

# FCC RADIO TEST REPORT

## FCC 47 CFR PART 15 SUBPART C

<b>Test Standard</b>	<b>FCC Part 15.247 and RSS-247 Issue 2</b>
<b>FCC ID</b>	<b>PPQ-WCBN4501A</b>
<b>ISED No.</b>	<b>4491A-WCBN4501A</b>
<b>Brand name</b>	<b>LITE-ON</b>
<b>Applicant</b>	<b>Lite-On Technology Corp.</b>
<b>Product name</b>	<b>Wi-Fi (11a/b/g/n/ac 2Tx2R)+BT (V4.1LE) USB Combo Module</b>
<b>Model No.</b>	<b>WCBN4501A</b>
<b>Test Result</b>	<b>Pass</b>

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of CCS. Inc.

The sample selected for test was production product and was provided by manufacturer.



*Approved by:*

*Tested by:*

Handwritten signature of Sam Chuang in black ink.

Sam Chuang  
Manager

Handwritten signature of Ed Chiang in black ink.

Ed Chiang  
Engineer

## Revision History

Rev.	Issue Date	Revisions	Revised By
00	May 4, 2017	Initial Issue	Vicki Huang
01	July 18, 2017	1. Modify test lab address in P.7 2. Modify PSD Limit in P.28 3. Add notice for "below 1G test data" in P.72~73.	Vicki Huang

---

## Table of contents

1.	GENERAL INFORMATION.....	4
1.1	EUT INFORMATION.....	4
1.2	EUT CHANNEL INFORMATION .....	5
1.3	ANTENNA INFORMATION .....	5
1.4	MEASUREMENT UNCERTAINTY.....	6
1.5	FACILITIES AND TEST LOCATION .....	7
1.6	INSTRUMENT CALIBRATION .....	7
1.7	SUPPORT AND EUT ACCESSORIES EQUIPMENT .....	8
1.8	TEST METHODOLOGY AND APPLIED STANDARDS .....	8
1.9	TABLE OF ACCREDITATIONS AND LISTINGS .....	8
2.	TEST SUMMERY.....	9
3.	DESCRIPTION OF TEST MODES.....	10
3.1	THE WORST MODE OF OPERATING CONDITION .....	10
3.2	THE WORST MODE OF MEASUREMENT .....	11
3.3	EUT DUTY CYCLE.....	12
4.	TEST RESULT.....	13
4.1	AC POWER LINE CONDUCTED EMISSION .....	13
4.2	6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%) .....	16
4.3	OUTPUT POWER MEASUREMENT .....	24
4.4	POWER SPECTRAL DENSITY .....	27
4.5	CONDUCTED BANDEDGE AND SPURIOUS EMISSION.....	35
4.6	RADIATION BANDEDGE AND SPURIOUS EMISSION .....	52
APPENDIX 1 - PHOTOGRAPHS OF EUT		

## 1. GENERAL INFORMATION

### 1.1 EUT INFORMATION

Applicant	Lite-On Technology Corp. Bldg. C, 90, Chien 1 Road, Chung Ho, New Taipei City 23585, Taiwan, R.O.C
Manufacturer	LITE-ON TECHNOLOGY (Changzhou) CO., LTD A9 Building, No.88 Yanghu Road, Wujin Hi-Tech Industrial Development Zone, Changzhou City, Jiangsu Province 213100 China
Equipment	Wi-Fi (11a/b/g/n/ac 2Tx2R)+BT (V4.1LE) USB Combo Module
Model Name	WCBN4501A
Model Discrepancy	Two kinds of module design: One uses on board antenna + external antenna; the other use two external antennas.
Received Date	March 14, 2017
Date of Test	March 15 ~ May 4, 2017
Output Power(W)	IEEE 802.11b mode: 0.2898 (EIRP : 0.5141) IEEE 802.11g mode: 0.4220 (EIRP : 0.7487) IEEE 802.11n HT 20 MHz mode: 0.7447 (EIRP : 1.3213) IEEE 802.11n HT 40 MHz mode: 0.6607 (EIRP : 1.1722)
Power Operation	VDC from host device.
FW Version	V62/V01
Product SW/HW version	1030.12/V02
Radio SW/HW version	1030.12/V02
Test SW Version	1030.12

## 1.2 EUT CHANNEL INFORMATION

Frequency Range	2412MHz-2462MHz
Modulation Type	1. IEEE 802.11b mode: CCK 2. IEEE 802.11g mode: OFDM 3. IEEE 802.11n HT 20 MHz mode: OFDM 4. IEEE 802.11n HT 40 MHz mode: OFDM
Bandwidth	1. IEEE 802.11b mode: 11 Channels 2. IEEE 802.11g mode: 11 Channels 3. IEEE 802.11n HT 20 MHz mode: 11 Channels 4. IEEE 802.11n HT 40 MHz mode: 7 Channels

**Remark:**

Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 and RSS-GEN Table A1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
<input type="checkbox"/> 1 MHz or less	1	Middle
<input type="checkbox"/> 1 MHz to 10 MHz	2	1 near top and 1 near bottom
<input checked="" type="checkbox"/> More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

## 1.3 ANTENNA INFORMATION

Antenna Type	<input checked="" type="checkbox"/> PIFA <input type="checkbox"/> PCB <input type="checkbox"/> Dipole <input type="checkbox"/> Coils					
Antenna Gain	Frequency		Antenna Gain (dBi)			
		Ant 1	Ant 2	Power Directional	Power Density Directional	
	2412 - 2462MHz	2.49	2.49	2.49	5.50	
	Item	Brand	P/N	Gain (dBi)	Cable length	Remark
	1	HongBo	290-10284	2.49	300mm	External Antenna
	2	HongBo	290-10310	2.05	500mm	External Antenna
	3	HongBo	290-10479	1.81	700mm	External Antenna
4	Walsin	RFMTA401035IMLB701	1.89	350mm	External Antenna	
5	Walsin	RFMTA401056IMLB701	1.62	560mm	External Antenna	
6	Walsin	RFMTA200700NNLB002	1.63	N/A	On Board Antenna	

**Notes:**

1. Power Directional Gain:  $10\text{LOG}(((10^{Ant1/10})+10^{Ant2/10})/2)$
2. Power Density Directional Gain:  $10\text{LOG}(((10^{Ant1/10})+10^{Ant2/10})/2))+10\text{log}(NTX/NSS)$

## 1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 30 to 1000 MHz	+/- 3.97
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 1 to 18GHz	+/- 3.58
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 18 to 26 GHz	+/- 3.59
Semi Anechoic Chamber (966 Chamber_B) / Radiated Emission, 26 to 40 GHz	+/- 3.81
Conducted Emission (Mains Terminals), 9kHz to 30MHz	+/- 2.48

**Remark:**

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

## 1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at No.139, Wugong Rd., Wugu Dist., New Taipei City 24886, Taiwan (R.O.C.)-Compliance Certification Services Inc.

Test site	Test Engineer	Remark
AC Conduction Room	Eric Lee	
Radiation	Ed Chiang	
RF Conducted	Eric Lee	

**Remark:** The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

## 1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Power Meter	Anritsu	ML2495A	1012009	07/04/2016	07/03/2017
Power Sensor	Anritsu	MA2411B	917072	07/04/2016	07/03/2017
Spectrum Analyzer	R&S	FSV 40	101073	10/05/2016	10/04/2017

Wugu 966 Chamber A					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Bilog Antenna	Sunol Sciences	JB3	A030105	07/03/2016	07/02/2017
Horn Antenna	EMCO	3117	00055165	02/20/2017	02/19/2018
Horn Antenna	ETS LINDGREN	3116	00026370	01/12/2017	01/11/2018
Pre-Amplifier	EMCI	EMC 012635	980151	06/23/2016	06/22/2017
Pre-Amplifier	EMEC	EM330	060609	06/08/2016	06/07/2017
Spectrum Analyzer	Agilent	E4446A	US42510252	12/05/2016	12/04/2017
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R

Conducted Emission Room # B					
Name of Equipment	Name of Equipment	Name of Equipment	Name of Equipment	Name of Equipment	Name of Equipment
LISN	R&S	ENV216	101054	05/11/2016	05/10/2017
LISN	Schwarzbeck	NSLK8128	5012	04/25/2017	04/24/2018
Receiver	R&S	ESCI	101073	08/20/2016	08/19/2017

**Remark:** Each piece of equipment is scheduled for calibration once a year.

## 1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT



EUT Accessories Equipment					
No.	Equipment	Brand	Model	Series No.	FCC ID
	N/A				

Support Equipment					
No.	Equipment	Brand	Model	Series No.	BSMI ID
1	Notebook	Lenovo	Z51-70	N/A	R33275

## 1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, KDB 558074 D01 v03r05, RSS-247 Issue 1 and RSS-GEN Issue 4.

## 1.9 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	 FCC MRA: TW1039
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	 IC 2324G-1 IC 2324G-2



## 2. TEST SUMMERY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	-	1.2	Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	4.1	AC Conducted Emission	Pass
15.247(a)(2)	RSS-247(5.2)(1)	4.2	6 dB Bandwidth	Pass
-	RSS-GEN 6.6	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)	RSS-247(5.4)(4)	4.3	Output Power Measurement	Pass
15.247(e)	RSS-247(5.2)(2)	4.4	Power Spectral Density	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Band Edge	Pass
15.247(d)	RSS-247(5.5)	4.5	Conducted Emission	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.6	Radiation Band Edge	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.6	Radiation Spurious Emission	Pass

### 3. DESCRIPTION OF TEST MODES

#### 3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	IEEE 802.11b mode :1Mbps IEEE 802.11g mode :6Mbps IEEE 802.11n HT20 mode :MCS8 IEEE 802.11n HT40 mode :MCS8
Test Channel Frequencies	<b>IEEE 802.11b mode :</b> 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz <b>IEEE 802.11g mode :</b> 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz <b>IEEE 802.11n HT20 mode :</b> 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz <b>IEEE 802.11n HT40 mode :</b> 1. Lowest Channel : 2422MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2452MHz
Operation Transmitter	IEEE 802.11b mode :1T1R IEEE 802.11g mode :1T1R IEEE 802.11n HT20 mode :2T2R IEEE 802.11n HT40 mode :2T2R

**Remark:**

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

### 3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by host system.
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by host system.
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4

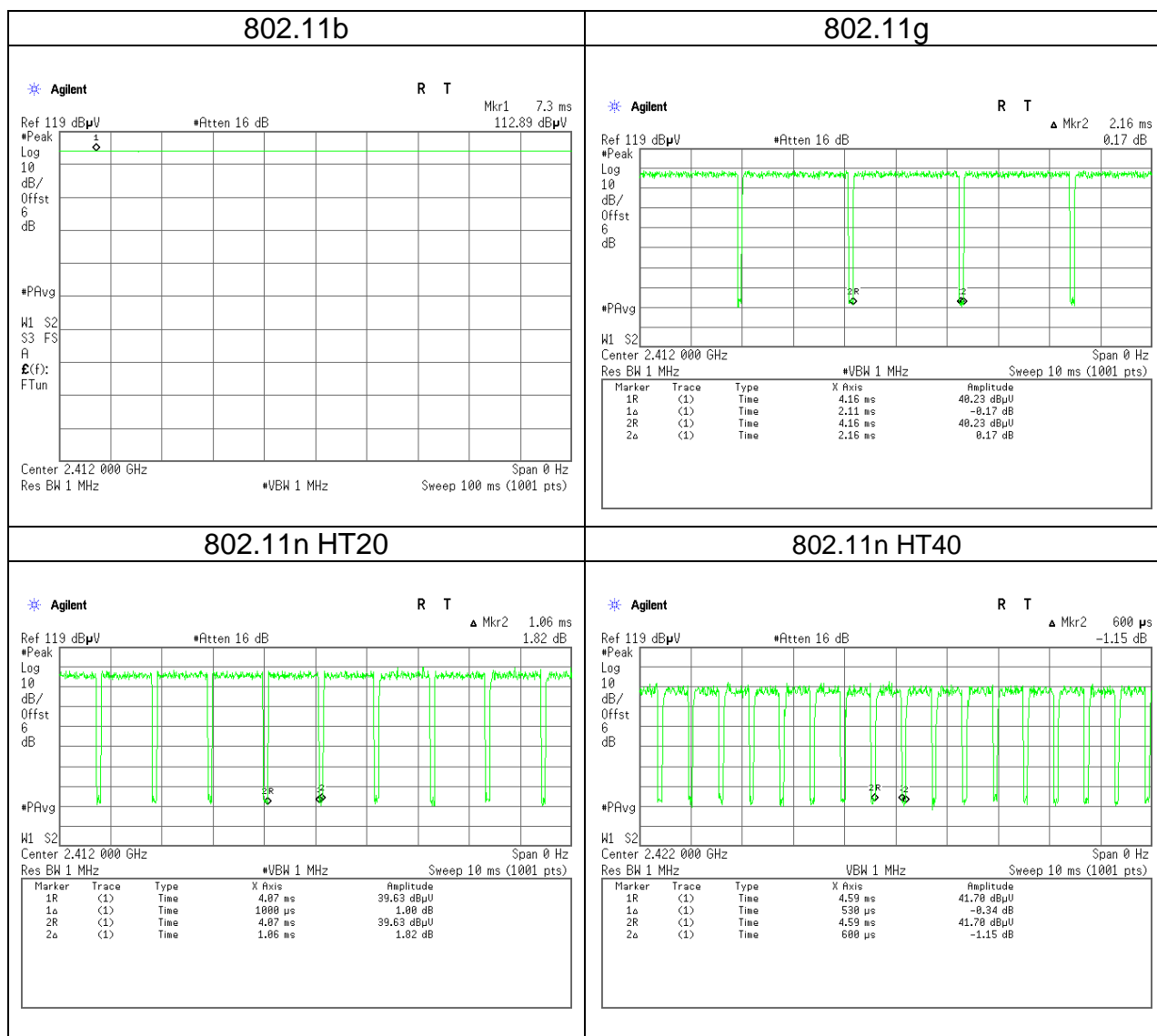
Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by host system.
Worst Mode	<input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4
Worst Position	<input type="checkbox"/> Placed in fixed position. <input type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input checked="" type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane)
Worst Polarity	<input type="checkbox"/> Horizontal <input checked="" type="checkbox"/> Vertical

*Remark:*

- 1. The worst mode was record in this test report.*
- 2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, Horizontal and Vertical for radiated measurement. The worst case(Z-Plane and Vertical) were recorded in this report*
- 3. For AC power line conducted emission and below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.*

### 3.3 EUT DUTY CYCLE

Duty Cycle				
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)
802.11b	--	--	100.00%	0.00
802.11g	2.1100	2.1600	97.69%	0.10
802.11n HT20	1.0000	1.0600	94.34%	0.25
802.11n HT40	0.5300	0.6000	88.33%	0.54



## 4. TEST RESULT

### 4.1 AC POWER LINE CONDUCTED EMISSION

#### 4.1.1 Test Limit

According to §15.207(a)(2) and RSS-GEN section 8.8,

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

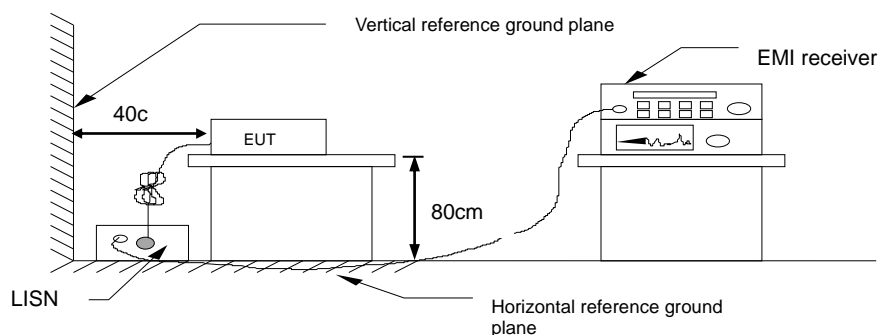
\* Decreases with the logarithm of the frequency.

