FCC TEST REPORT

Test report
On Behalf of
Mantis Technology LLC
For
BodyCam
Model No.: LexCAM-BC1, LexCAM-BC2, LexCAM-BC3, LexCAM-BC4, LexCAM-BC5

FCC ID: 2AMUF-BC1

Prepared for :	**Mantis Technology LLC** **2504 COPPERTREE RD, CHAMPAIGN, IL 61822**
Prepared By :	**Shenzhen HUAK Testing Technology Co., Ltd.** **F1-008, Tai Yi Building, No.1, Haicheng West Road, Xixiang Street, Bao'an District, Shenzhen City, China**
Date of Test:	**Jun. 19, 2017 ~ Jun. 26, 2017**
Date of Report:	**Jun. 26, 2017**
Report Number:	**HK170619072-E**

TEST RESULT CERTIFICATION

Applicant's name	:	Mantis Technology LLC
Address	:	2504 COPPERTREE RD, CHAMPAIGN, IL 61822
Manufacture's Name	:	Mantis Technology LLC
Address	:	2504 COPPERTREE RD, CHAMPAIGN, IL 61822

Product description

Trade Mark:		LexRay
Product name	:	BodyCam
Model and/or type reference	:	LexCAM-BC1, LexCAM-BC2, LexCAM-BC3, LexCAM-BC4, LexCAM-BC5
Standards	:	FCC Rules and Regulations Part 15 Subpart C Section 15.247 ANSI C63.10: 2013

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Date of Test	:	
Date (s) of performance of tests	:	**Jun. 19, 2017 ~ Jun. 26, 2017**
Date of Issue	:	**Jun. 26, 2017**
Test Result	:	**Pass**

Testing Engineer : Eric Xie

(Eric Xie)

Technical Manager : Dora Qin

(Dora Qin)

Authorized Signatory : Kait Chen

(Kait Chen)

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1. TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST	RESULT
CONDUCTED EMISSIONS TEST	COMPLIANT
RADIATED EMISSION TEST	COMPLIANT
BAND EDGE	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
POWER SPECTRAL DENSITY	COMPLIANT
PEAK OUTPUT POWERead	COMPLIANT
OUT OF BAND EMISSIONS	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

1.2 TEST FACILITY

Test Firm : QTC Certification & Testing Co., Ltd.
Certificated by FCC, Registration No.: 588523

Address 2nd Floor,B1 Building,Fengyeyuan Industrial Plant, Liuxian 2st. Road, Xin'an Street, Bao'an District, Shenzhen, 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	BodyCam
Model Name	LexCAM-BC1
Serial Model	LexCAM-BC2, LexCAM-BC3, LexCAM-BC4, LexCAM-BC5
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: LexCAM-BC1.
FCC ID	2AMUF-BC1
Antenna Type	PCB Antenna
Antenna Gain	1 dBi
Operation frequency	802.11b/g/n 20:2412~2462 MHz N40:2422~2452 MHz
Number of Channels	802.11b/g/n20: 11CH N40: 7CH
Modulation Type	CCK/OFDM/DBPSK/DAPSK
Power Source	DC5V 2A form Adapter with AC 120V/60Hz
Power Rating	DC5V 2A form Adapter with AC 120V/60Hz

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

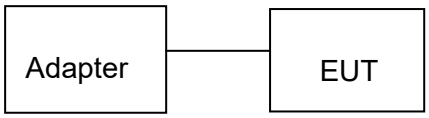
Operating Mode
The mode is used: **Transmitting mode for 802.11b/g/n(20MHz)**
Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

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 below and Above1GHz Radiation testing:

Operation of EUT during conducted testing:



2.3 MEASUREMENT INSTRUMENTS LIST

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
2.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 18, 2017	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. 18, 2017	Feb. 17, 2018
6.	Trilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Feb. 18, 2017	Feb. 17, 2018
7.	Pre-amplifier	Compliance Direction	PAP-0203	22008	Feb. 18, 2017	Feb. 17, 2018
8.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
9.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
10.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
11.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 18, 2017	Feb. 17, 2018
12.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
13.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
14.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
15.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
16.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 18, 2017	Feb. 17, 2018
17.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
18.	Power Meter	R&S	NRVD	SEL0069	Feb. 18, 2017	Feb. 17, 2018
19.	Power Sensor	R&S	URV5-Z2	SEL0071	Feb. 18, 2017	Feb. 17, 2018
20.	Power Sensor	R&S	URV5-Z2	SEL0072	Feb. 18, 2017	Feb. 17, 2018
21.	Software EMC32	R&S	EMC32-S	SEL0082	N/A	N/A
22.	Log-periodic Antenna	Amplifier Reasearch	APT1.580	SEL0073	Feb. 18, 2017	Feb. 17, 2018
23.	Loop Antenna	Schwarz beck	FMZB 1516	9773	Feb. 18, 2017	Feb. 17, 2018
24.	Broadband Antenna	Schwarz beck	VULB9163	9163-333	Feb. 18, 2017	Feb. 17, 2018
25.	Horn Antenna	ETS	3117	00086197	Feb. 18, 2017	Feb. 17, 2018
26.	Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170582	Feb. 18, 2017	Feb. 17, 2018
27.	Antenna Tripod	Amplifier Reasearch	TP1000A	SEL0074	Feb. 18, 2017	Feb. 17, 2018
28.	High Gain Horn Antenna	Amplifier Reasearch	AT4002A	SEL0075	Feb. 18, 2017	Feb. 17, 2018
29.	Spectrum analyzer	Agilent	N9020A	MY49911004 8	Feb. 18, 2017	Feb. 17, 2018
30.	Spectrum analyzer	Agilent	E4407B	MY46184326	Feb. 18, 2017	Feb. 17, 2018
31.	Spectrum analyzer	R&S	FSP30	836079/035	Feb. 18, 2017	Feb. 17, 2018
32.	RF Cable	Micable	C10-01-01-1	100309	Feb. 18, 2017	Feb. 17, 2018

3. CONDUCTED EMISSIONS TEST

3.1 Conducted Power Line Emission Limit

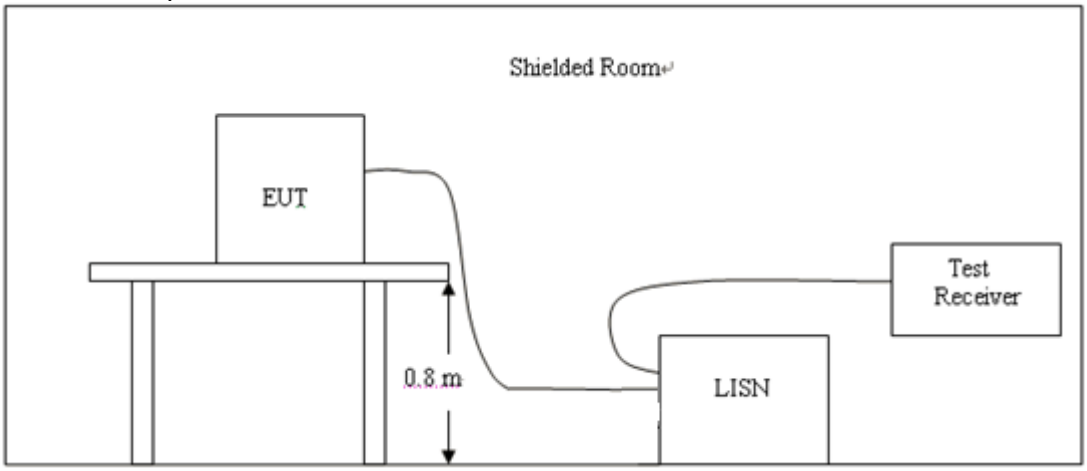
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

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

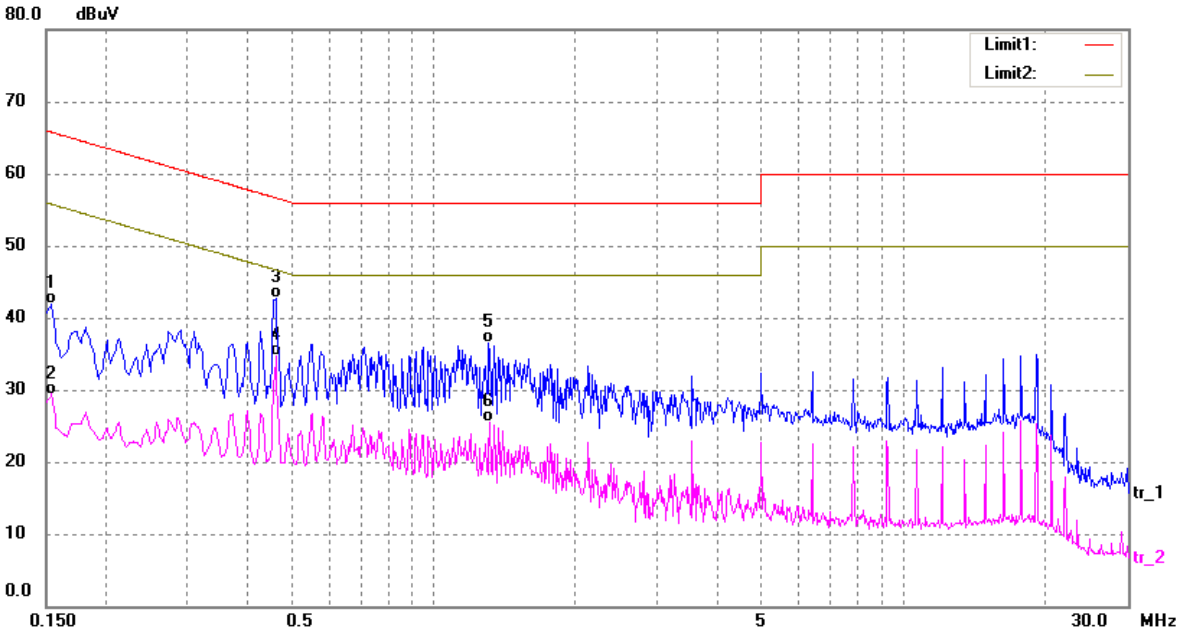
1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2, Support equipment, if needed, was placed as per ANSI 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

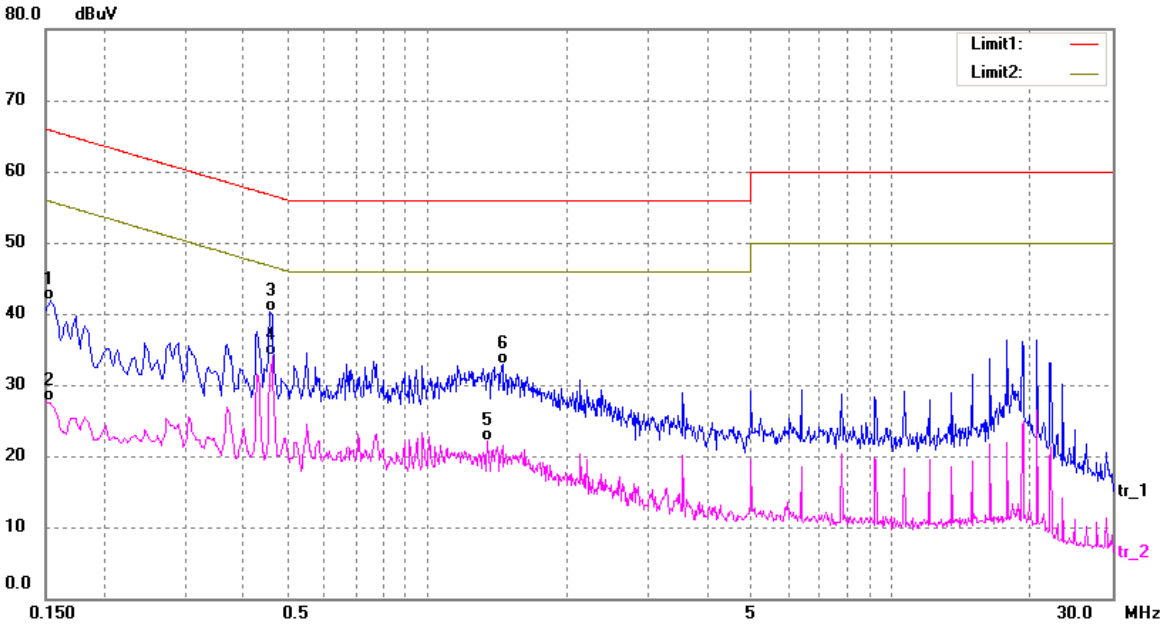
All the test modes completed for test.

Test Specification: Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1540	32.10	9.85	41.95	65.78	-23.83	QP
2	0.1540	19.55	9.85	29.40	55.78	-26.38	AVG
3	0.4620	32.86	9.80	42.66	56.66	-14.00	QP
4*	0.4620	24.87	9.80	34.67	46.66	-11.99	AVG
5	1.3140	26.84	9.75	36.59	56.00	-19.41	QP
6	1.3180	15.75	9.75	25.50	46.00	-20.50	AVG

Test Specification: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1540	32.05	9.85	41.90	65.78	-23.88	QP
2	0.1540	17.84	9.85	27.69	55.78	-28.09	AVG
3	0.4580	30.57	9.80	40.37	56.73	-16.36	QP
4*	0.4620	24.25	9.80	34.05	46.66	-12.61	AVG
5	1.3500	12.27	9.75	22.02	46.00	-23.98	AVG
6	1.4500	23.06	9.75	32.81	56.00	-23.19	QP

4 RADIATED EMISSION TEST

4.1 Radiation Limit

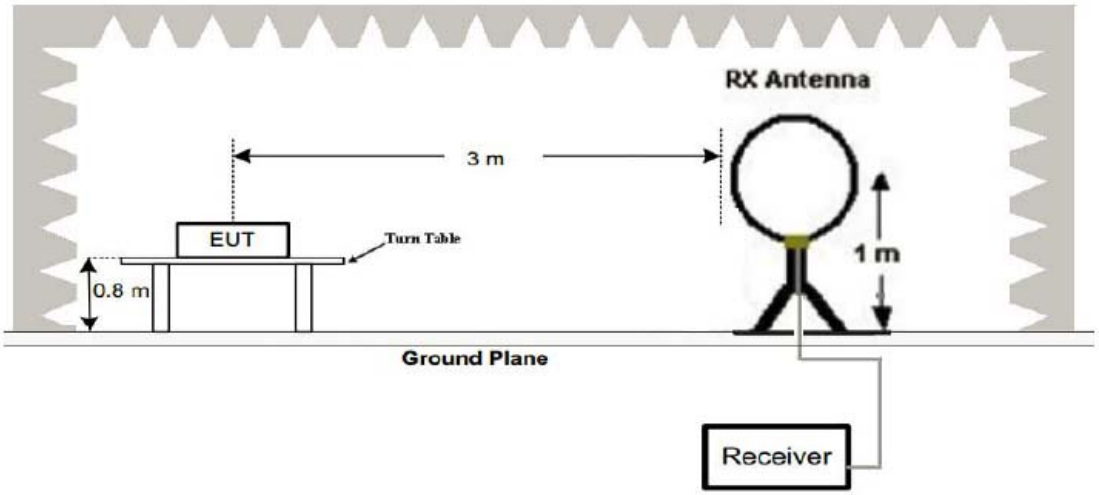
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

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

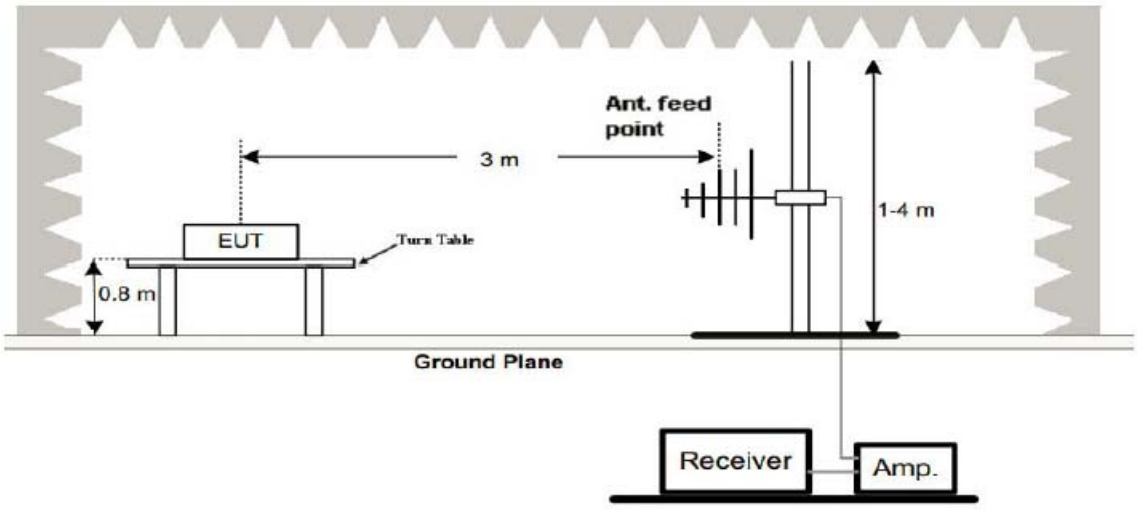
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

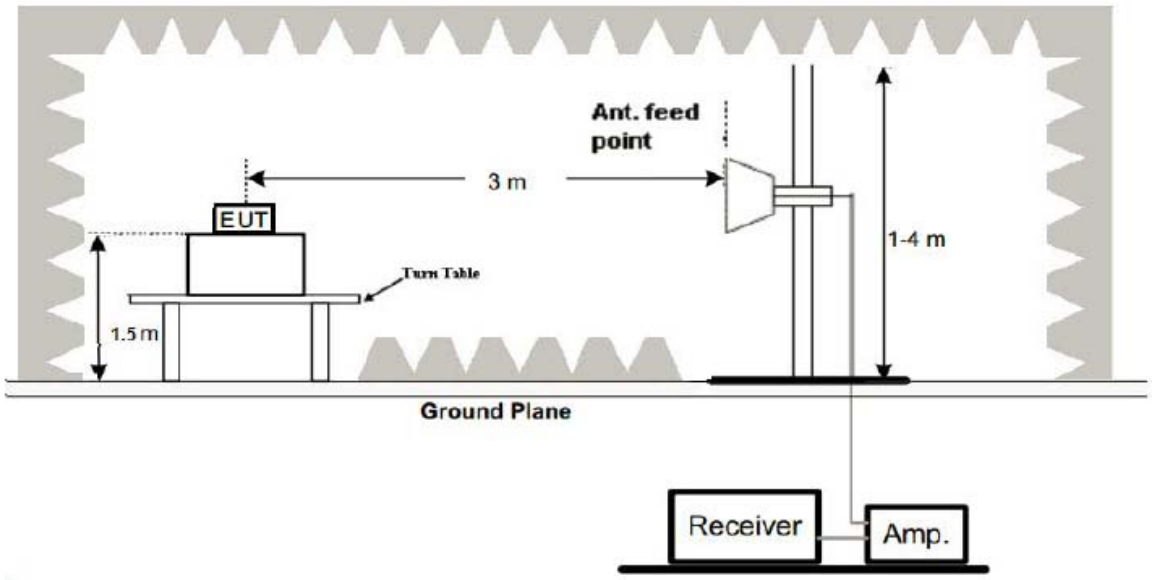
（1）Radiated Emission Test-Up Frequency Below 30MHz



（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).

