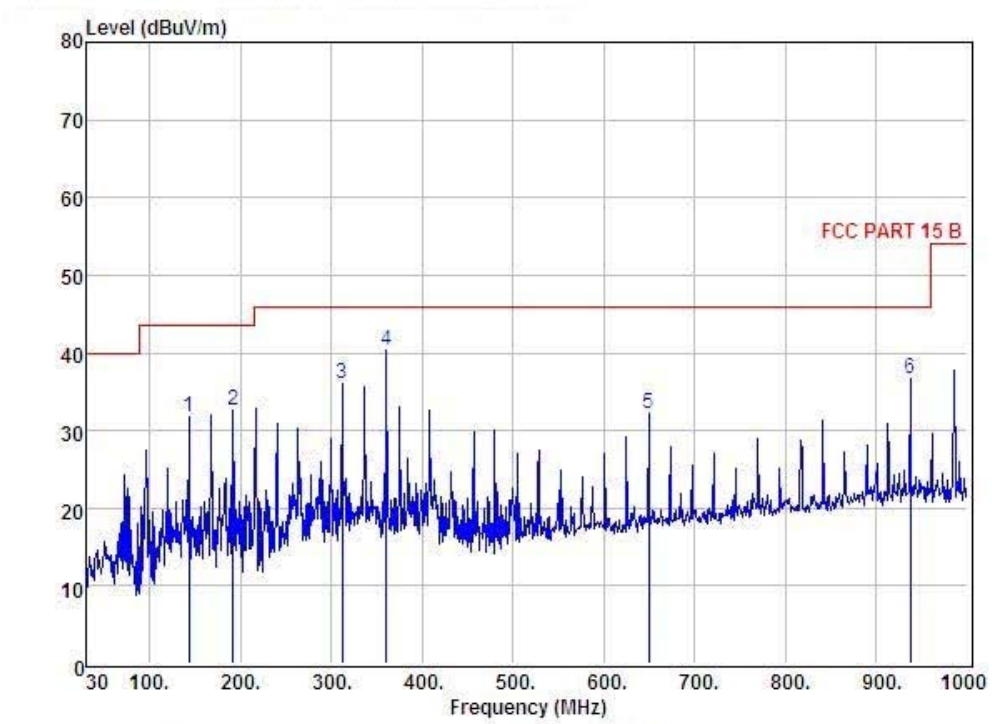
1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note:
For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 Test Result

PASS
All the test modes completed for test. The worst case of Radiated Emission; the test data of this mode was reported.

Below 1GHz Test Results:
Antenna polarity: H

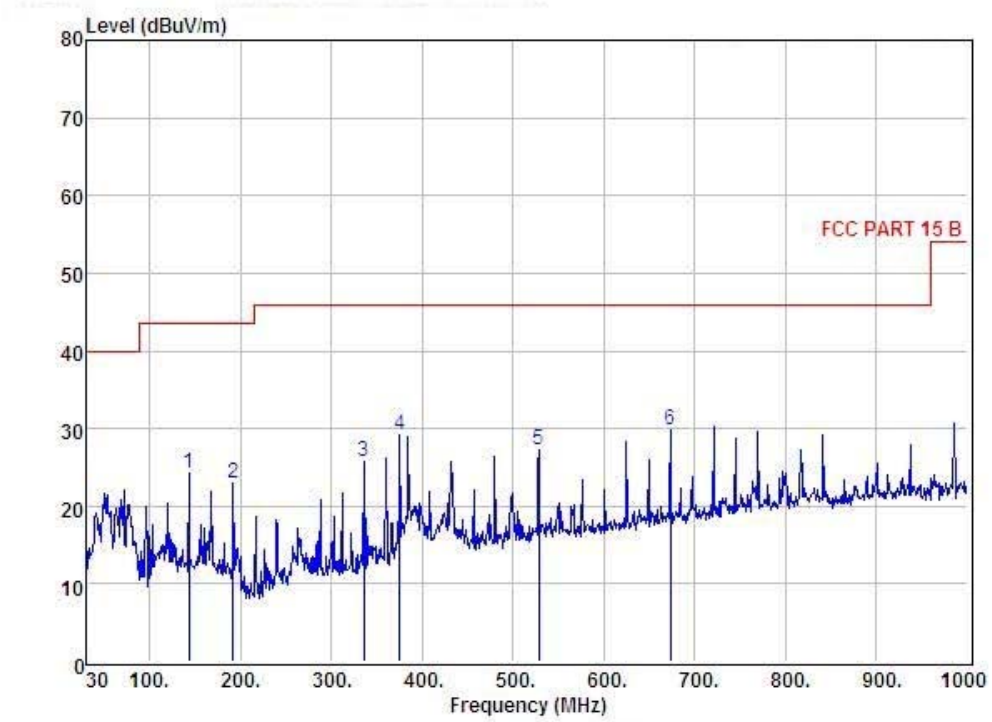


Condition : FCC PART 15 B 3m POL: HORIZONTAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	143.49	44.59	13.64	26.90	0.38	31.71	43.50	-11.79	QP
2	191.99	48.70	10.36	26.95	0.58	32.69	43.50	-10.81	QP
3	312.27	49.49	13.14	27.21	0.58	36.00	46.00	-10.00	QP
4	360.77	52.98	14.03	27.30	0.66	40.37	46.00	-5.63	QP
5	648.86	39.51	19.09	27.79	1.33	32.14	46.00	-13.86	QP
6	936.95	41.26	22.05	27.62	0.89	36.58	46.00	-9.42	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Antenna polarity: V



Condition : FCC PART 15 B 3m POL: VERTICAL

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	143.49	37.22	13.64	26.90	0.38	24.34	43.50	-19.16	QP
2	191.99	38.86	10.36	26.95	0.58	22.85	43.50	-20.65	QP
3	335.55	38.66	13.58	27.24	0.84	25.84	46.00	-20.16	QP
4	375.32	41.18	14.32	27.35	1.01	29.16	46.00	-16.84	QP
5	528.58	36.75	17.03	27.68	1.07	27.17	46.00	-18.83	QP
6	673.11	36.98	19.38	27.78	1.22	29.80	46.00	-16.20	QP

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Remark：
(1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
(2) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.

Above 1 GHz Test Results:

LOW CH1 (802.11b Mode)/2412
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	61.38	-3.64	57.74	74	-16.26	peak
4824	45.75	-3.64	42.11	54	-11.89	AVG
7236	57.12	-0.95	56.17	74	-17.83	peak
7236	42.30	-0.95	41.35	54	-12.65	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	60.31	-3.64	56.67	74	-17.33	peak
4824	45.07	-3.64	41.43	54	-12.57	AVG
7236	55.30	-0.95	54.35	74	-19.65	peak
7236	40.52	-0.95	39.57	54	-14.43	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH6 (802.11b Mode)/2437
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	60.26	-3.51	56.75	74	-17.25	peak
4874	45.13	-3.51	41.62	54	-12.38	AVG
7311	55.09	-0.82	54.27	74	-19.73	peak
7311	40.13	-0.82	39.31	54	-14.69	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	57.98	-3.51	54.47	74	-19.53	peak
4874	43.43	-3.51	39.92	54	-14.08	AVG
7311	53.49	-0.82	52.67	74	-21.33	peak
7311	38.33	-0.82	37.51	54	-16.49	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH11 (802.11b Mode)/2462
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	60.20	-3.43	56.77	74	-17.23	peak
4924	44.70	-3.43	41.27	54	-12.73	AVG
7386	56.28	-0.75	55.53	74	-18.47	peak
7386	41.11	-0.75	40.36	54	-13.64	AVG
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---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	58.91	-3.43	55.48	74	-18.52	peak
4924	43.72	-3.43	40.29	54	-13.71	AVG
7386	52.11	-0.75	51.36	74	-22.64	peak
7386	37.22	-0.75	36.47	54	-17.53	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Remark：
(1) Measuring frequencies from 1 GHz to the 25 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement 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.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH1 (802.11g Mode)/2412
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	59.72	-3.64	56.08	74	-17.92	peak
4824	45.18	-3.64	41.54	54	-12.46	AVG
7236	54.56	-0.95	53.61	74	-20.39	peak
7236	39.42	-0.95	38.47	54	-15.53	AVG
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---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	59.11	-3.64	55.47	74	-18.53	peak
4824	43.89	-3.64	40.25	54	-13.75	AVG
7236	52.47	-0.95	51.52	74	-22.48	peak
7236	37.71	-0.95	36.76	54	-17.24	AVG
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---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH6 (802.11g Mode)/2437
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	58.98	-3.51	55.47	74	-18.53	peak
4874	44.57	-3.51	41.06	54	-12.94	AVG
7311	54.19	-0.82	53.37	74	-20.63	peak
7311	39.11	-0.82	38.29	54	-15.71	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	58.12	-3.51	54.61	74	-19.39	peak
4874	43.97	-3.51	40.46	54	-13.54	AVG
7311	53.33	-0.82	52.51	74	-21.49	peak
7311	38.39	-0.82	37.57	54	-16.43	AVG
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---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH11 (802.11g Mode)/2462
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	59.04	-3.43	55.61	74	-18.39	peak
4924	44.02	-3.43	40.59	54	-13.41	AVG
7386	53.00	-0.75	52.25	74	-21.75	peak
7386	39.31	-0.75	38.56	54	-15.44	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	58.81	-3.43	55.38	74	-18.62	peak
4924	43.62	-3.43	40.19	54	-13.81	AVG
7386	51.81	-0.75	51.06	74	-22.94	peak
7386	37.17	-0.75	36.42	54	-17.58	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark：
(1) Measuring frequencies from 1 GHz to the 25 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement 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.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH1 (802.11n/H20 Mode)/2412
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	59.20	-3.64	55.56	74	-18.44	peak
4824	43.96	-3.64	40.32	54	-13.68	AVG
7236	52.23	-0.95	51.28	74	-22.72	peak
7236	37.89	-0.95	36.94	54	-17.06	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	58.47	-3.64	54.83	74	-19.17	peak
4824	43.35	-3.64	39.71	54	-14.29	AVG
7236	53.29	-0.95	52.34	74	-21.66	peak
7236	38.57	-0.95	37.62	54	-16.38	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH6 (802.11n/H20 Mode)/2437
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	59.62	-3.51	56.11	74	-17.89	peak
4874	44.77	-3.51	41.26	54	-12.74	AVG
7311	53.44	-0.82	52.62	74	-21.38	peak
7311	38.27	-0.82	37.45	54	-16.55	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	57.84	-3.51	54.33	74	-19.67	peak
4874	43.67	-3.51	40.16	54	-13.84	AVG
7311	52.48	-0.82	51.66	74	-22.34	peak
7311	37.29	-0.82	36.47	54	-17.53	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH11 (802.11n/H20 Mode)/2462
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	59.01	-3.43	55.58	74	-18.42	peak
4924	44.20	-3.43	40.77	54	-13.23	AVG
7386	54.31	-0.75	53.56	74	-20.44	peak
7386	39.61	-0.75	38.86	54	-15.14	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	57.00	-3.43	53.57	74	-20.43	peak
4924	42.12	-3.43	38.69	54	-15.31	AVG
7386	51.81	-0.75	51.06	74	-22.94	peak
7386	37.36	-0.75	36.61	54	-17.39	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark：
(1) Measuring frequencies from 1 GHz to the 25 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement 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.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH3 (802.11n/H40 Mode)/2422
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	59.15	-3.63	55.52	74	-18.48	peak
4924	43.10	-3.63	39.47	54	-14.53	AVG
7386	53.08	-0.94	52.14	74	-21.86	peak
7386	39.37	-0.94	38.43	54	-15.57	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4924	57.44	-3.63	53.81	74	-20.19	peak
4924	42.40	-3.63	38.77	54	-15.23	AVG
7386	52.46	-0.94	51.52	74	-22.48	peak
7386	38.55	-0.94	37.61	54	-16.39	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

MID CH6 (802.11n/H40 Mode)/2437
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	59.03	-3.51	55.52	74	-18.48	peak
4874	43.79	-3.51	40.28	54	-13.72	AVG
7311	53.18	-0.82	52.36	74	-21.64	peak
7311	38.89	-0.82	38.07	54	-15.93	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874	57.02	-3.51	53.51	74	-20.49	peak
4874	42.17	-3.51	38.66	54	-15.34	AVG
7311	52.63	-0.82	51.81	74	-22.19	peak
7311	37.48	-0.82	36.66	54	-17.34	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH9 (802.11n/H40 Mode)/2452
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4904	58.80	-3.43	55.37	74	-18.63	peak
4904	43.96	-3.43	40.53	54	-13.47	AVG
7356	53.10	-0.75	52.35	74	-21.65	peak
7356	38.81	-0.75	38.06	54	-15.94	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4904	58.11	-3.43	54.68	74	-19.32	peak
4904	43.37	-3.43	39.94	54	-14.06	AVG
7356	51.88	-0.75	51.13	74	-22.87	peak
7356	37.36	-0.75	36.61	54	-17.39	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark：
(1) Measuring frequencies from 1 GHz to the 25 GHz。
(2) “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency.
(3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
(4) Data of measurement 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.
(5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
(6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

5 BAND EDGE

5.1 Limits

FCC PART 15.247 Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 100KHz and VBM to 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 100 KHz and VBW to 300 KHz, to measure the conducted peak band edge.

5.3 Test Result

PASS

Radiated Band Edge Test:
Operation Mode: 802.11b Mode TX CH Low (2412MHz)
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	52.96	-5.81	47.15	74	-26.85	peak
2390	39.46	-5.84	33.62	54	-20.38	AVG
2400	60.70	-5.84	54.86	74	-19.14	peak
2400	46.16	-5.84	40.32	54	-13.68	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	52.28	-5.81	46.47	74	-27.53	peak
2390	38.74	-5.81	32.93	54	-21.07	AVG
2400	59.21	-5.84	53.37	74	-20.63	peak
2400	45.52	-5.84	39.68	54	-14.32	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	52.49	-5.65	46.84	74	-27.16	peak
2483.5	38.30	-5.65	32.65	54	-21.35	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	51.81	-5.65	46.16	74	-27.84	peak
2483.5	38.16	-5.65	32.51	54	-21.49	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

Operation Mode: 802.11g Mode TX CH Low (2412MHz)
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	52.93	-5.81	47.12	74	-26.88	peak
2390	39.34	-5.81	33.53	54	-20.47	AVG
2400	61.35	-5.84	55.51	74	-18.49	peak
2400	46.68	-5.84	40.84	54	-13.16	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	52.49	-5.81	46.68	74	-27.32	peak
2390	38.46	-5.81	32.65	54	-21.35	AVG
2400	60.36	-5.84	54.52	74	-19.48	peak
2400	46.25	-5.84	40.41	54	-13.59	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Operation Mode: TX CH High (2462MHz)
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	53.08	-5.65	47.43	74	-26.57	peak
2483.5	39.12	-5.65	33.47	54	-20.53	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	52.49	-5.65	46.84	74	-27.16	peak
2483.5	38.20	-5.65	32.55	54	-21.45	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

Operation Mode: 802.11n/H20 Mode TX CH Low (2412MHz)
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	52.73	-5.81	46.92	74	-27.08	peak
2390	38.39	-5.81	32.58	54	-21.42	AVG
2400	59.16	-5.84	53.32	74	-20.68	peak
2400	43.47	-5.84	37.63	54	-16.37	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	52.09	-5.81	46.28	74	-27.72	peak
2390	38.24	-5.81	32.43	54	-21.57	AVG
2400	58.48	-5.84	52.64	74	-21.36	peak
2400	44.00	-5.84	38.16	54	-15.84	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	51.63	-5.65	45.98	74	-28.02	peak
2483.5	37.23	-5.65	31.58	54	-22.42	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	51.52	-5.65	45.87	74	-28.13	peak
2483.5	37.11	-5.65	31.46	54	-22.54	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

Operation Mode: 802.11n/H40 Mode TX CH Low (2422MHz)
Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	52.16	-5.81	46.35	74	-27.65	peak
2390	38.13	-5.81	32.32	54	-21.68	AVG
2400	58.70	-5.84	52.86	74	-21.14	peak
2400	44.06	-5.84	38.22	54	-15.78	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2390	51.89	-5.81	46.08	74	-27.92	peak
2390	37.92	-5.81	32.11	54	-21.89	AVG
2400	57.20	-5.84	51.36	74	-22.64	peak
2400	43.57	-5.84	37.73	54	-16.27	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Operation Mode: TX CH High (2452MHz)

Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	53.07	-5.65	47.42	74	-26.58	peak
2483.5	38.84	-5.65	33.19	54	-20.81	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	52.28	-5.65	46.63	74	-27.37	peak
2483.5	38.11	-5.65	32.46	54	-21.54	AVG
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						
Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.						