#### 4.1.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

#### 4.1.3 Test Setup

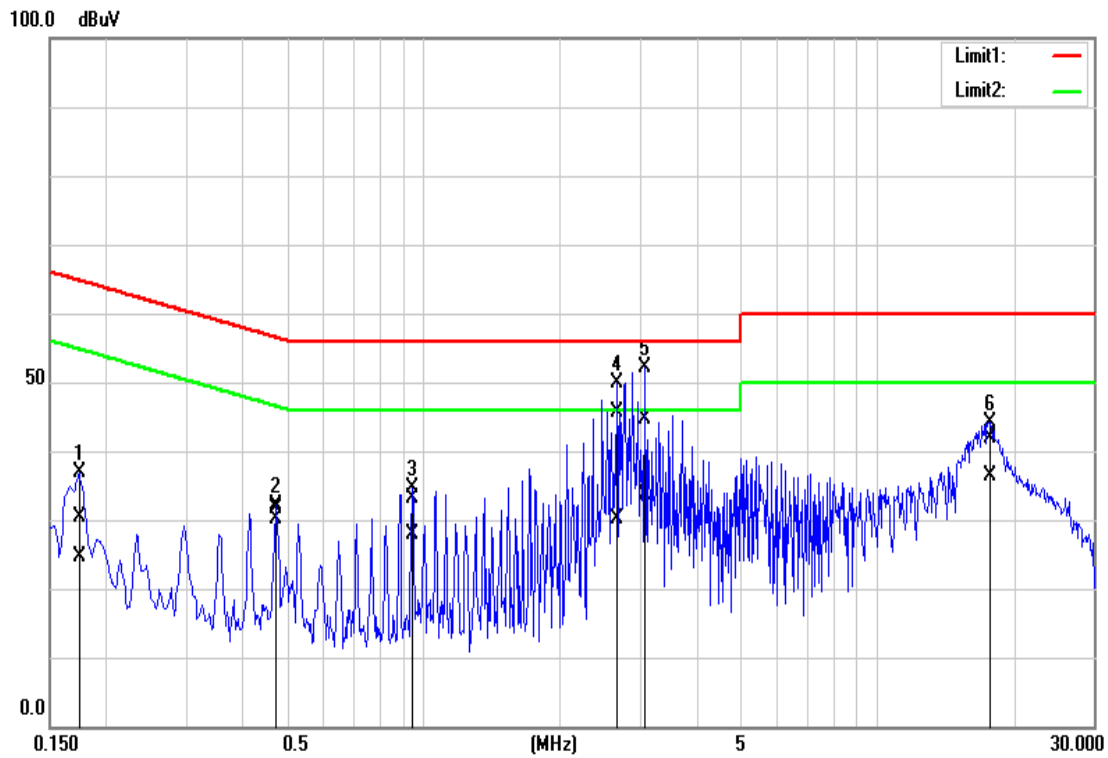


#### 4.1.4 Test Result

**Pass.**

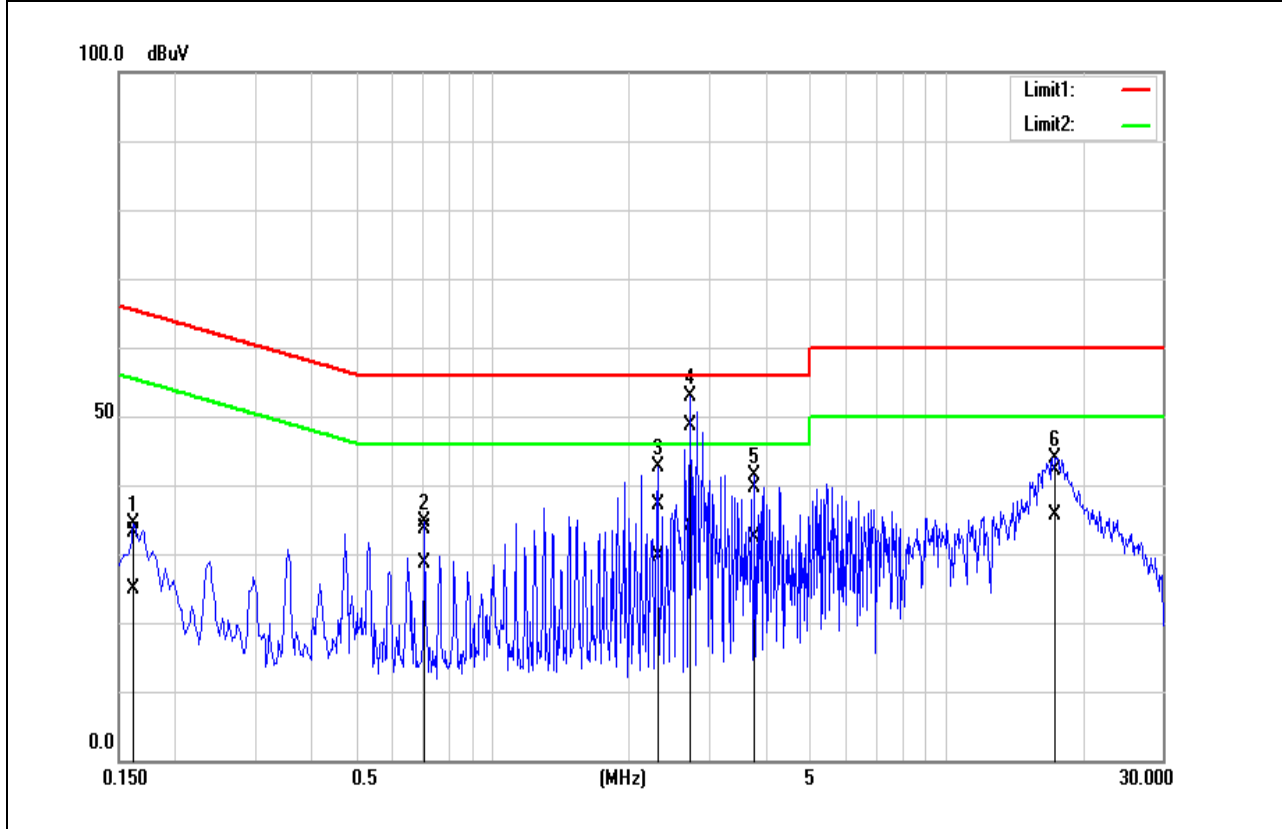
**Test Data**

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	May 4, 2017
Phase:	Line	Test Engineer	Eric Lee



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1740	20.62	14.81	9.70	30.32	24.51	64.77	54.77	-34.45	-30.26	Pass
0.4740	21.95	20.36	9.68	31.63	30.04	56.44	46.44	-24.81	-16.40	Pass
0.9460	23.35	18.19	9.69	33.04	27.88	56.00	46.00	-22.96	-18.12	Pass
2.6660	35.81	20.55	9.70	45.51	30.25	56.00	46.00	-10.49	-15.75	Pass
3.0780	34.85	23.91	9.71	44.56	33.62	56.00	46.00	-11.44	-12.38	Pass
17.6900	32.08	26.54	9.84	41.92	36.38	60.00	50.00	-18.08	-13.62	Pass

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	May 4, 2017
Phase:	Neutral	Test Engineer	Eric Lee



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1620	23.41	15.15	9.71	33.12	24.86	65.36	55.36	-32.24	-30.50	Pass
0.7100	23.98	19.02	9.69	33.67	28.71	56.00	46.00	-22.33	-17.29	Pass
2.3100	27.45	19.92	9.70	37.15	29.62	56.00	46.00	-18.85	-16.38	Pass
2.7220	38.88	24.38	9.70	48.58	34.08	56.00	46.00	-7.42	-11.92	Pass
3.7820	29.93	22.69	9.71	39.64	32.40	56.00	46.00	-16.36	-13.60	Pass
17.4460	32.28	25.76	9.89	42.17	35.65	60.00	50.00	-17.83	-14.35	Pass

## 4.2 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

### 4.2.1 Test Limit

According to §15.247(a)(2) and RSS-247 section 5.2(a),

#### 6 dB Bandwidth :

Limit	Shall be at least 500kHz
-------	--------------------------

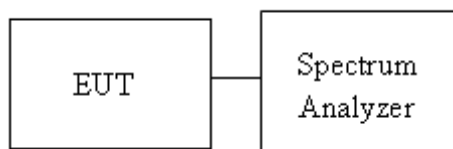
Occupied Bandwidth(99%) : For reporting purposes only.

### 4.2.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, Section 8.1 and ANSI 63.10:2013 clause 6.9.2,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth and 99% Bandwidth.
4. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

### 4.2.3 Test Setup





#### 4.2.4 Test Result

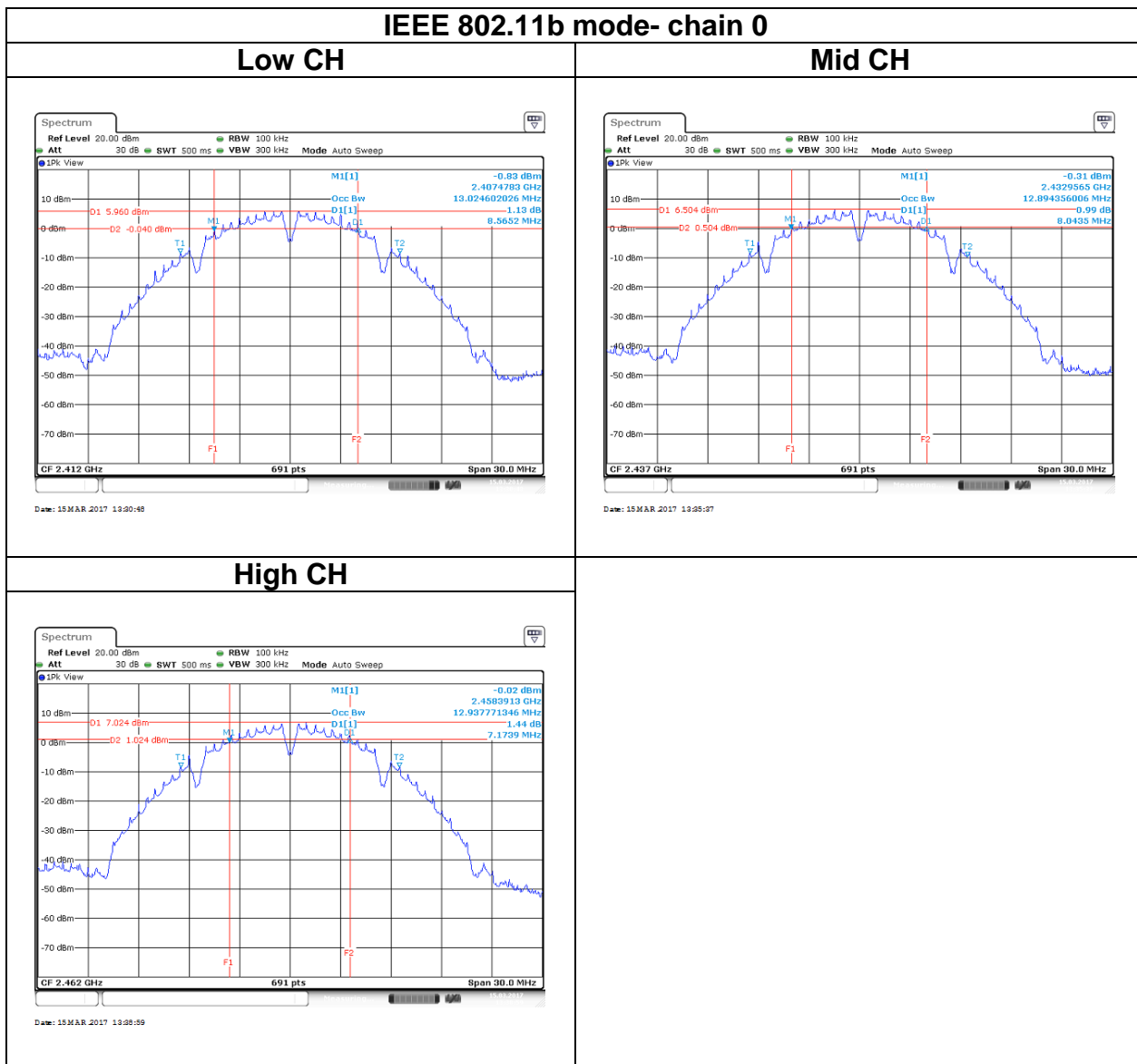
Test mode: IEEE 802.11b mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2412	13.0246	-	8.5652	-	≥500
Mid	2437	12.8943	-	8.0435	-	
High	2462	12.9377	-	7.1739	-	

Test mode: IEEE 802.11g mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2412	16.3241	-	16.3043	-	≥500
Mid	2437	16.3241	-	16.3478	-	
High	2462	16.3241	-	16.3478	-	

Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2412	17.5397	17.5397	16.8696	16.8261	≥500
Mid	2437	17.5397	17.5397	16.8696	16.8261	
High	2462	17.5397	17.5397	16.8696	16.8261	

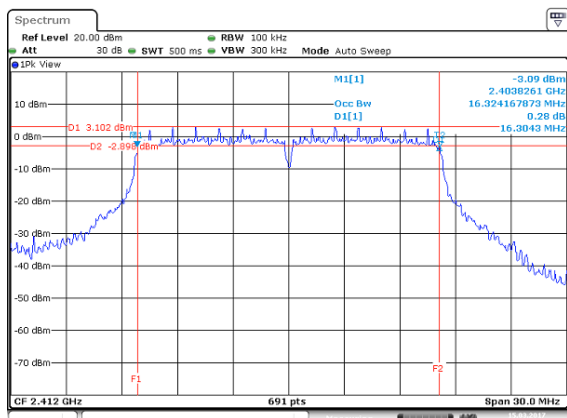
Test mode: IEEE 802.11n HT 40 MHz mode / 2422-2452 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2422	36.1215	36.1215	35.5940	36.5220	>500
Mid	2437	36.1215	36.1215	35.7100	35.9420	
High	2452	36.1215	36.1215	35.7100	35.9420	