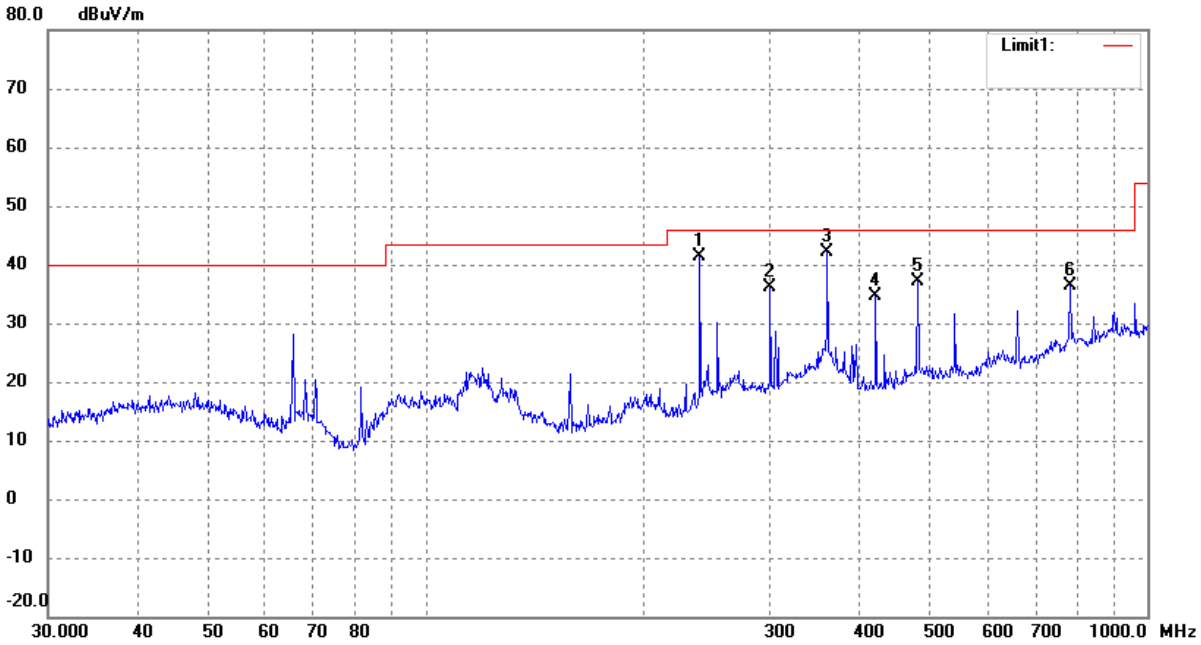
Note:
For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 Test Result

PASS

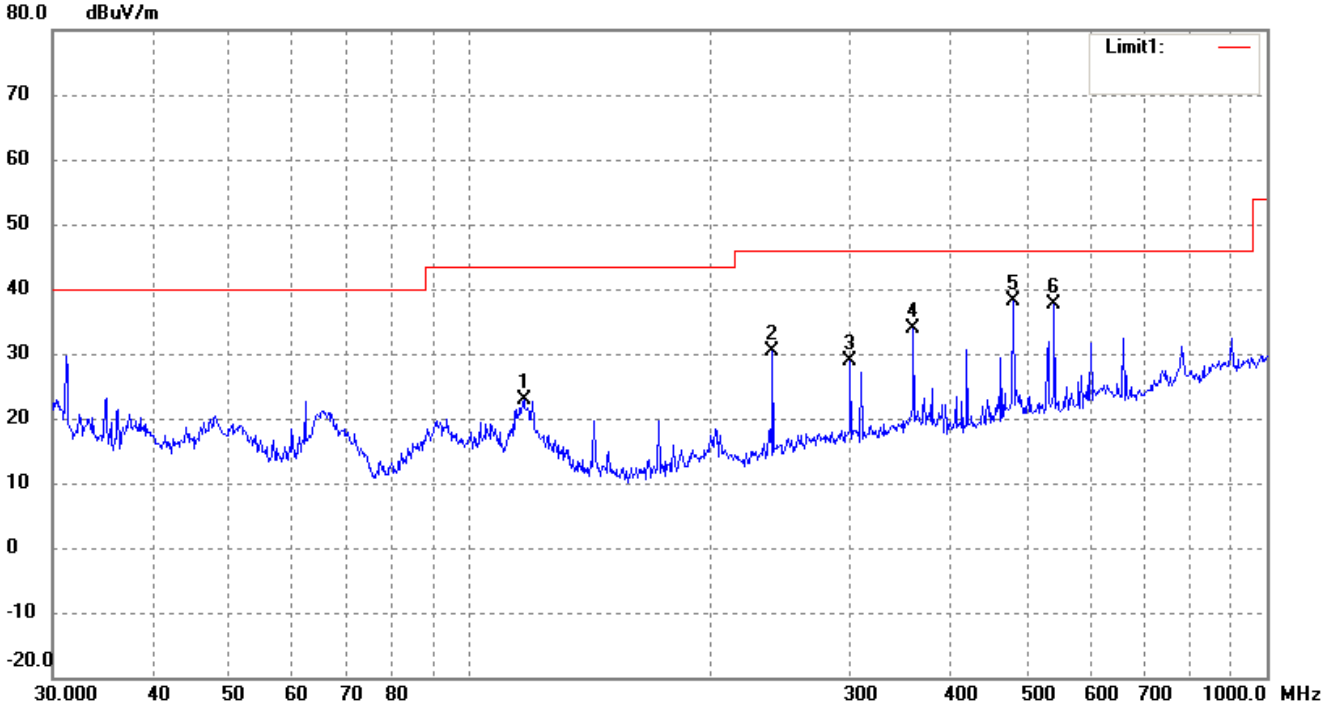
All the test modes completed for test. The worst case of Radiated Emission （802.11b Transmitting Low Channel-2412MHz (worst case) ）; the test data of this mode was reported.

Below 1GHz Test Results:
Antenna polarity: H



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( )	Height (cm)	Remark
1	239.9874	52.29	-10.96	41.33	46.00	-4.67	347	100	peak
2	300.3673	45.77	-9.75	36.02	46.00	-9.98	97	100	peak
3	360.4477	50.07	-7.88	42.19	46.00	-3.81	297	100	peak
4	420.5803	42.63	-7.91	34.72	46.00	-11.28	107	100	peak
5	480.5276	42.40	-5.36	37.04	46.00	-8.96	252	100	peak
6	782.3453	35.80	0.50	36.30	46.00	-9.70	265	100	peak

Antenna polarity: V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	116.9495	36.15	-13.35	22.80	43.50	-20.70	70	100	peak
2	239.9874	41.34	-10.96	30.38	46.00	-15.62	124	100	peak
3	300.3673	38.68	-9.75	28.93	46.00	-17.07	88	100	peak
4	360.4477	41.72	-7.88	33.84	46.00	-12.16	123	100	peak
5	480.5276	43.38	-5.36	38.02	46.00	-7.98	55	100	peak
6	541.3725	43.37	-5.74	37.63	46.00	-8.37	323	100	peak

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	61.34	-3.64	57.7	74	-16.3	peak
4824	46.19	-3.64	42.55	54	-11.45	AVG
7236	54.72	-0.95	53.77	74	-20.23	peak
7236	41.98	-0.95	41.03	54	-12.97	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	61.59	-3.64	57.95	74	-16.05	peak
4824	46.73	-3.64	43.09	54	-10.91	AVG
7236	56.24	-0.95	55.29	74	-18.71	peak
7236	42.16	-0.95	41.21	54	-12.79	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
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	61.43	-3.51	57.92	74	-16.08	peak
4874	46.07	-3.51	42.56	54	-11.44	AVG
7311	56.81	-0.82	55.99	74	-18.01	peak
7311	42.66	-0.82	41.84	54	-12.16	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)	
4874	60.97	-3.51	57.46	74	-16.54	peak
4874	45.26	-3.51	41.75	54	-12.25	AVG
7311	55.38	-0.82	54.56	74	-19.44	peak
7311	42.15	-0.82	41.33	54	-12.67	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	61.06	-3.43	57.63	74	-16.37	peak
4924	45.37	-3.43	41.94	54	-12.06	AVG
7386	56.84	-0.75	56.09	74	-17.91	peak
7386	42.92	-0.75	42.17	54	-11.83	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	61.25	-3.43	57.82	74	-16.18	peak
4924	46.06	-3.43	42.63	54	-11.37	AVG
7386	55.21	-0.75	54.46	74	-19.54	peak
7386	41.68	-0.75	40.93	54	-13.07	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 (802.11g Mode)/2412
Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4824	61.12	-3.64	57.48	74	-16.52	peak
4824	46.91	-3.64	43.27	54	-10.73	AVG
7236	56.73	-0.95	55.78	74	-18.22	peak
7236	40.68	-0.95	39.73	54	-14.27	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	60.99	-3.64	57.35	74	-16.65	peak
4824	45.83	-3.64	42.19	54	-11.81	AVG
7236	55.91	-0.95	54.96	74	-19.04	peak
7236	42.16	-0.95	41.21	54	-12.79	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
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	61.04	-3.51	57.53	74	-16.47	peak
4874	46.32	-3.51	42.81	54	-11.19	AVG
7311	55.89	-0.82	55.07	74	-18.93	peak
7311	42.18	-0.82	41.36	54	-12.64	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	60.24	-3.51	56.73	74	-17.27	peak
4874	46.17	-3.51	42.66	54	-11.34	AVG
7311	56.92	-0.82	56.1	74	-17.9	peak
7311	41.03	-0.82	40.21	54	-13.79	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

HIGH CH11 (802.11g Mode)/2462
Horizontal:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	60.59	-3.43	57.16	74	-16.84	peak
4924	45.17	-3.43	41.74	54	-12.26	AVG
7386	56.64	-0.75	55.89	74	-18.11	peak
7386	41.52	-0.75	40.77	54	-13.23	AVG
---	---	---	---	---	---	---
---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Vertical:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924	60.35	-3.43	56.92	74	-17.08	peak
4924	46.27	-3.43	42.84	54	-11.16	AVG
7386	55.46	-0.75	54.71	74	-19.29	peak
7386	41.38	-0.75	40.63	54	-13.37	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	60.23	-3.64	56.59	74	-17.41	peak
4824	46.71	-3.64	43.07	54	-10.93	AVG
7236	56.39	-0.95	55.44	74	-18.56	peak
7236	40.18	-0.95	39.23	54	-14.77	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	60.54	-3.64	56.9	74	-17.1	peak
4824	46.21	-3.64	42.57	54	-11.43	AVG
7236	54.95	-0.95	54	74	-20	peak
7236	41.86	-0.95	40.91	54	-13.09	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	60.53	-3.51	57.02	74	-16.98	peak
4874	46.05	-3.51	42.54	54	-11.46	AVG
7311	55.17	-0.82	54.35	74	-19.65	peak
7311	40.38	-0.82	39.56	54	-14.44	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)	
4874	60.19	-3.51	56.68	74	-17.32	peak
4874	45.37	-3.51	41.86	54	-12.14	AVG
7311	56.06	-0.82	55.24	74	-18.76	peak
7311	41.24	-0.82	40.42	54	-13.58	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	59.89	-3.43	56.46	74	-17.54	peak
4924	45.48	-3.43	42.05	54	-11.95	AVG
7386	56.34	-0.75	55.59	74	-18.41	peak
7386	40.66	-0.75	39.91	54	-14.09	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	59.87	-3.43	56.44	74	-17.56	peak
4924	45.31	-3.43	41.88	54	-12.12	AVG
7386	54.26	-0.75	53.51	74	-20.49	peak
7386	41.64	-0.75	40.89	54	-13.11	AVG
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Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

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	60.14	-3.63	56.51	74	-17.49	peak
4924	46.88	-3.63	43.25	54	-10.75	AVG
7386	55.73	-0.94	54.79	74	-19.21	peak
7386	41.09	-0.94	40.15	54	-13.85	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	60.03	-3.63	56.4	74	-17.6	peak
4924	46.75	-3.63	43.12	54	-10.88	AVG
7386	56.39	-0.94	55.45	74	-18.55	peak
7386	41.82	-0.94	40.88	54	-13.12	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	59.94	-3.51	56.43	74	-17.57	peak
4874	46.48	-3.51	42.97	54	-11.03	AVG
7311	55.23	-0.82	54.41	74	-19.59	peak
7311	40.04	-0.82	39.22	54	-14.78	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)	
4874	59.76	-3.51	56.25	74	-17.75	peak
4874	44.37	-3.51	40.86	54	-13.14	AVG
7311	55.16	-0.82	54.34	74	-19.66	peak
7311	40.24	-0.82	39.42	54	-14.58	AVG
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---	---	---	---	---	---	---
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	60.14	-3.43	56.71	74	-17.29	peak
4904	46.38	-3.43	42.95	54	-11.05	AVG
7356	56.19	-0.75	55.44	74	-18.56	peak
7356	40.76	-0.75	40.01	54	-13.99	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)	
4904	60.24	-3.43	56.81	74	-17.19	peak
4904	46.81	-3.43	43.38	54	-10.62	AVG
7356	55.79	-0.75	55.04	74	-18.96	peak
7356	39.57	-0.75	38.82	54	-15.18	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

Please refer section15.247

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

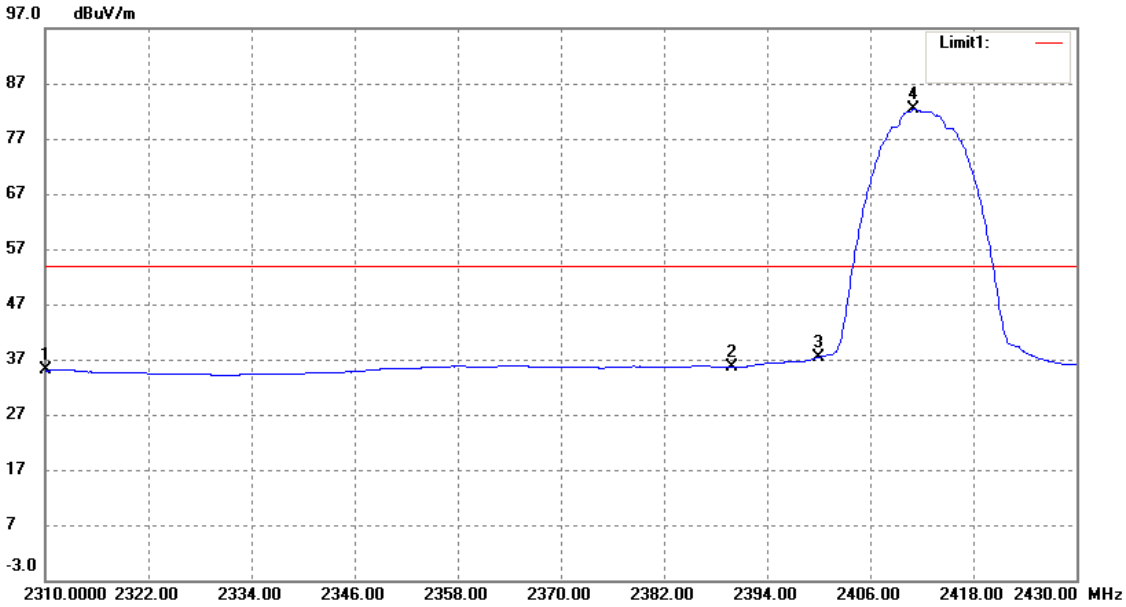
5.2 Test Procedure

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

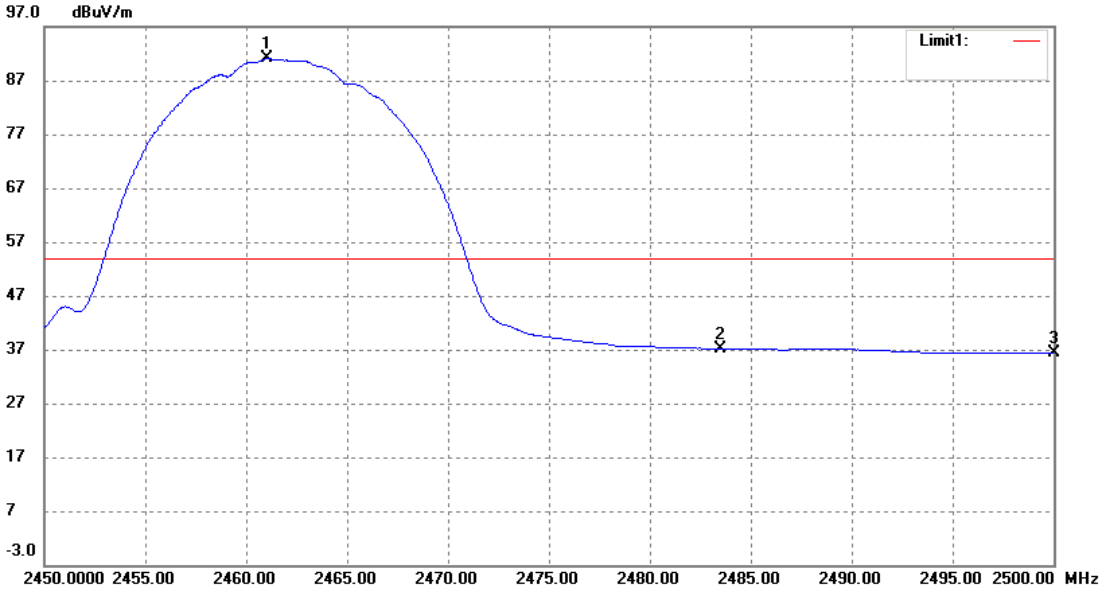
PASS

Radiated Band Edge Test:
802.11b-Lowest Bandedge
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	18.68	16.34	35.02	54.00	-18.98	Average Detector
	2310.000	31.80	16.34	48.14	74.00	-25.86	Peak Detector
2	2390.000	18.58	17.03	35.61	54.00	-18.39	Average Detector
	2390.000	32.56	17.03	49.59	74.00	-24.41	Peak Detector
3	2400.000	20.30	17.11	37.41	54.00	-16.59	Average Detector
	2400.000	39.71	17.11	56.82	74.00	-17.18	Peak Detector
4*	2411.040	65.20	17.19	82.39	/	/	Average Detector
	2411.400	82.75	17.19	99.94	/	/	Peak Detector