6 OCCUPIED BANDWIDTH MEASUREMENT

6.1 Test Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

6.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on FCC Part15 C Section 15.247: RBW= 100KHz. VBW= 300 KHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

6.3 Measurement Equipment Used

Same as Radiated Emission Measurement

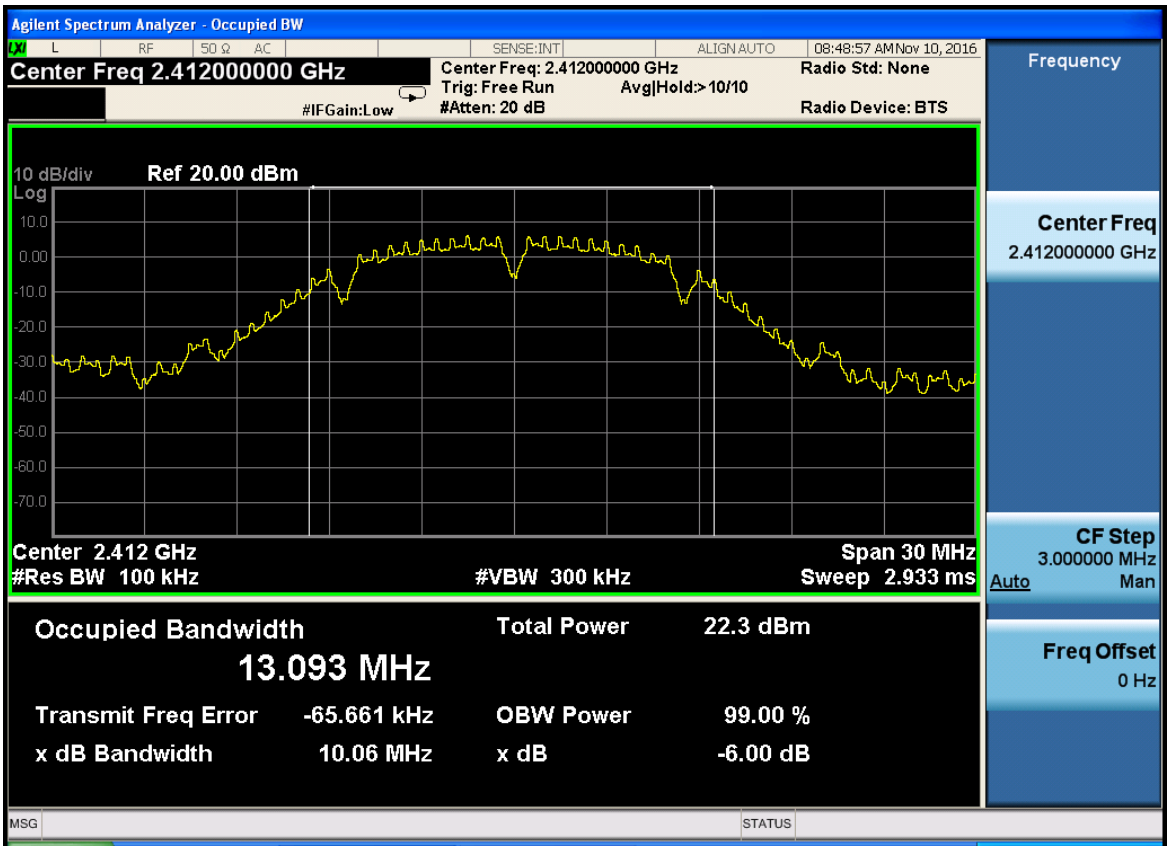
6.4 Test Result

PASS

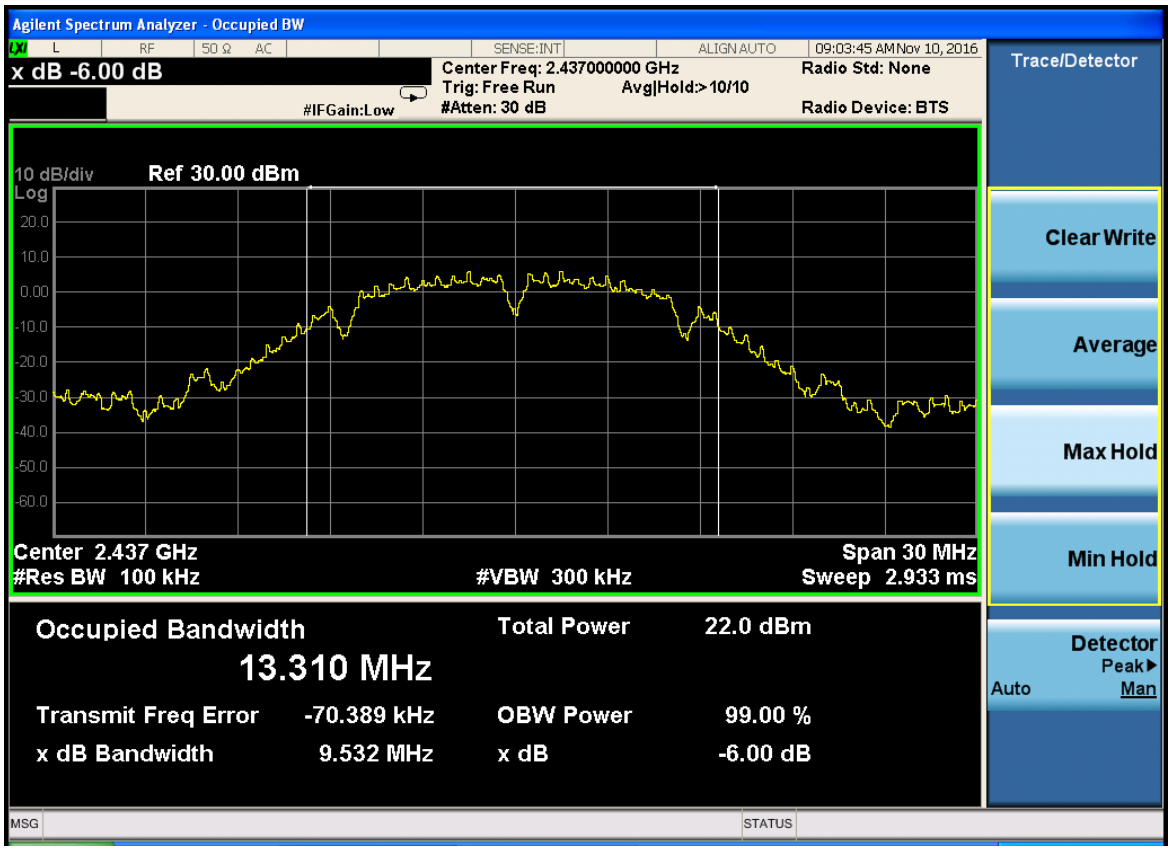
All the test modes completed for test.

TX 802.11b Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2412 MHz	10.06	>=500KHz	**PASS**
2437 MHz	9.532	>=500KHz	**PASS**
2462 MHz	9.567	>=500KHz	**PASS**

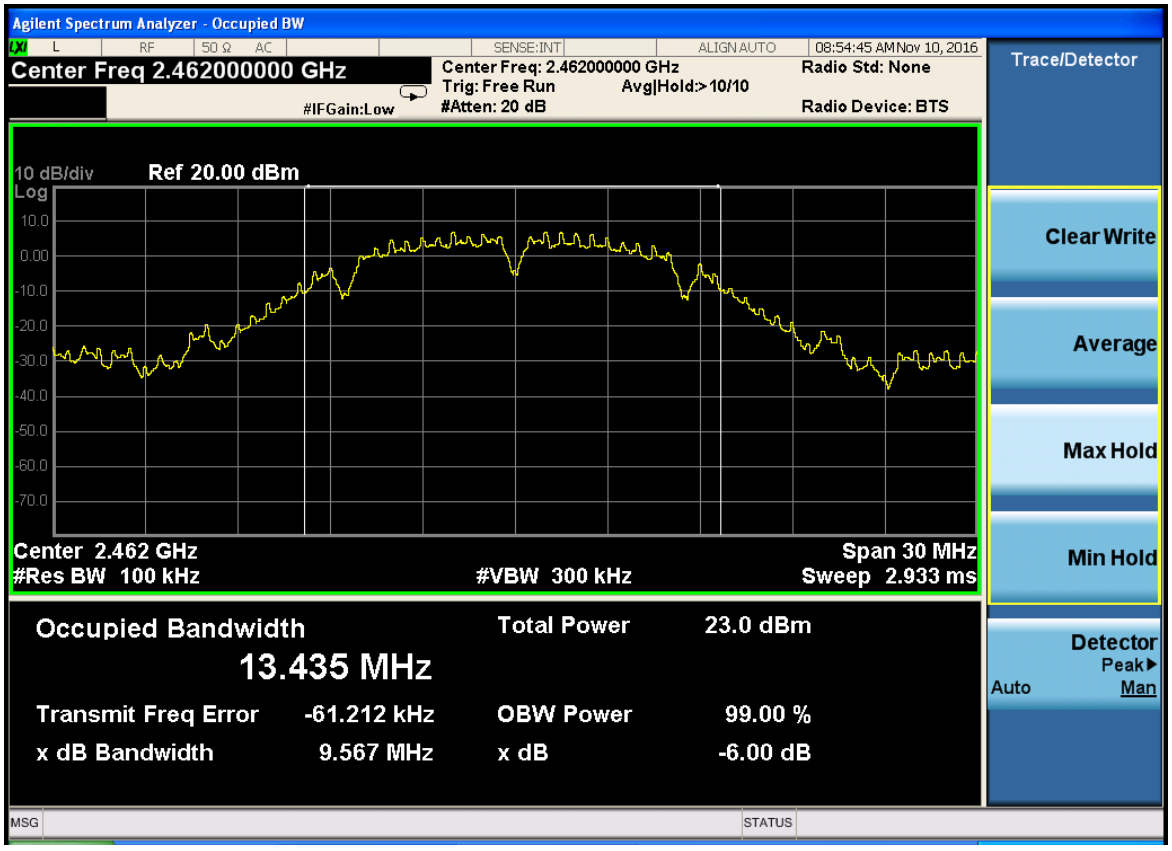
CH: 2412MHz



CH: 2437MHz

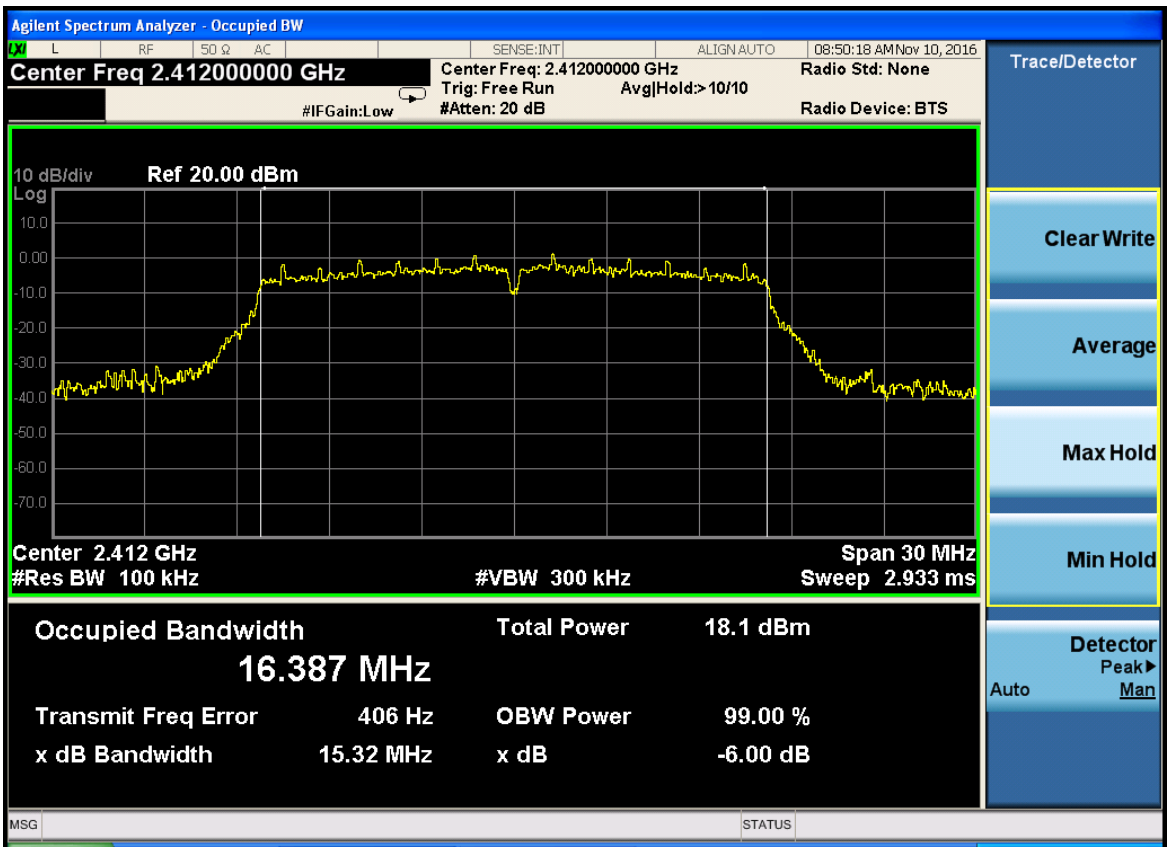


CH: 2462MHz

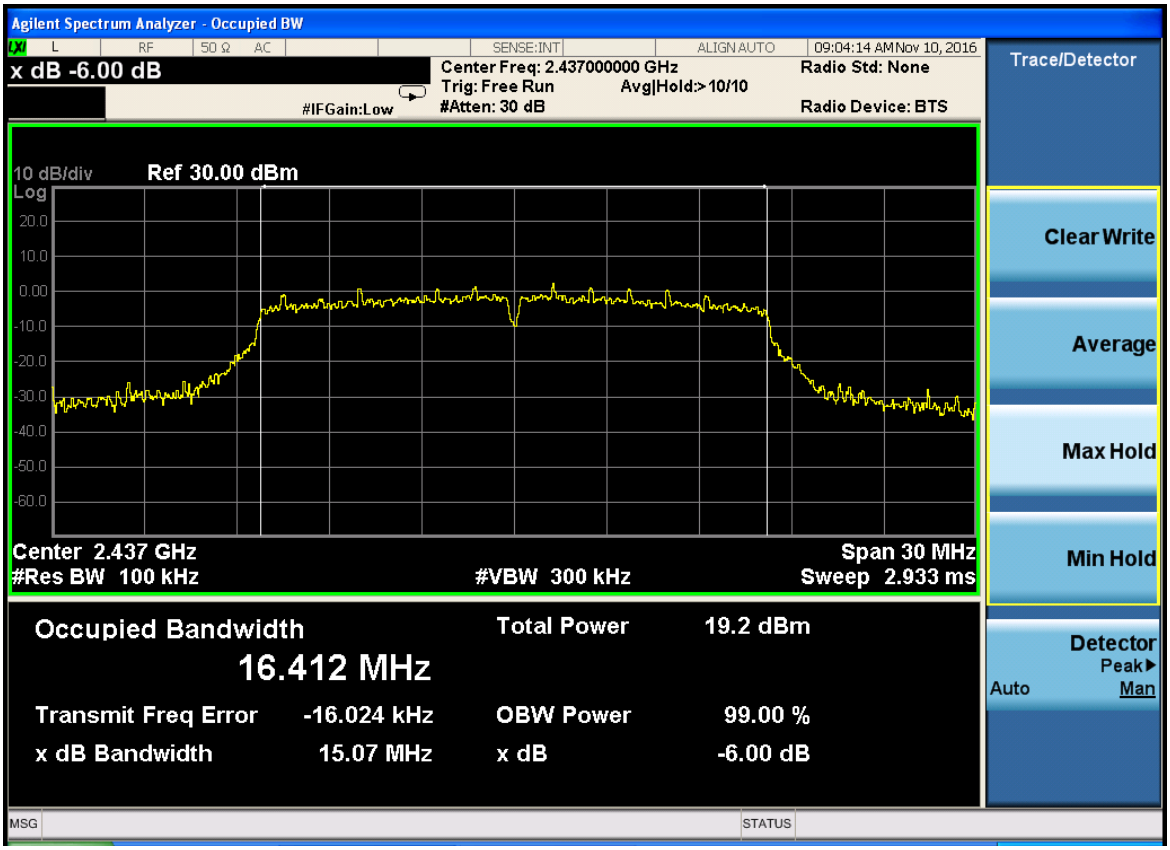


TX 802.11g Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2412 MHz	15.32	>=500KHz	**PASS**
2437 MHz	15.07	>=500KHz	**PASS**
2462 MHz	15.09	>=500KHz	**PASS**