# Test Data



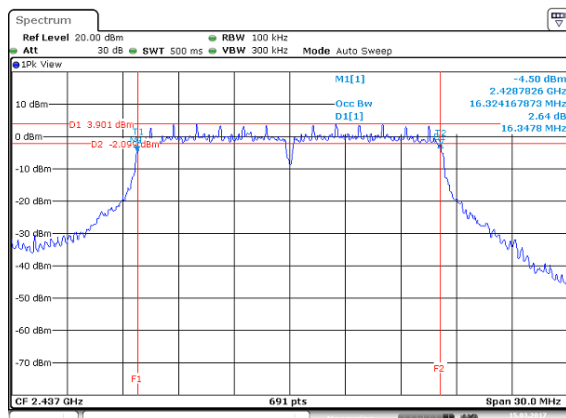
IEEE 802.11g mode- chain 0

Low CH



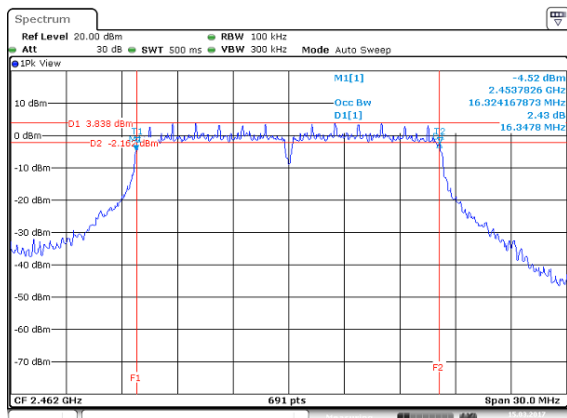
Date: 15/MAR/2017 13:28:09

Mid CH



Date: 15/MAR/2017 14:02:28

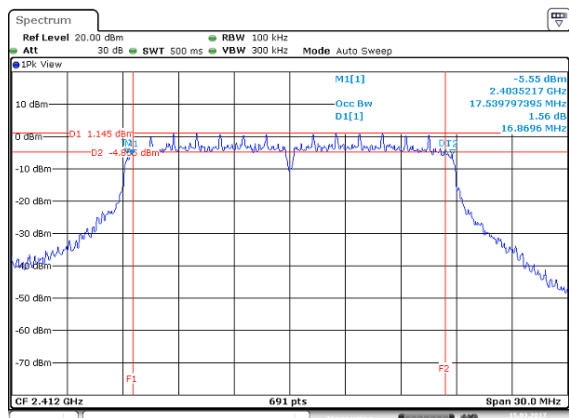
High CH



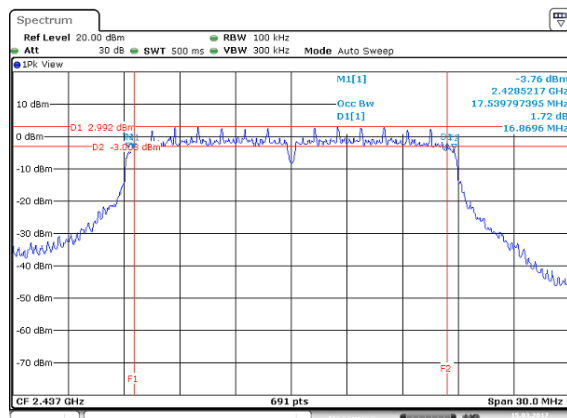
Date: 15/MAR/2017 14:06:10

**IEEE 802.11n HT20 mode- chain 0**

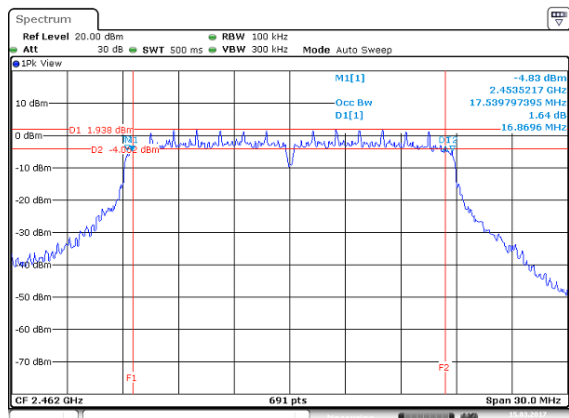
**Low CH**



**Mid CH**

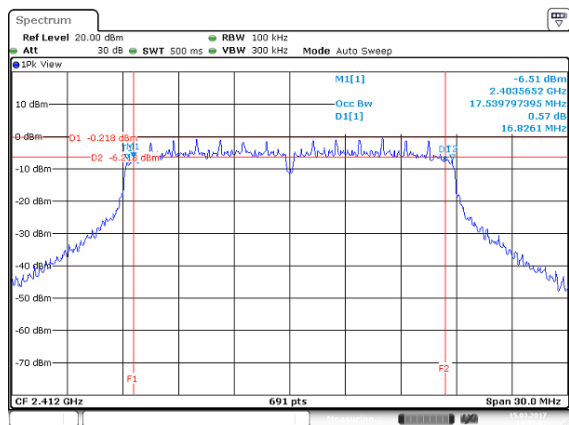


**High CH**

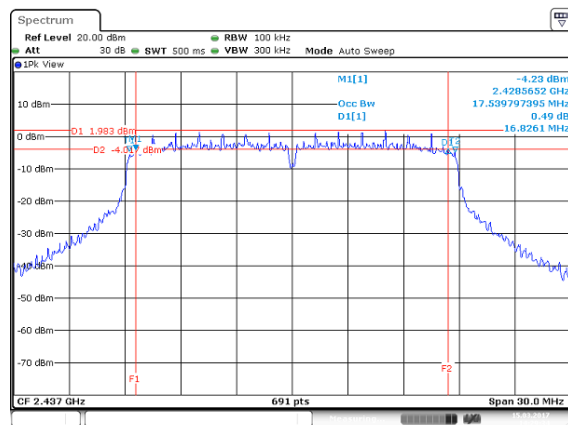


IEEE 802.11n HT20 mode- chain 1

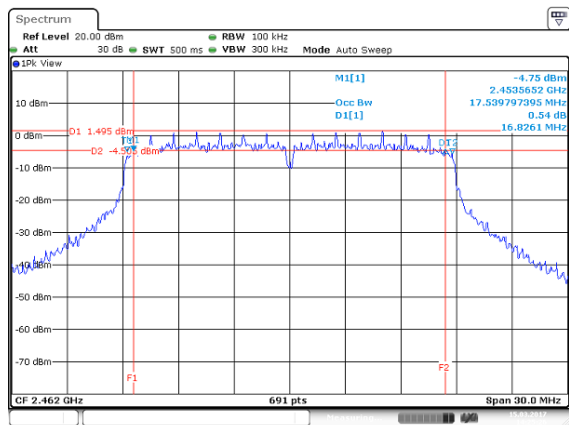
Low CH



Mid CH

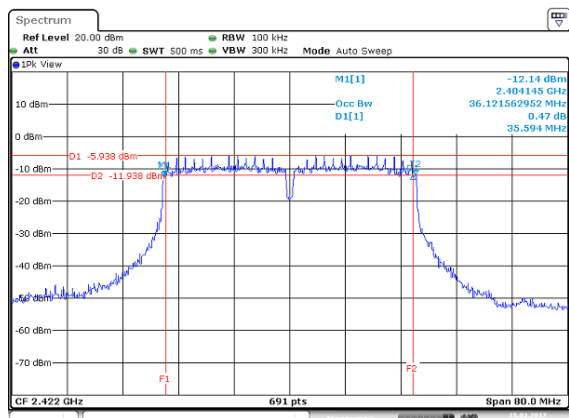


High CH

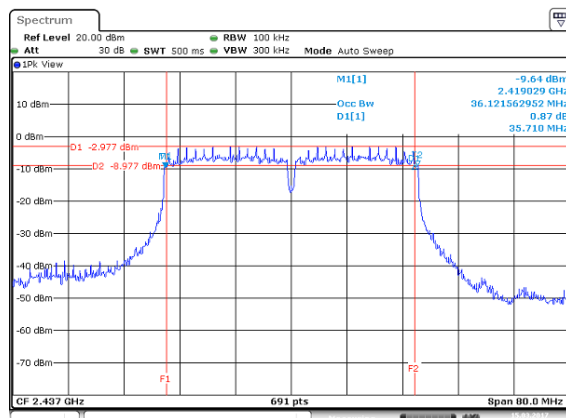


**IEEE 802.11n HT40 mode- chain 0**

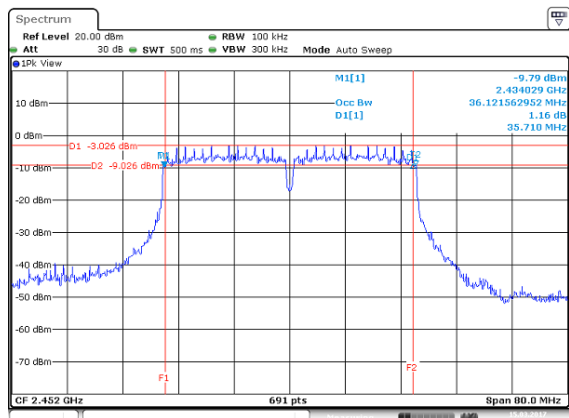
**Low CH**



**Mid CH**

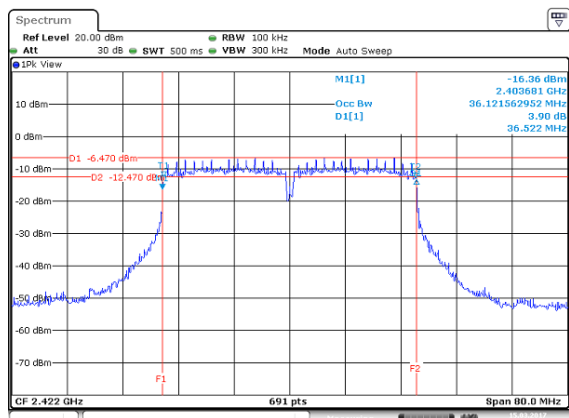


**High CH**



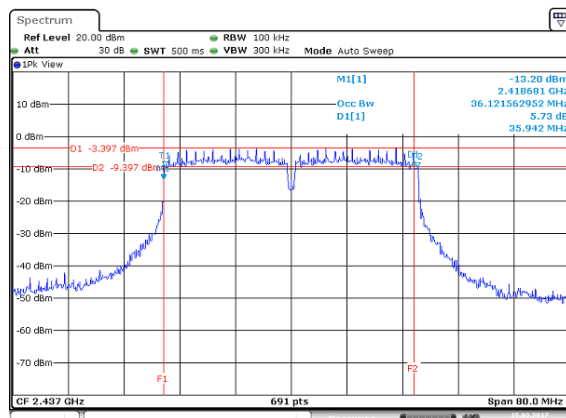
**IEEE 802.11n HT40 mode- chain 1**

**Low CH**



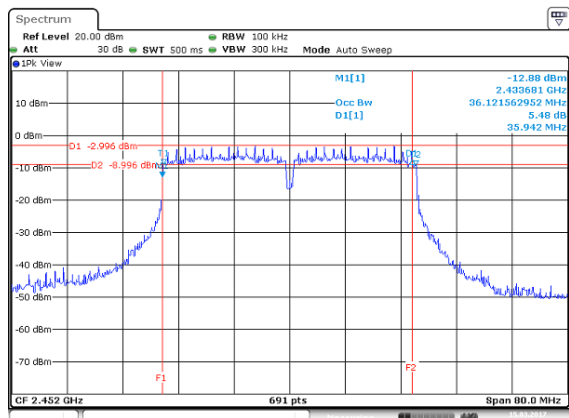
Date: 15 MAR 2017 14:49:15

**Mid CH**



Date: 15 MAR 2017 15:02:45

**chain 1 High CH**



Date: 15 MAR 2017 15:07:51

### 4.3 OUTPUT POWER MEASUREMENT

#### 4.3.1 Test Limit

According to §15.247(b) and RSS-247 section 5.4(4),

**Peak output power :**

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 dBm) and the e.i.r.p. shall not exceed 4Watt(36 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)] <input type="checkbox"/> Point-to-point operation :
-------	---

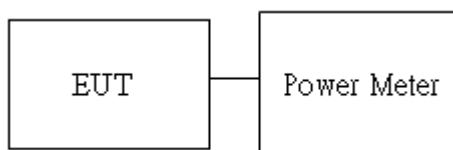
**Average output power** : For reporting purposes only.

#### 4.3.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, Section 9.1.2.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

#### 4.3.3 Test Setup





### 4.3.4 Test Result

**Peak output power :**

Wifi 2.4G													
Config	CH	Freq. (MHz)	power set		PK Power(dBm)		PK Total Power (dBm)	PK Total Power (W)	ERP PK Total Power (dBm)	ERP PK Total Power (W)	DG (dBi)	Limit (dBm)	ERP Limit (dBm)
			chain0	chain1	chain0	chain1							
IEEE 802.11b Data rate: 1Mbps	Low	2412	19	-	22.87	-	22.87	0.1937	25.36	0.3436	2.49	30	36
	Mid	2437	21	-	24.57	-	24.57	0.2864	27.06	0.5082			
	High	2462	21	-	24.62	-	24.62	0.2898	27.11	0.5141			
IEEE 802.11g Data rate: 6Mbps	Low	2412	15	-	22.71	-	22.71	0.1868	25.20	0.3314			
	Mid	2437	20	-	26.25	-	26.25	0.4220	28.74	0.7487			
	High	2462	18	-	25.17	-	25.17	0.3291	27.66	0.5839			
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	13	13	17.97	17.08	20.55	0.1135	23.04	0.2014			
	Mid	2437	20	20	25.95	25.47	28.72	0.7447	31.21	1.3213			
	High	2462	12	12	16.91	17.08	20.00	0.1000	22.49	0.1774			
IEEE 802.11n HT40 Data rate: MCS8	Low	2422	13	13	18.45	18.16	21.32	0.1355	23.81	0.2404			
	Mid	2437	19	19	25.66	24.67	28.20	0.6607	30.69	1.1722			
	High	2452	13	13	18.14	18.25	21.20	0.1318	23.69	0.2339			

**Average output power :**

Wifi 2.4G					
Config	CH	Freq. (MHz)	AV Power(dBm)		AV Total Power (dBm)
			chain0	chain1	
IEEE 802.11b Data rate: 1Mbps	Low	2412	19.82	-	19.83
	Mid	2437	21.63	-	21.64
	High	2462	21.72	-	21.73
IEEE 802.11g Data rate: 6Mbps	Low	2412	15.17	-	15.31
	Mid	2437	20.35	-	20.49
	High	2462	18.47	-	18.61
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	11.72	11.21	14.61
	Mid	2437	19.49	18.76	22.28
	High	2462	12.13	11.48	14.95
IEEE 802.11n HT40 Data rate: MCS8	Low	2422	11.70	11.37	14.86
	Mid	2437	18.31	17.76	21.36
	High	2452	11.62	11.62	14.94

## 4.4 POWER SPECTRAL DENSITY

### 4.4.1 Test Limit

According to §15.247(e) and RSS-247 section 5.2(2),

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

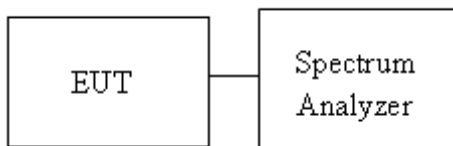
Limit	<input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [ Limit = 8 – (DG – 6) ] <input type="checkbox"/> Point-to-point operation :
-------	---

### 4.4.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, Section 10.2

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 30kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

### 4.4.3 Test Setup



**4.4.4 Test Result**

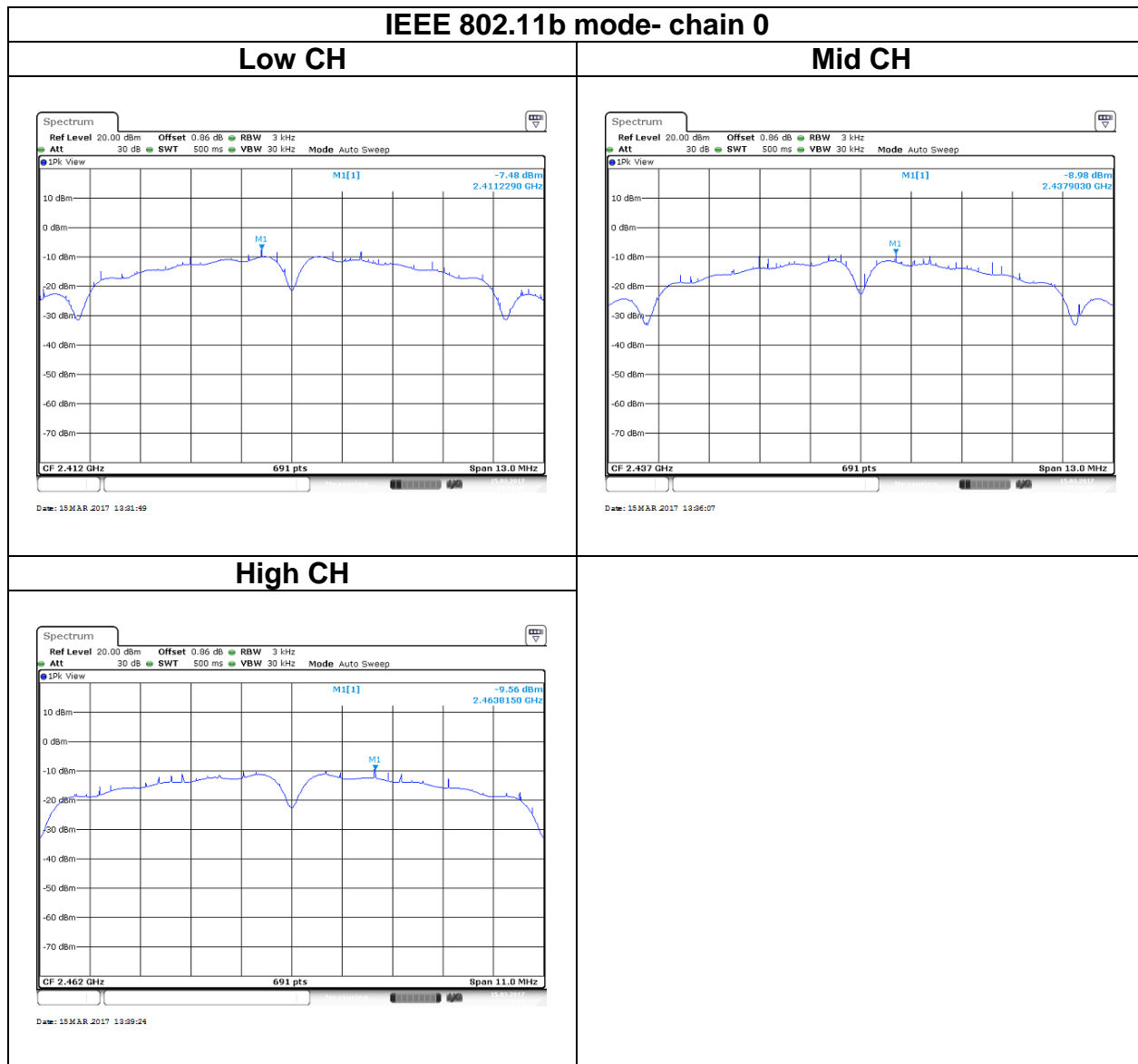
<b>Test mode: IEEE 802.11b mode / 2412-2462 MHz</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 PPSD (dBm)</b>	<b>Chain 1 PPSD (dBm)</b>	<b>Total PSSD (dBm)</b>	<b>Limit (dBm)</b>
Low	2412	-7.48	-	-7.48	8
Mid	2437	-8.98	-	-8.98	
High	2462	-9.56	-	-9.56	

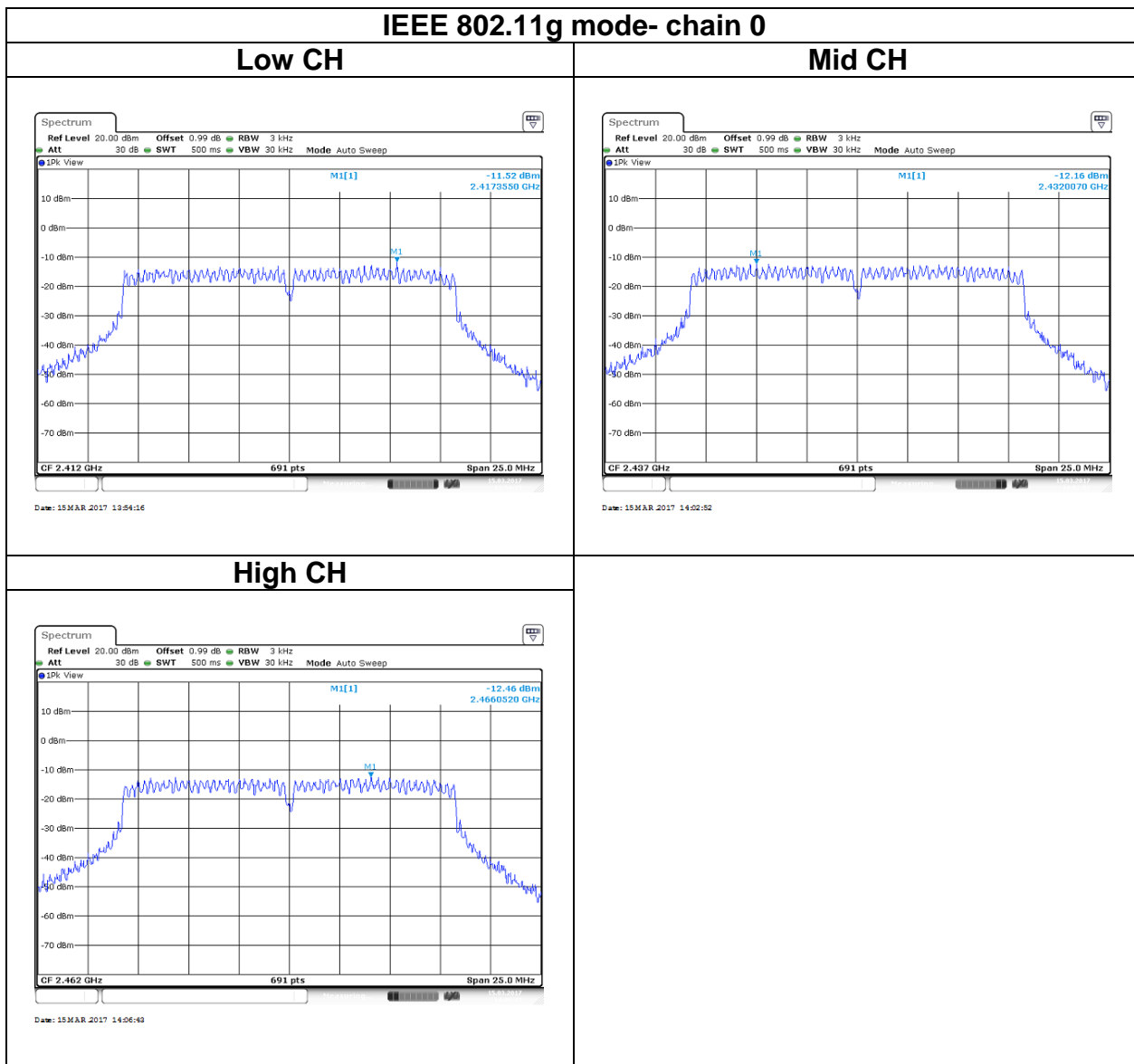
<b>Test mode: IEEE 802.11g mode / 2412-2462 MHz</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 PPSD (dBm)</b>	<b>Chain 1 PPSD (dBm)</b>	<b>Total PSSD (dBm)</b>	<b>Limit (dBm)</b>
Low	2412	-11.52	-	-11.52	8
Mid	2437	-12.16	-	-12.16	
High	2462	-12.46	-	-12.46	

<b>Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 PPSD (dBm)</b>	<b>Chain 1 PPSD (dBm)</b>	<b>Total PSSD (dBm)</b>	<b>Limit (dBm)</b>
Low	2412	-13.71	-16.64	-11.92	8
Mid	2437	-11.02	-13.70	-9.15	
High	2462	-13.62	-14.15	-10.87	

<b>Test mode: IEEE 802.11n HT 40 MHz mode / 2422-2452 MHz</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Chain 0 PPSD (dBm)</b>	<b>Chain 1 PPSD (dBm)</b>	<b>Total PSSD (dBm)</b>	<b>Limit (dBm)</b>
Low	2422	-19.36	-18.53	-15.91	8
Mid	2437	-15.91	-16.46	-13.17	
High	2452	-15.94	-15.87	-12.89	