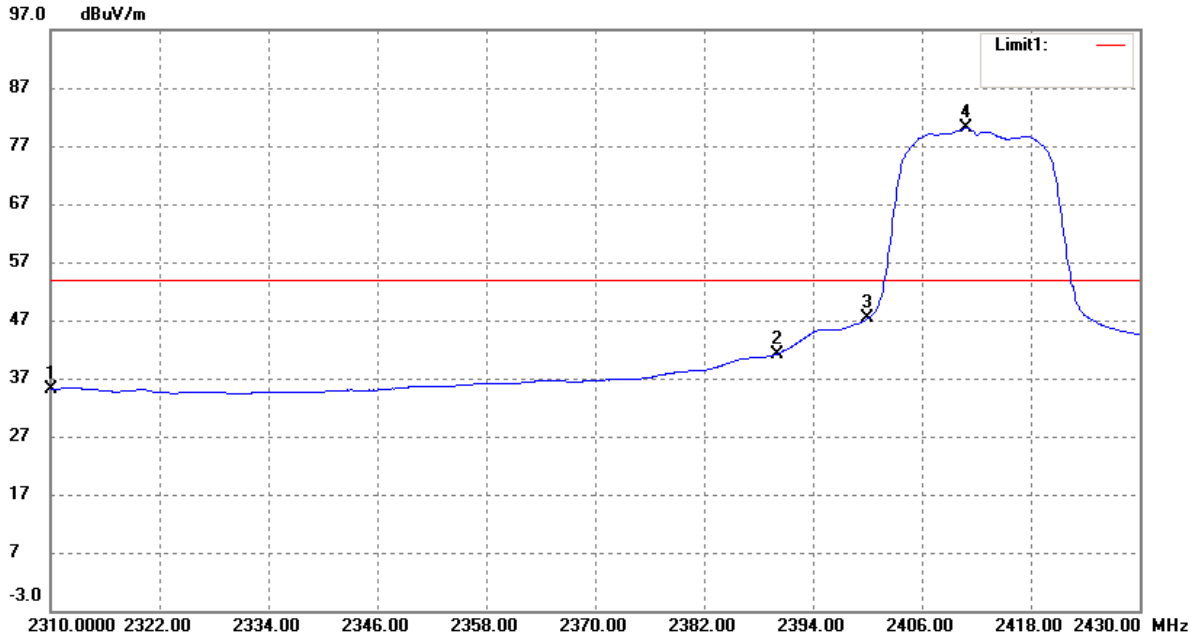
802.11b-Highest Bandedge
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2461.050	73.57	17.56	91.13	/	/	Average Detector
	2461.850	81.73	17.57	99.30	/	/	Peak Detector
2	2483.500	19.42	17.73	37.15	54.00	-16.85	Average Detector
	2483.500	32.03	17.73	49.76	74.00	-24.24	Peak Detector
3	2500.000	18.55	17.86	36.41	54.00	-17.59	Average Detector
	2500.000	29.87	17.86	47.73	74.00	-26.27	Peak Detector

802.11g-Lowest Bandedge

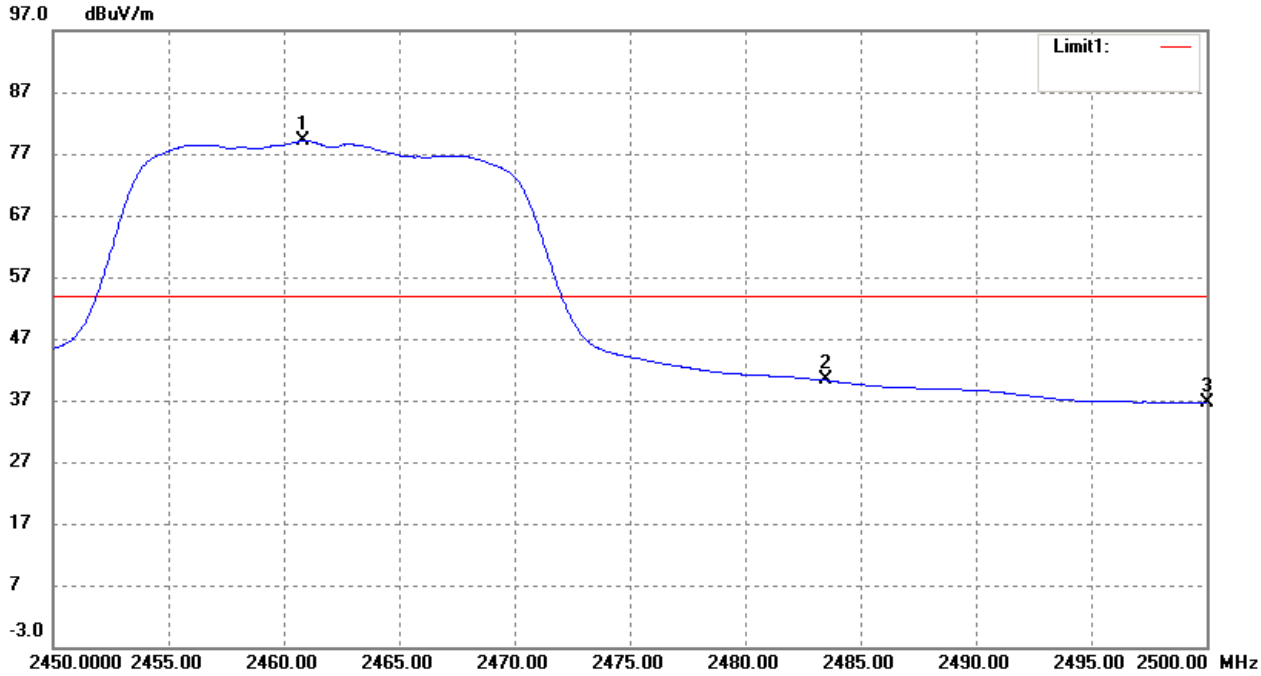
Vertical (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	18.85	16.34	35.19	54.00	-18.81	Average Detector
	2310.000	30.04	16.34	46.38	74.00	-27.62	Peak Detector
2	2390.000	24.15	17.03	41.18	54.00	-12.82	Average Detector
	2390.000	34.76	17.03	51.79	74.00	-22.21	Peak Detector
3	2400.000	30.16	17.11	47.27	54.00	-6.73	Average Detector
	2400.000	40.33	17.11	57.44	74.00	-16.56	Peak Detector
4*	2410.800	62.88	17.19	80.07	/	/	Average Detector
	2411.400	74.26	17.19	91.45	/	/	Peak Detector

802.11g-Highest Bandedge

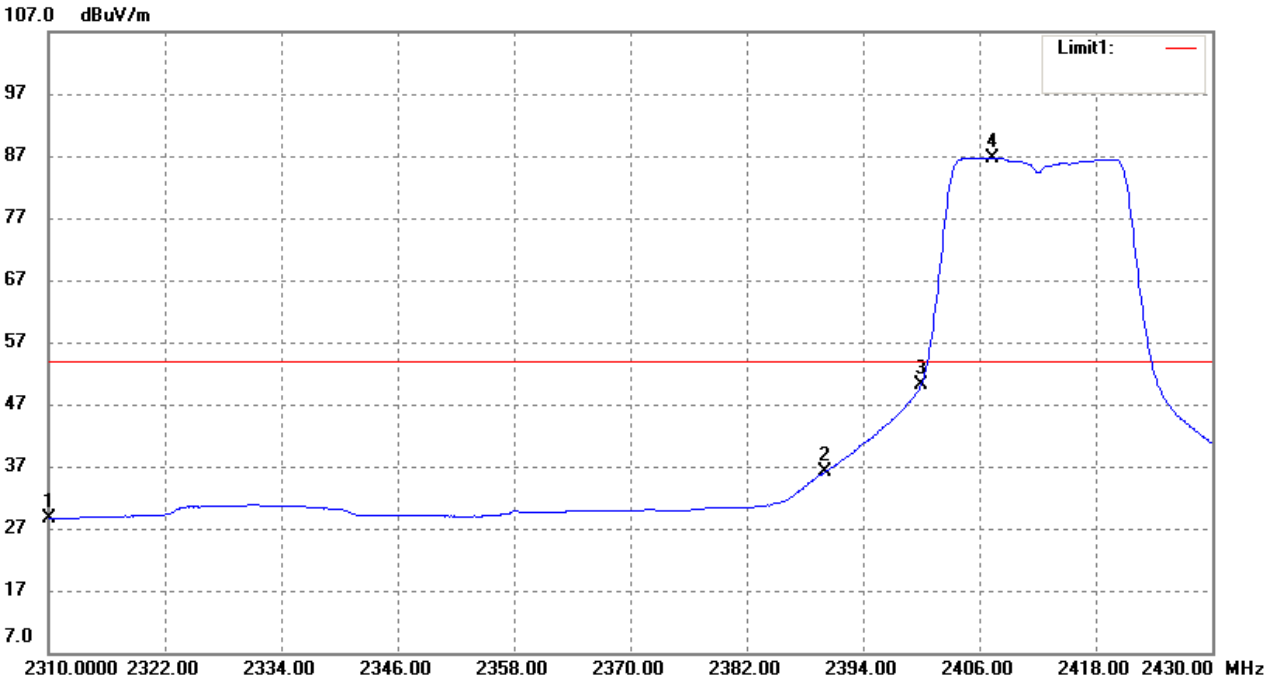
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1*	2460.850	61.58	17.56	79.14	/	/	Average Detector
	2461.250	82.48	17.57	100.05	/	/	Peak Detector
2	2483.500	22.53	17.73	40.26	54.00	-13.74	Average Detector
	2483.500	40.64	17.73	58.37	74.00	-15.63	Peak Detector
3	2500.000	18.71	17.86	36.57	54.00	-17.43	Average Detector
	2500.000	30.32	17.86	48.18	74.00	-25.82	Peak Detector

802.11n-HT20-Lowest Bandedge

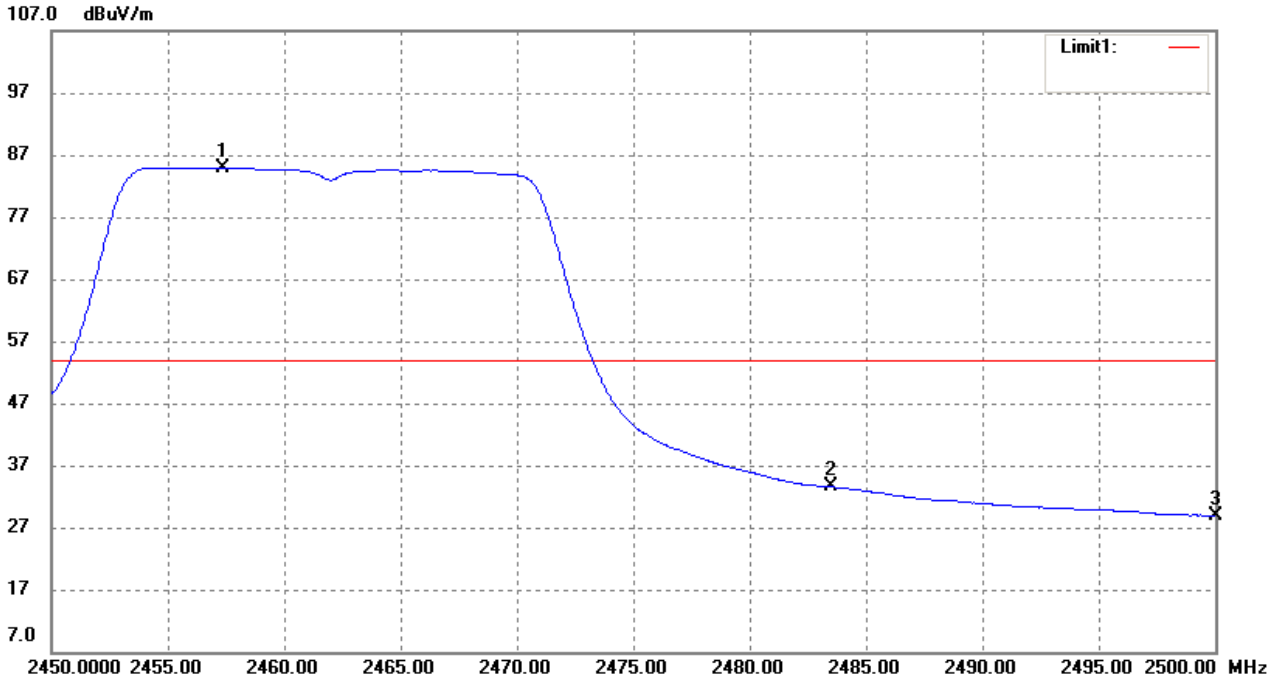
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	32.26	-3.71	28.55	54.00	-25.45	Average Detector
	2310.000	45.44	-3.71	41.73	74.00	-32.27	Peak Detector
2	2390.000	39.64	-3.54	36.10	54.00	-17.90	Average Detector
	2390.000	57.67	-3.54	54.13	74.00	-19.87	Peak Detector
3	2400.000	53.71	-3.51	50.20	54.00	-3.80	Average Detector
	2400.000	77.41	-3.51	73.90	74.00	-0.10	Peak Detector
4	2407.320	90.13	-3.49	86.64	/	/	Average Detector
	2407.440	101.28	-3.49	97.79	/	/	Peak Detector

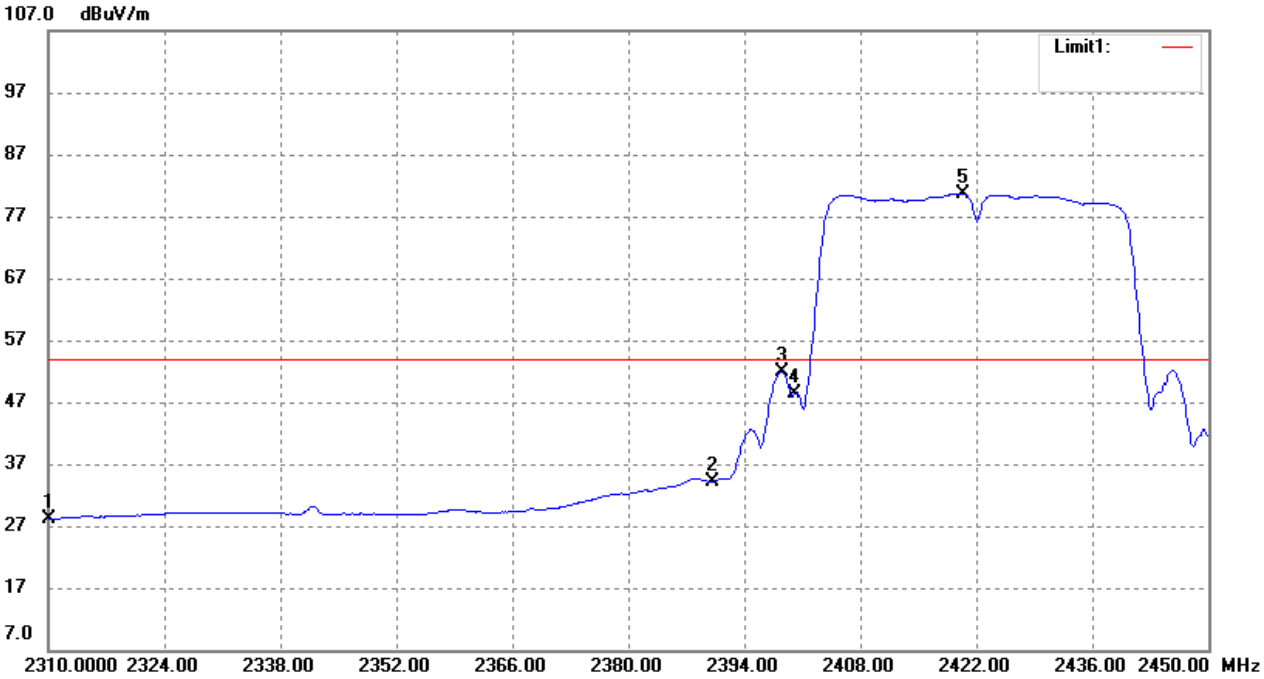
802.11n-HT20-Highest Bandedge

Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2457.350	88.34	-3.38	84.96	/	/	Average Detector
	2459.000	99.44	-3.38	96.06	/	/	Peak Detector
2	2483.500	36.88	-3.33	33.55	54.00	-20.45	Average Detector
	2483.500	56.37	-3.33	53.04	74.00	-20.96	Peak Detector
3	2500.000	32.22	-3.28	28.94	54.00	-25.06	Average Detector
	2500.000	44.54	-3.28	41.26	74.00	-32.74	Peak Detector