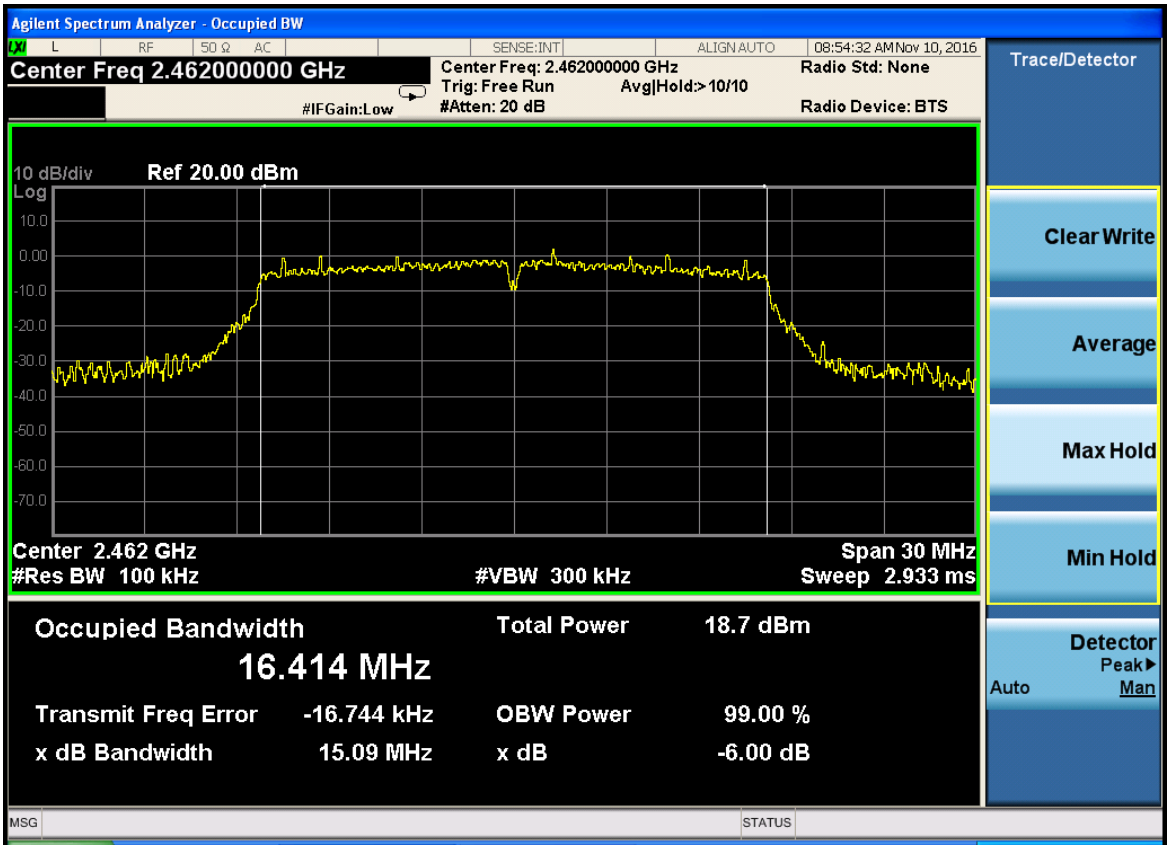
CH: 2412MHz



CH: 2437MHz

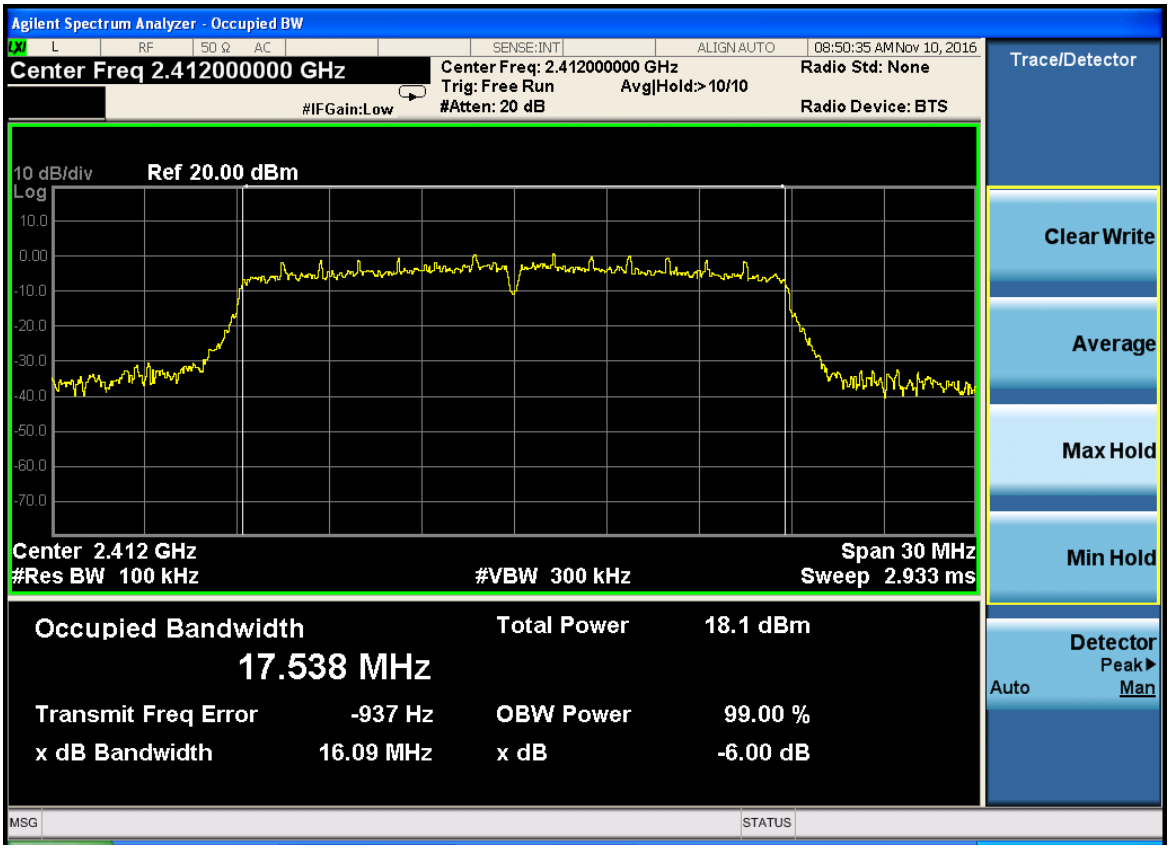


CH: 2462MHz

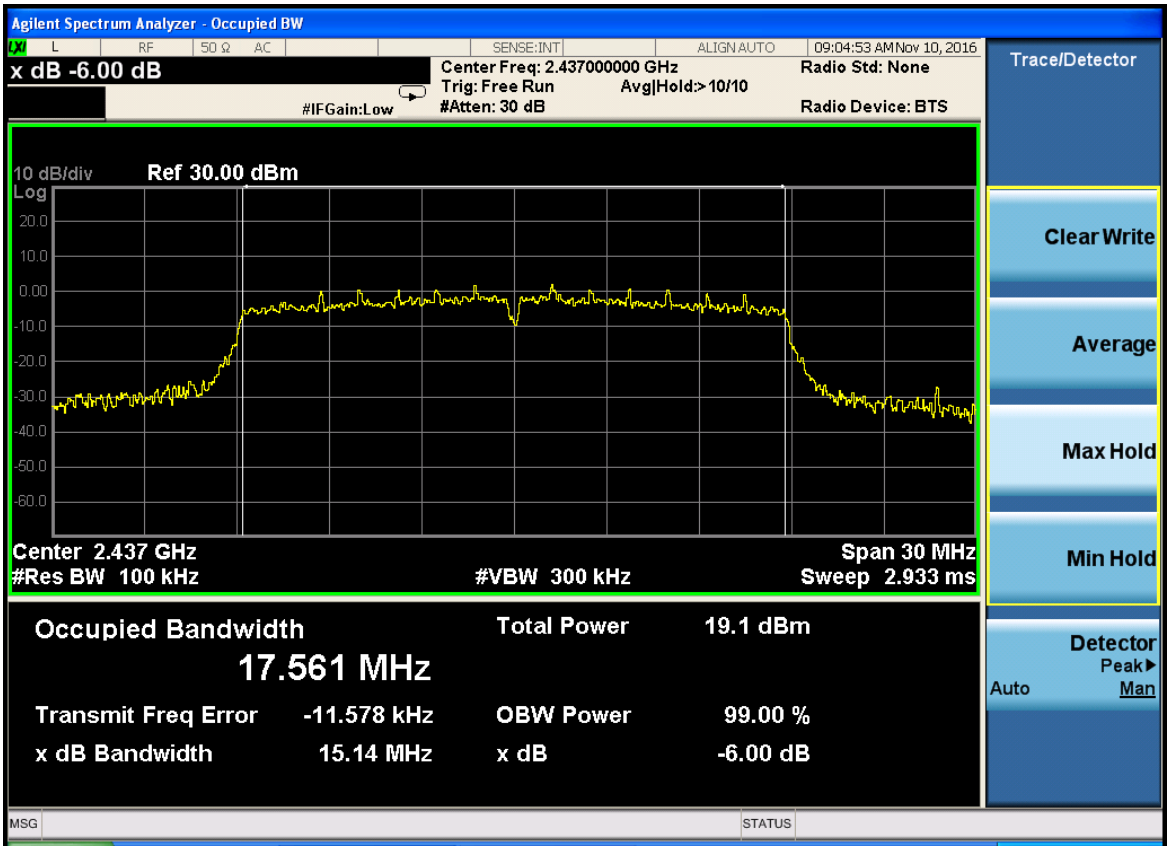


TX 802.11n/HT20 Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2412 MHz	16.09	>=500KHz	**PASS**
2437 MHz	15.14	>=500KHz	**PASS**
2462 MHz	15.42	>=500KHz	**PASS**