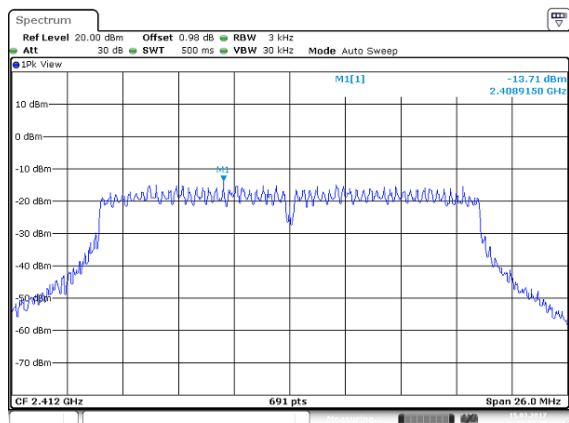
# Test Data



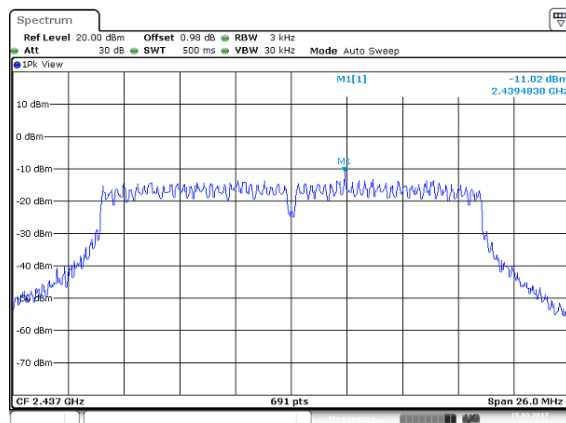


**IEEE 802.11n HT20 mode- chain 0**

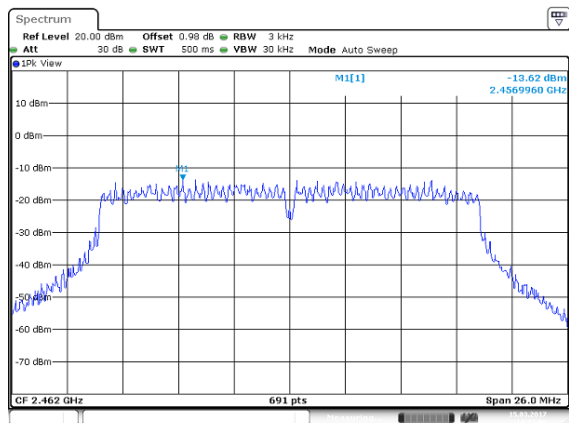
**Low CH**



**Mid CH**

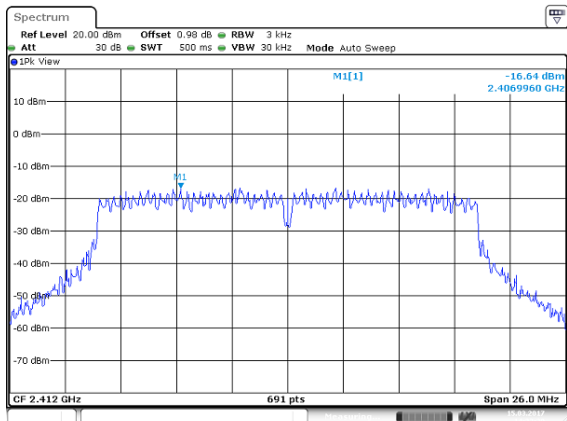


**High CH**



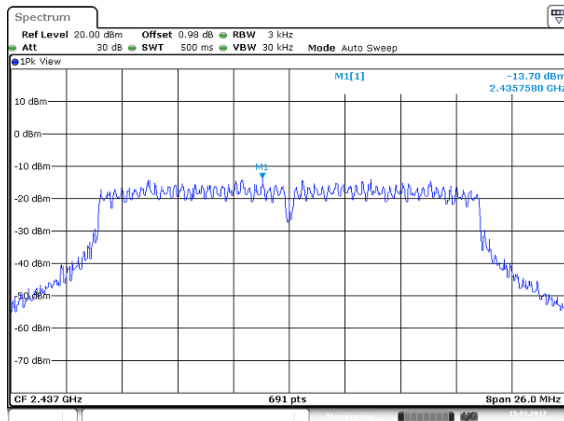
**IEEE 802.11n HT20 mode-chain 1**

**Low CH**



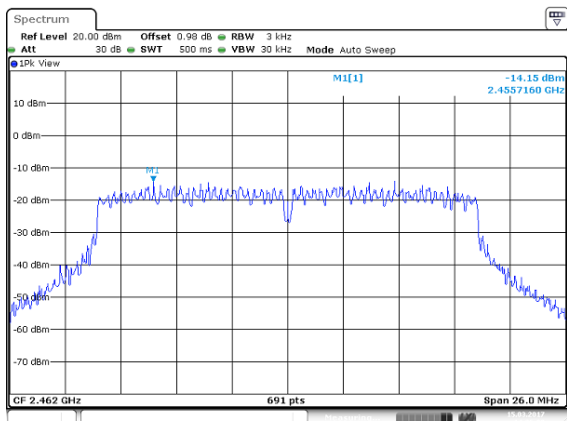
Date: 15 MAR 2017 14:28:31

**Mid CH**



Date: 15 MAR 2017 14:30:13

**High CH**

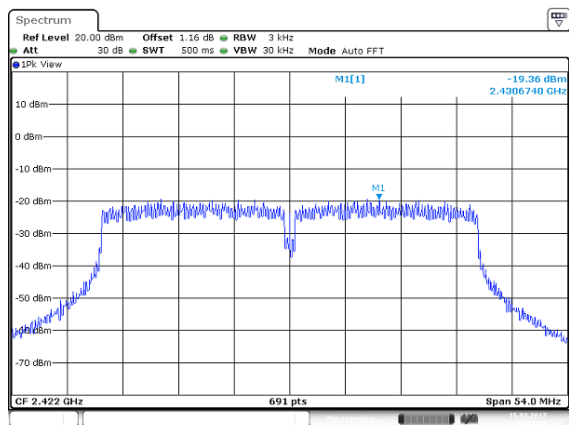


Date: 15 MAR 2017 14:26:00

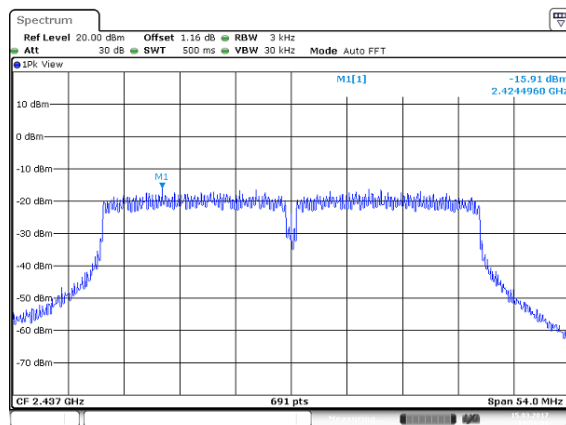


**IEEE 802.11n HT40 mode-chain 0**

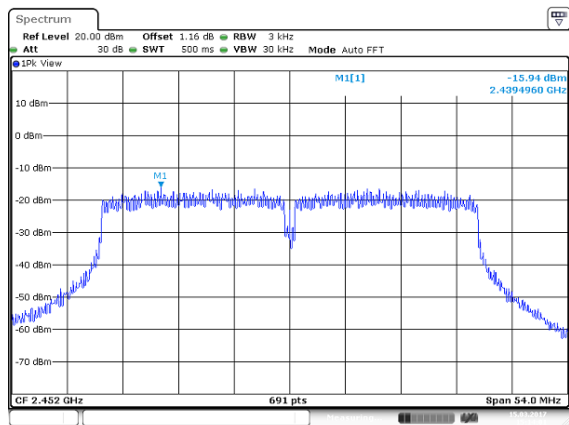
**Low CH**



**Mid CH**

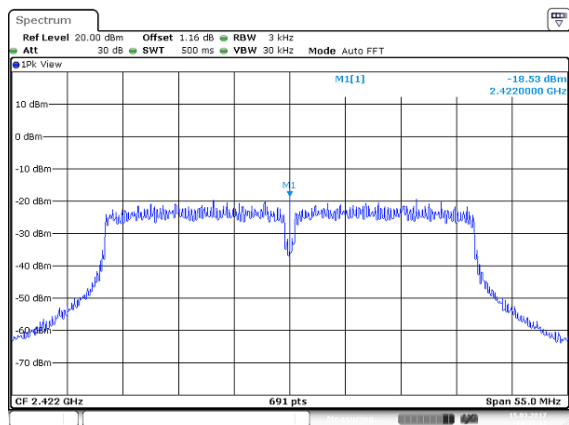


**High CH**

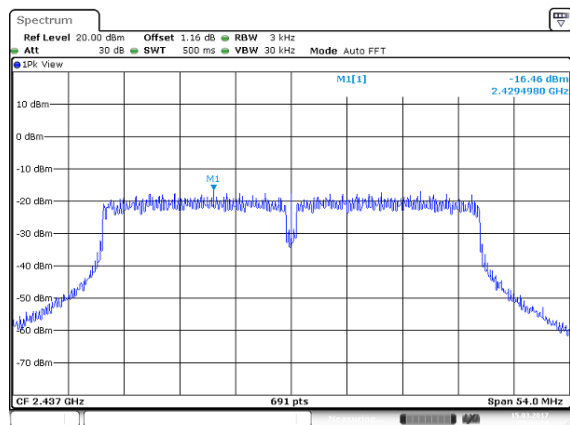


**IEEE 802.11n HT40 mode-chain 1**

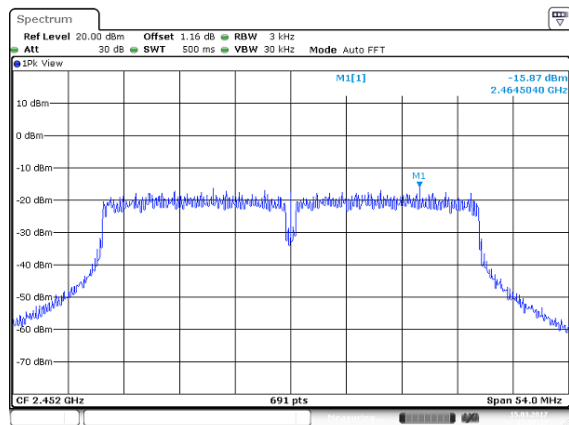
**Low CH**



**Mid CH**



**High CH**



## 4.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

### 4.5.1 Test Limit

According to §15.247(d) and RSS-247 section 5.5,

In any 100 kHz bandwidth outside the authorized frequency band,

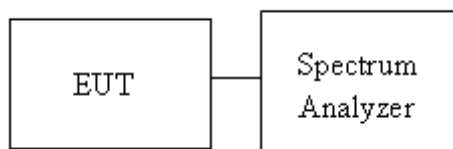
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### 4.5.2 Test Procedure

Test method Refer as KDB 558074 D01 v03r05, Section 11.

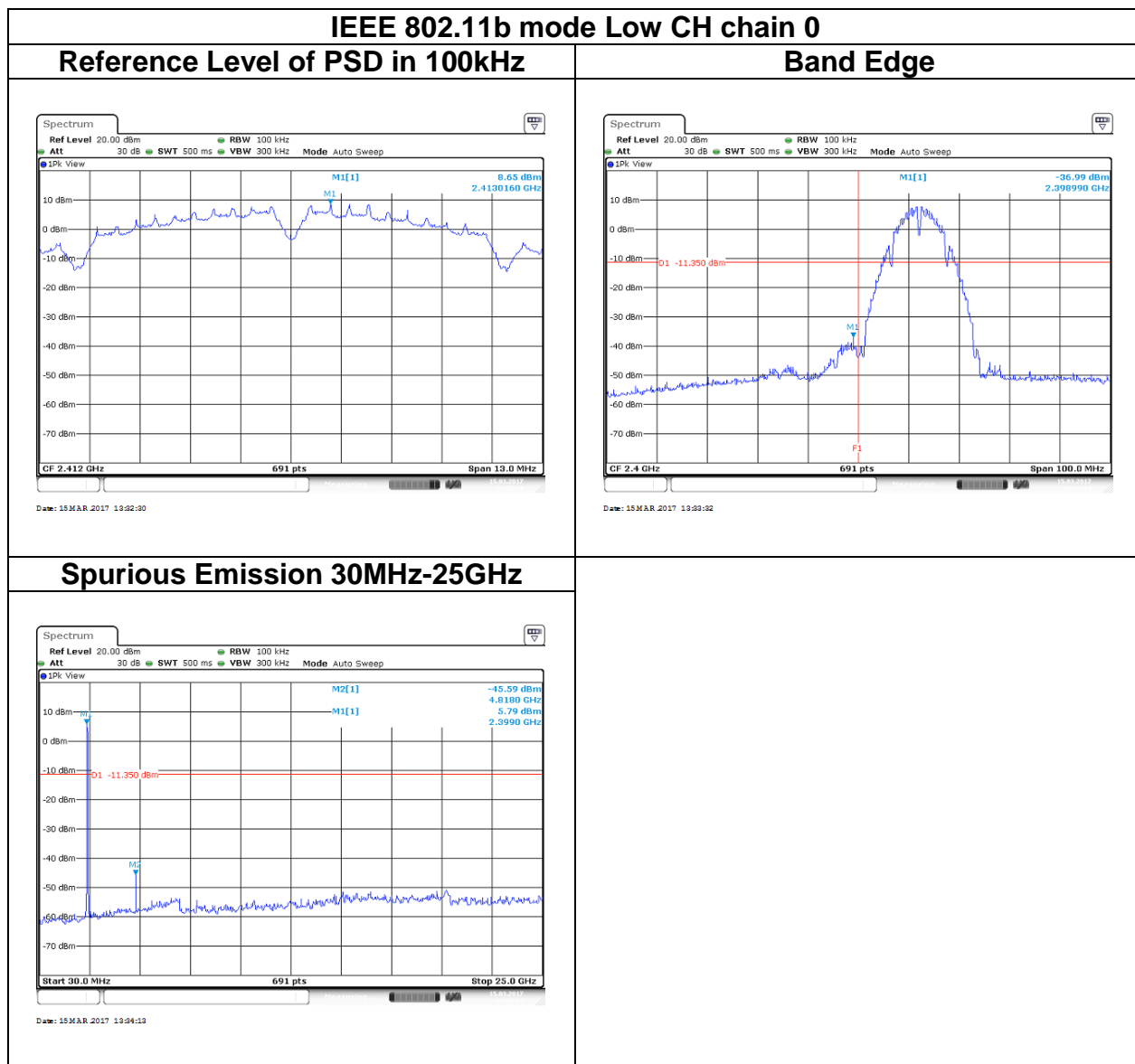
1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