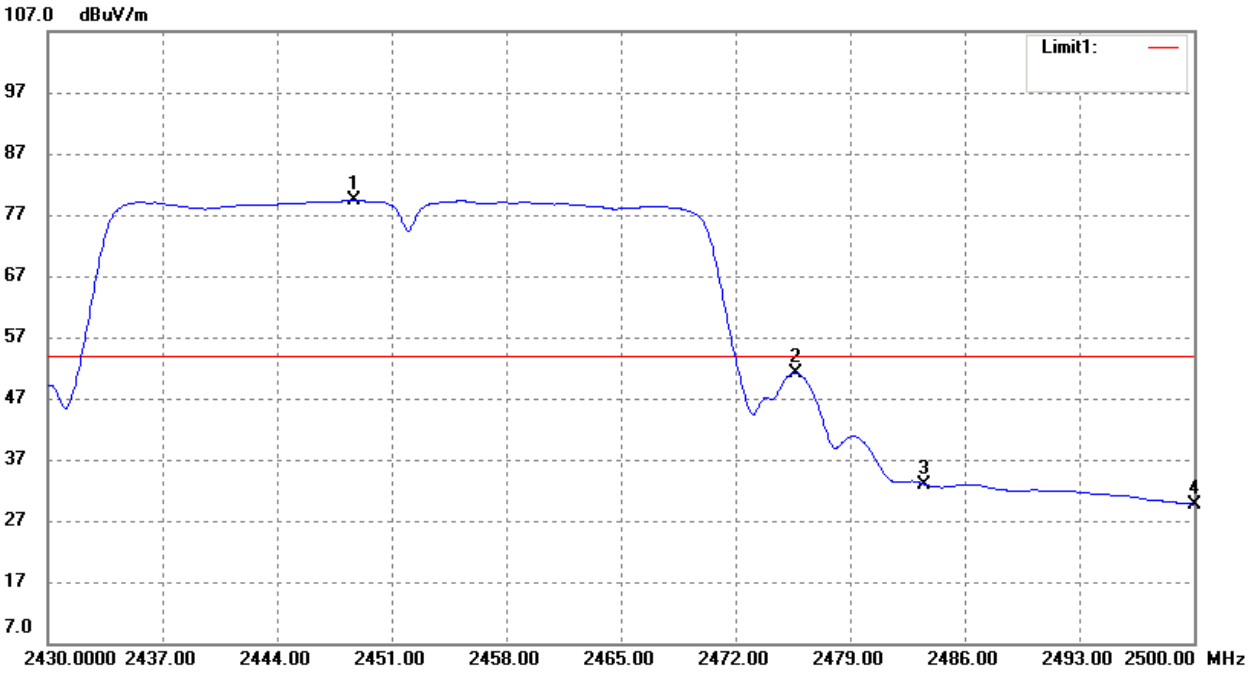
802.11n-HT40-Lowest Bandedge
Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	31.89	-3.71	28.18	54.00	-25.82	Average Detector
	2310.000	44.45	-3.71	40.74	74.00	-33.26	Peak Detector
2	2390.000	37.74	-3.54	34.20	54.00	-19.80	Average Detector
	2390.000	53.88	-3.54	50.34	74.00	-23.66	Peak Detector
3	2398.480	55.35	-3.51	51.84	54.00	-2.16	Average Detector
4	2400.000	51.98	-3.51	48.47	54.00	-5.53	Average Detector
	2400.000	66.12	-3.51	62.61	74.00	-11.39	Peak Detector
5	2420.320	84.05	-3.46	80.59	/	/	Average Detector
	2425.220	95.57	-3.46	92.11	/	/	Peak Detector

802.11n-HT40-Highest Bandedge

Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2448.690	82.73	-3.40	79.33	/	/	Average Detector
	2455.130	94.23	-3.38	90.85	/	/	Peak Detector
2	2475.640	54.46	-3.34	51.12	54.00	-2.88	Average Detector
	2475.570	66.14	-3.34	62.80	74.00	-11.20	Peak Detector
3	2483.500	36.32	-3.33	32.99	54.00	-21.01	Average Detector
	2483.500	49.70	-3.33	46.37	74.00	-27.63	Peak Detector
4	2500.000	32.97	-3.28	29.69	54.00	-24.31	Average Detector
	2500.000	47.05	-3.28	43.77	74.00	-30.23	Peak Detector

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

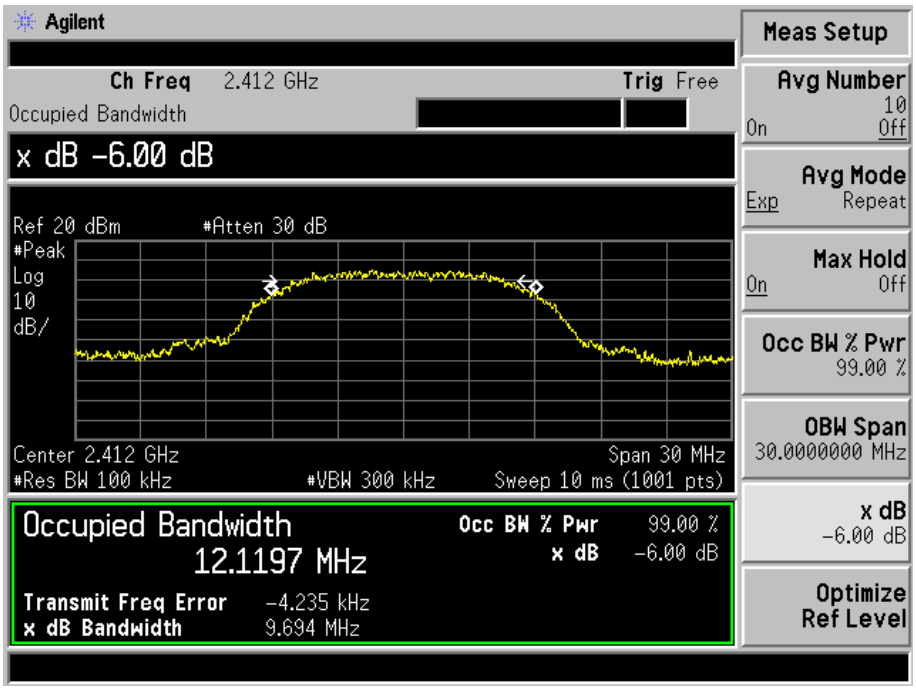
6.4 Test Result

PASS

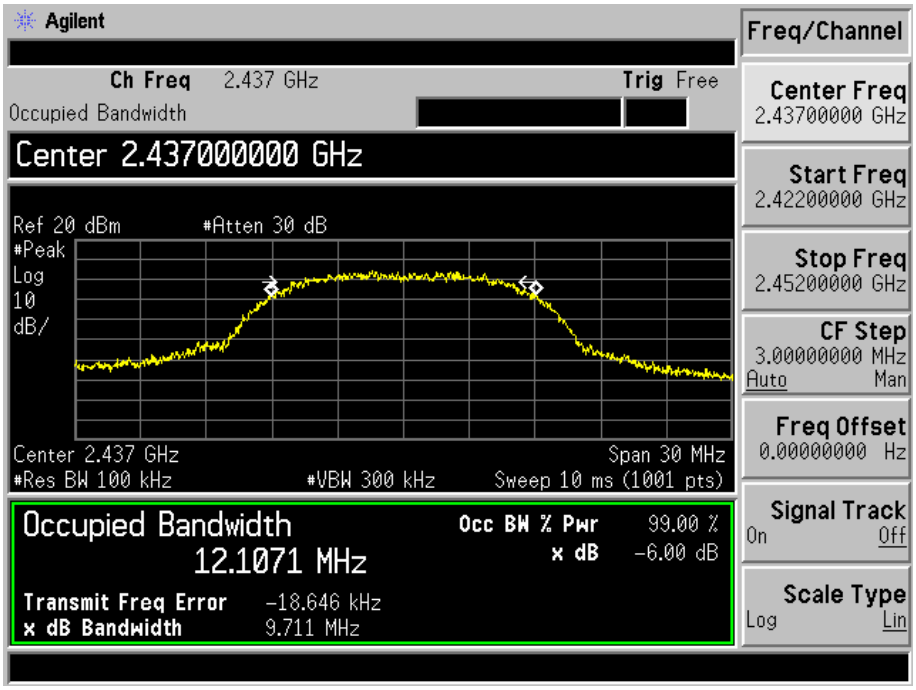
All the test modes completed for test.

TX 802.11b Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2412 MHz	9.694	>=500KHz	**PASS**
2437 MHz	9.711	>=500KHz	**PASS**
2462 MHz	8.803	>=500KHz	**PASS**

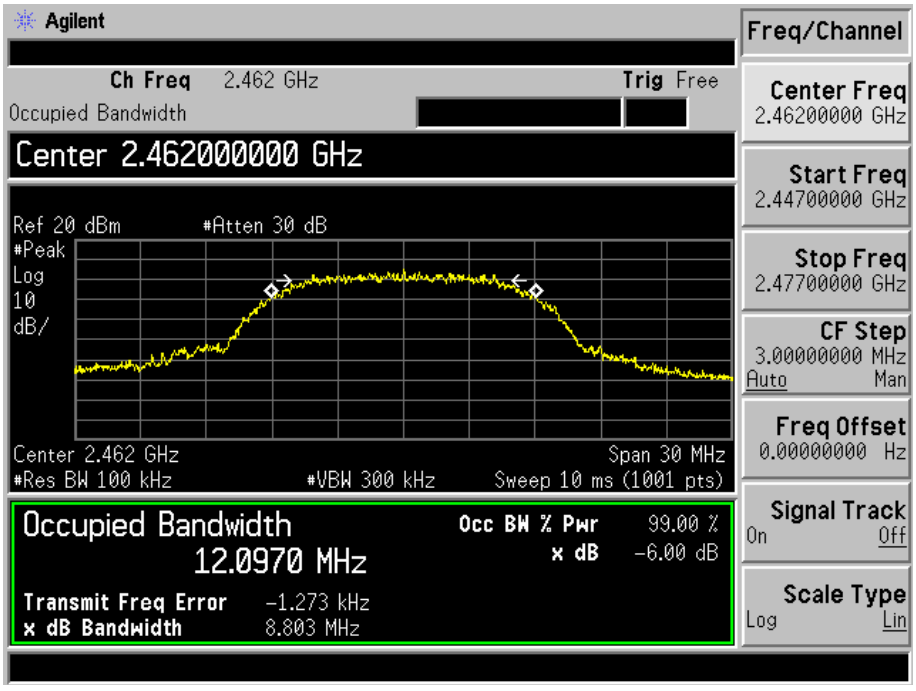
CH: 2412MHz



CH: 2437MHz

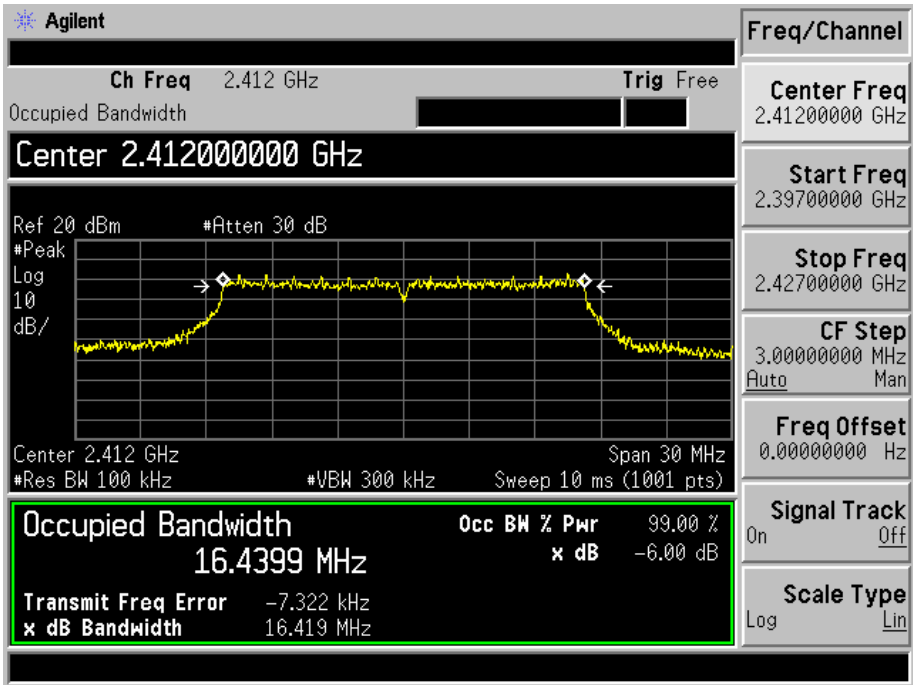


CH: 2462MHz

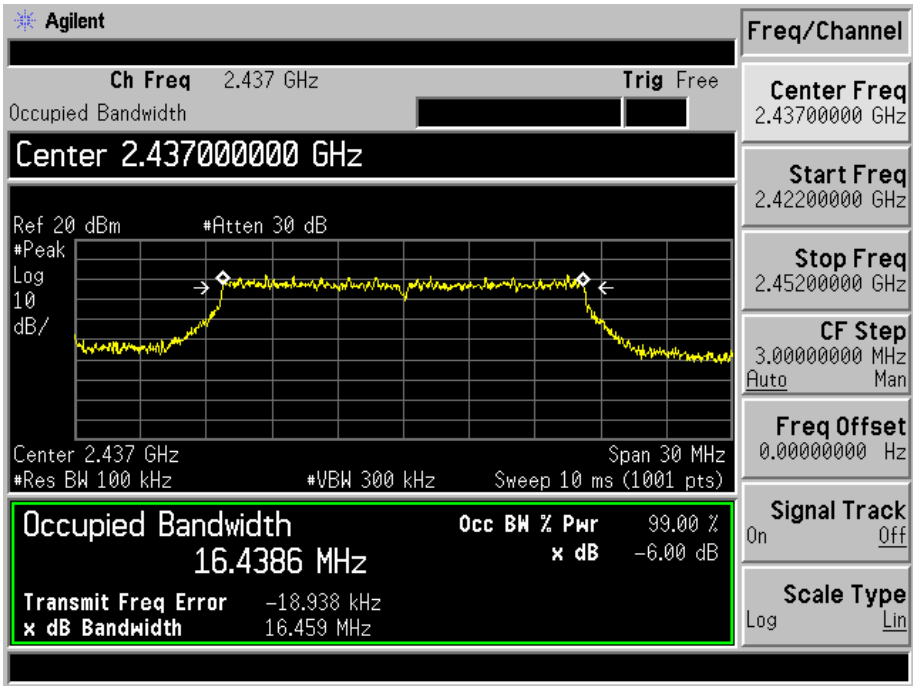


TX 802.11g Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2412 MHz	16.419	>=500KHz	**PASS**
2437 MHz	16.459	>=500KHz	**PASS**
2462 MHz	16.467	>=500KHz	**PASS**