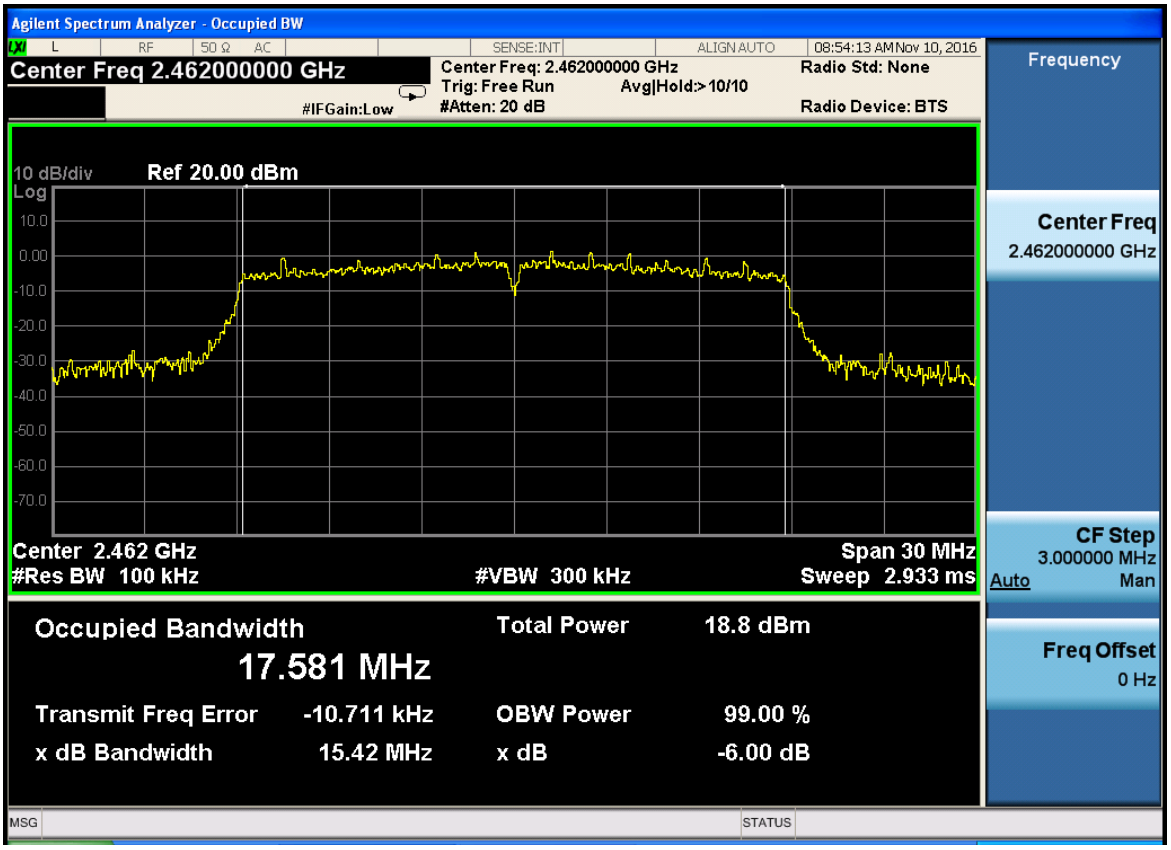
CH: 2412MHz



CH: 2437MHz

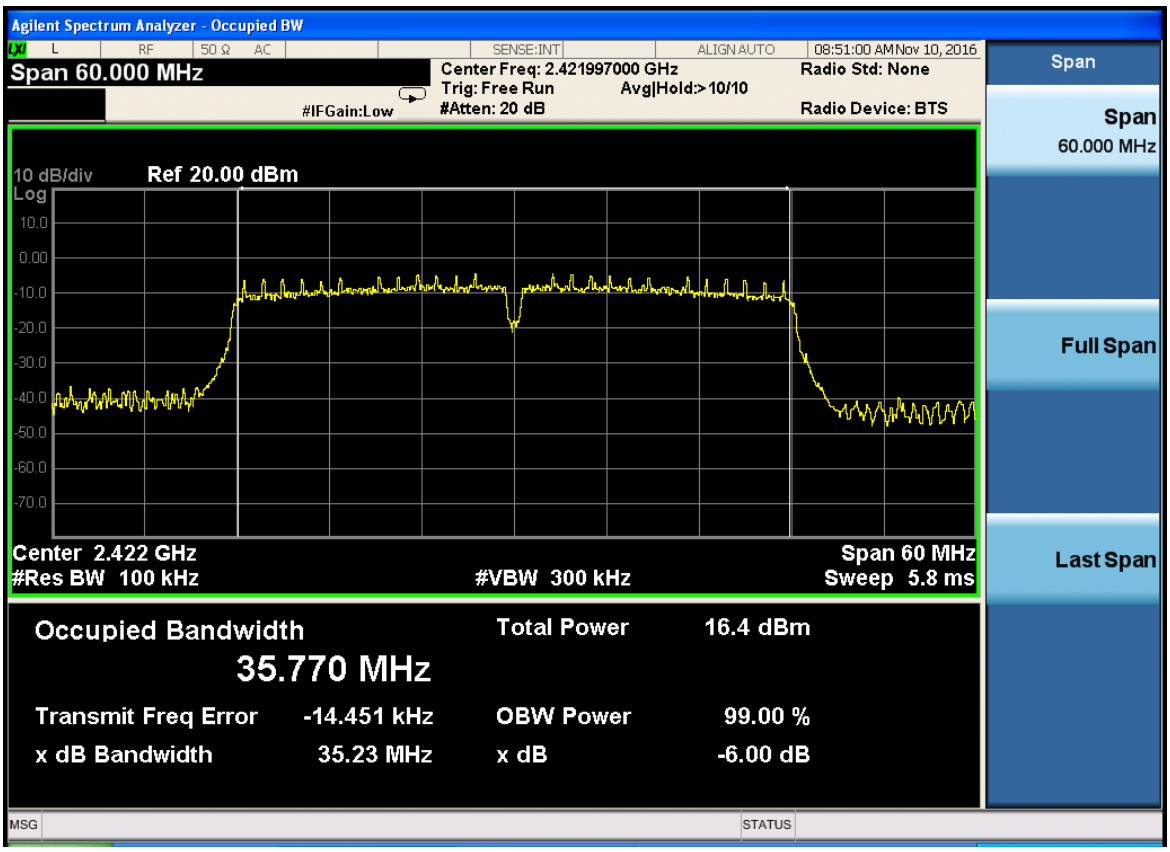


CH: 2462MHz

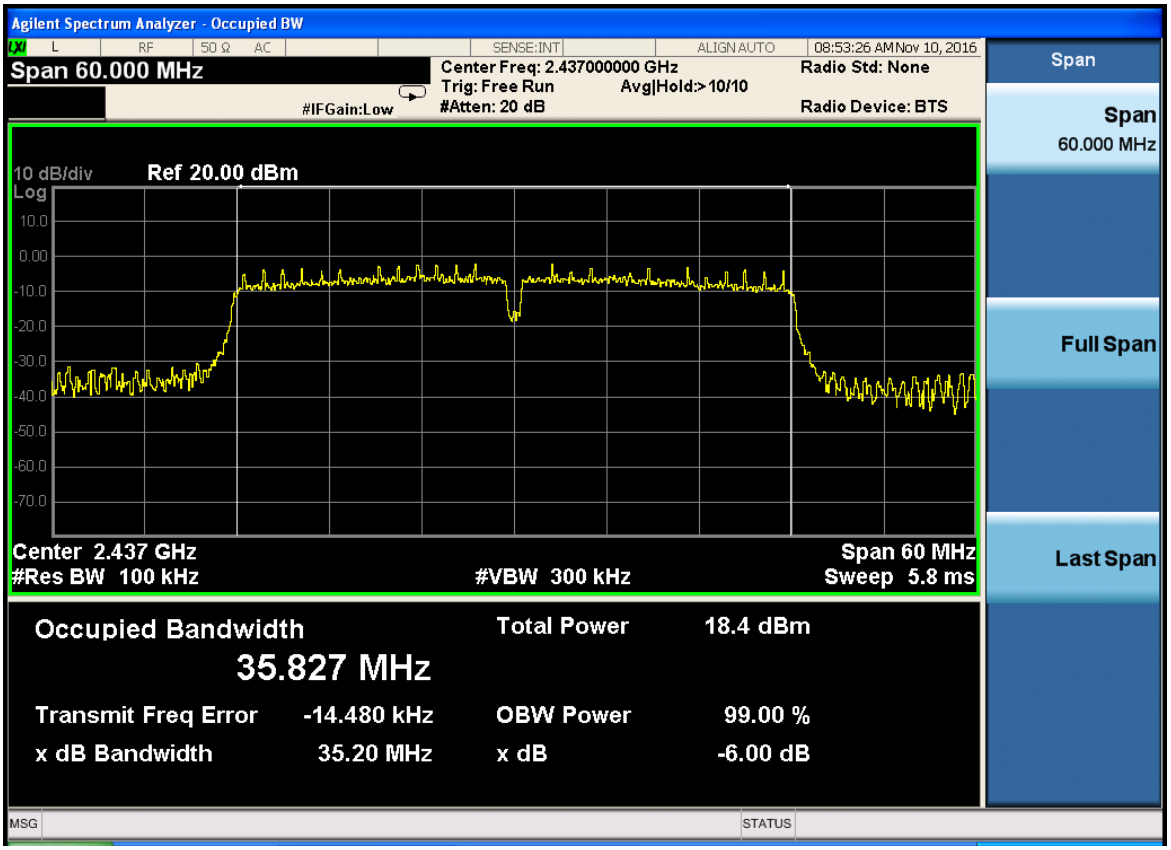


TX 802.11n/HT40 Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2422 MHz	35.23	>=500KHz	**PASS**
2437 MHz	35.20	>=500KHz	**PASS**
2452 MHz	35.25	>=500KHz	**PASS**

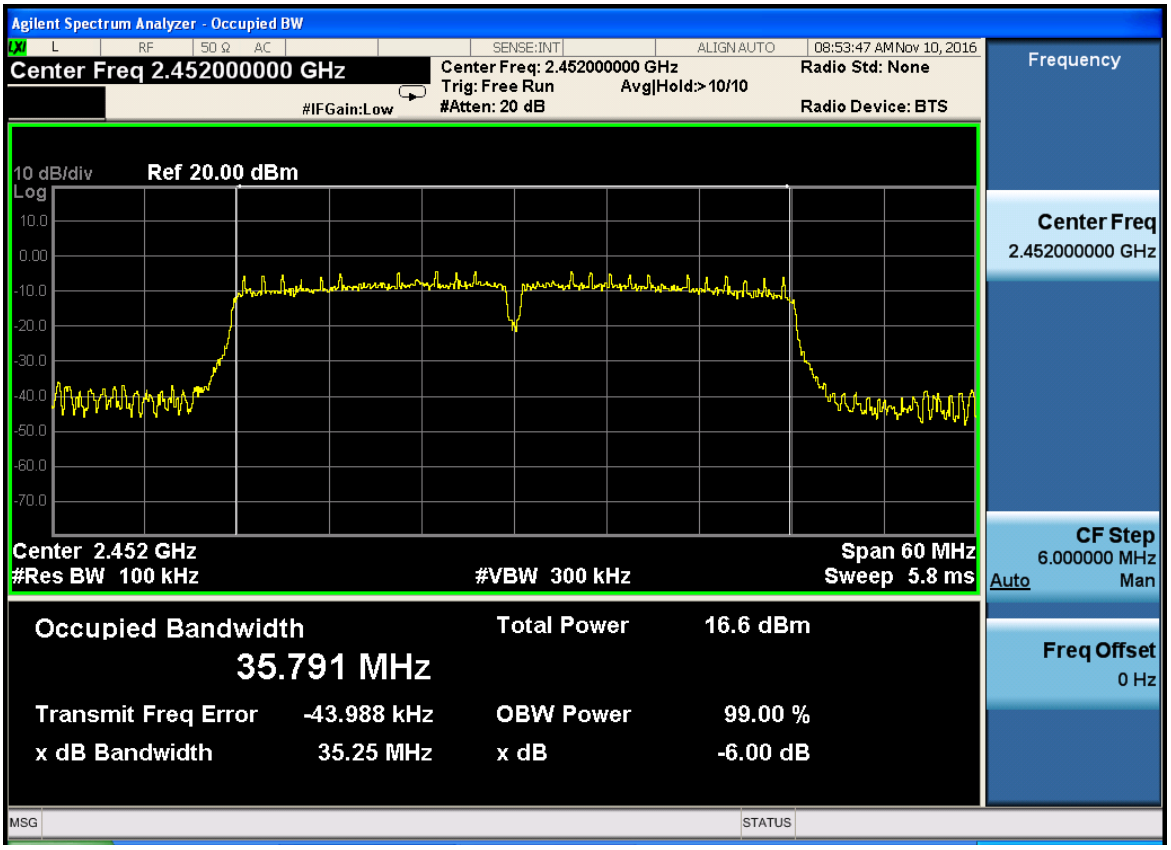
CH: 2422MHz



CH: 2437MHz



CH: 2452MHz



7 POWER SPECTRAL DENSITY TEST

7.1 Test Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

7.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on FCC Part15 C Section 15.247: RBW= 3KHz. VBW= 10 KHz, Span=3MHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

7.3 Measurement Equipment Used

Same as Radiated Emission Measurement

7.4 Test Result

PASS

All the test modes completed for test.

TX 802.11b Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2412 MHz	-8.807	8	**PASS**
2437 MHz	-8.116	8	**PASS**
2462 MHz	-8.304	8	**PASS**

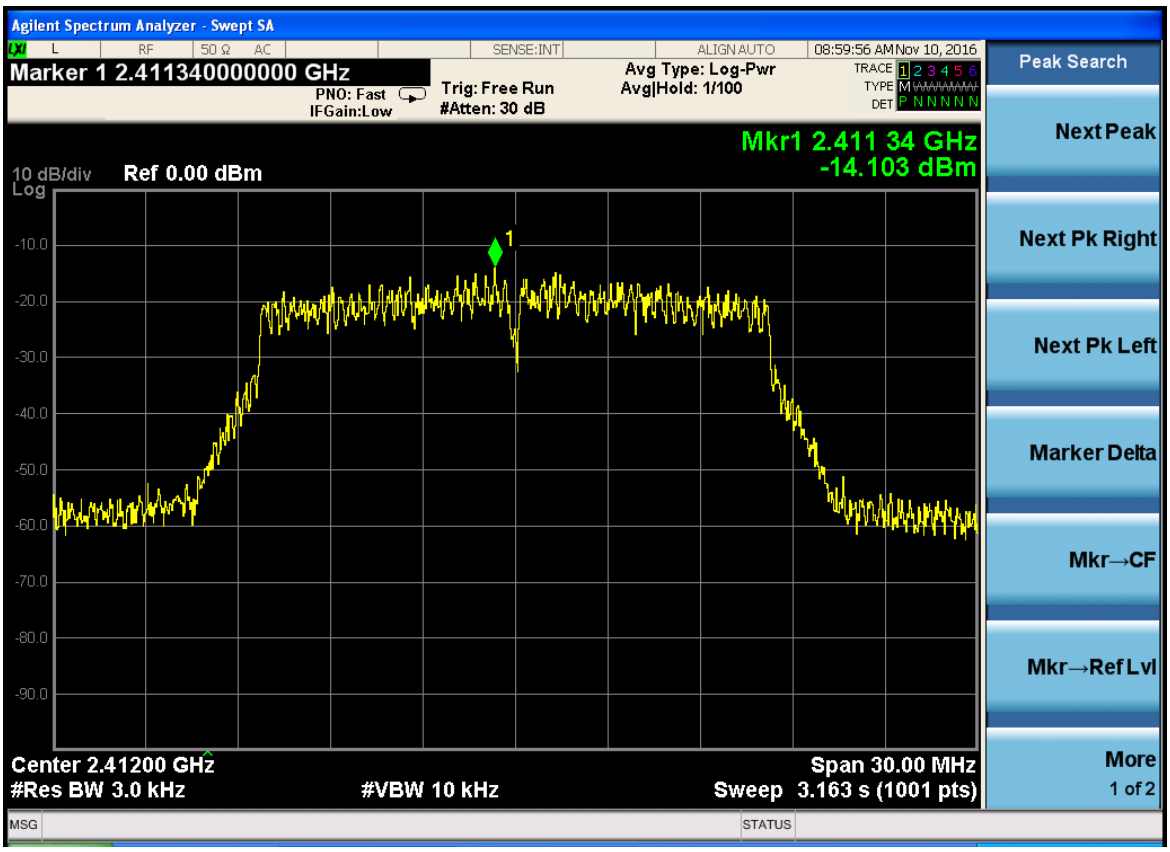
CH: 2412MHz

CH: 2437MHz

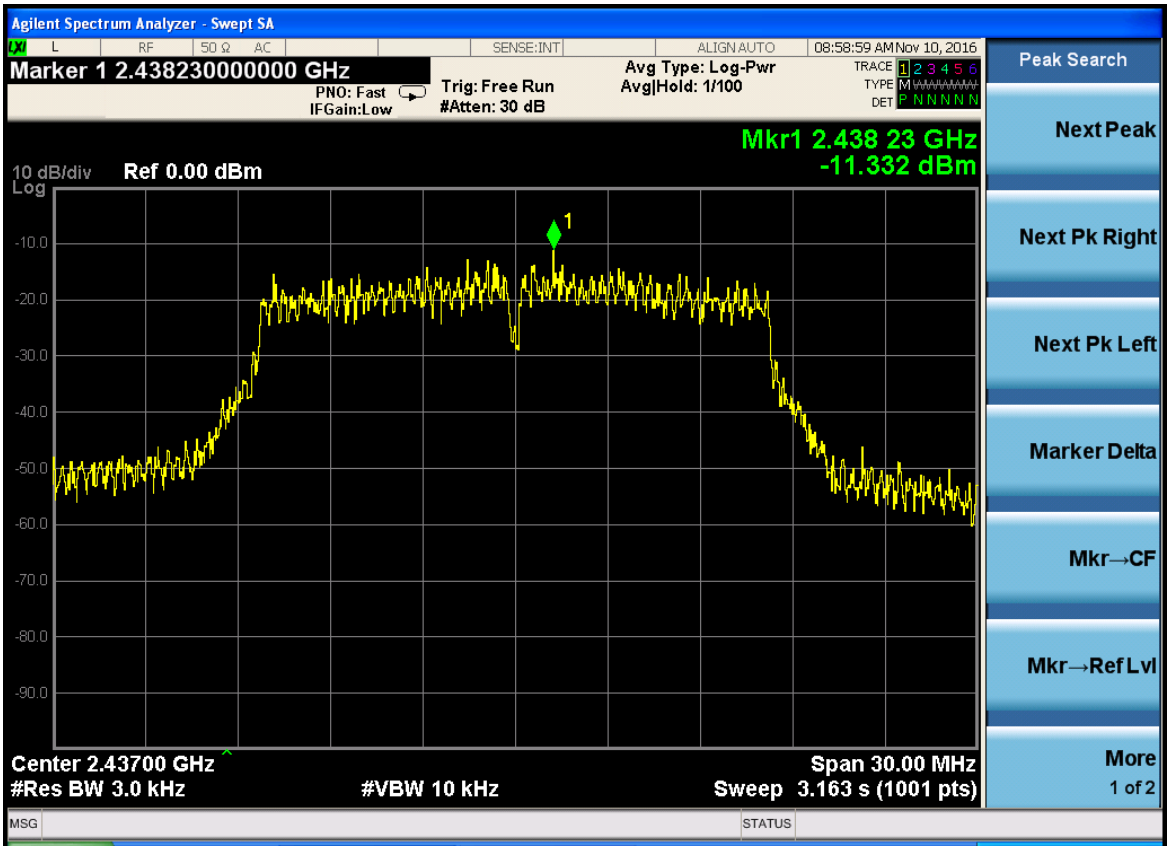
CH: 2462MHz

TX 802.11g Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2412 MHz	-14.103	8	**PASS**
2437 MHz	-11.332	8	**PASS**
2462 MHz	-13.923	8	**PASS**