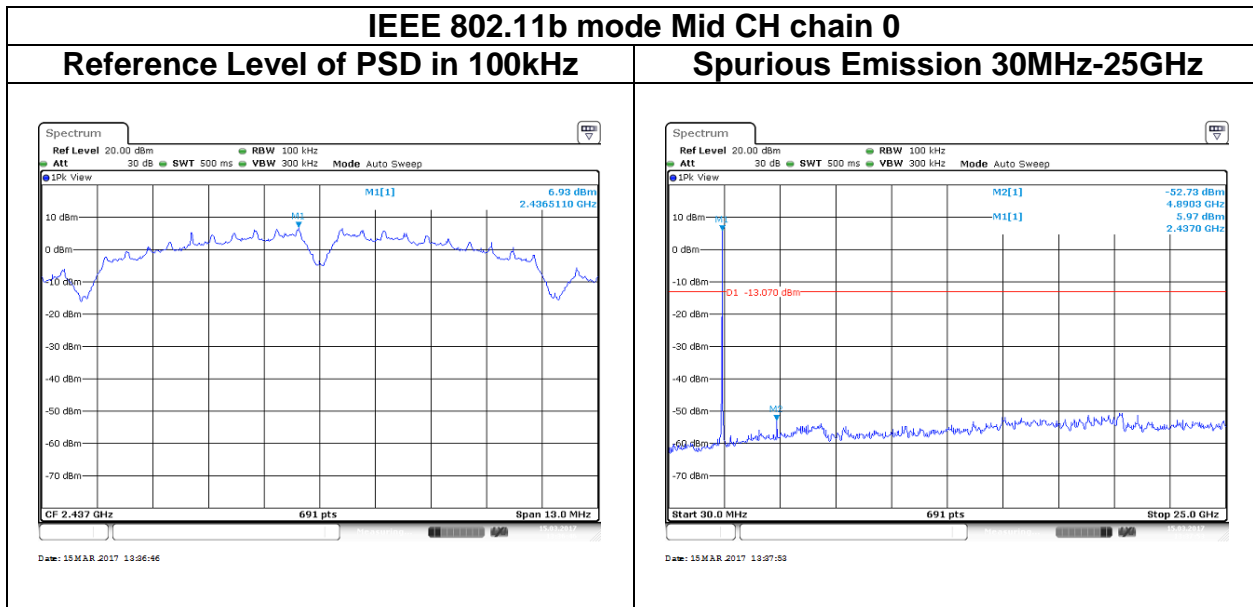
### 4.5.3 Test Setup



### 4.5.4 Test Result

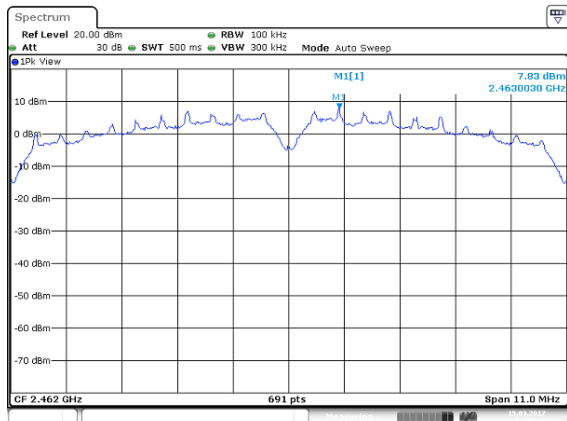
#### Test Data



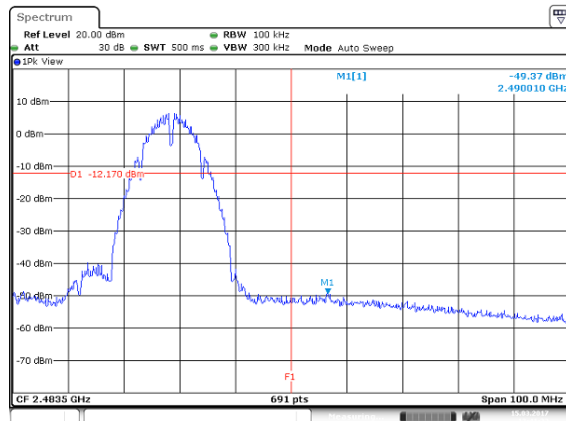


**IEEE 802.11b mode High CH chain 0**

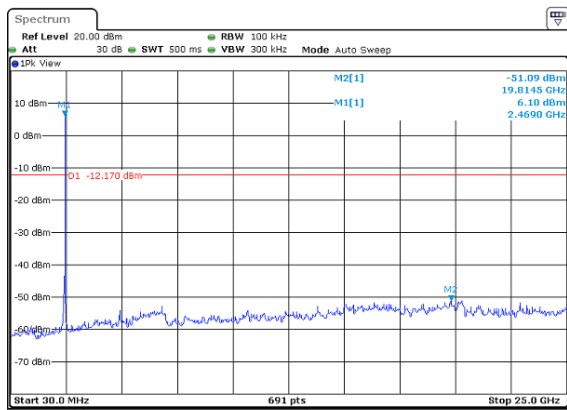
**Reference Level of PSD in 100kHz**



**Band Edge**

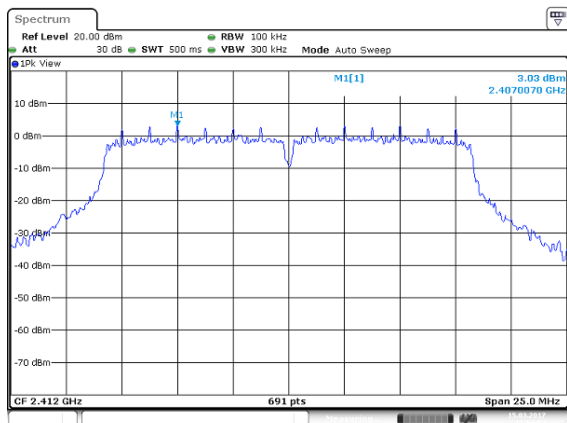


**Spurious Emission 30MHz-25GHz**

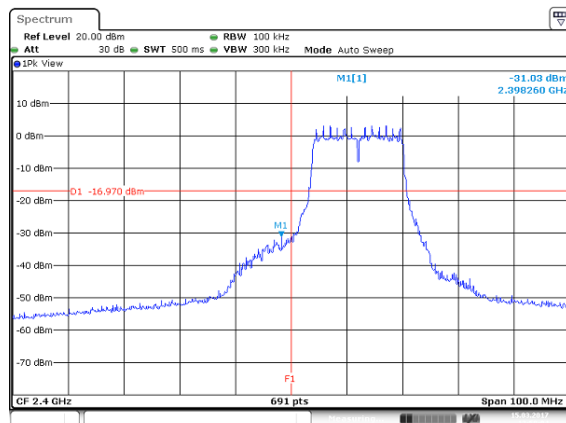


IEEE 802.11g mode Low CH chain 0

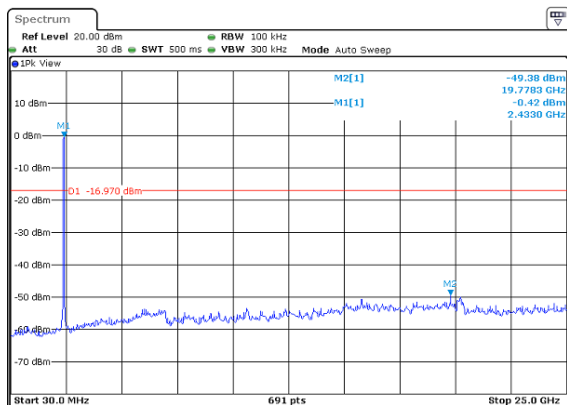
Reference Level of PSD in 100kHz

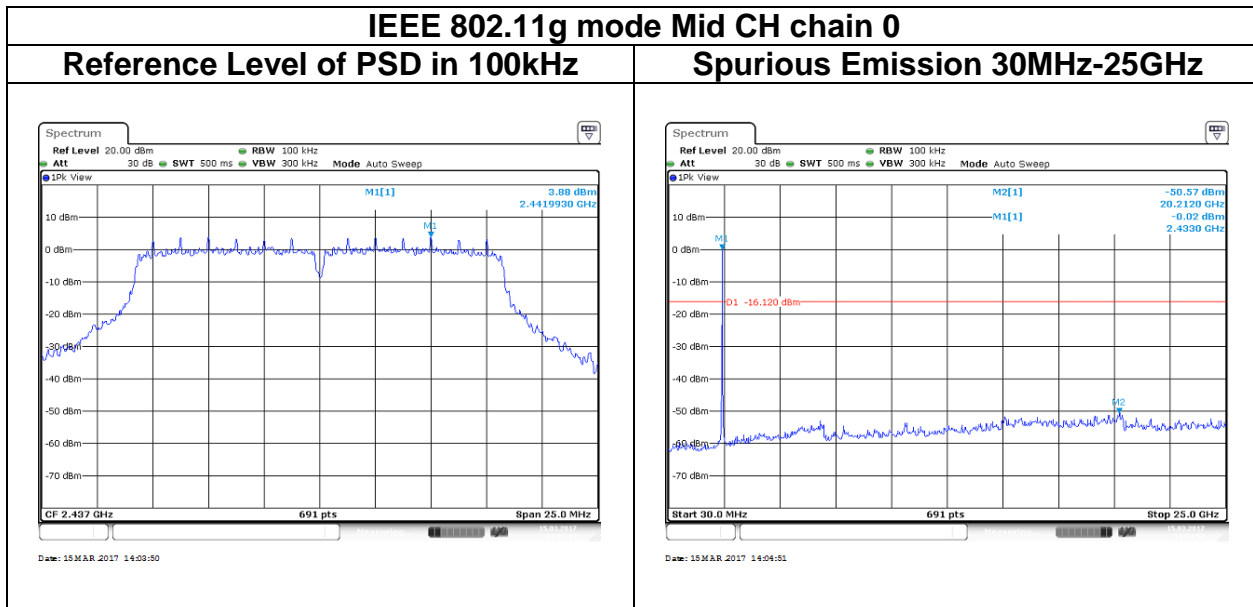


Band Edge



Spurious Emission 30MHz-25GHz

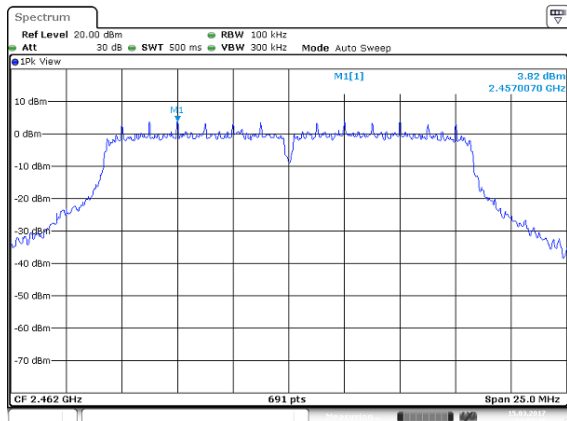




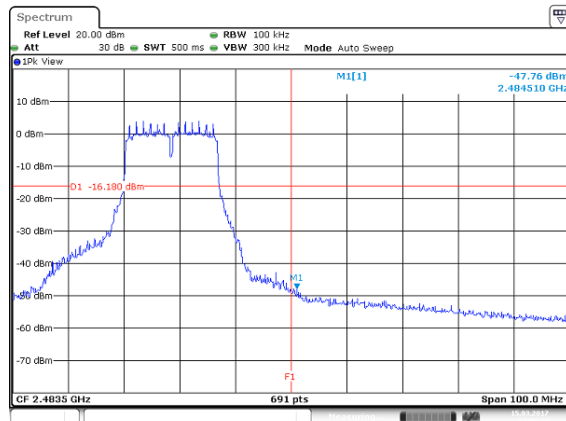


**IEEE 802.11g mode High CH chain 0**

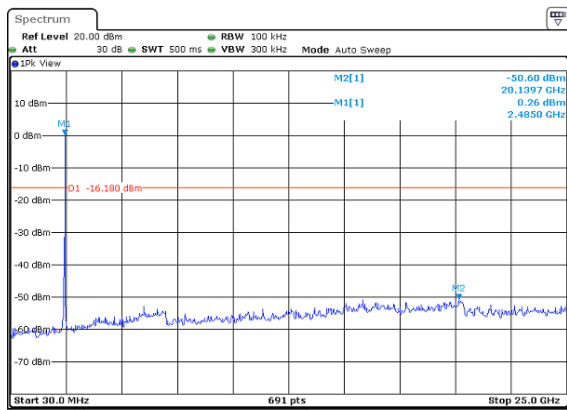
**Reference Level of PSD in 100kHz**

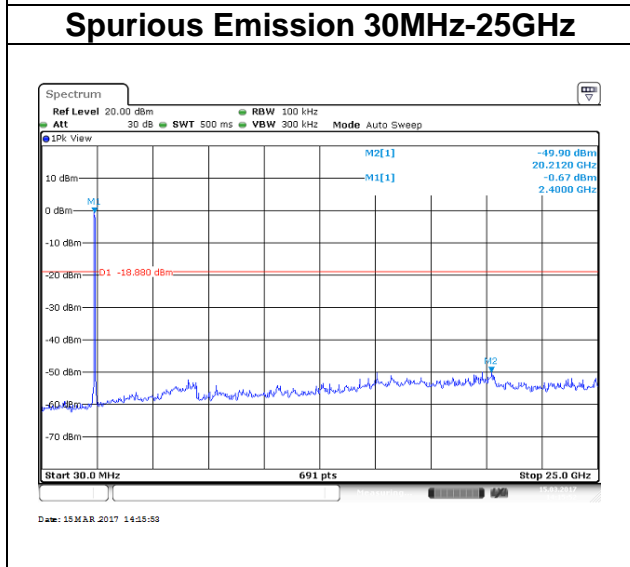
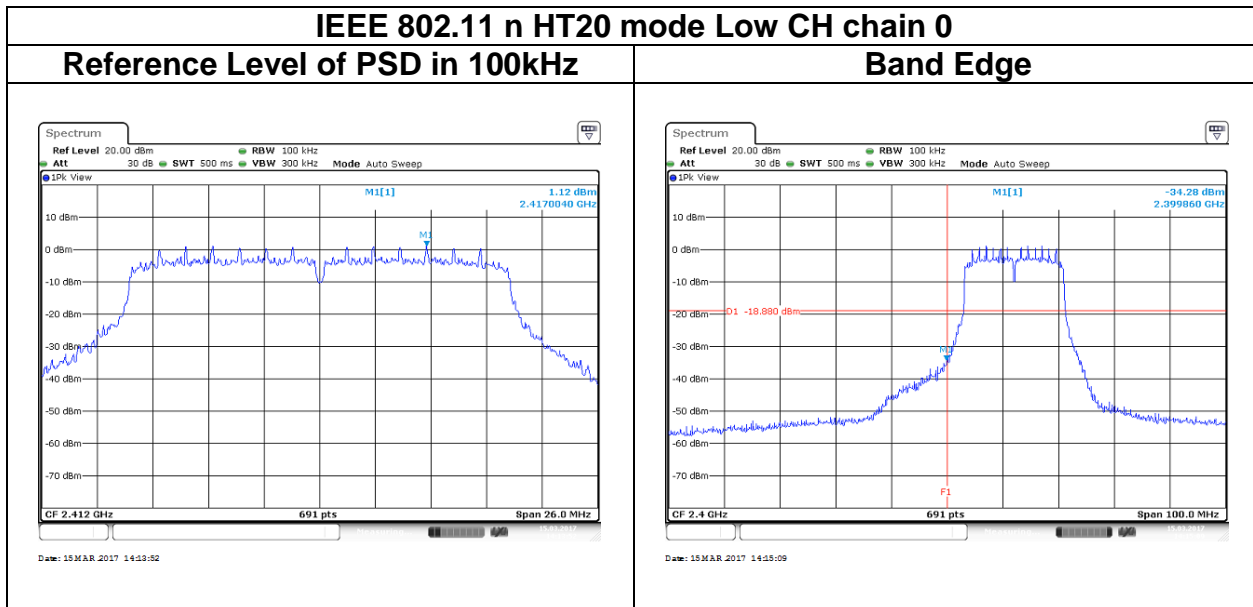


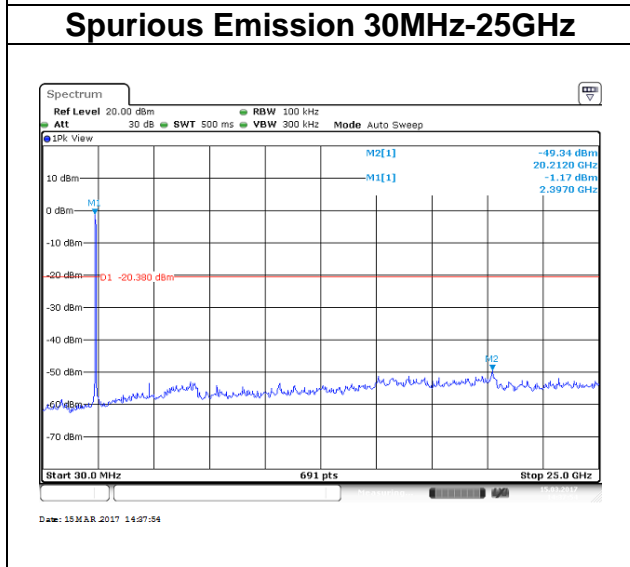
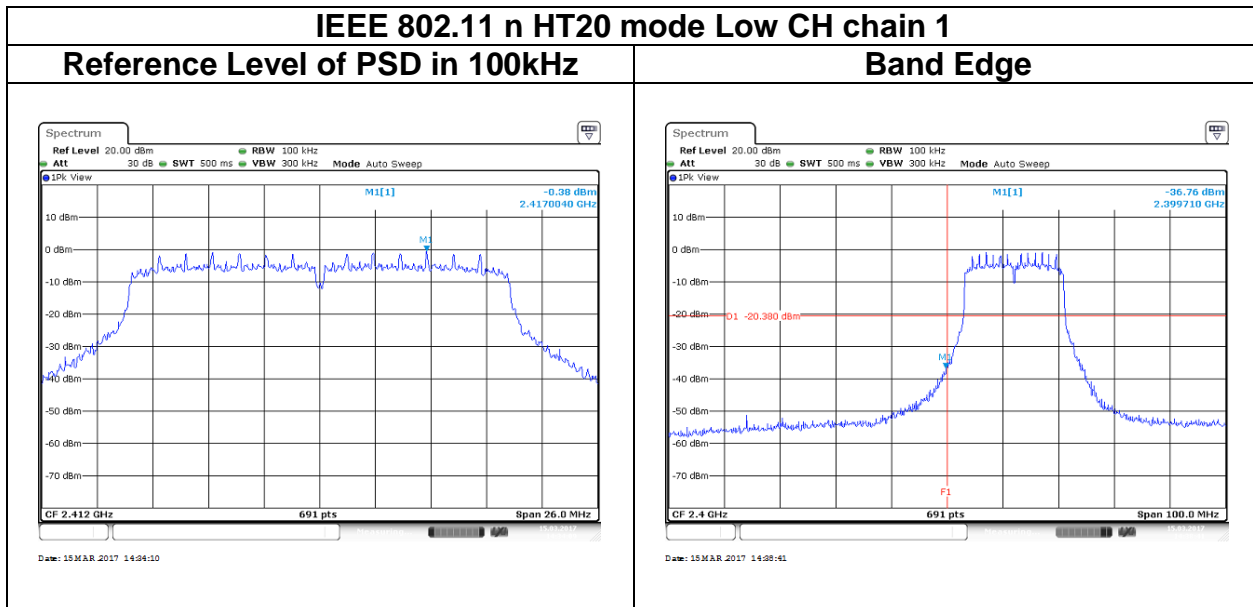
**Band Edge**

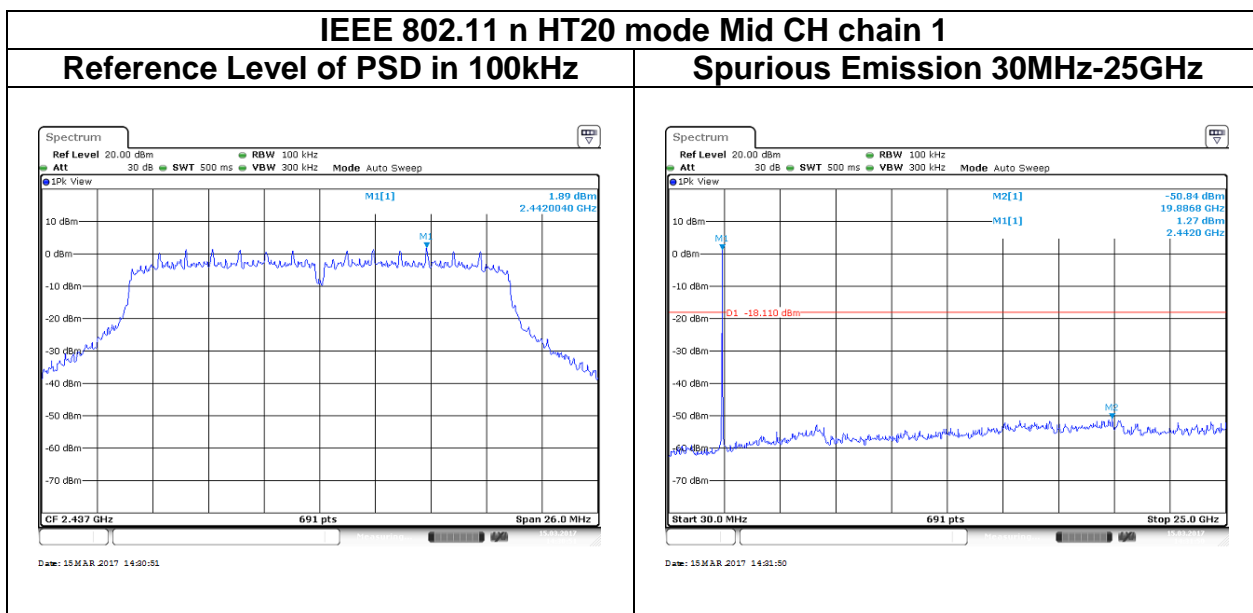
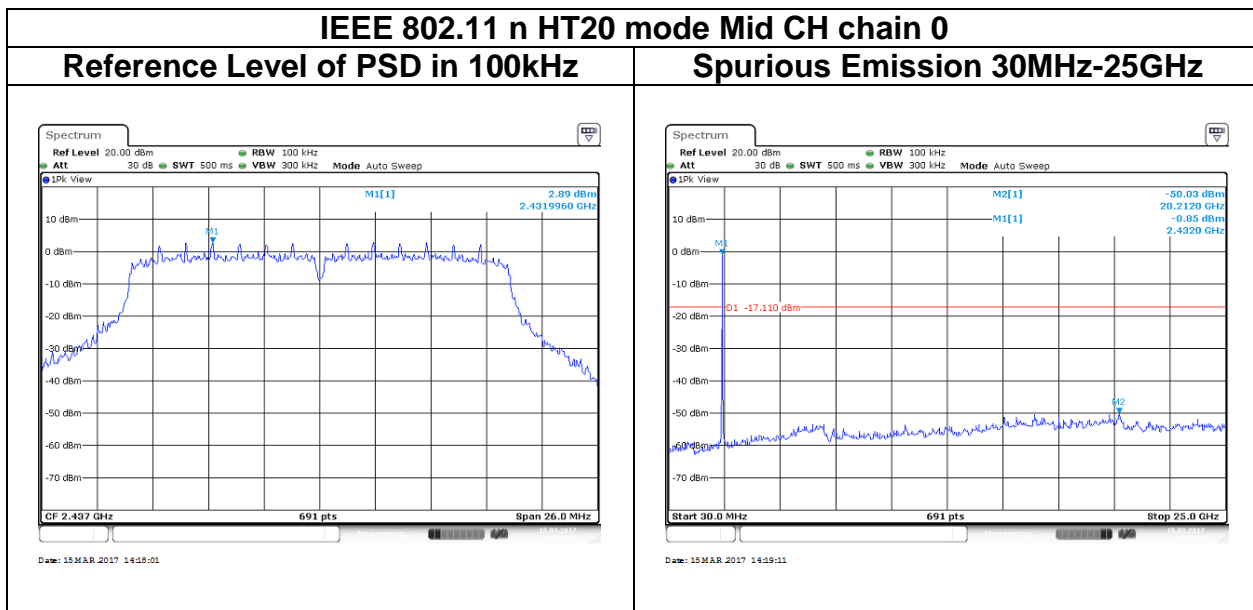