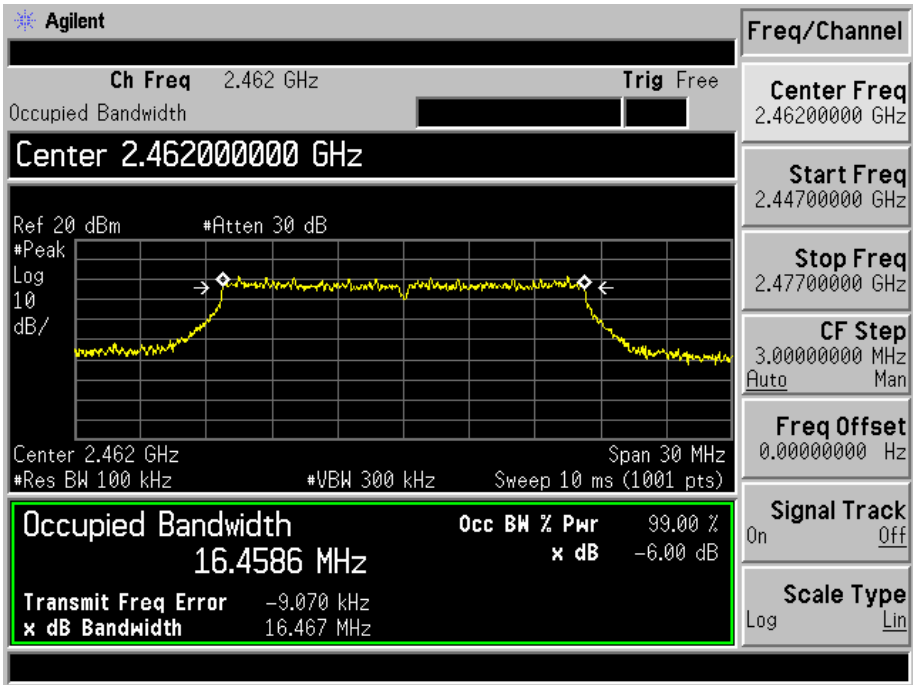
CH: 2412MHz



CH: 2437MHz

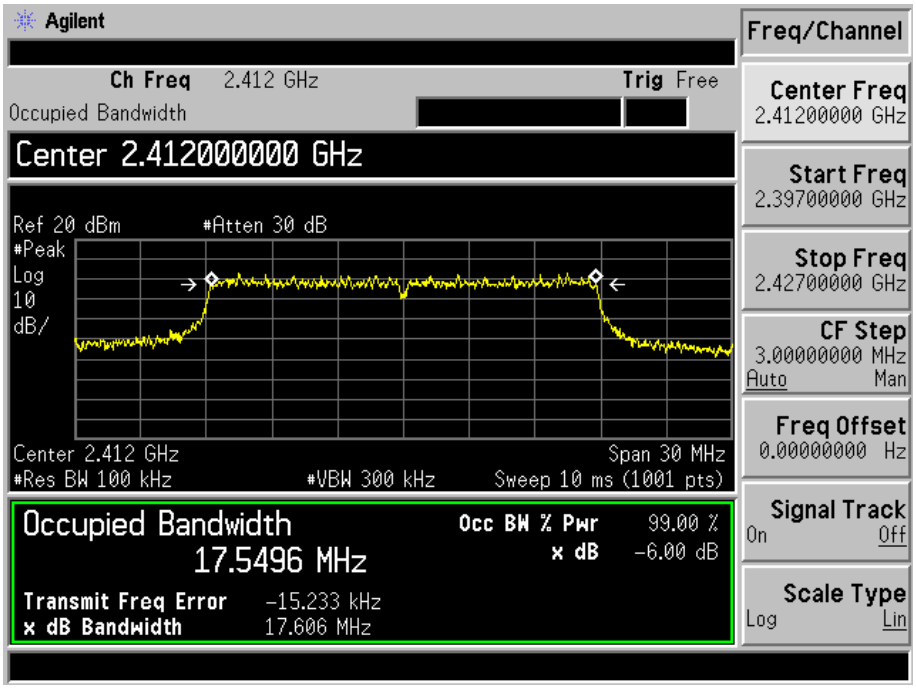


CH: 2462MHz

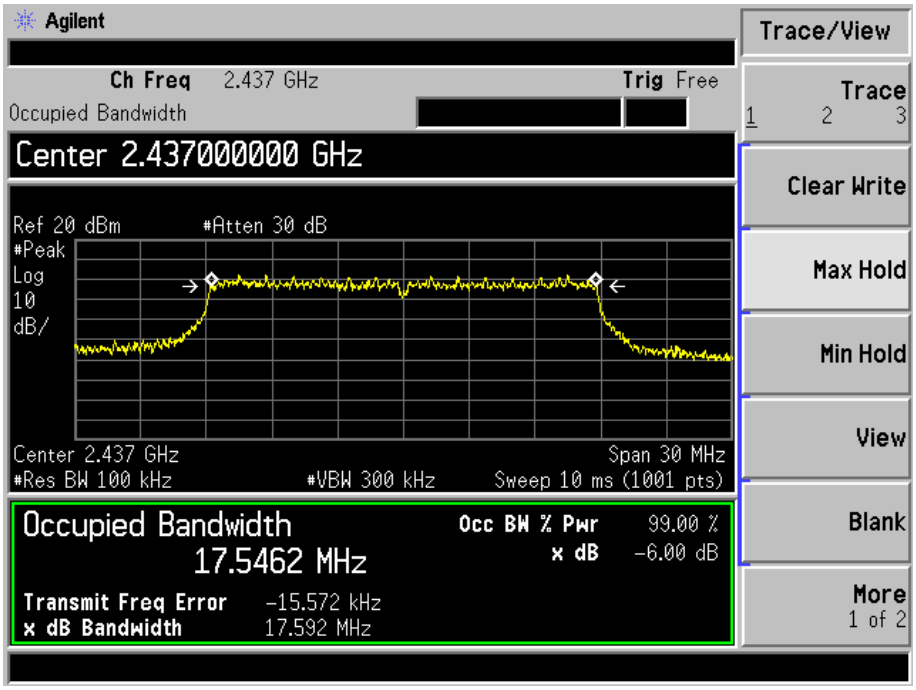


TX 802.11n/HT20 Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2412 MHz	17.606	>=500KHz	**PASS**
2437 MHz	17.592	>=500KHz	**PASS**
2462 MHz	17.588	>=500KHz	**PASS**

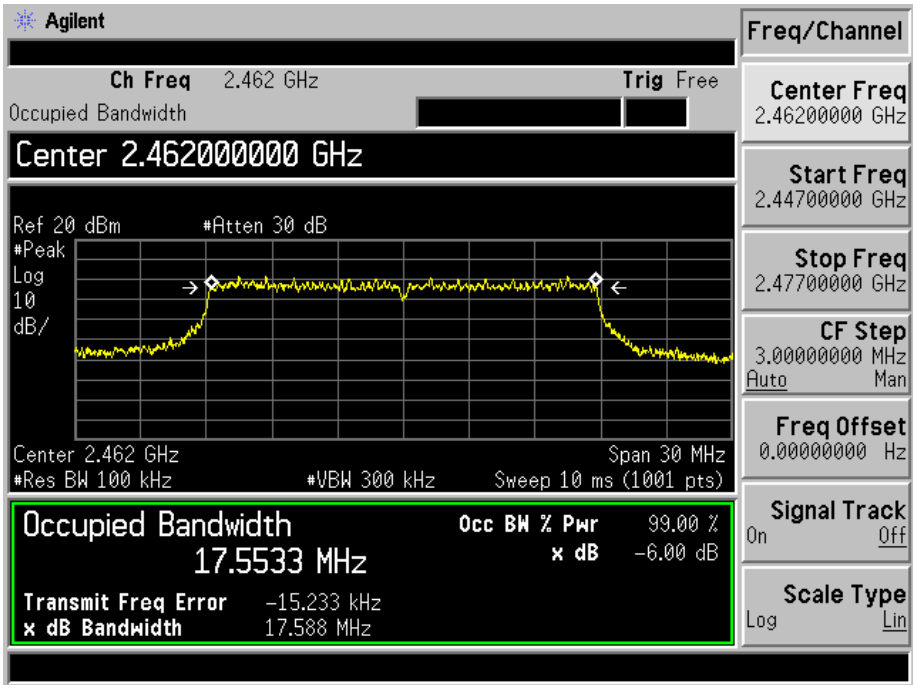
CH: 2412MHz



CH: 2437MHz

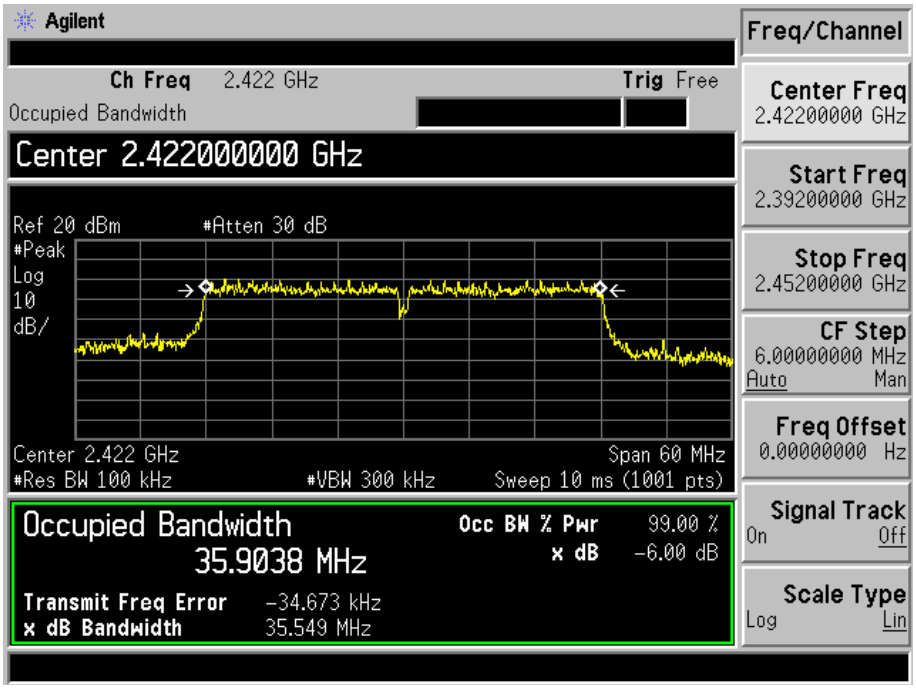


CH: 2462MHz

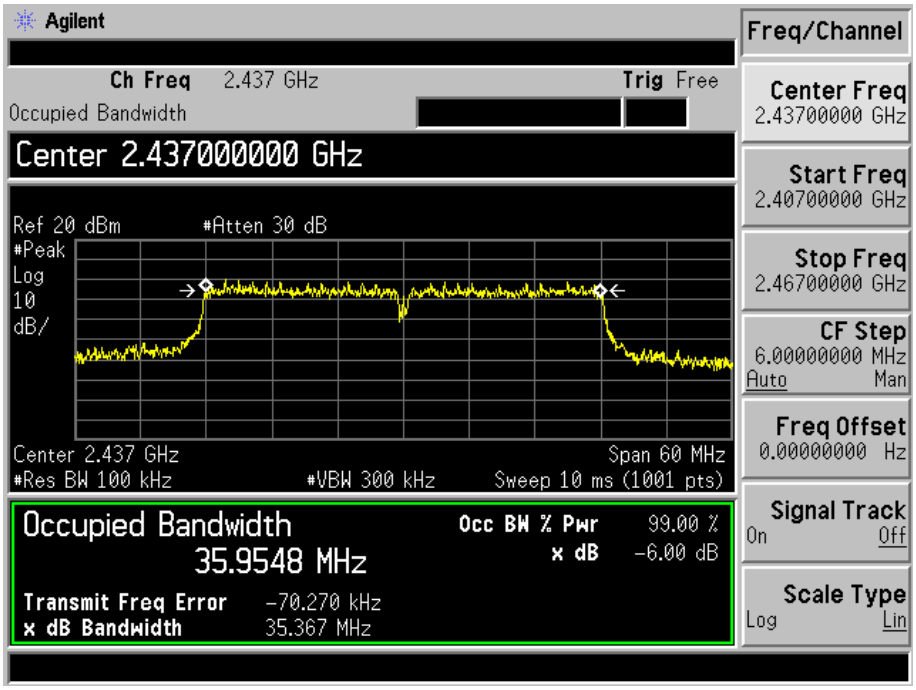


TX 802.11n/HT40 Mode			
Frequency	**6dB Bandwidth (MHz)**	**Channel Separation (MHz)**	**Result**
2422 MHz	35.549	>=500KHz	**PASS**
2437 MHz	35.367	>=500KHz	**PASS**
2452 MHz	35.561	>=500KHz	**PASS**

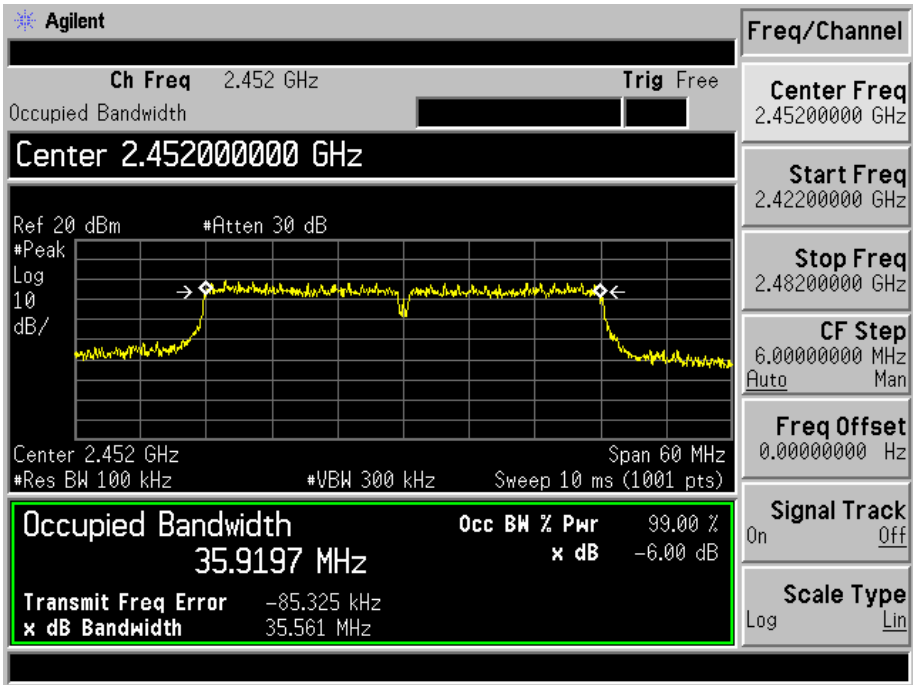
CH: 2422MHz



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

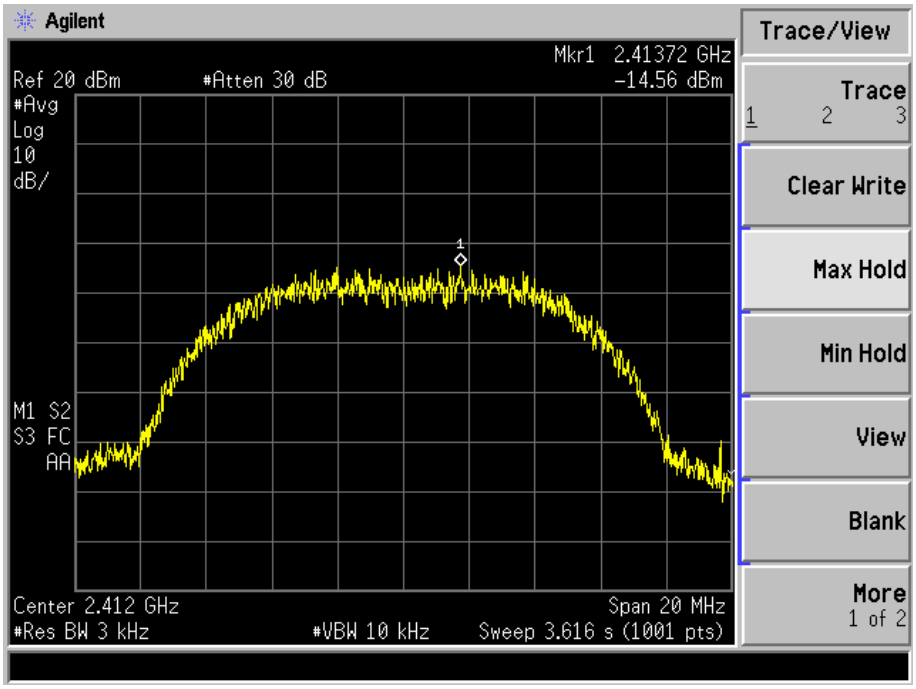
7.4 Test Result

PASS

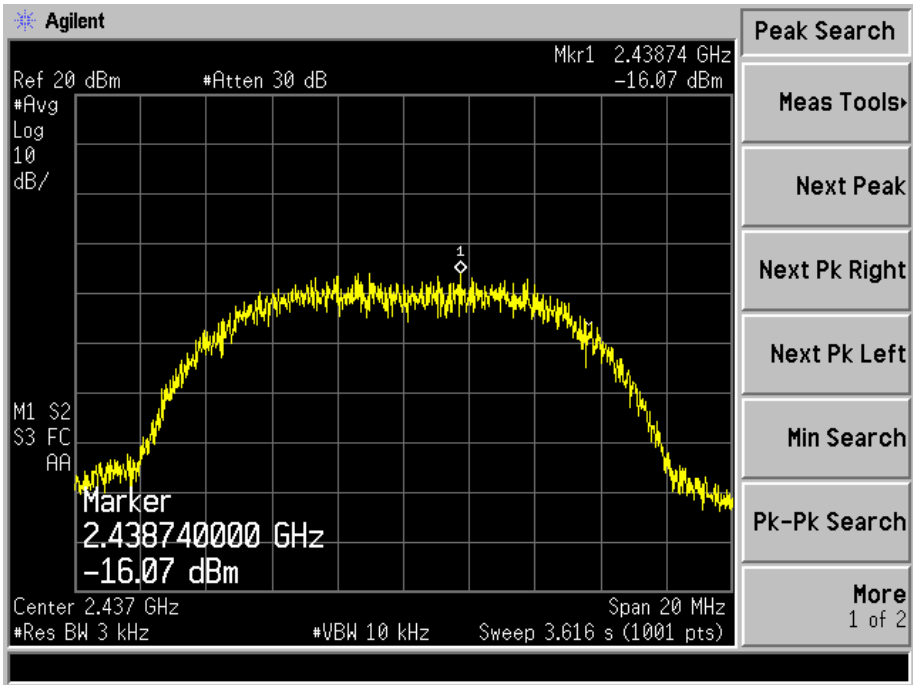
All the test modes completed for test.