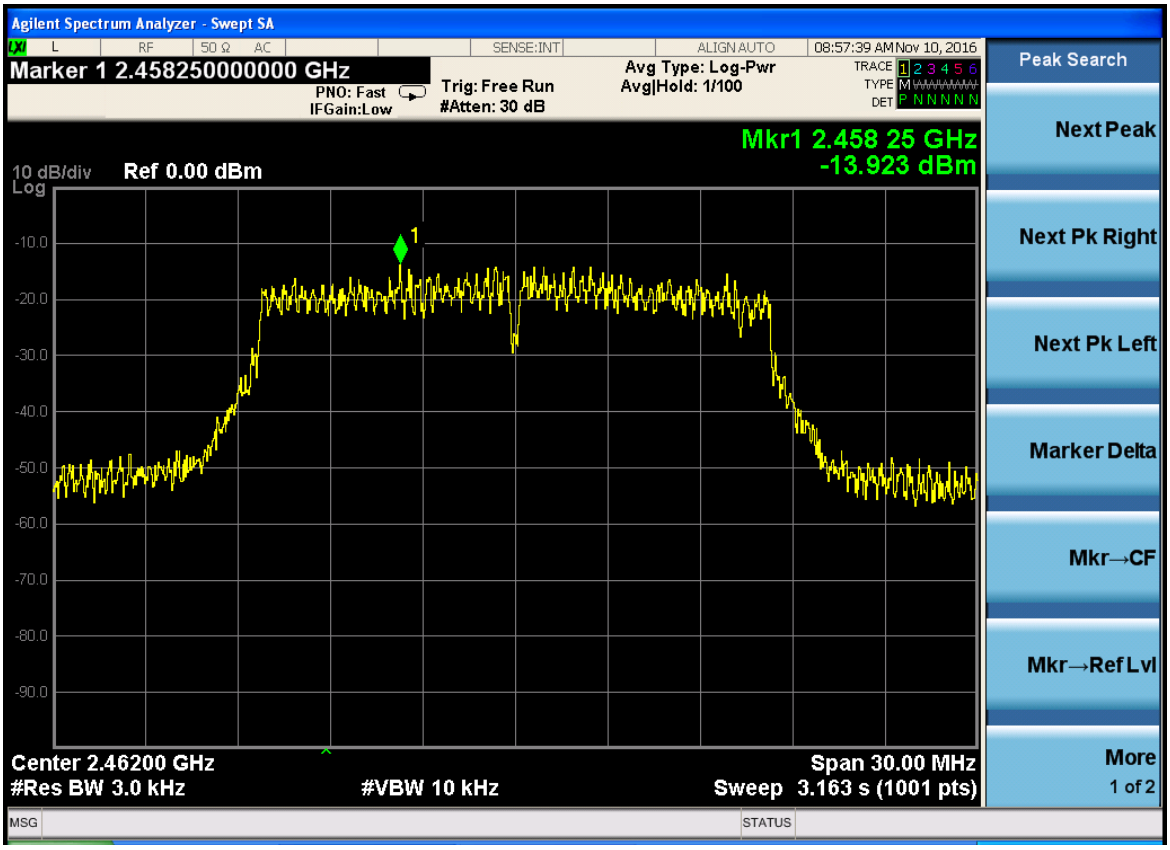
CH: 2412MHz



CH: 2437MHz

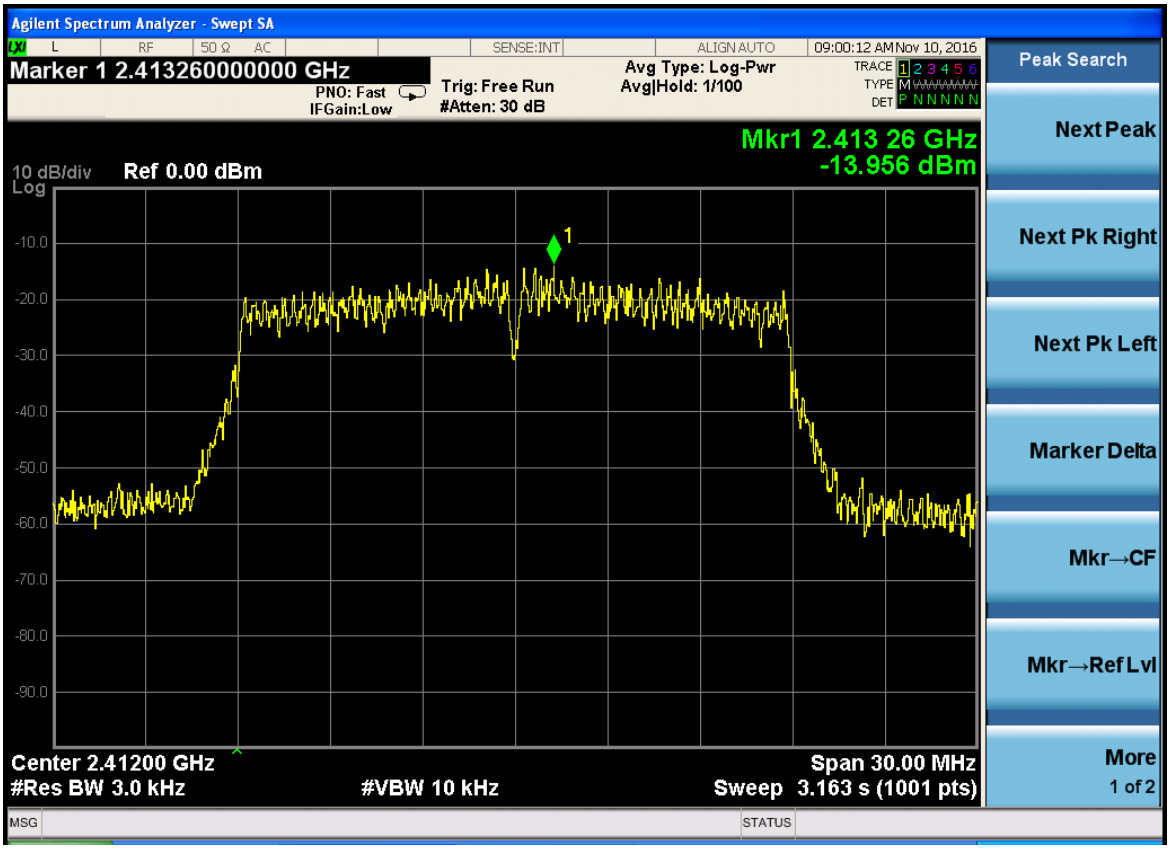


CH: 2462MHz

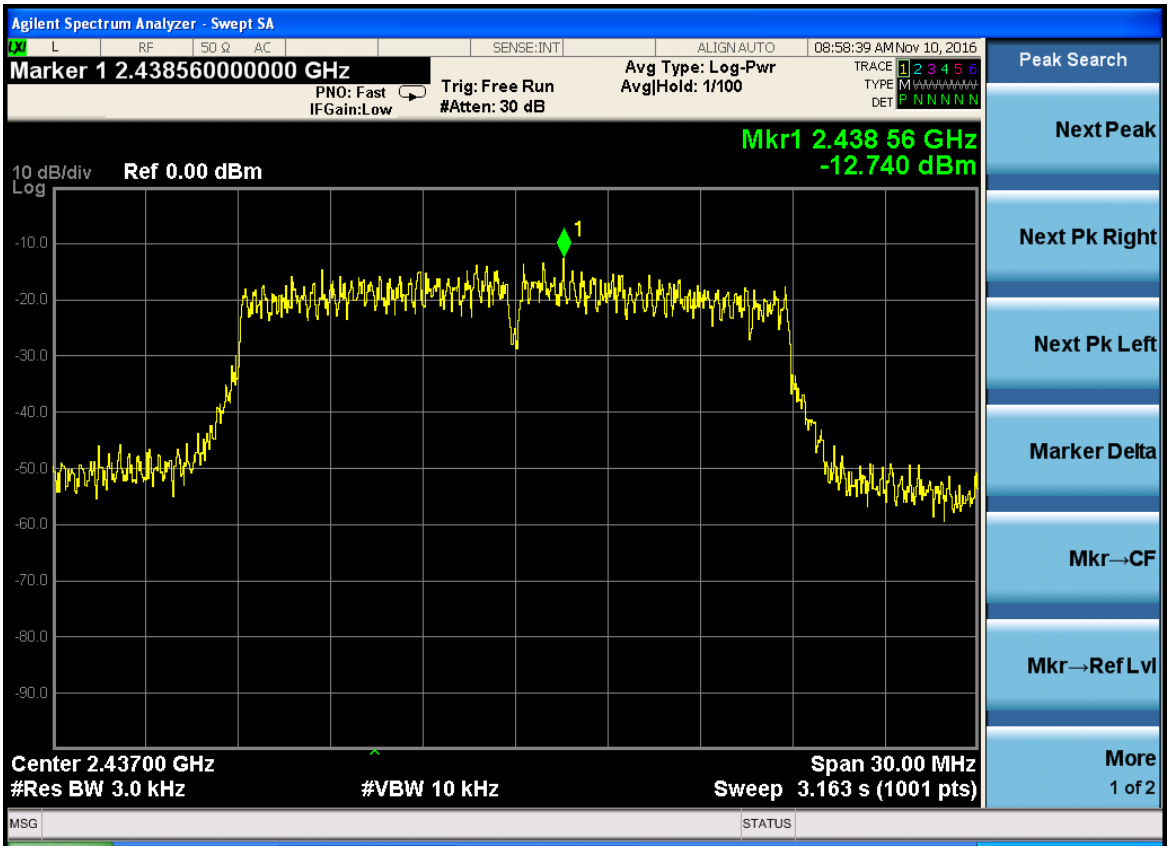


TX 802.11n/HT20 Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2412 MHz	-13.956	8	**PASS**
2437 MHz	-12.740	8	**PASS**
2462 MHz	-13.420	8	**PASS**

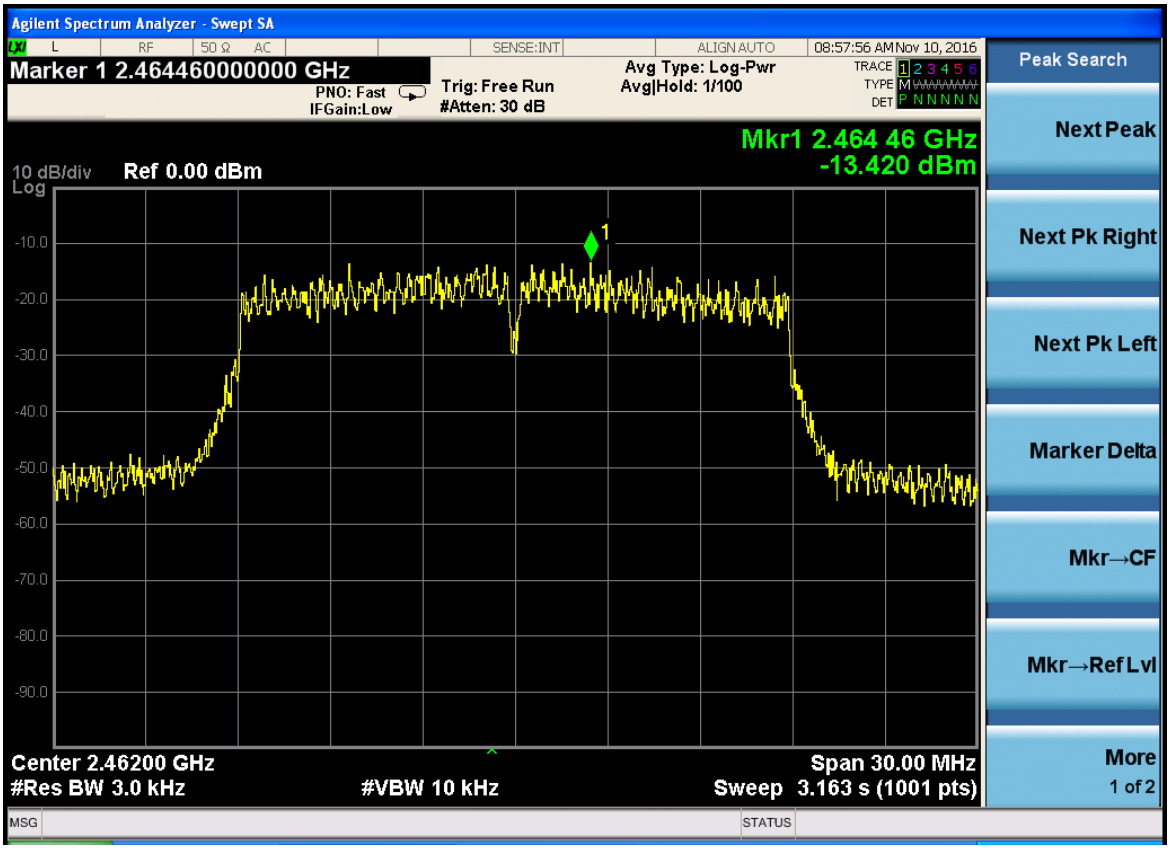
CH: 2412MHz



CH: 2437MHz

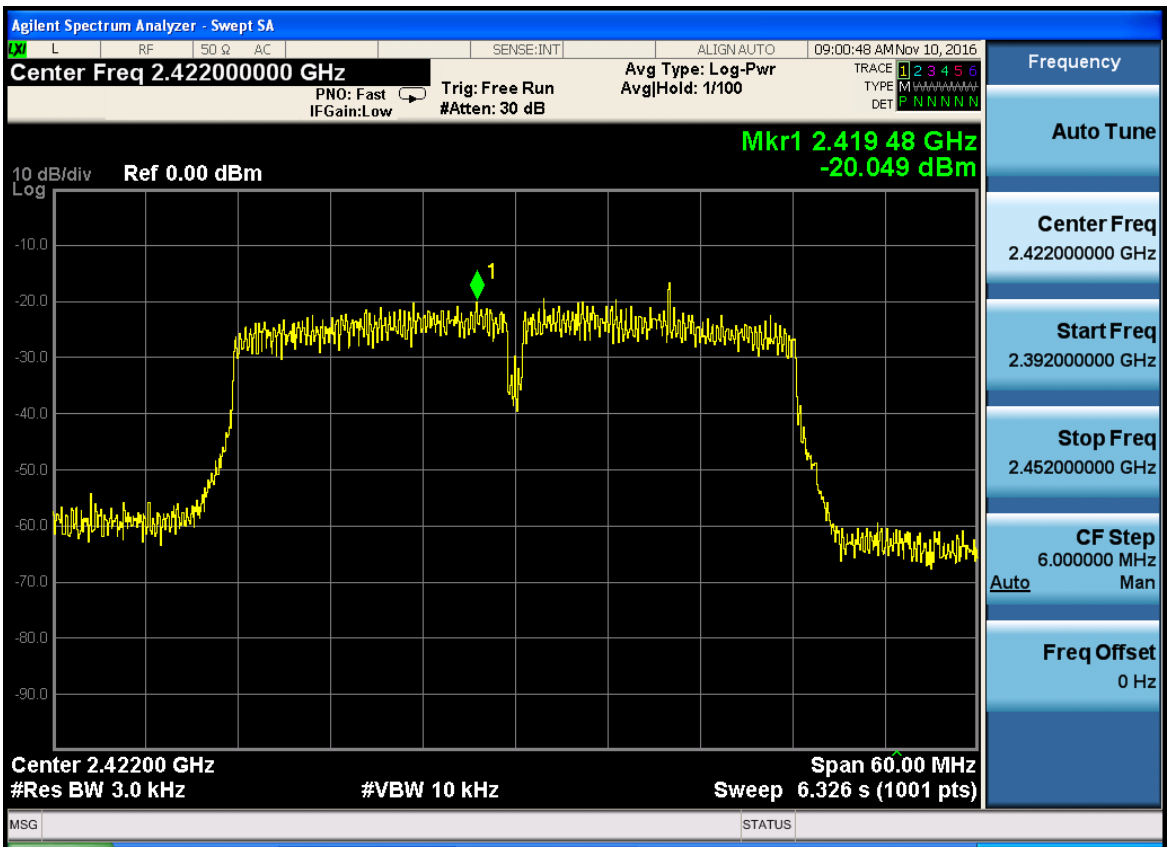


CH: 2462MHz

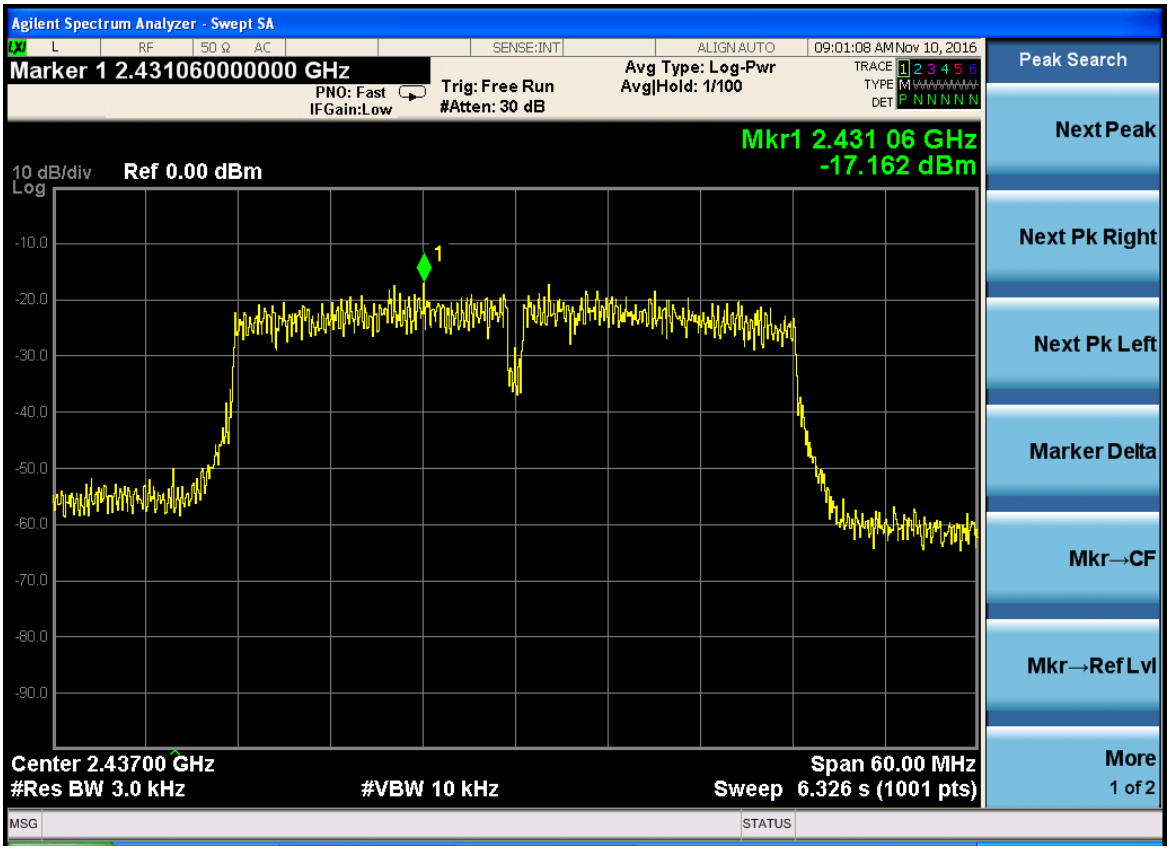


TX 802.11n/HT40 Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2422 MHz	-20.049	8	**PASS**
2437 MHz	-17.162	8	**PASS**
2452 MHz	-18.617	8	**PASS**