**Spurious Emission 30MHz-25GHz**



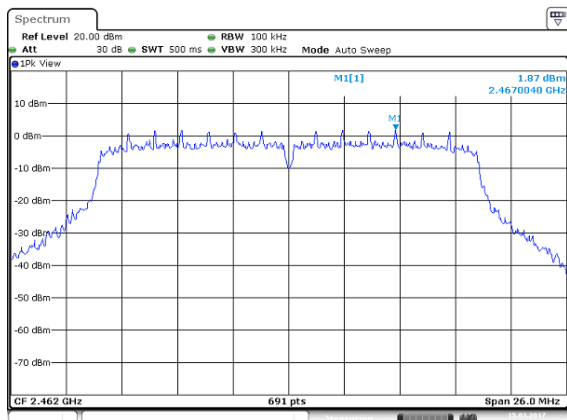




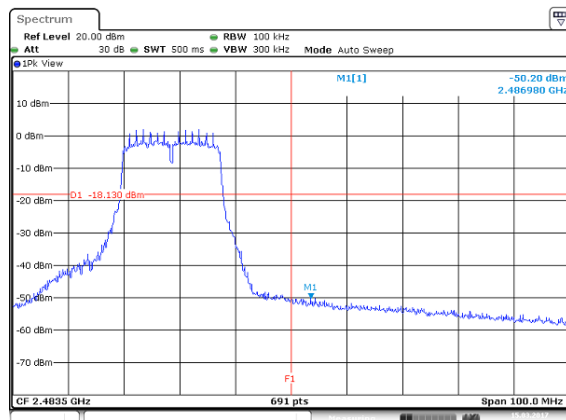


**IEEE 802.11n HT20 mode High CH chain 0**

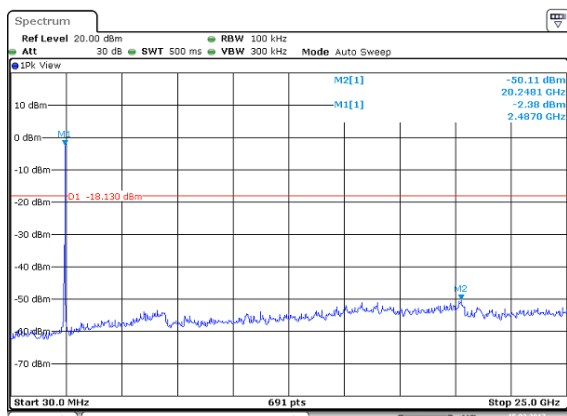
**Reference Level of PSD in 100kHz**

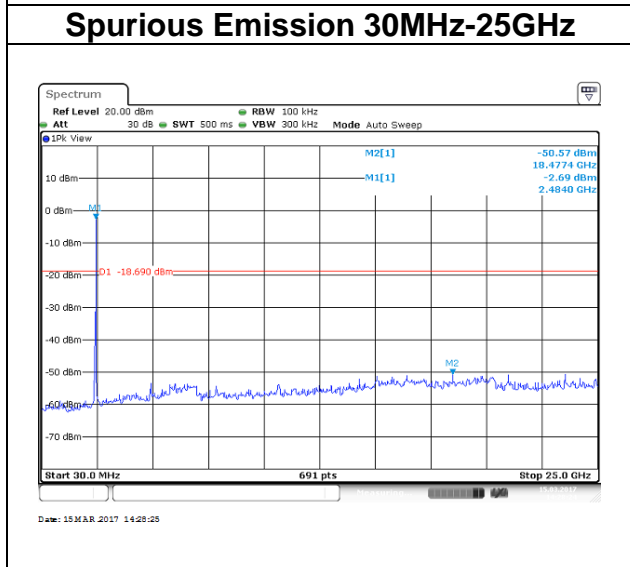
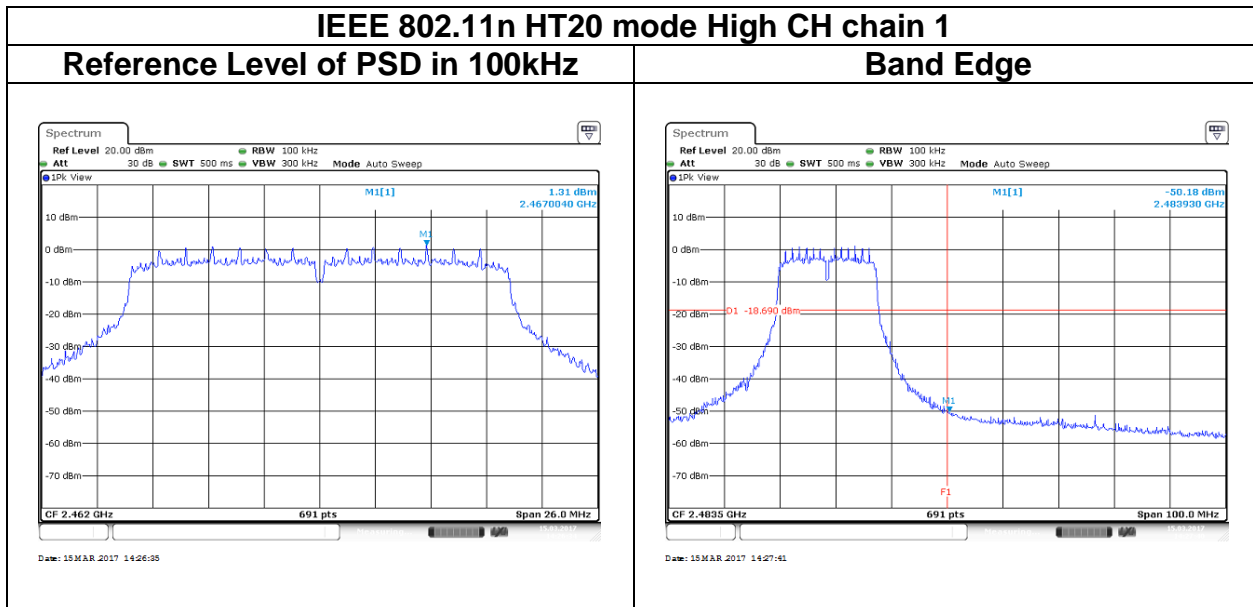


**Band Edge**



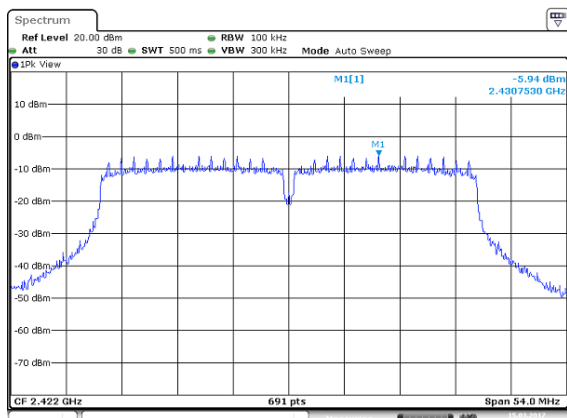
**Spurious Emission 30MHz-25GHz**





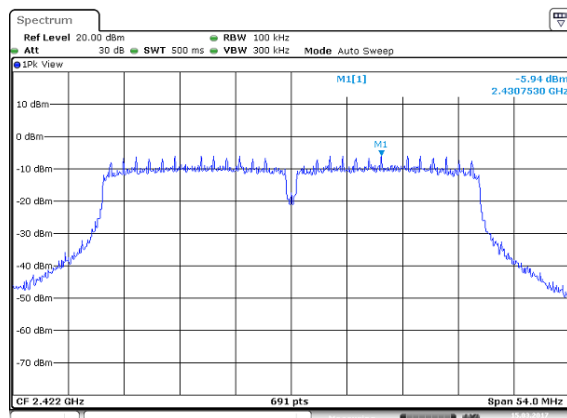
**IEEE 802.11 n HT40 mode Low CH chain 0**

**Reference Level of PSD in 100kHz**



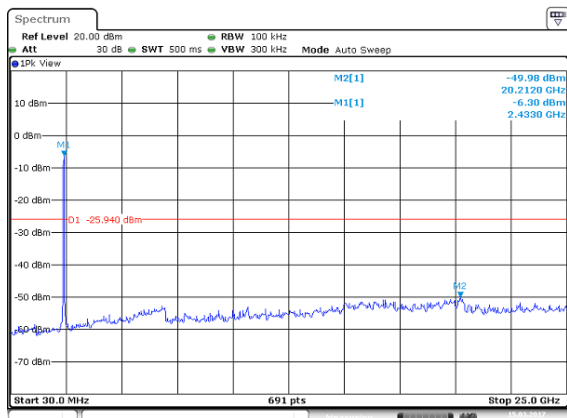
Date: 15 MAR 2017 14:52:04

**Band Edge**

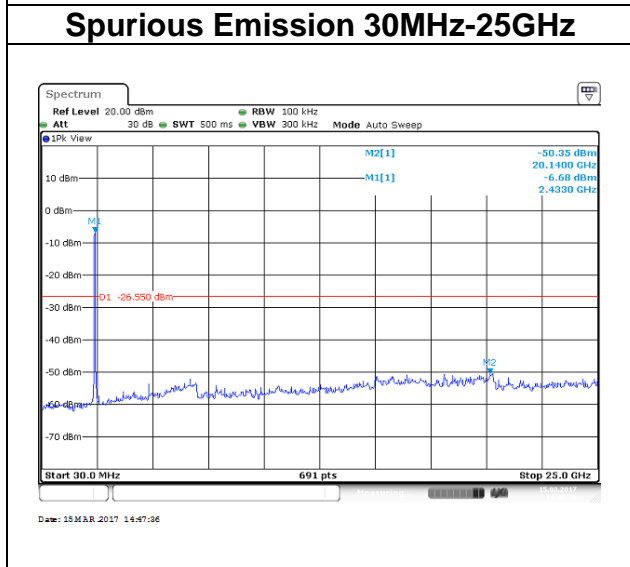
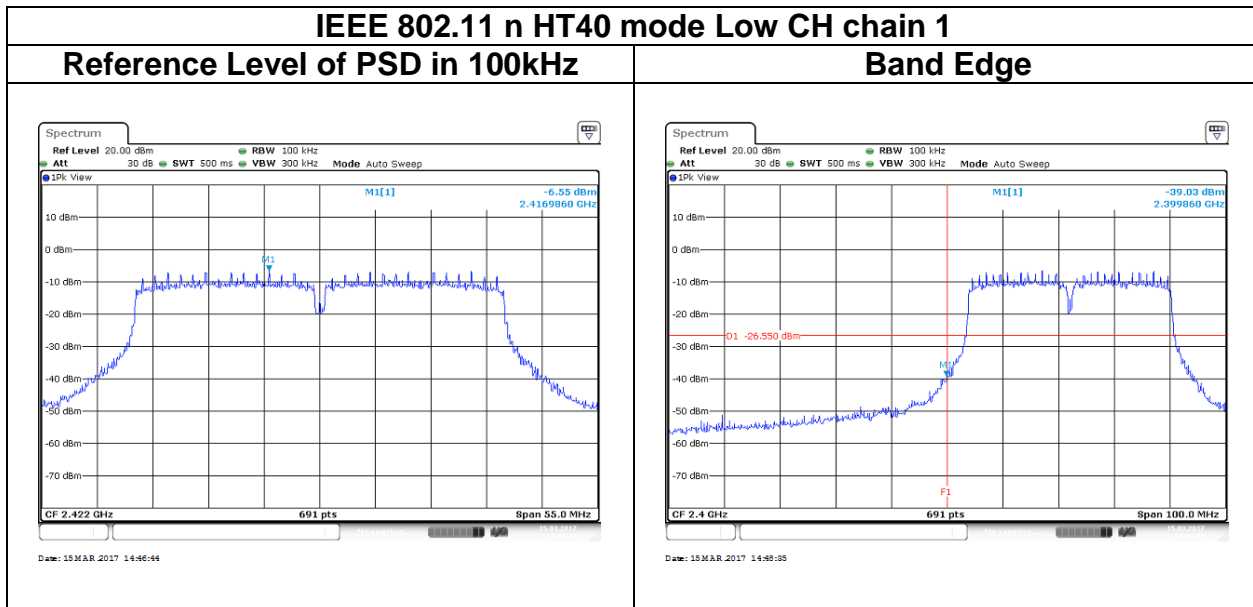


Date: 15 MAR 2017 14:52:04

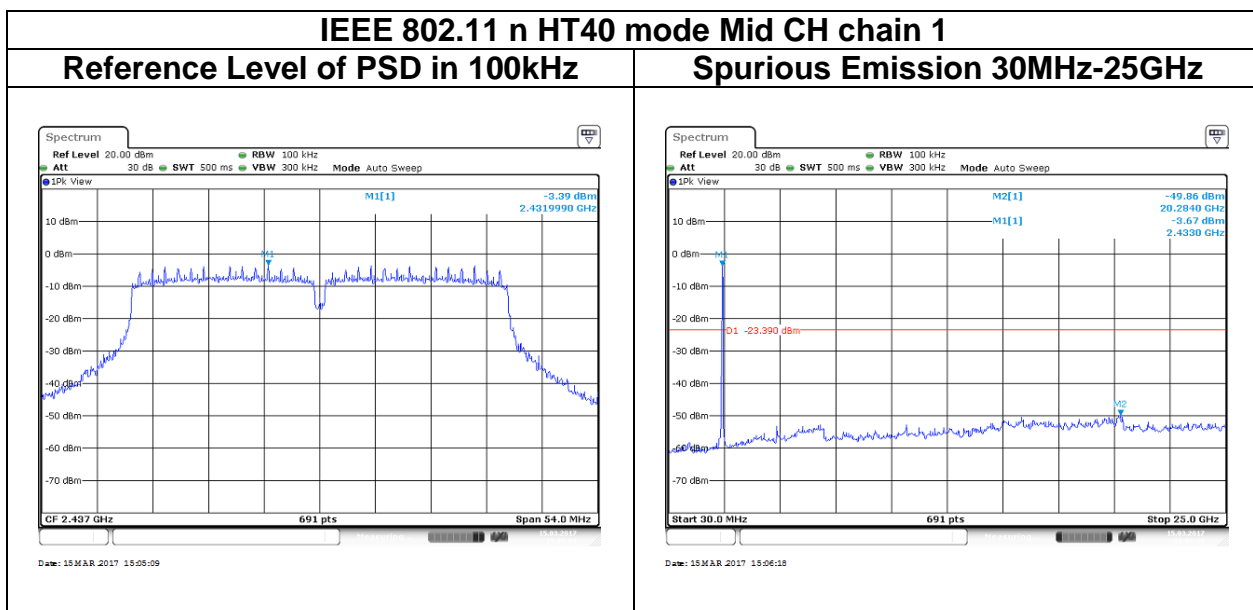
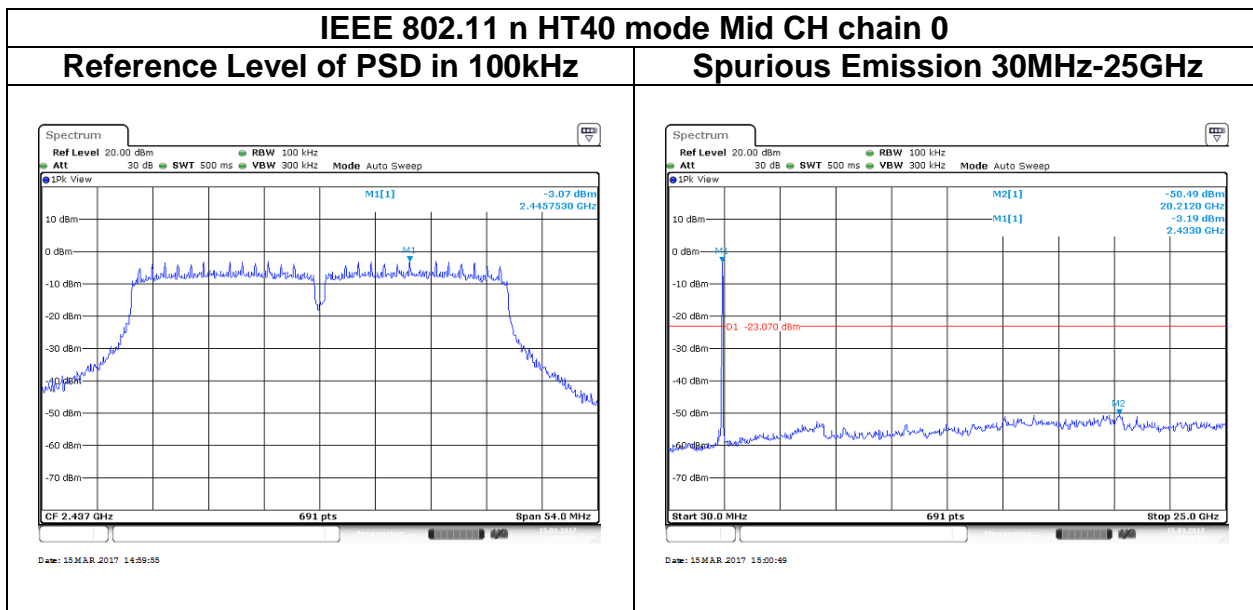
**Spurious Emission 30MHz-25GHz**



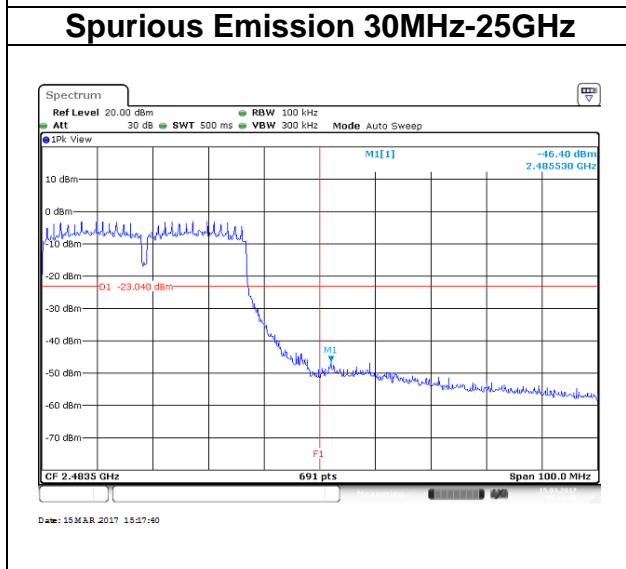
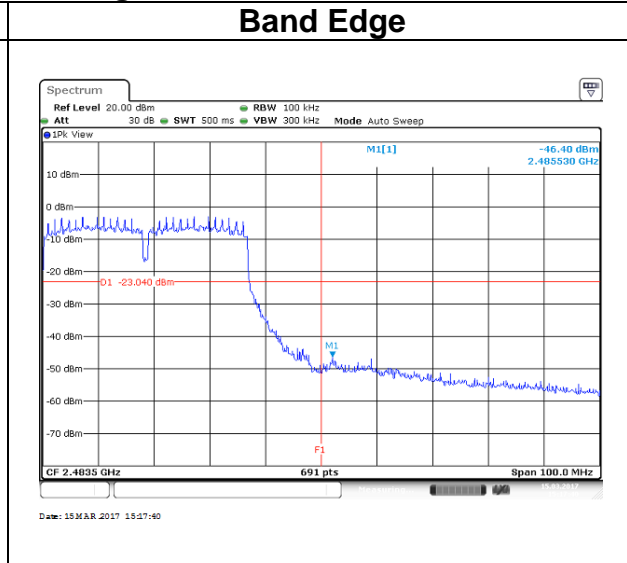
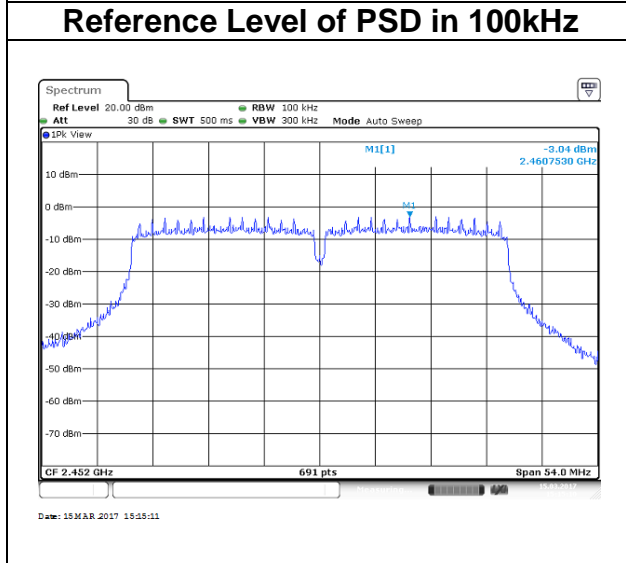
Date: 15 MAR 2017 14:53:05