TX 802.11b Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2412 MHz	-14.56	8	**PASS**
2437 MHz	-16.07	8	**PASS**
2462 MHz	-16.84	8	**PASS**

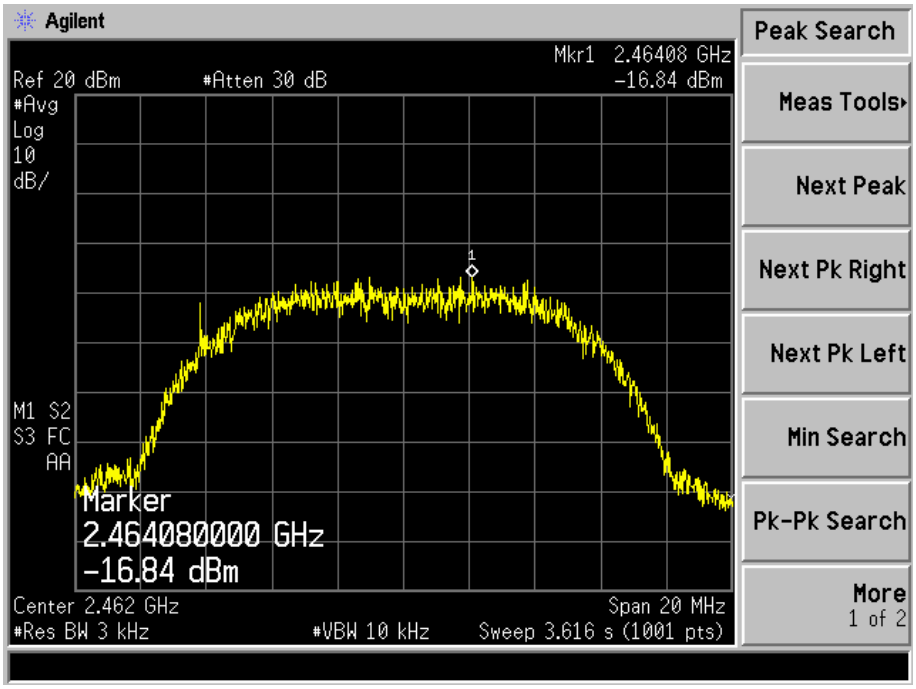
CH: 2412MHz



CH: 2437MHz

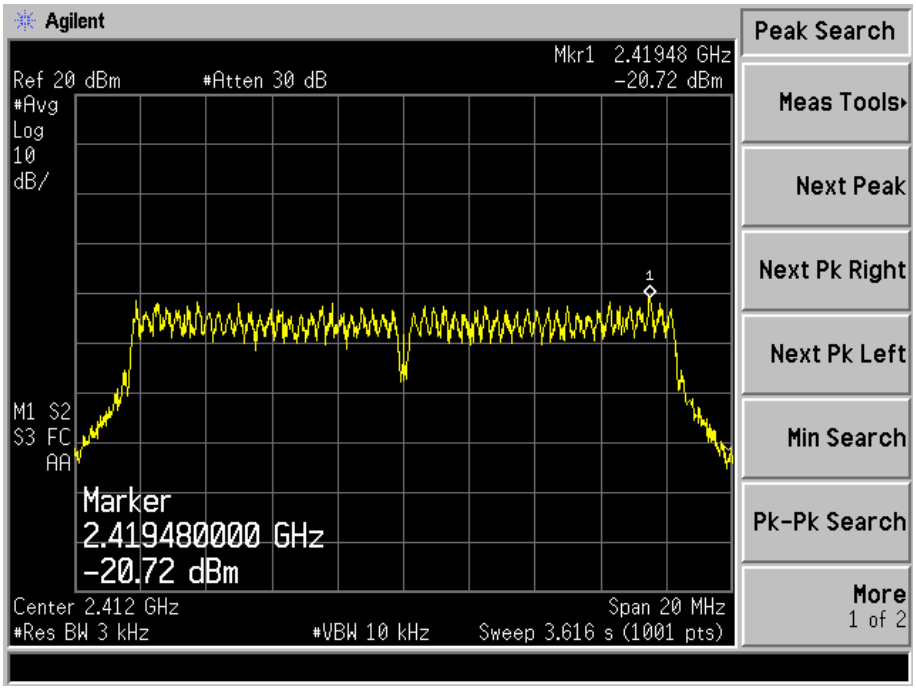


CH: 2462MHz

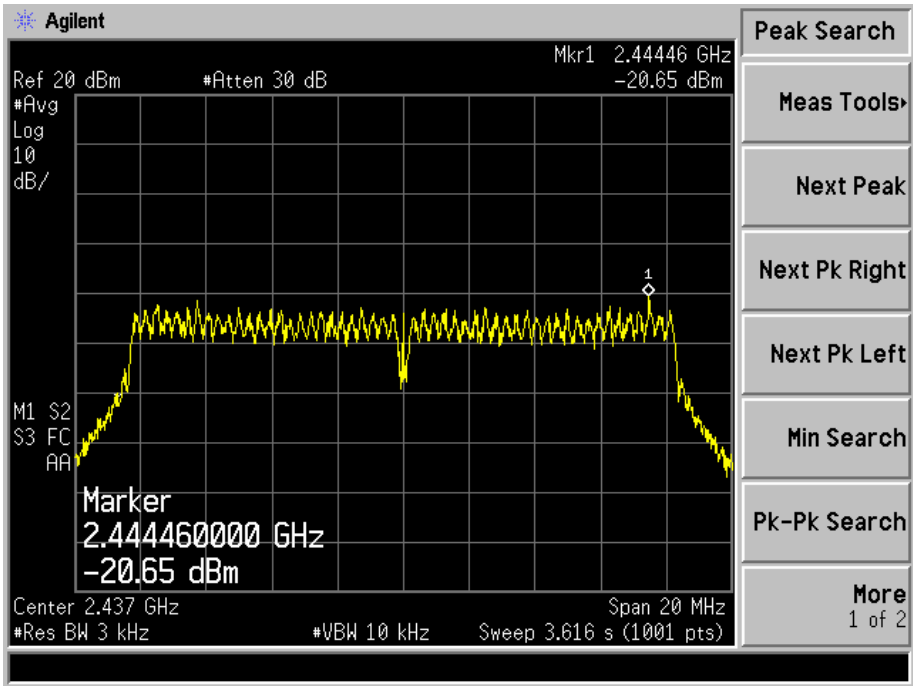


TX 802.11g Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2412 MHz	-20.72	8	**PASS**
2437 MHz	-20.65	8	**PASS**
2462 MHz	-22.67	8	**PASS**

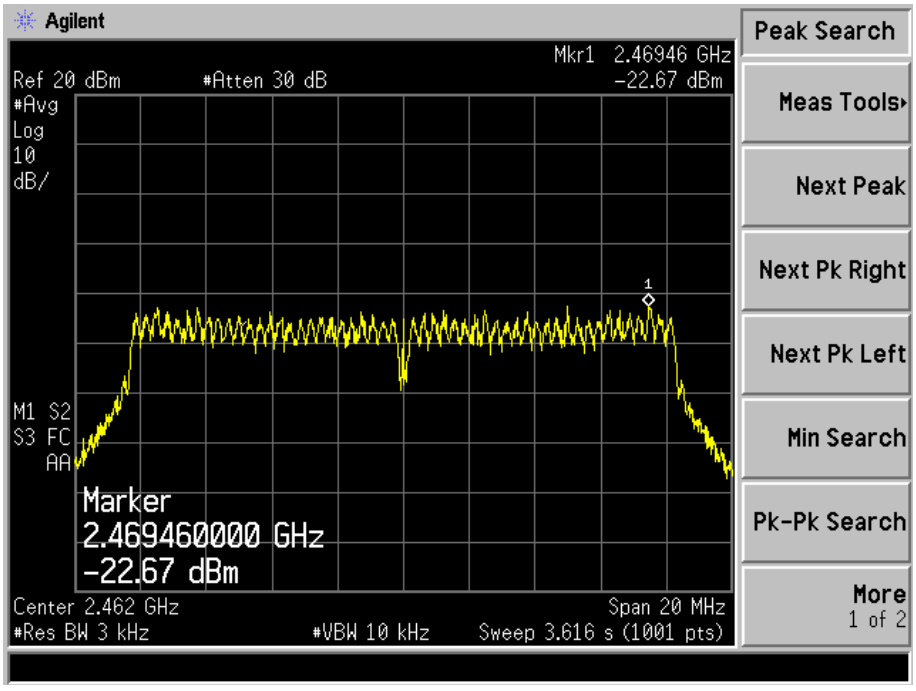
CH: 2412MHz



CH: 2437MHz

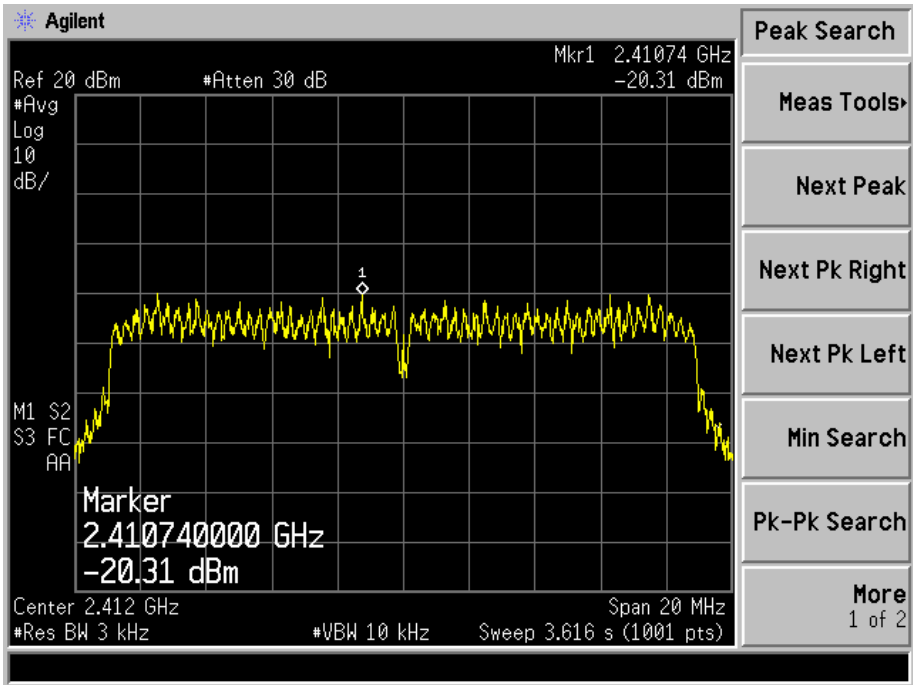


CH: 2462MHz

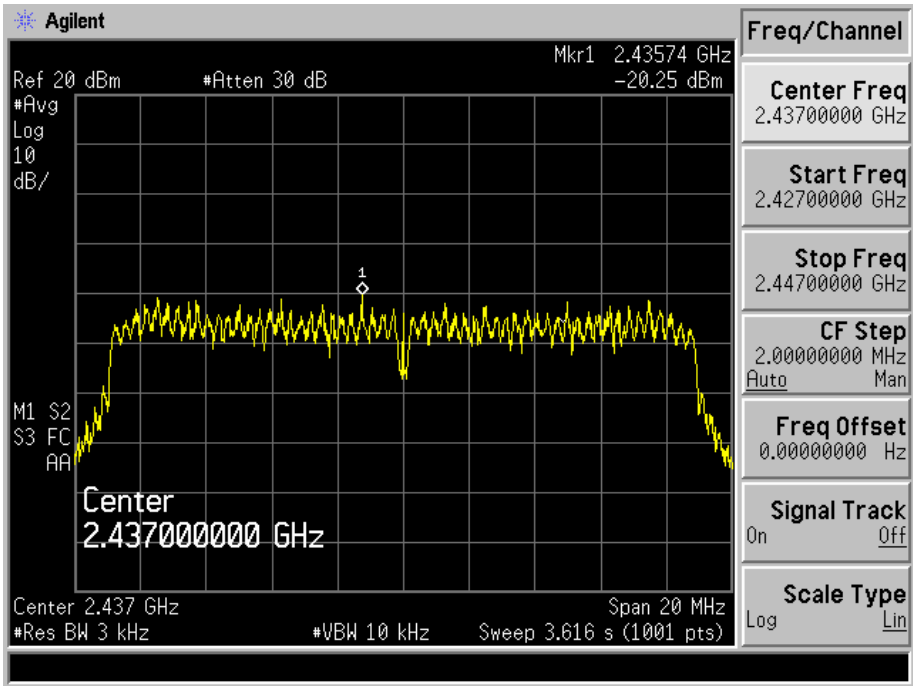


TX 802.11n/HT20 Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2412 MHz	-20.31	8	**PASS**
2437 MHz	-20.25	8	**PASS**
2462 MHz	-21.58	8	**PASS**

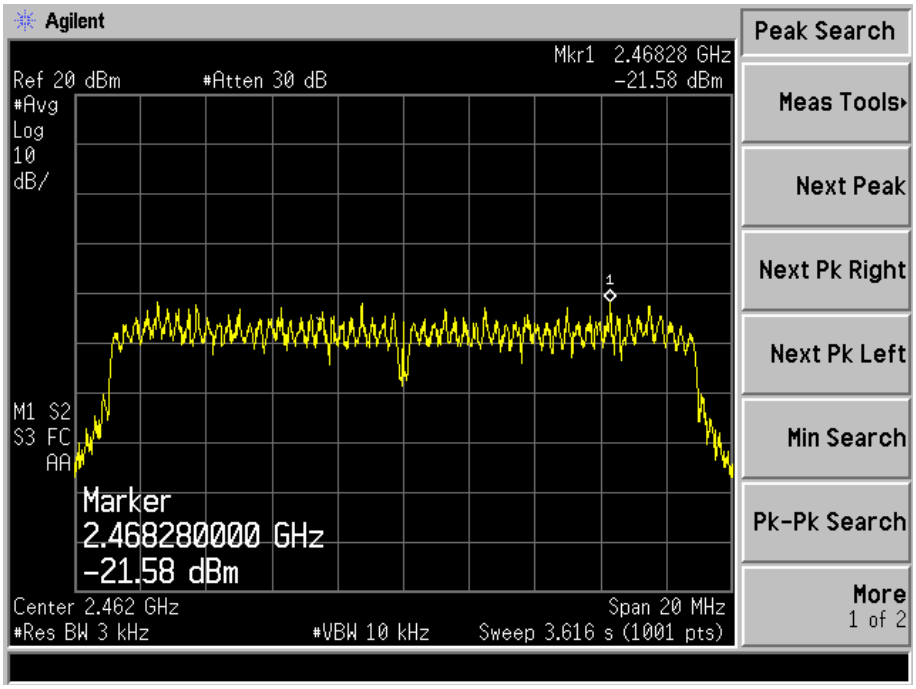
CH: 2412MHz



CH: 2437MHz

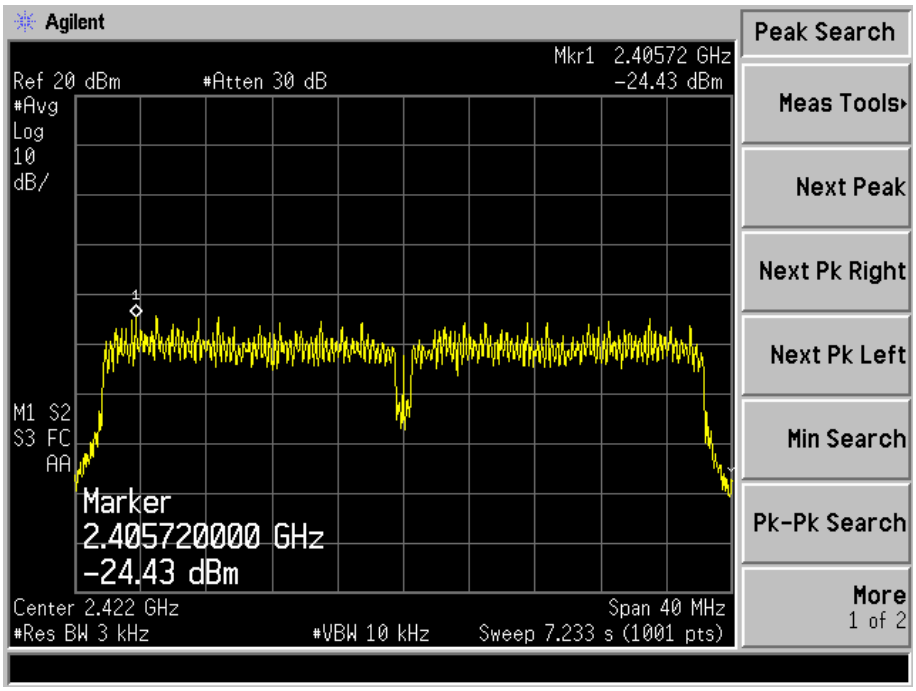


CH: 2462MHz

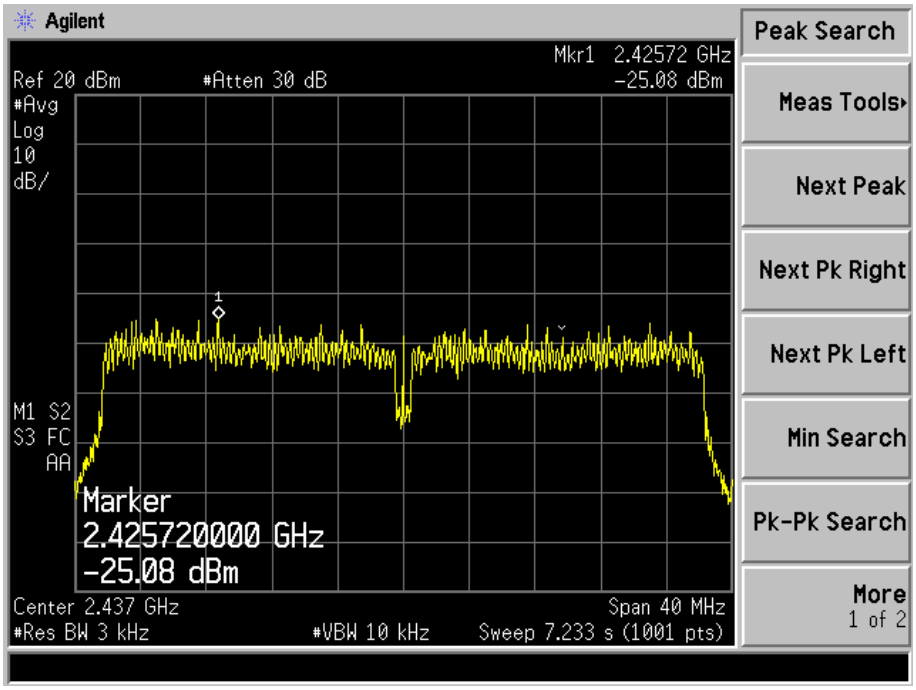


TX 802.11n/HT40 Mode			
Frequency	**Power Density (dBm)**	**Limit (dBm)**	**Result**
2422 MHz	-24.43	8	**PASS**
2437 MHz	-25.08	8	**PASS**
2452 MHz	-25.24	8	**PASS**