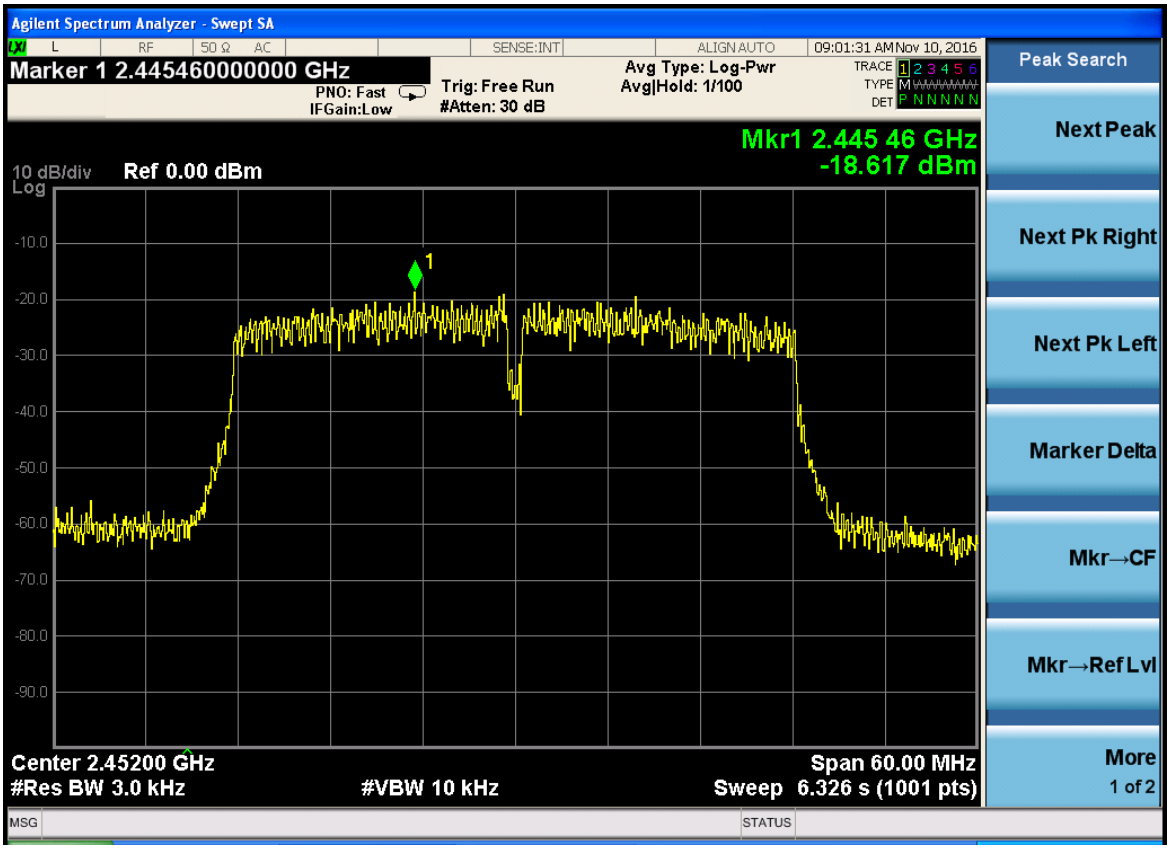
CH: 2422MHz



CH: 2437MHz



CH: 2452MHz



8 PEAK OUTPUT POWER TEST

8.1 Test Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

8.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The EUT was directly connected to the Power meter.

8.3 Measurement Equipment Used

Same as Radiated Emission Measurement

8.4 Test Result

PASS

All the test modes completed for test.

TX 802.11b Mode			
Test Channe	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)	LIMIT dBm
CH01	2412	12.86	30
CH06	2437	12.96	30
CH11	2462	12.81	30
TX 802.11g Mode			
CH01	2412	13.32	30
CH06	2437	13.26	30
CH11	2462	13.18	30
TX 802.11n20 Mode			
CH01	2412	13.24	30
CH06	2437	13.19	30
CH11	2462	13.22	30
TX 802.11n40 Mode			
CH03	2422	12.95	30
CH06	2437	12.84	30
CH09	2452	12.91	30

9 CONDUCTED EMISSION TEST

9.1 Test Limit

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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

9.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on FCC Part15 C Section 15.247: RBW= 100KHz. VBW= 100 KHz
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

9.3 Measurement Equipment Used

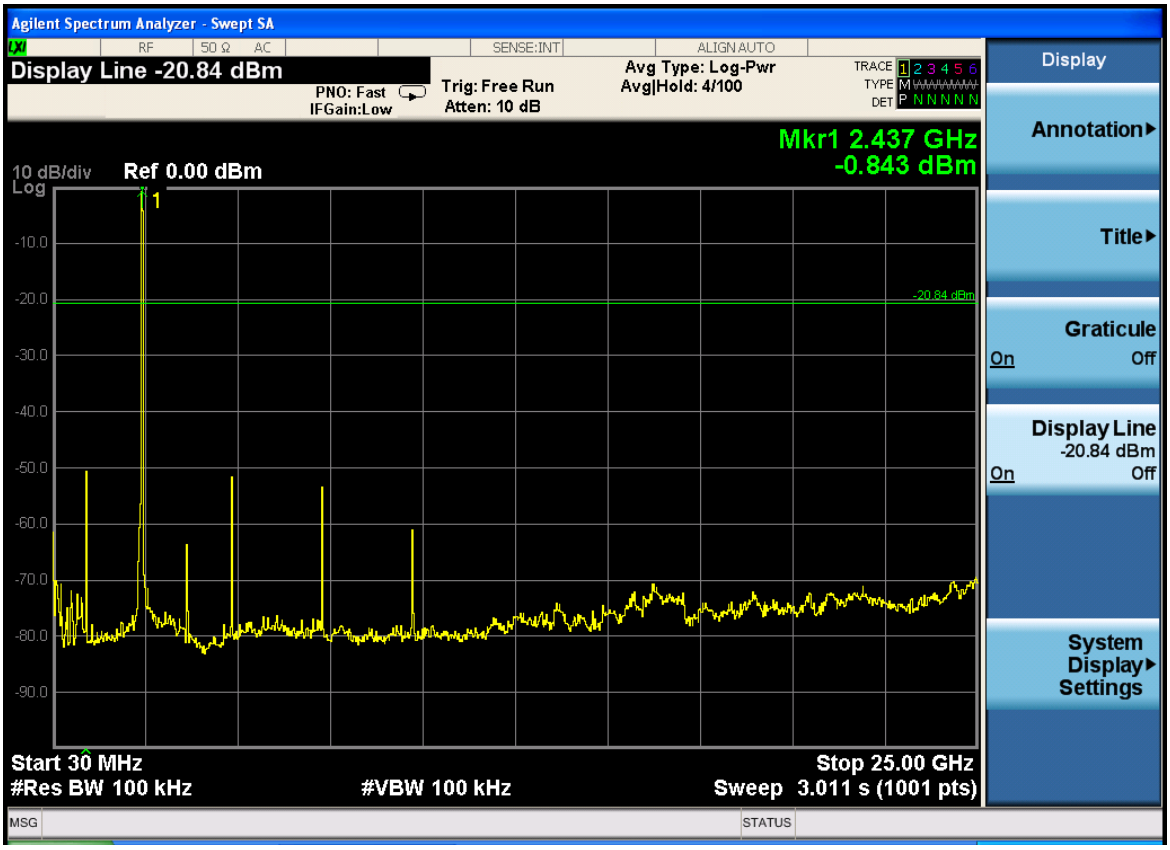
Same as Radiated Emission Measurement

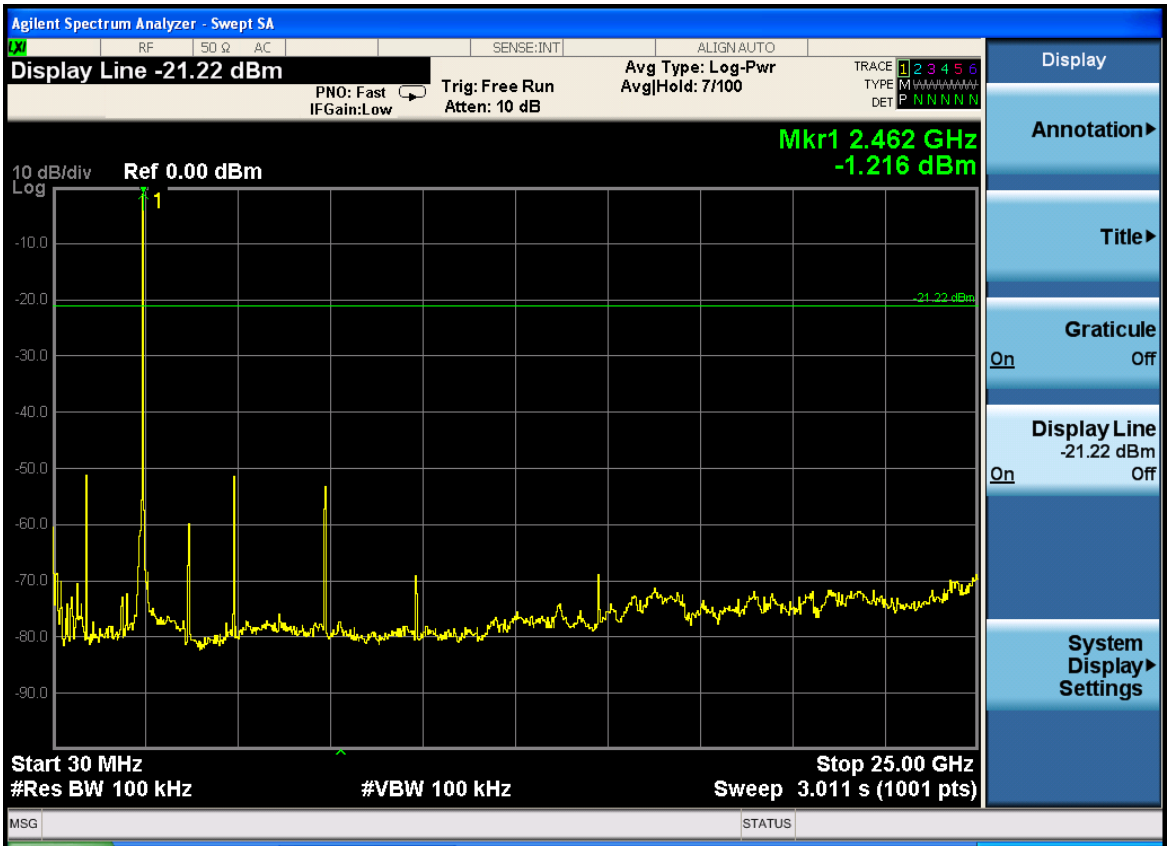
7.4 Test Result

PASS

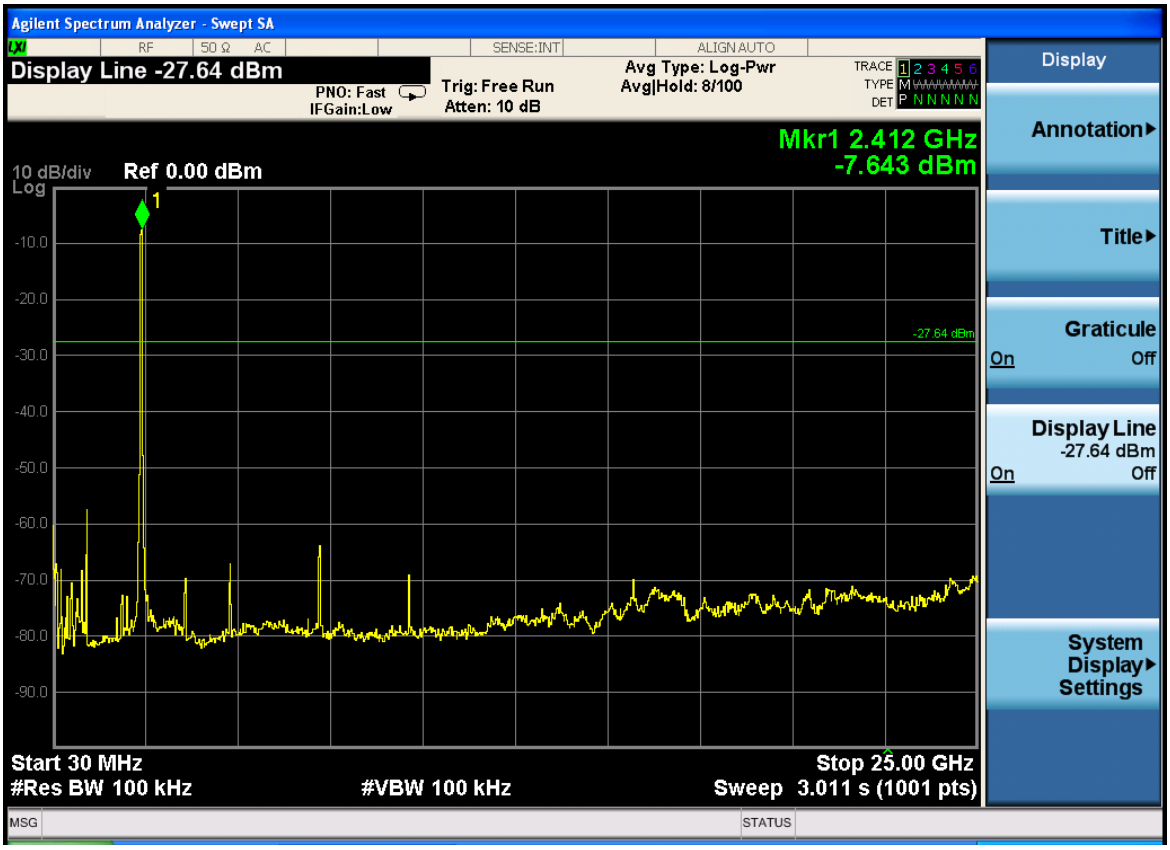
All the test modes completed for test.