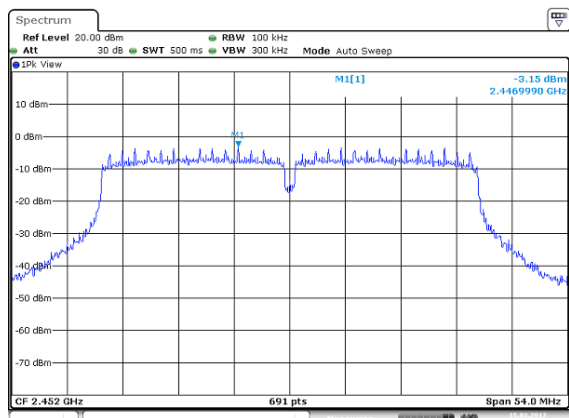


**IEEE 802.11n HT40 mode High CH chain 0**



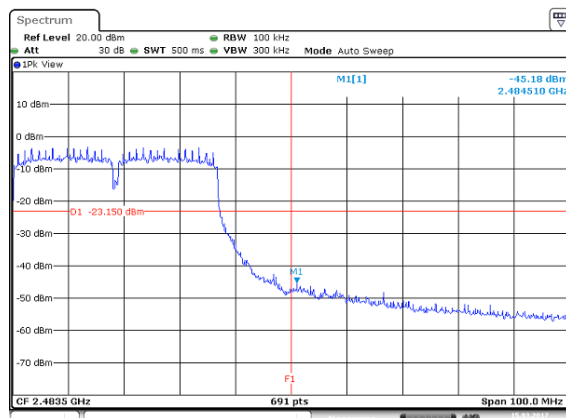
**IEEE 802.11n HT40 mode High CH chain 1**

**Reference Level of PSD in 100kHz**



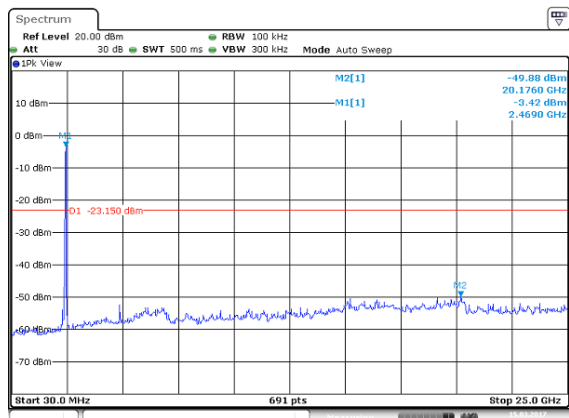
Date: 15 MAR 2017 15:09:16

**Band Edge**



Date: 15 MAR 2017 15:11:52

**Spurious Emission 30MHz-25GHz**



Date: 15 MAR 2017 15:10:01

## 4.6 RADIATION BANDEGE AND SPURIOUS EMISSION

### 4.6.1 Test Limit

FCC according to §15.247(d), §15.209 and §15.205,

IC according to RSS-247 section 5.5, RSS-Gen, Section 8.9 and 8.10

In any 100 kHz bandwidth outside the authorized frequency band, all harmonic and spurious must be least 20 dB below the highest emission level with the authorized frequency band. Radiation emission which fall in the restricted bands must also follow the FCC section 15.209 as below limit in table.

#### Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

#### Above 30 MHz

Frequency	Field Strength (microvolts/m)	Measurement Distance (metres)
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

### 4.6.2 Test Procedure

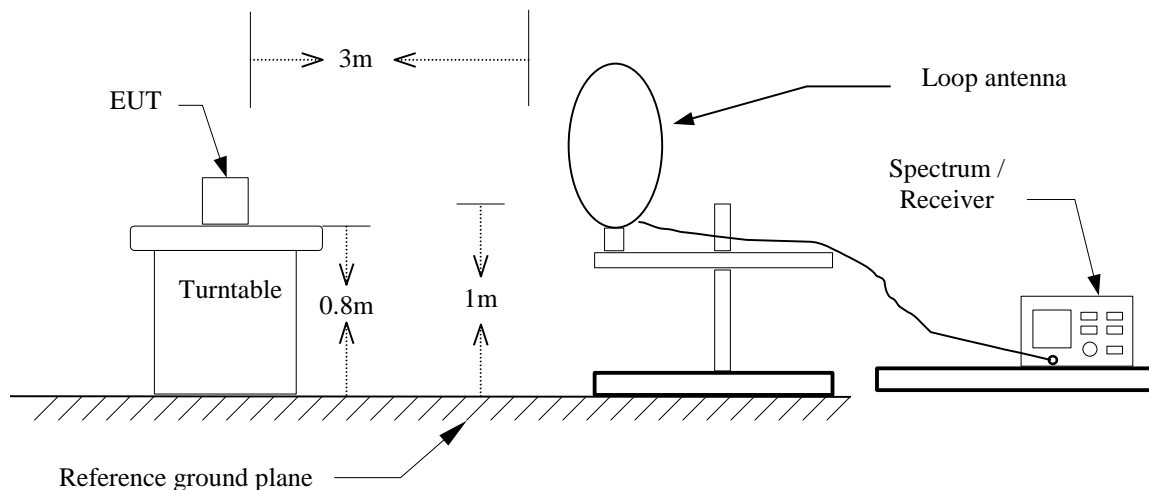
Test method Refer as KDB 558074 D01 v03r05, Section 12.1.

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10, and the EUT set in a continuous mode.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.
3. Span shall wide enough to full capture the emission measured. The SA from 30MHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.
5. The SA setting following :
  - (1) Below 1G : RBW = 100kHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
  - (2) Above 1G :
    - (2.1) For Peak measurement : RBW = 1MHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
    - (2.2) For Average measurement : RBW = 1MHz, VBW
      - If Duty Cycle ≥ 98%, VBW=10Hz.
      - If Duty Cycle < 98%, VBW=1/T.

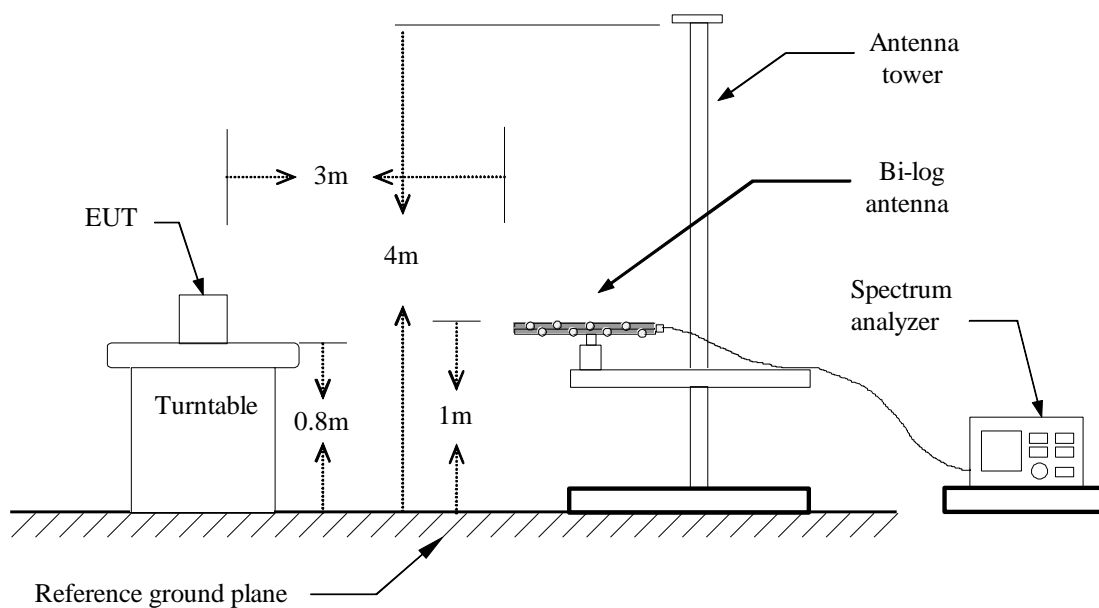
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
802.11b	100%	--	-	10Hz
802.11g	98%	2.1100	0.474	10Hz
802.11n HT20	94%	1.0000	1.000	1KHz
802.11n HT40	88%	0.5300	1.887	2KHz

### 4.6.3 Test Setup

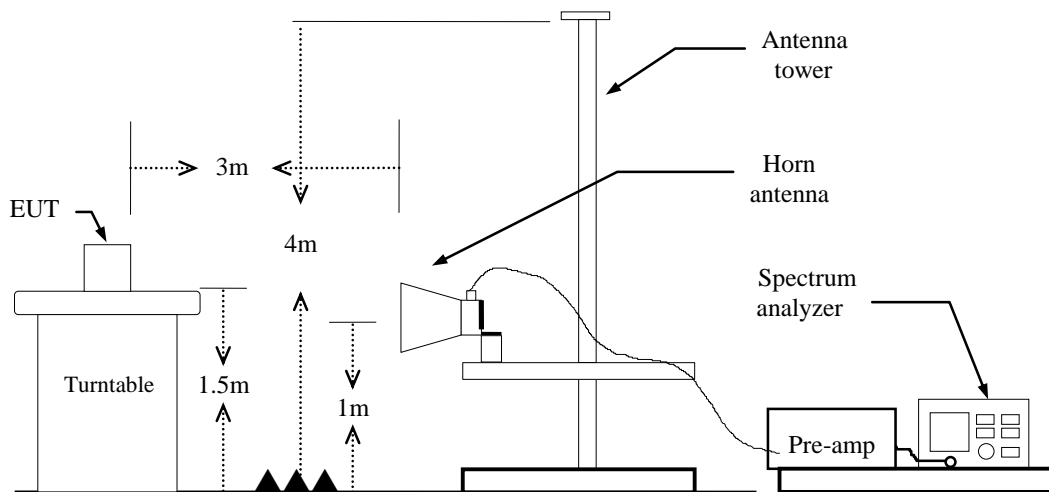
#### 9kHz ~ 30MHz



#### 30MHz ~ 1GHz



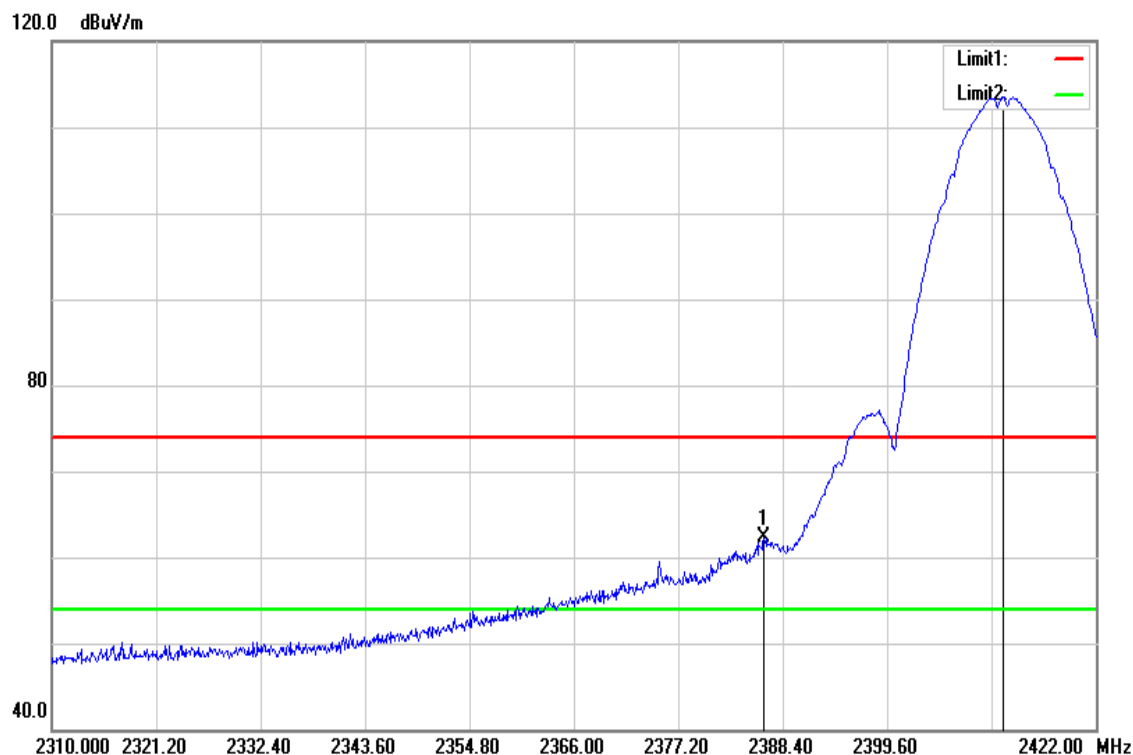
**Above 1 GHz**



### 4.6.4 Test Result

#### Band Edge Test Data

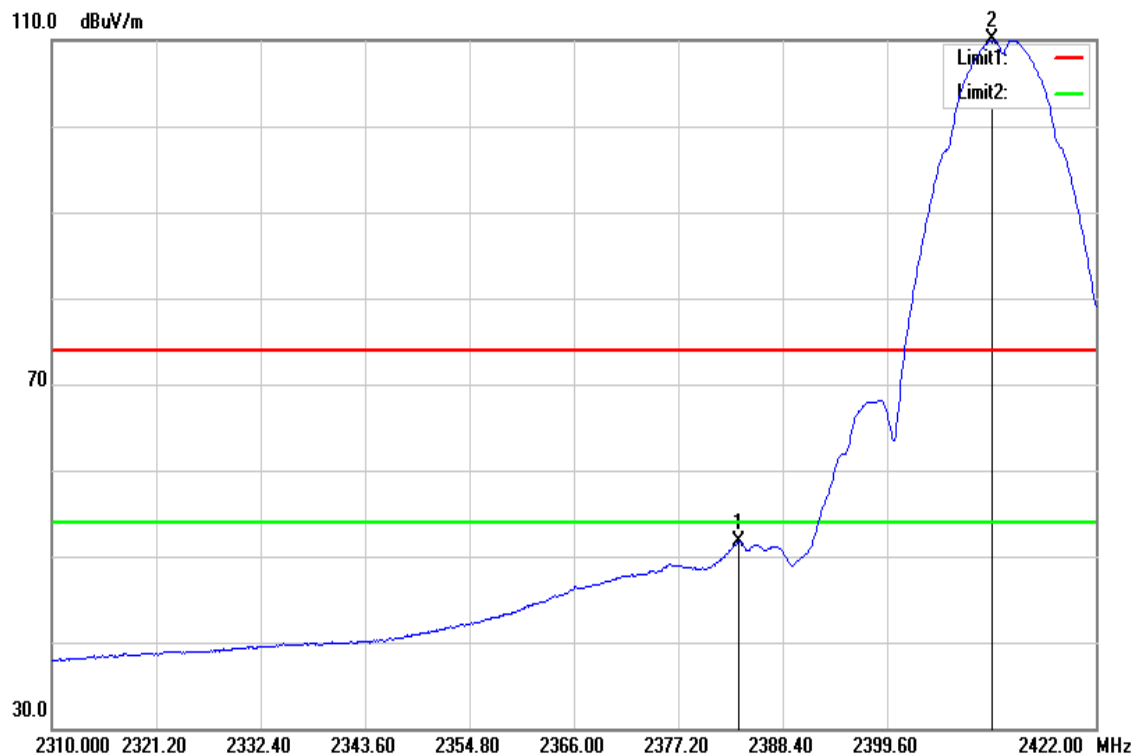
Test Mode	IEEE 802.11b Low CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2386.384	64.82	-2.52	62.30	74.00	-11.70	peak
2412.032	115.92	-2.42	113.50	--	--	peak

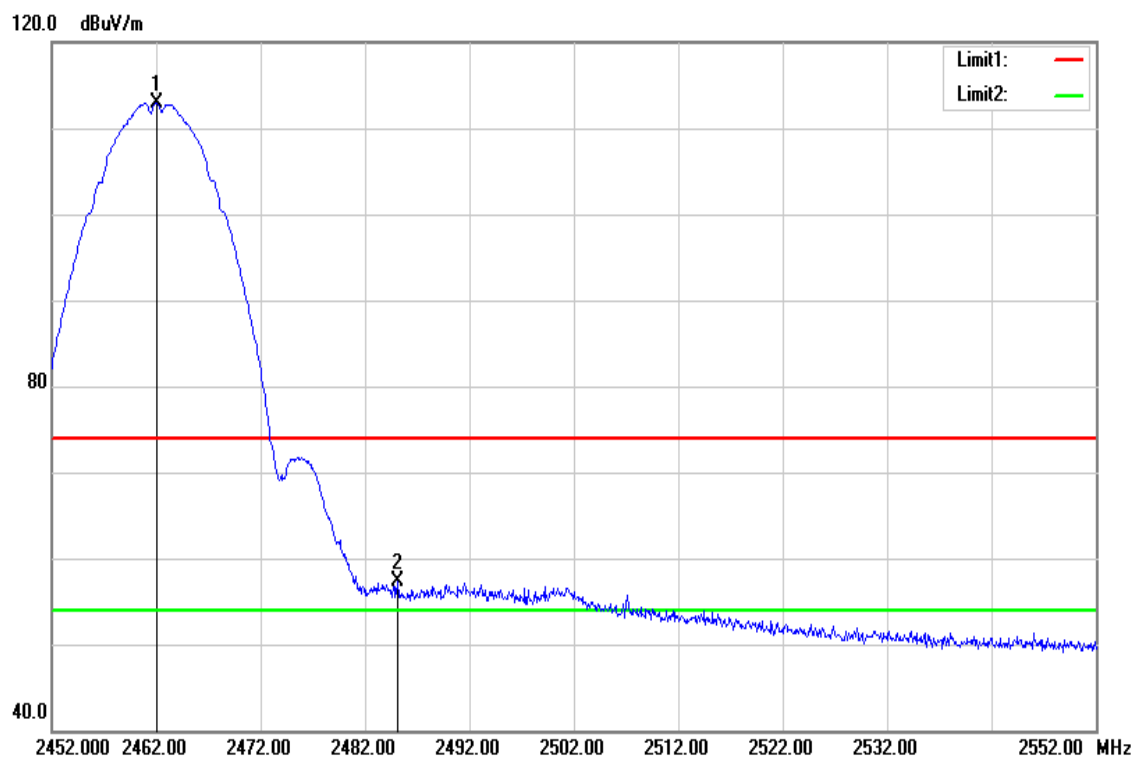


Test Mode	IEEE 802.11b Low CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