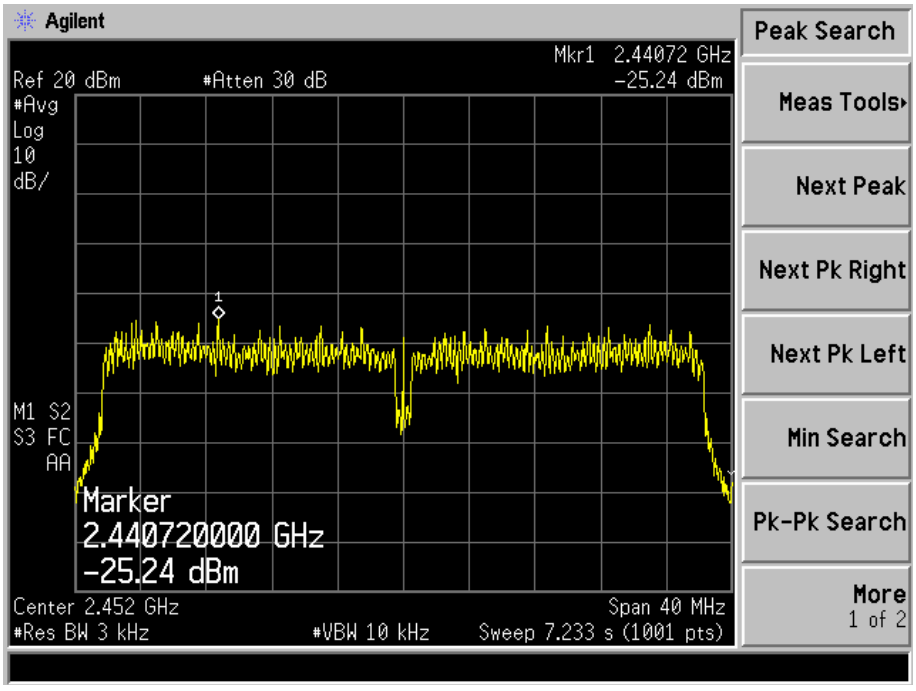
CH: 2412MHz



CH: 2437MHz



CH: 2462MHz



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	15.56	30
CH06	2437	15.13	30
CH11	2462	15.06	30
TX 802.11g Mode			
CH01	2412	14.64	30
CH06	2437	14.33	30
CH11	2462	14.12	30
TX 802.11n20 Mode			
CH01	2412	11.74	30
CH06	2437	11.27	30
CH11	2462	11.15	30
TX 802.11n40 Mode			
CH03	2422	10.56	30
CH06	2437	10.34	30
CH09	2452	10.26	30

9 OUT OF BAND EMISSIONS TEST

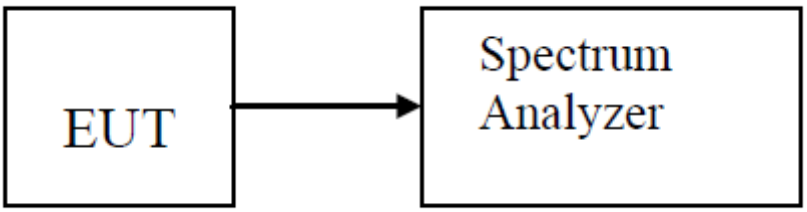
9.1 Test Limit

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 TX operation and connect directly to the spectrum analyzer.
3. Set spectrum analyzer RBW= 100kHz. VBW= 300kHz
4. Set detected by the spectrum analyser with peak detector.

9.3 Test Setup



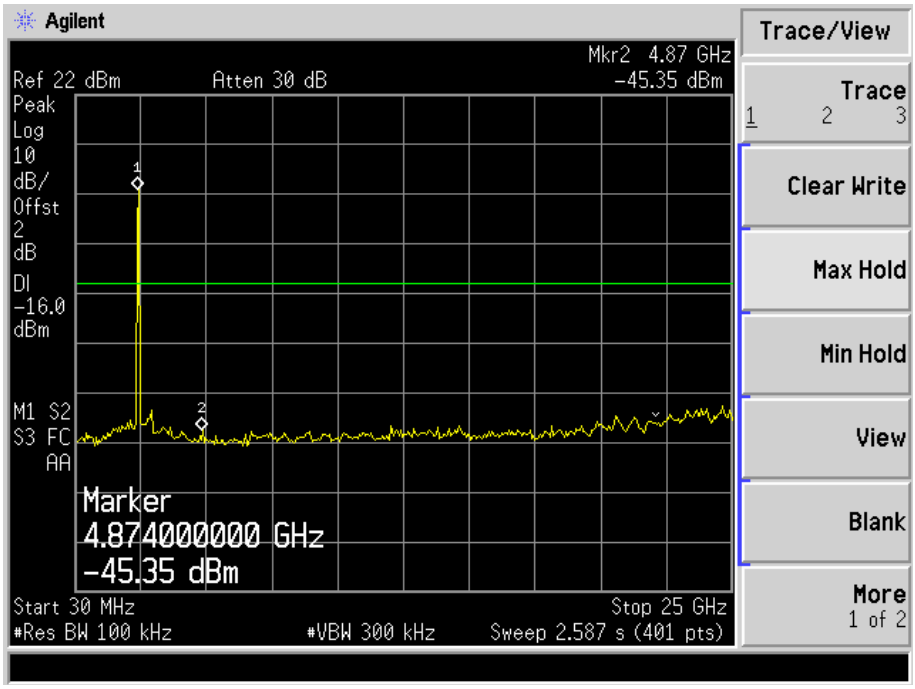
7.4 Test Result

PASS

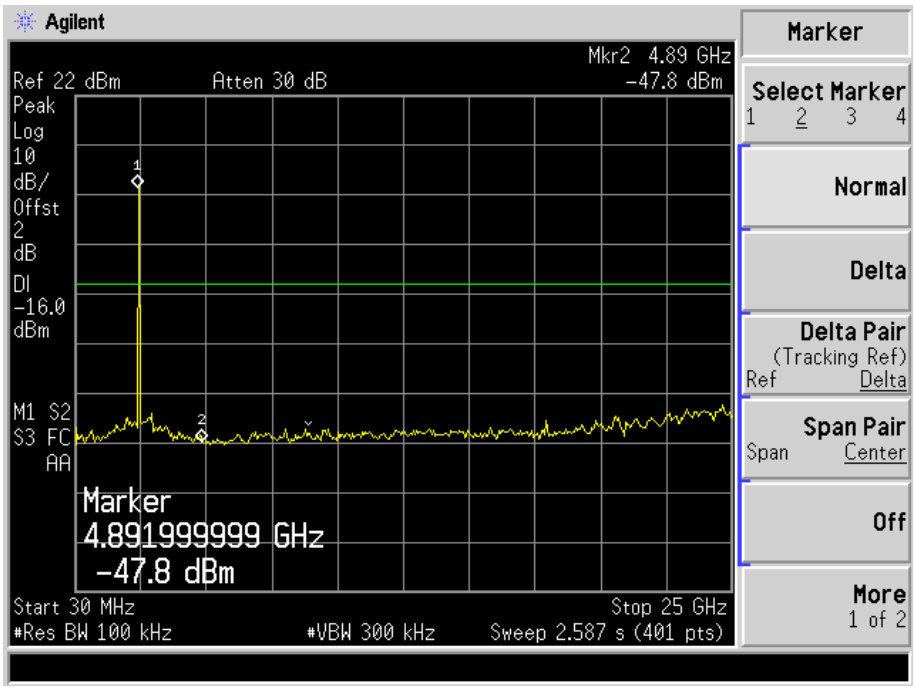
All the test modes completed for test.

TX 802.11b Mode

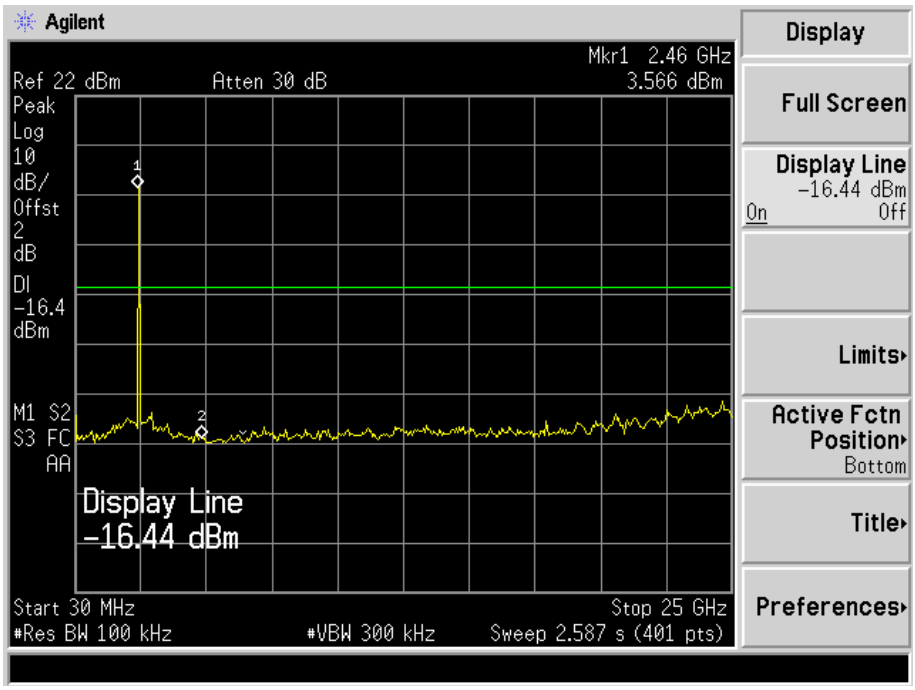
Lowest



Middle

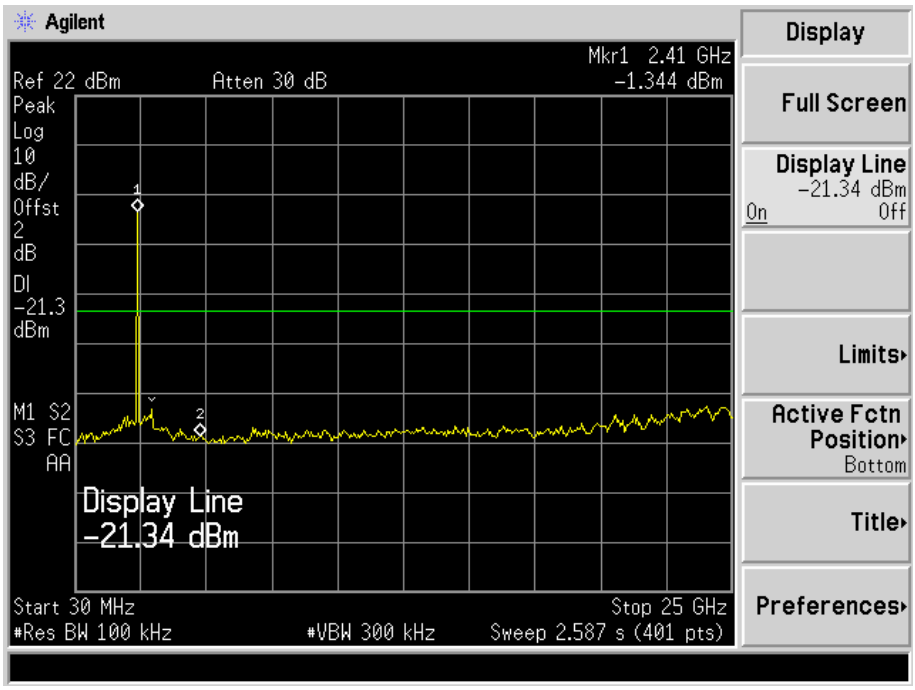


Highest

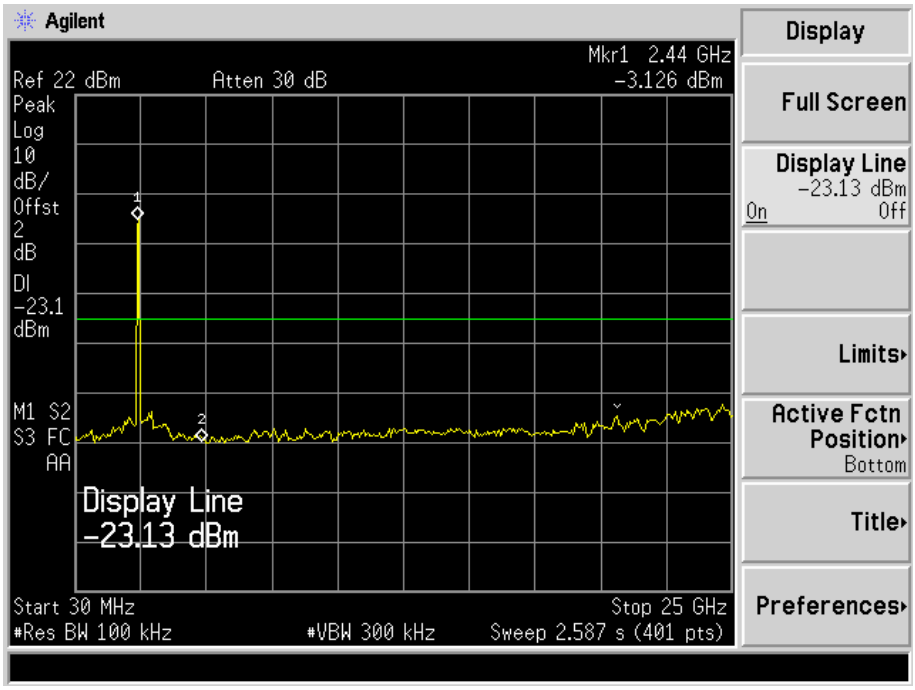


TX 802.11g Mode

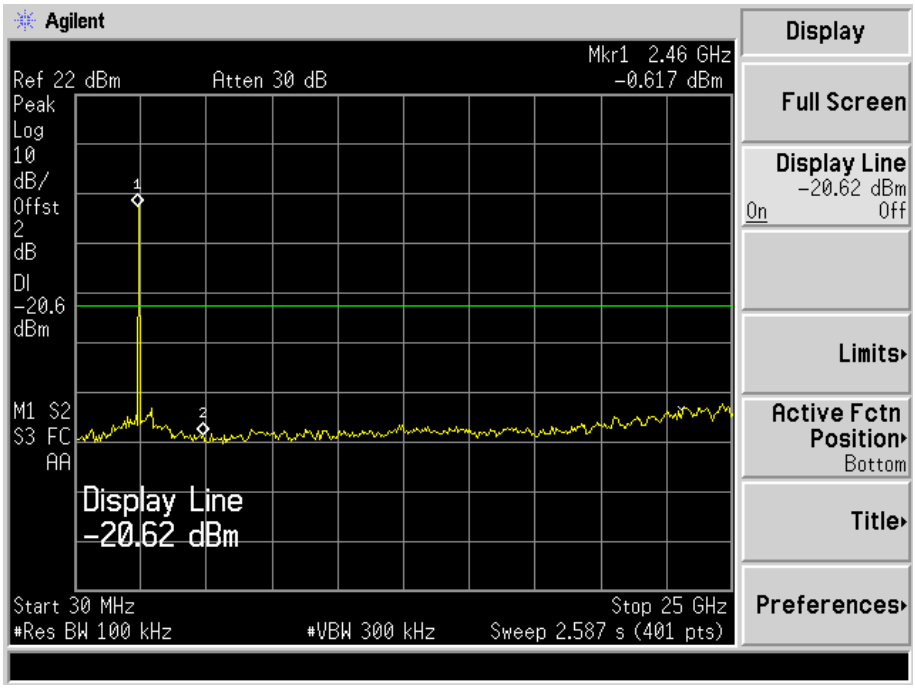
Lowest



Middle

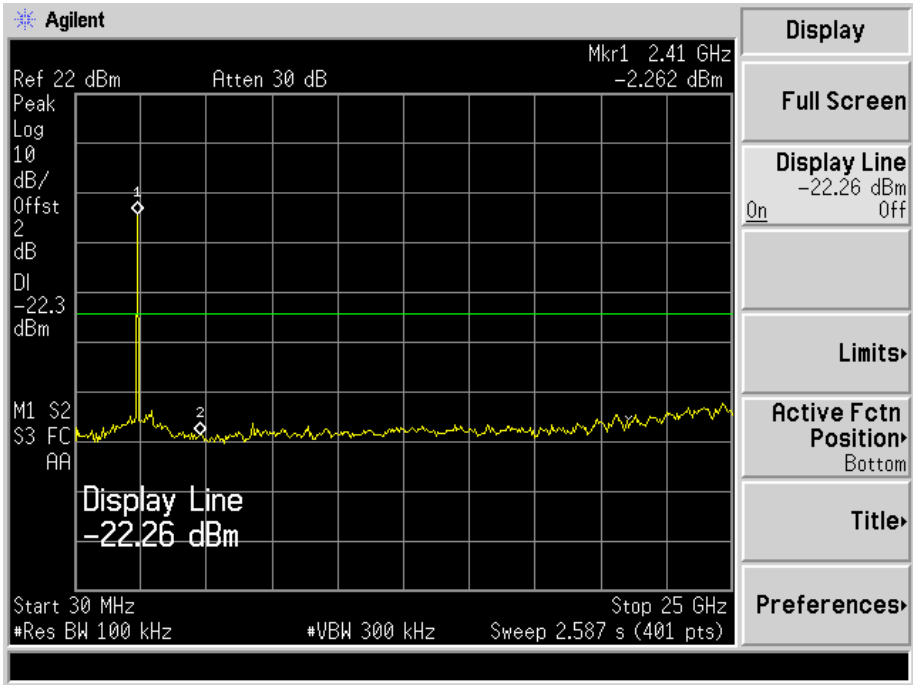


Highest



TX 802.11n/HT20 Mode

Lowest



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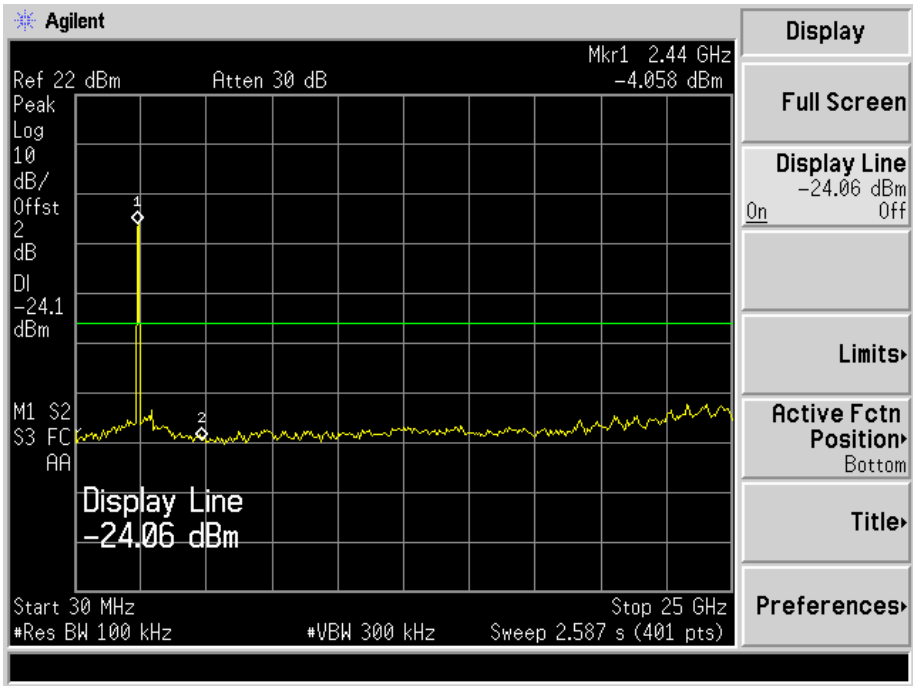