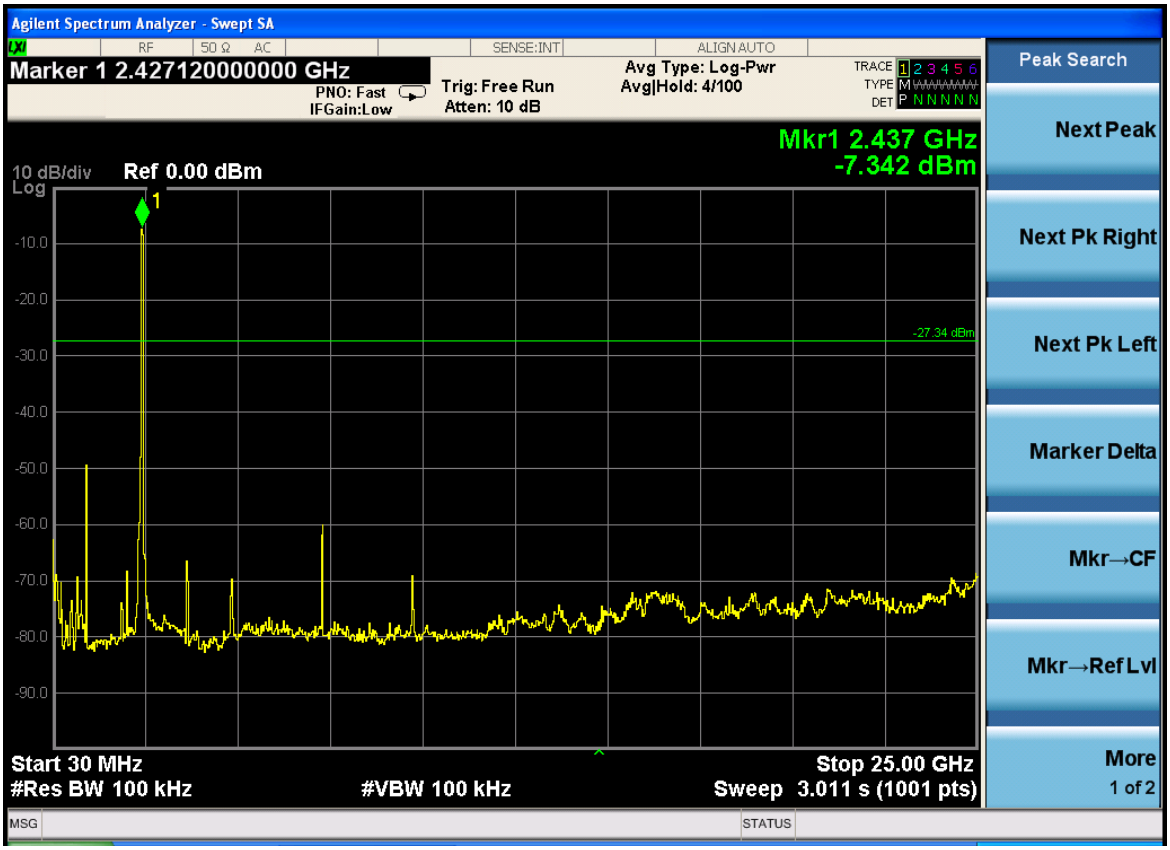
TX 802.11b Mode

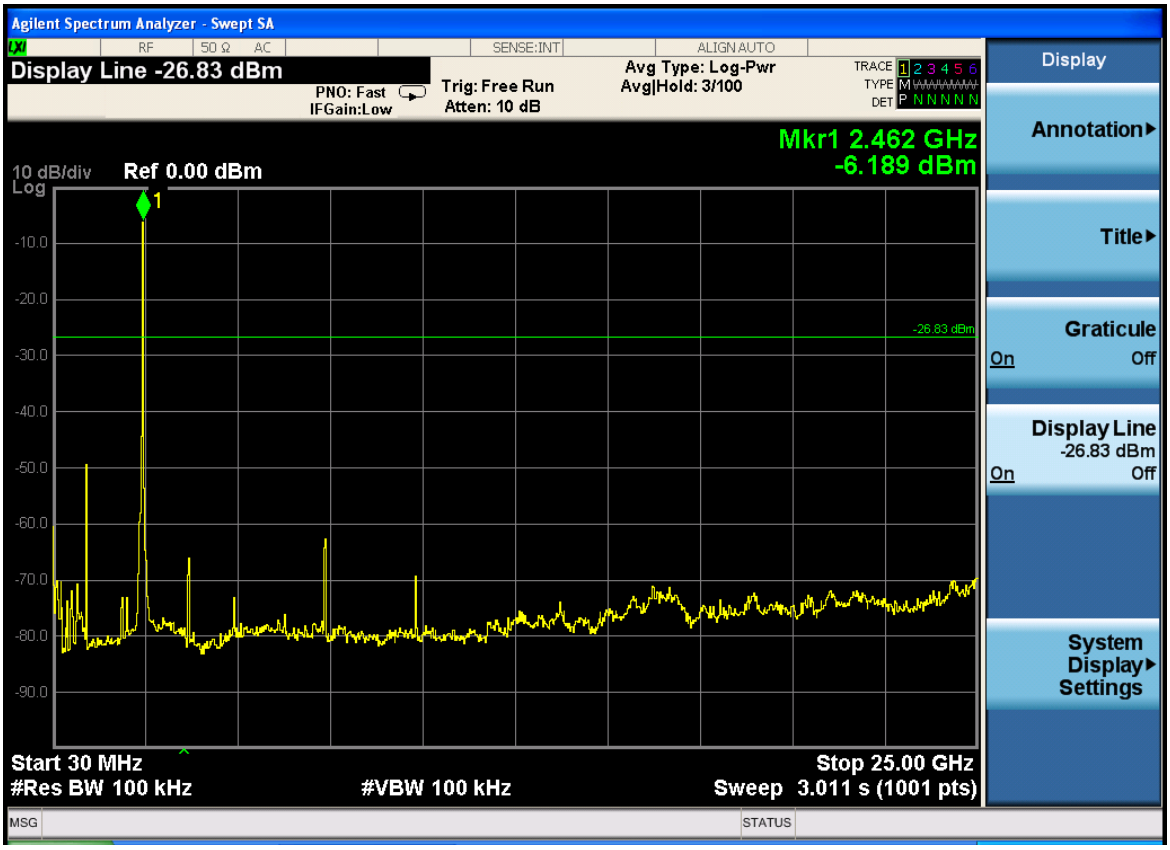




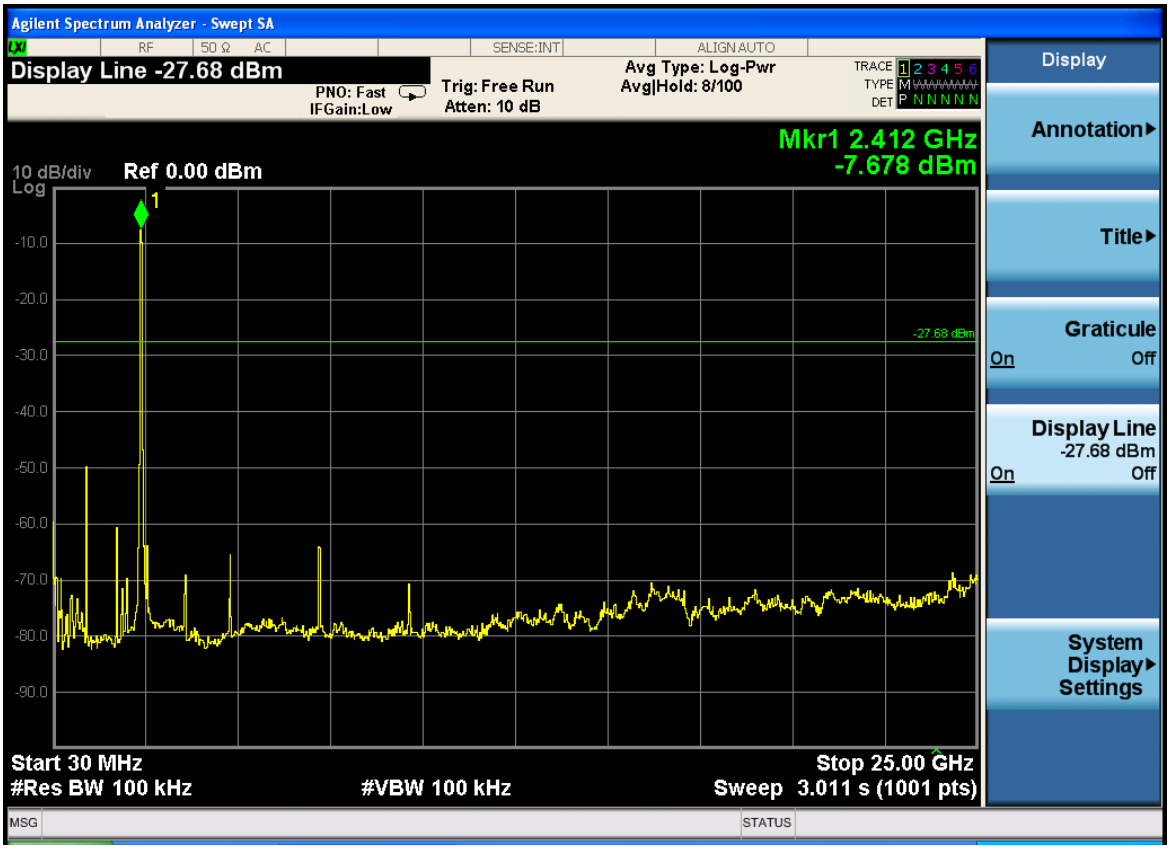
TX 802.11g Mode

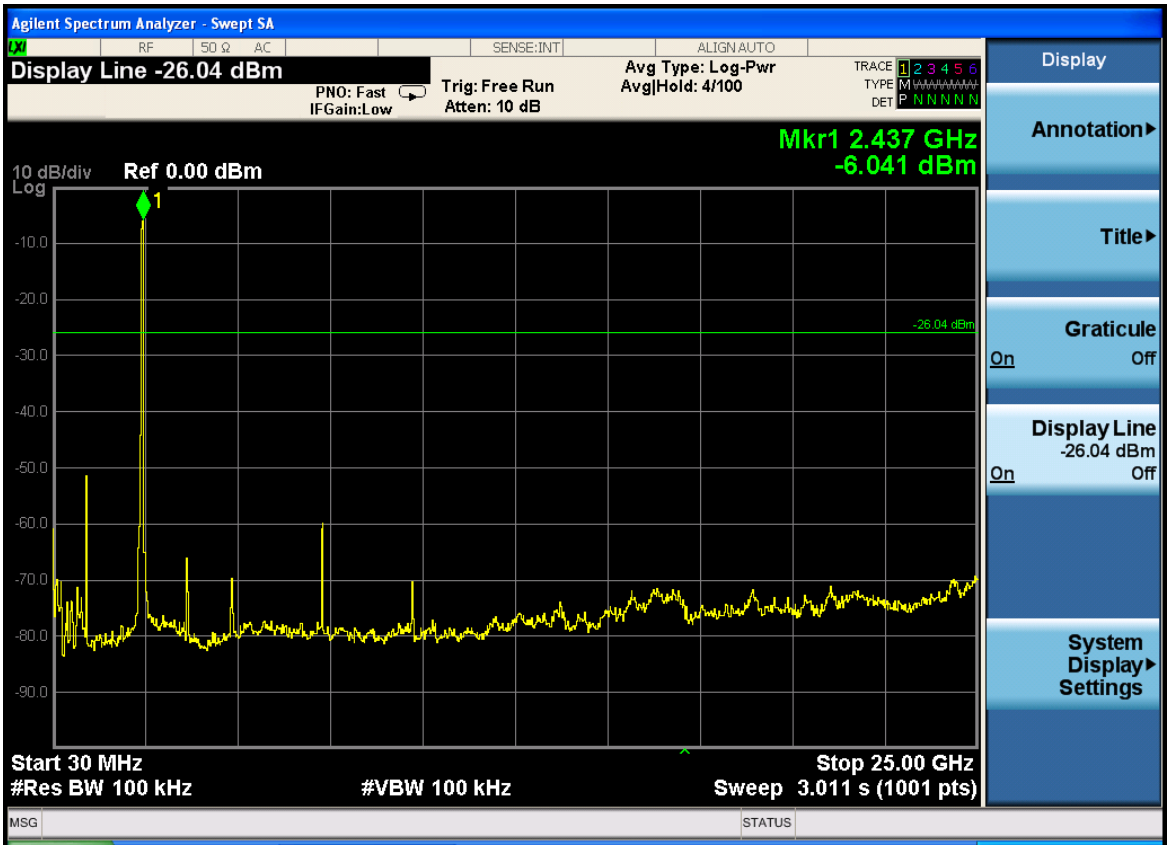


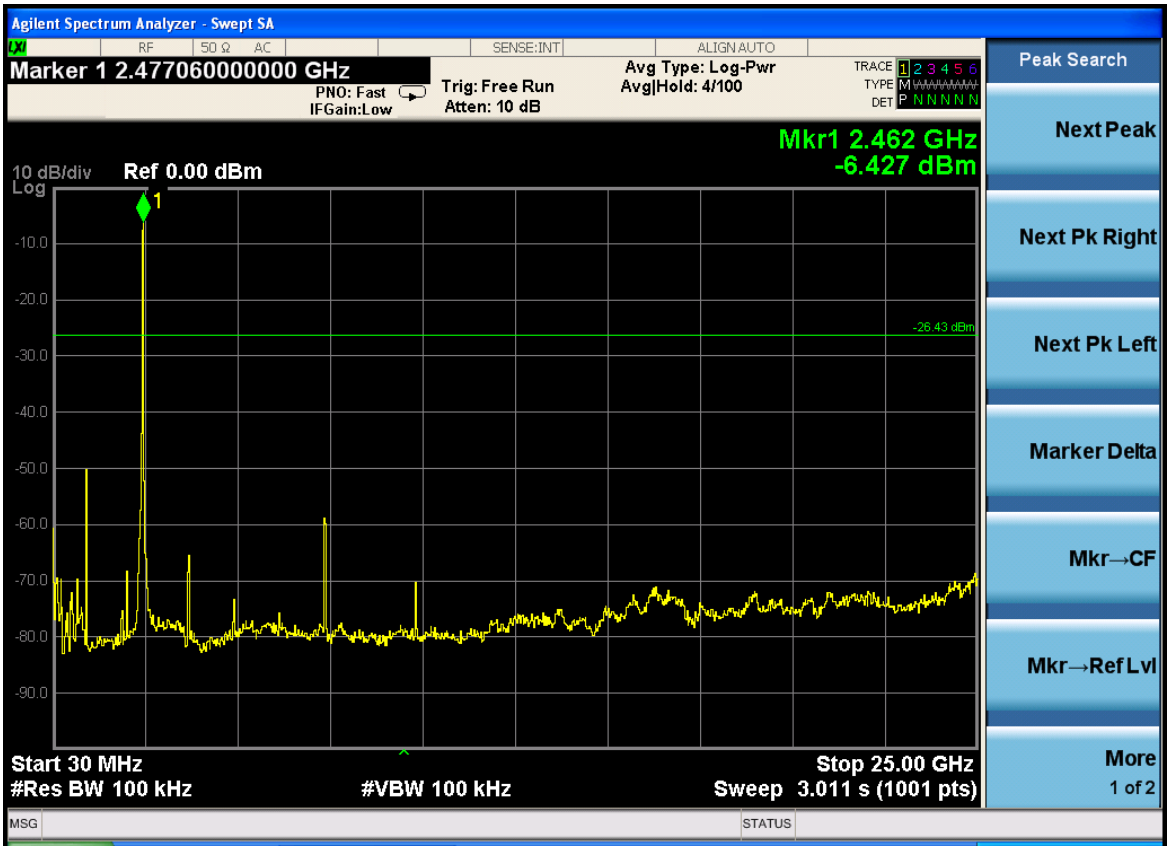

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
Marker 1 2.427120000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.437 GHz
-7.342 dBm
10 dB/div
Log
Ref 0.00 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-27.34 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.00 GHz
Sweep 3.011 s (1001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
Display Line -26.83 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 3/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.462 GHz
-6.189 dBm
10 dB/div
Log
Ref 0.00 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-26.83 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.00 GHz
Sweep 3.011 s (1001 pts)
MSG
STATUS
Display
Annotation
Title
Graticule
On Off
Display Line
-26.83 dBm
On Off
System
Display
Settings