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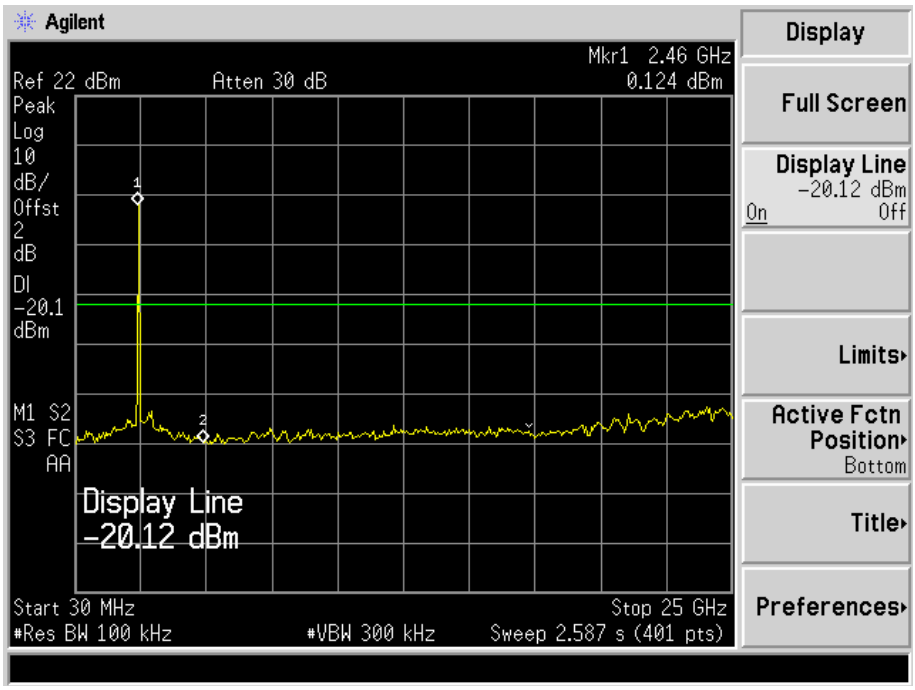
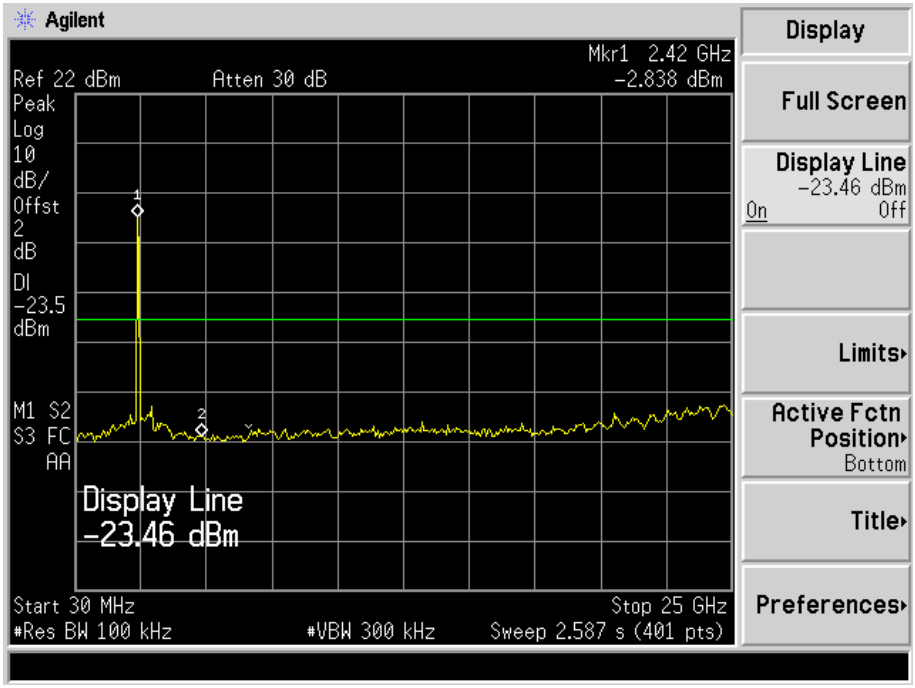
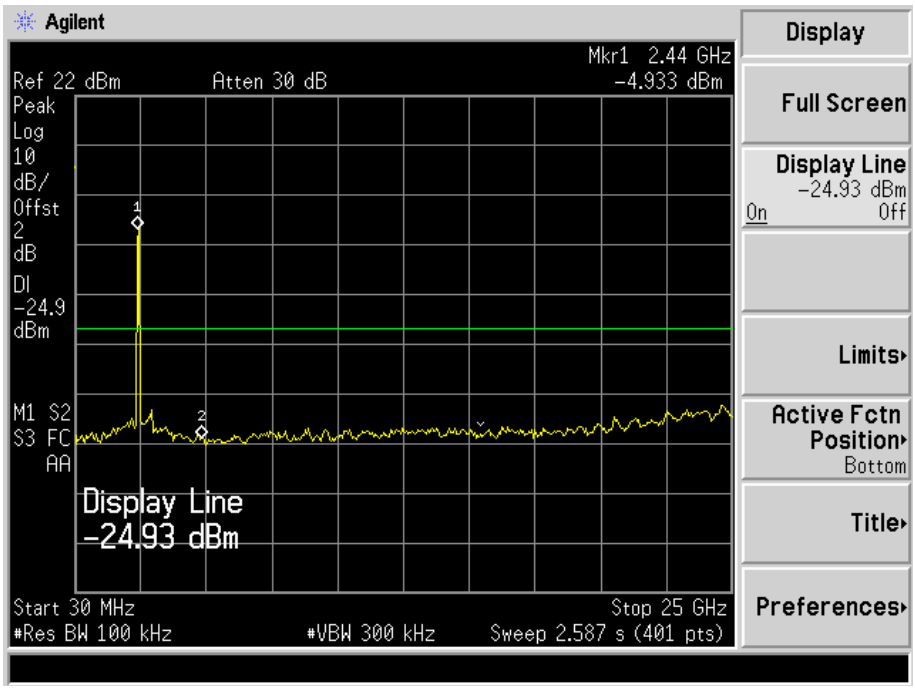


TX 802.11n/HT40 Mode

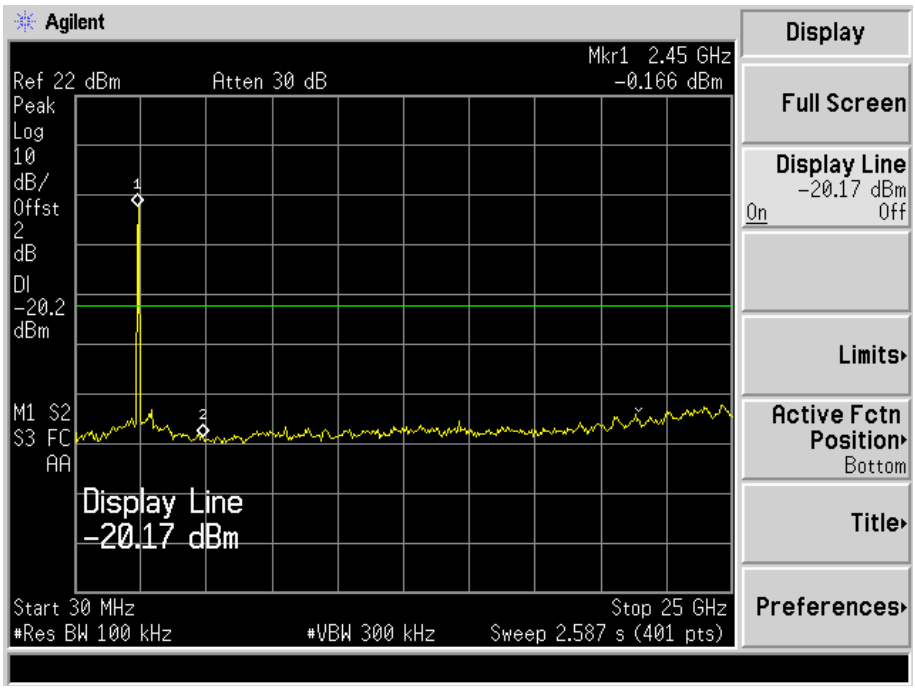
Lowest



Middle



Highest



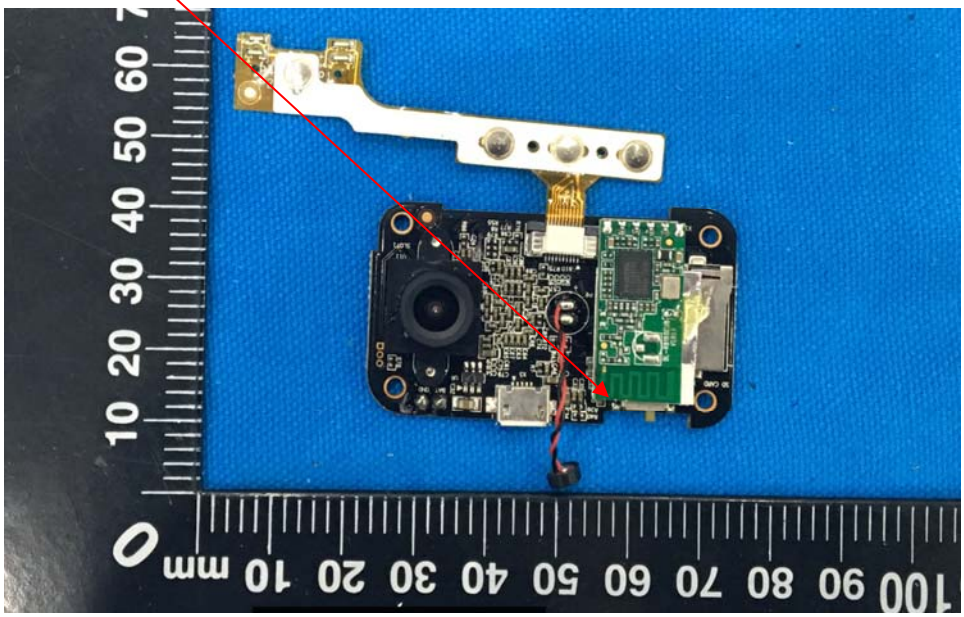
10 ANTENNA REQUIREMENT

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.

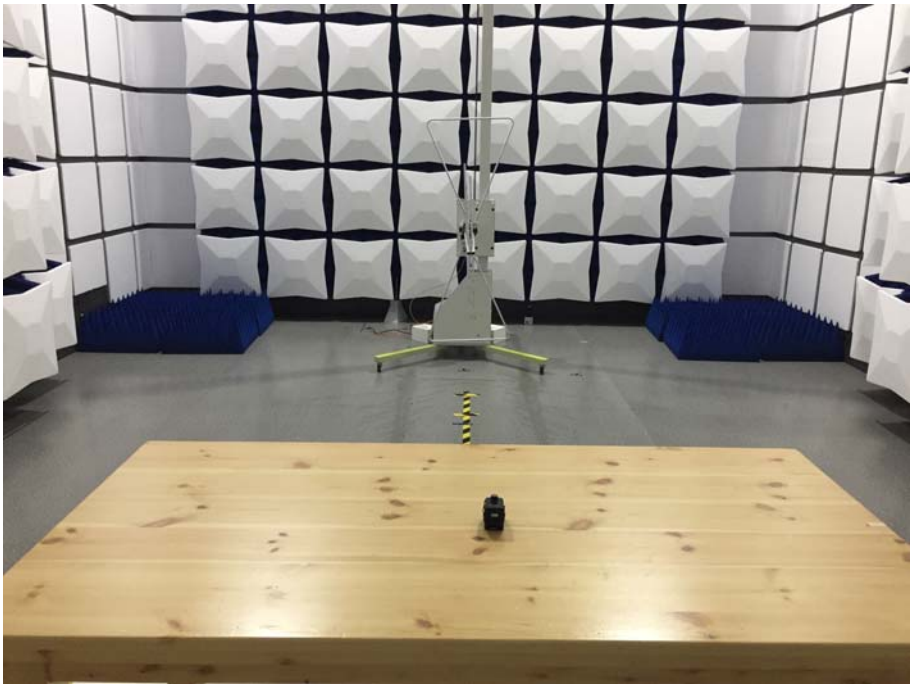
Antenna Connected Construction
The antenna used in this product is a PCB Antenna, The directional gains of antenna used for transmitting is 1dBi.

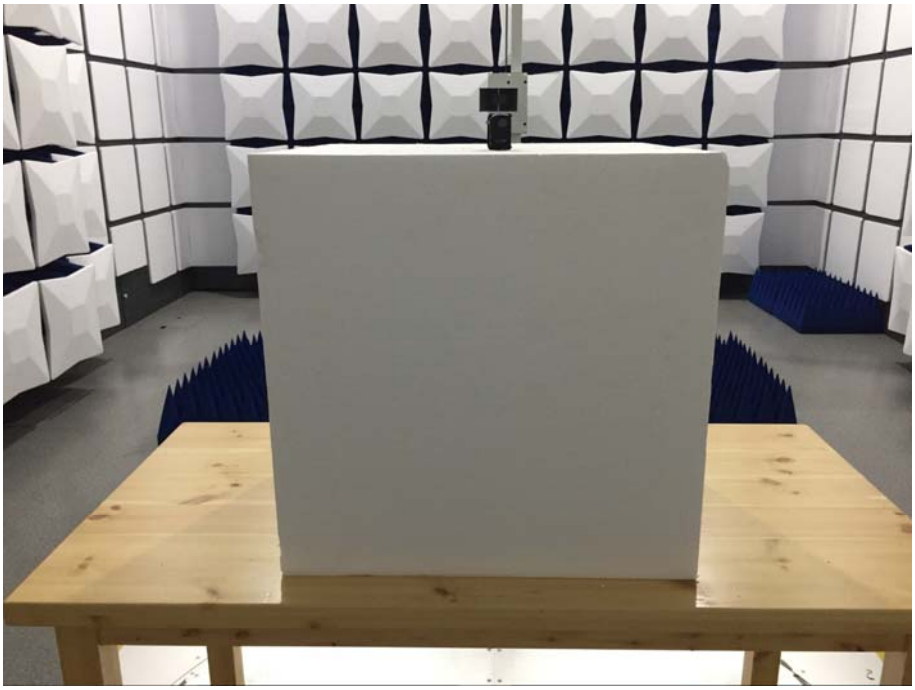
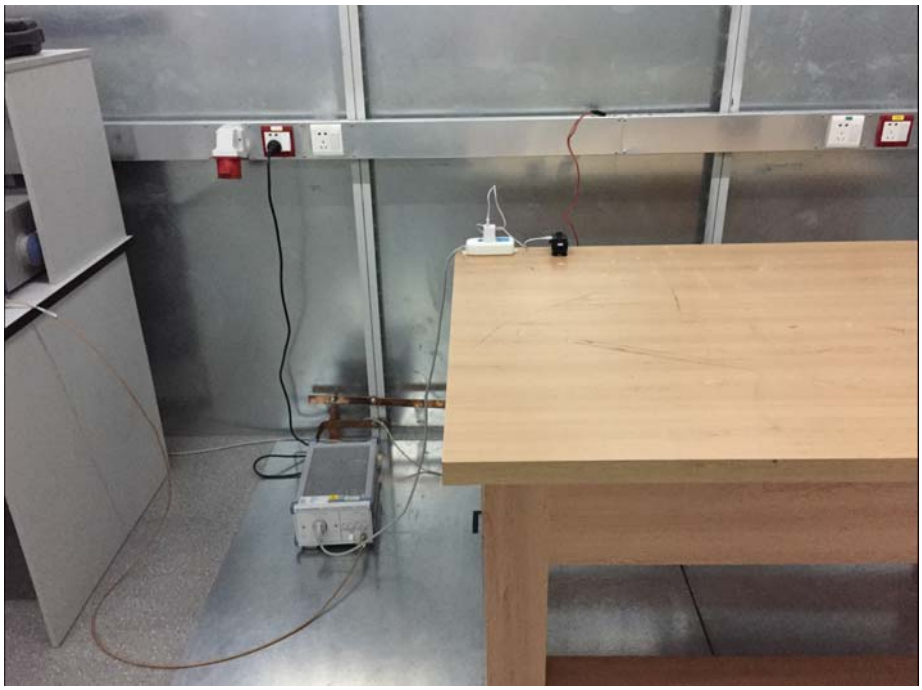
WIFI ANTENNA



11 PHOTOGRAPH OF TEST

11.1 Radiated Emission





11.2 Conducted Emission