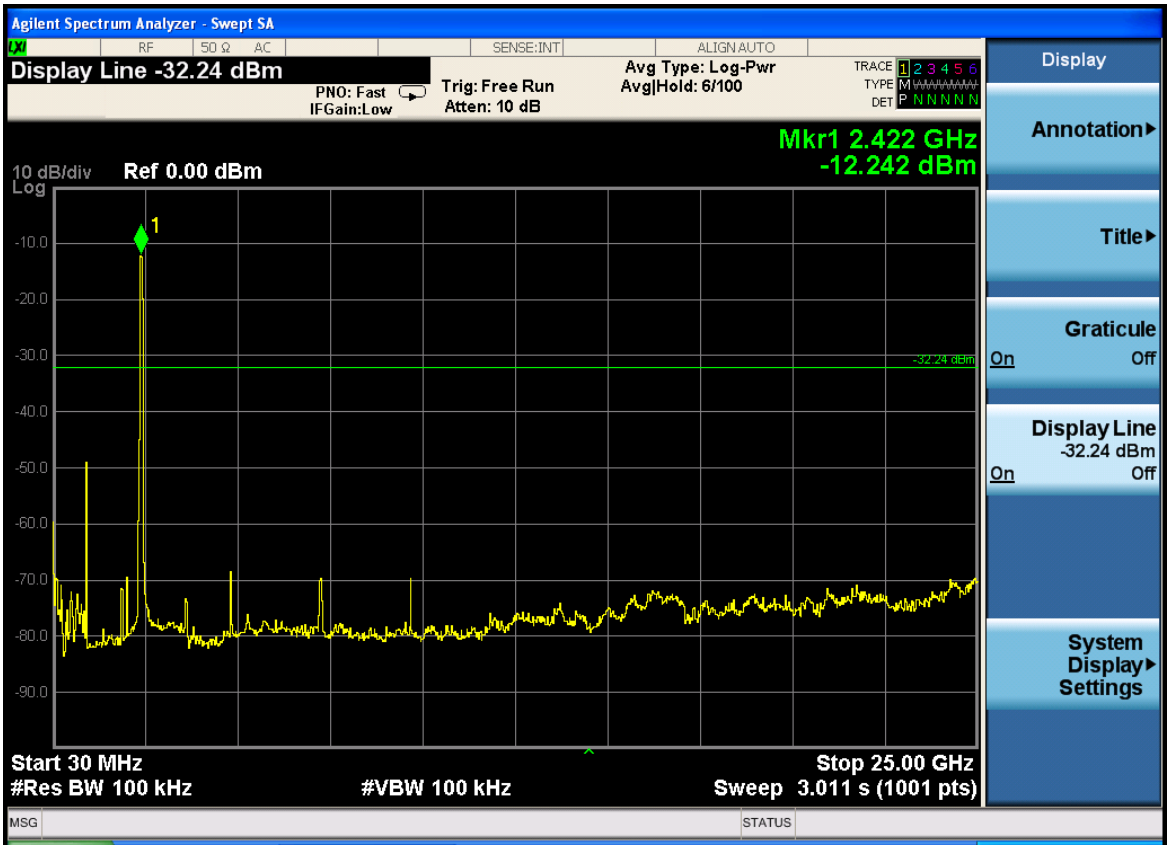
TX 802.11n/HT20 Mode

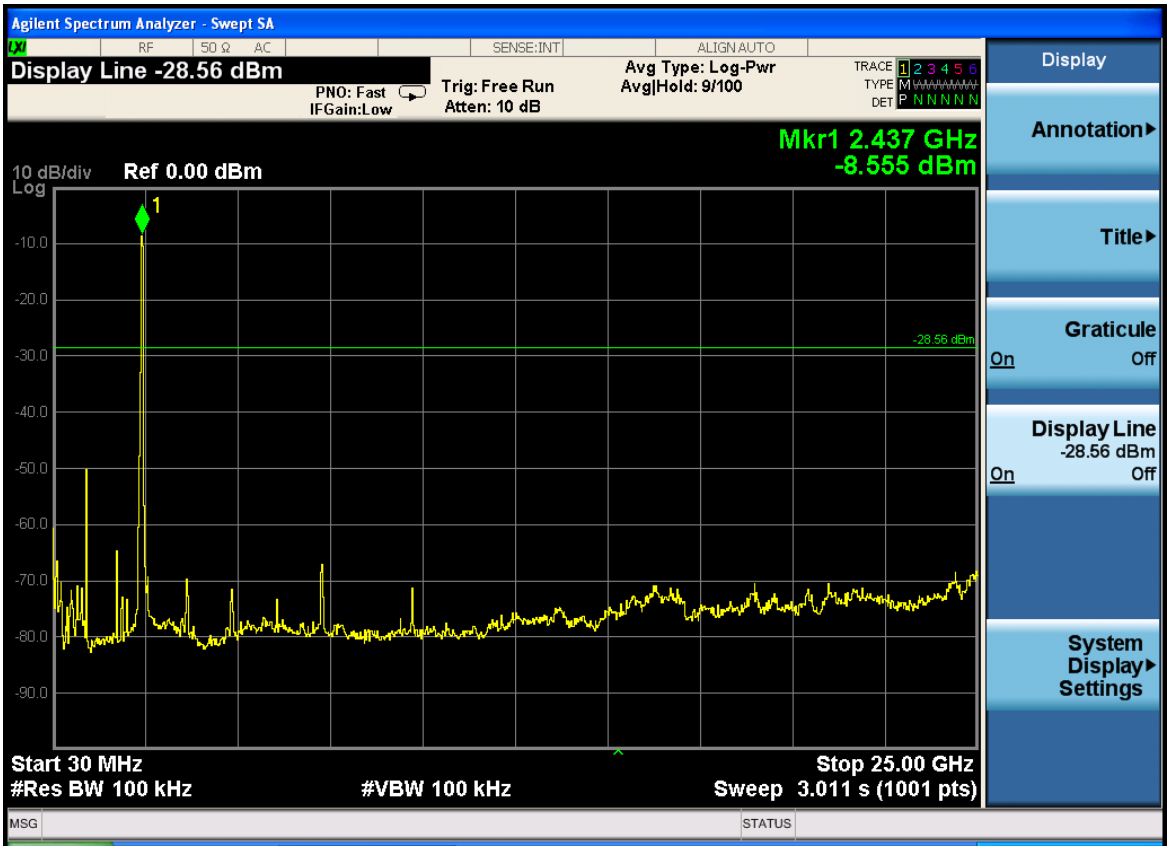


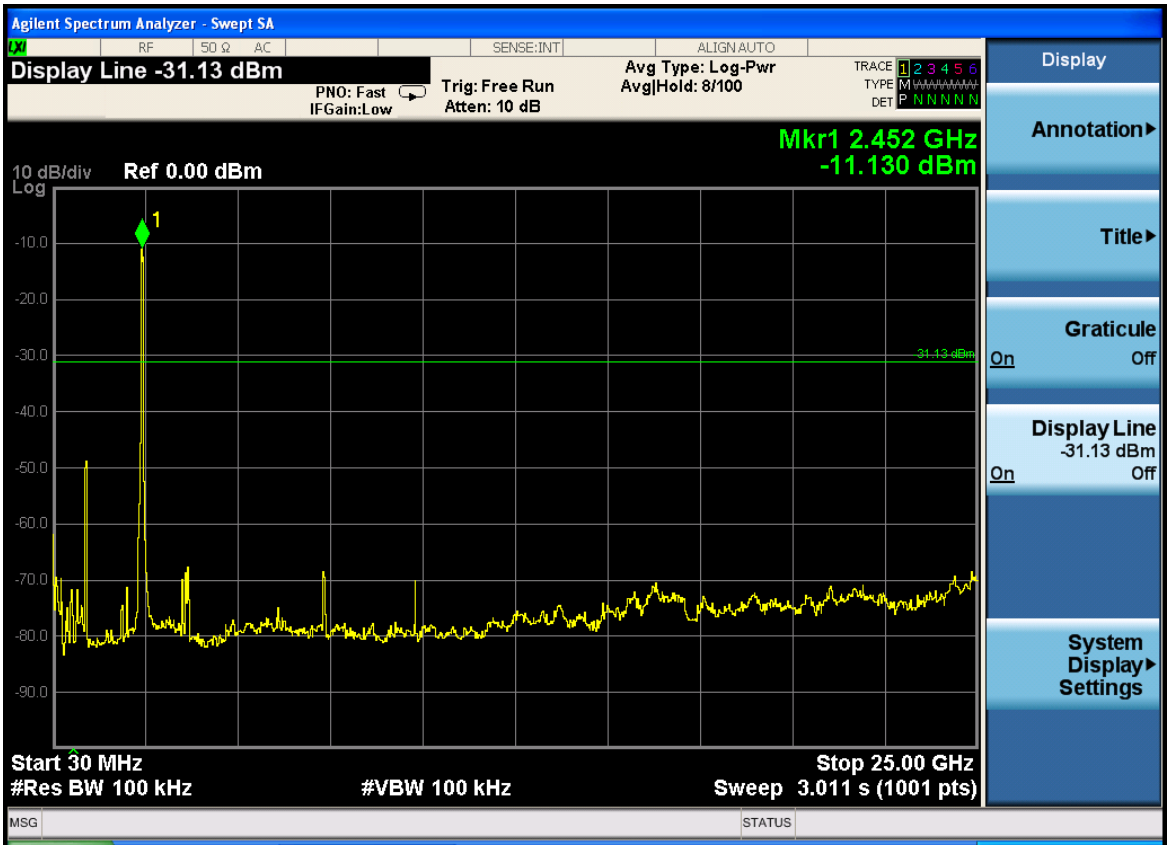




TX 802.11n/HT40 Mode




Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
Display Line -28.56 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 9/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.437 GHz
-8.555 dBm
10 dB/div
Log
Ref 0.00 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-28.56 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.00 GHz
Sweep 3.011 s (1001 pts)
MSG
STATUS
Display
Annotation
Title
Graticule
On Off
Display Line
-28.56 dBm
On Off
System
Display
Settings

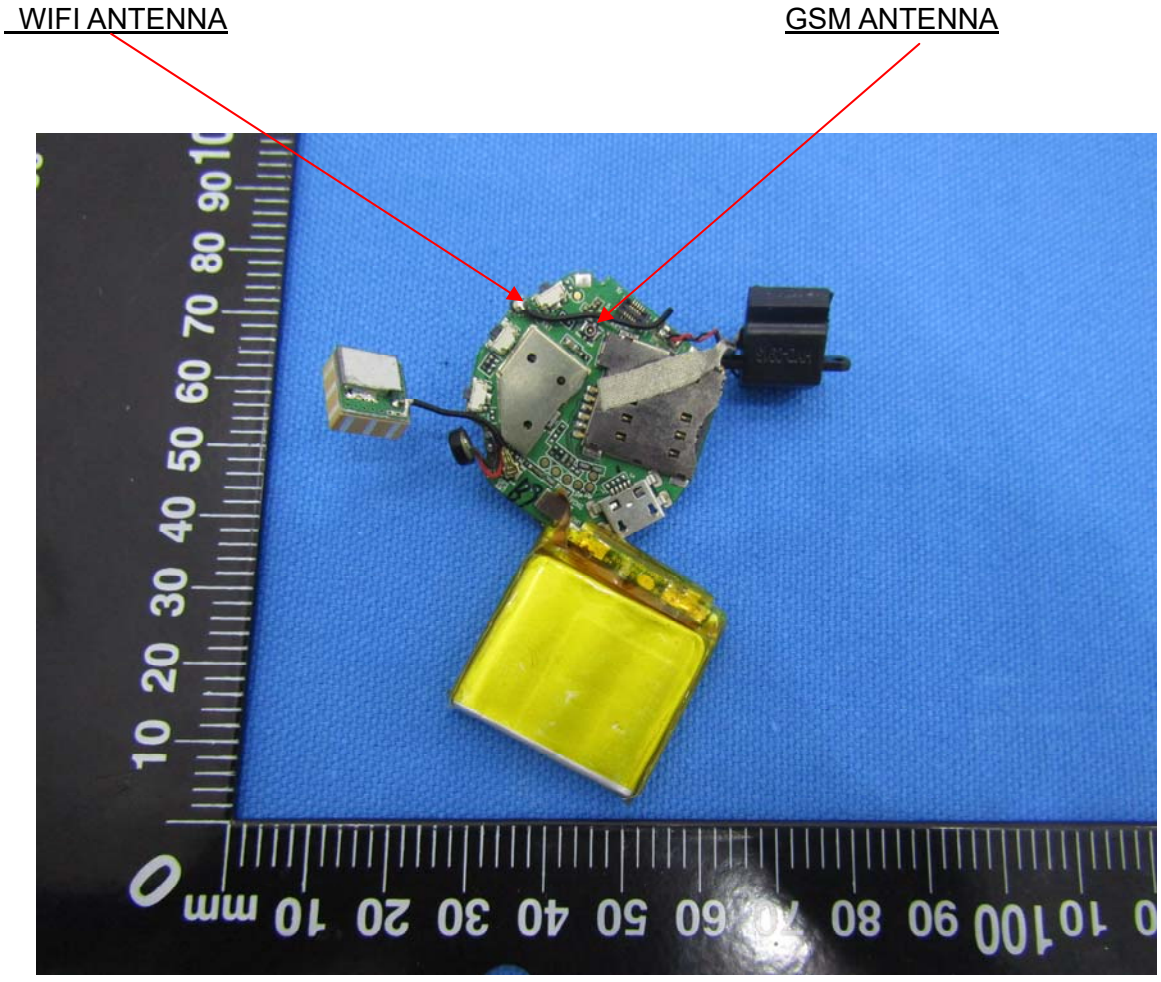

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
Display Line -31.13 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold: 8/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 2.452 GHz
-11.130 dBm
10 dB/div
Log
Ref 0.00 dBm
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-31.13 dBm
Start 30 MHz
#Res BW 100 kHz
#VBW 100 kHz
Stop 25.00 GHz
Sweep 3.011 s (1001 pts)
MSG
STATUS
Display
Annotation
Title
Graticule
On Off
Display Line
-31.13 dBm
On Off
System
Display
Settings

10 ANTENNA REQUIREMENT

Standard Applicable
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

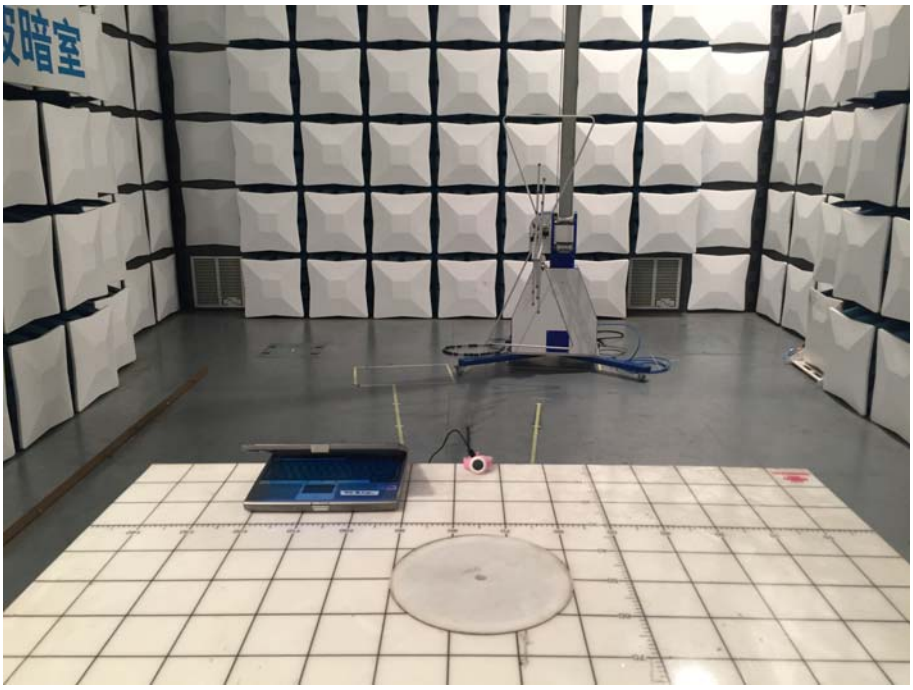
Refer to statement below for compliance.
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction
The antenna used in this product is a Integral Antenna, The directional gains of antenna used for transmitting is 1dBi.



11 PHOTOGRAPH OF TEST

11.1 Radiated Emission



11.2 Conducted Emission