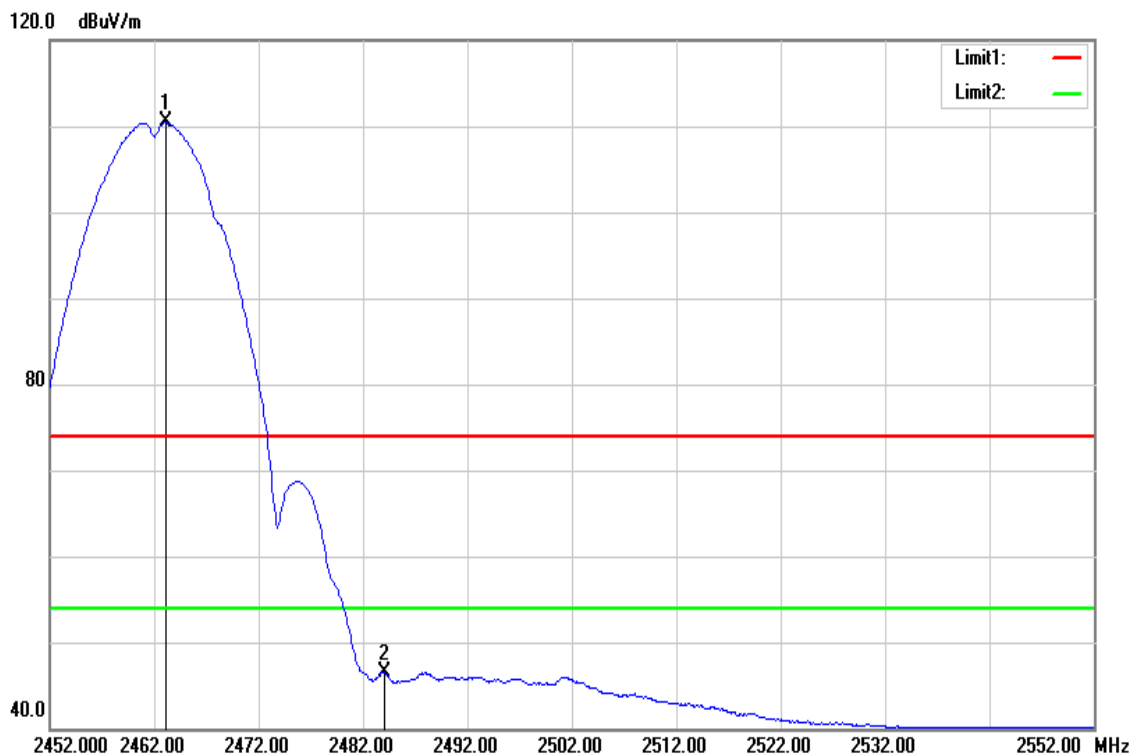
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2383.696	54.25	-2.55	51.70	54.00	-2.30	AVG
2410.912	112.51	-2.42	110.09	--	--	AVG

Test Mode	IEEE 802.11b High CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



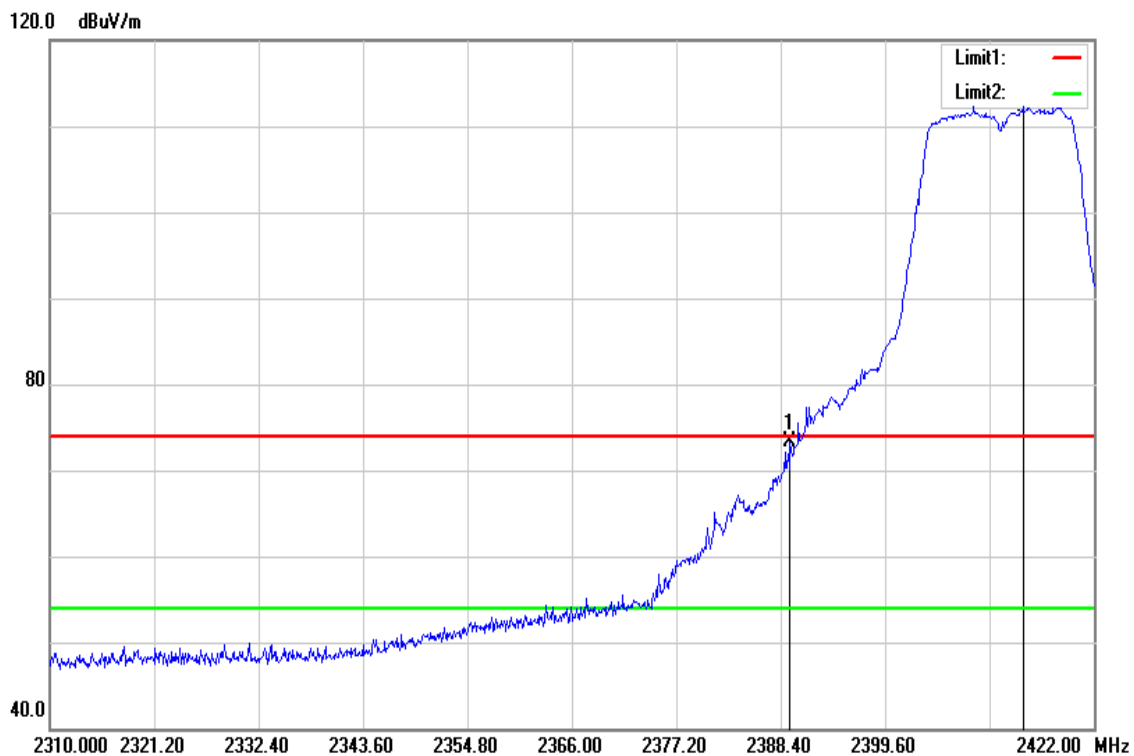
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.000	115.01	-2.10	112.91	--	--	peak
2485.100	59.18	-1.98	57.20	74.00	-16.80	peak

Test Mode	IEEE 802.11b High CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



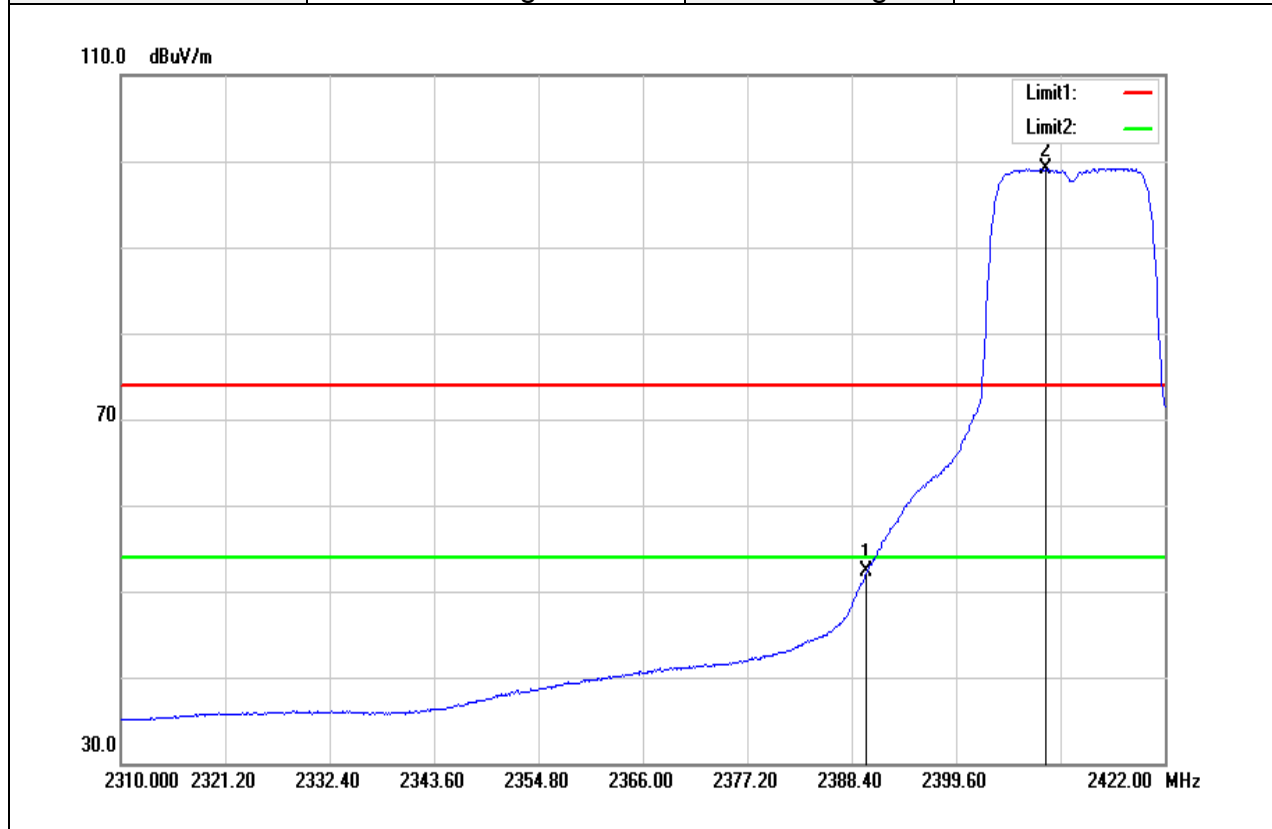
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2463.100	112.51	-2.09	110.42	54.00	56.42	AVG
2484.000	48.52	-1.99	46.53	54.00	-7.47	AVG

Test Mode	IEEE 802.11g Low CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



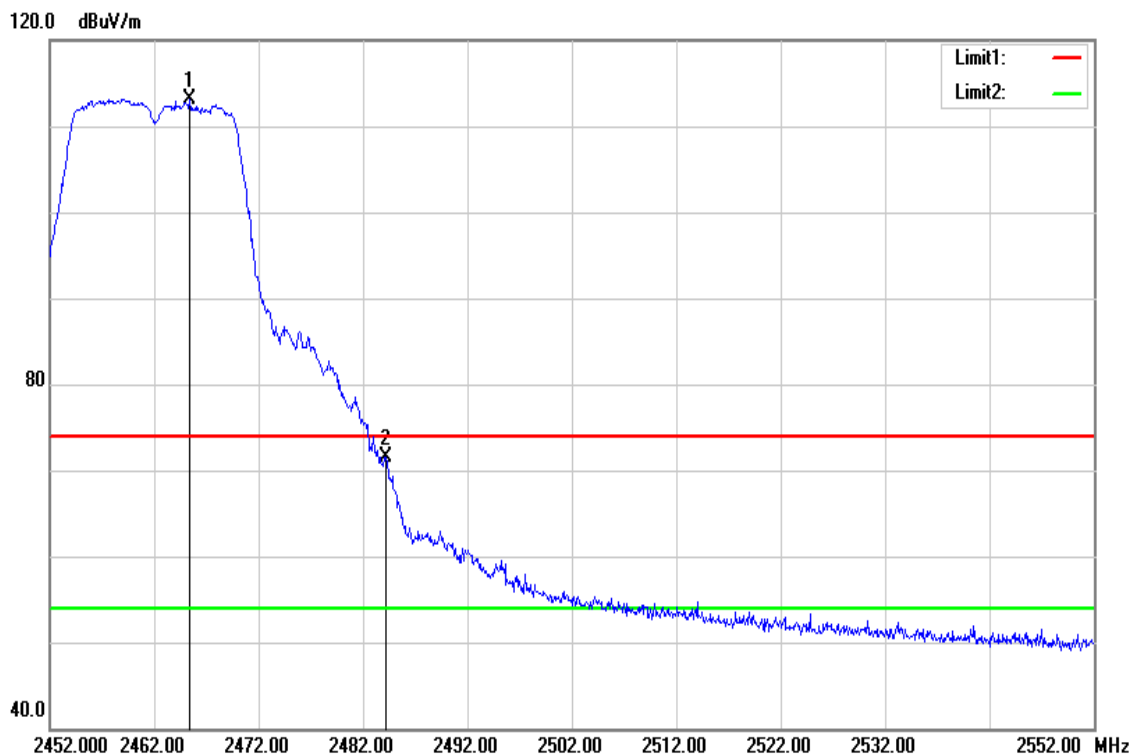
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.408	75.79	-2.50	73.29	74.00	-0.71	peak
2414.384	114.73	-2.40	112.33	--	--	peak

Test Mode	IEEE 802.11g Low CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



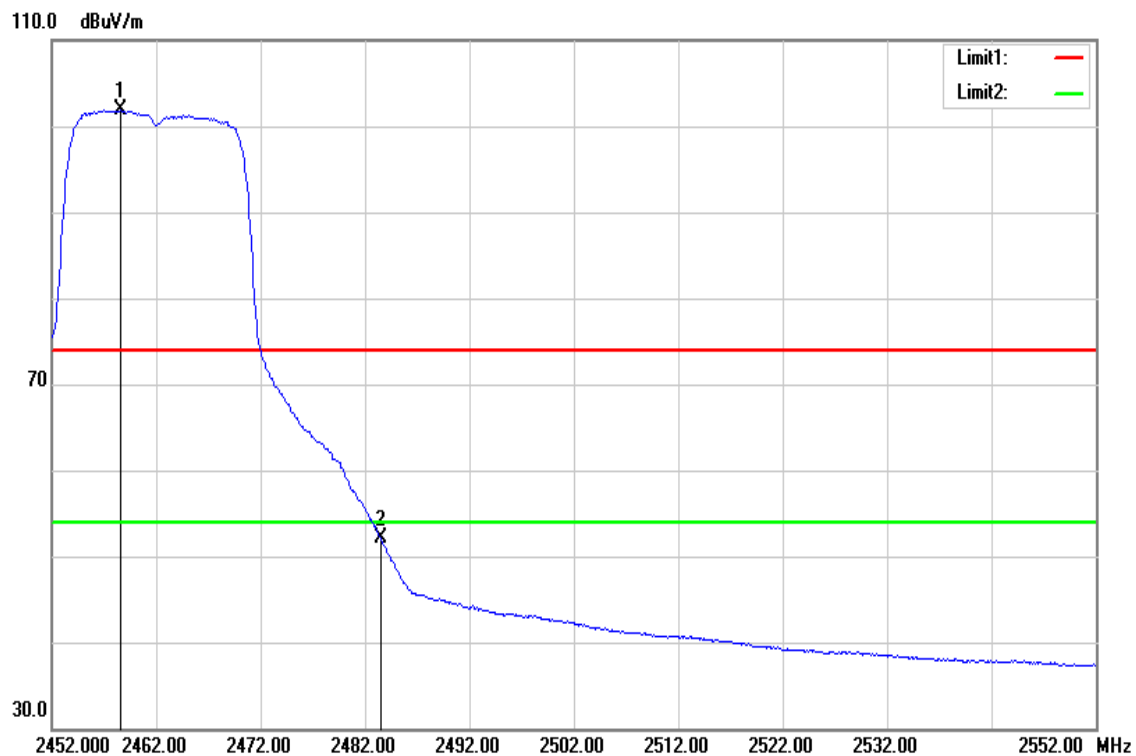
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	54.77	-2.49	52.28	54.00	-1.72	AVG
2409.232	101.56	-2.43	99.13	--	--	AVG

Test Mode	IEEE 802.11g High CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



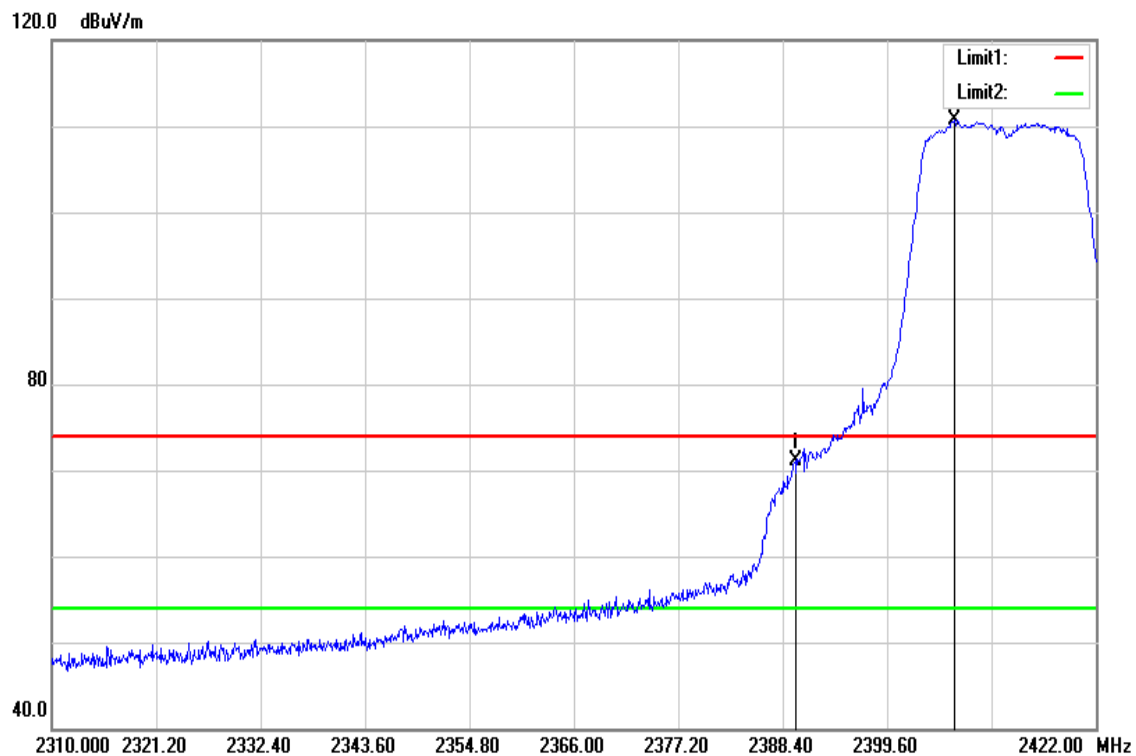
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2465.400	115.23	-2.08	113.15	--	--	peak
2484.200	73.58	-1.99	71.59	74.00	-2.41	peak

Test Mode	IEEE 802.11g High CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2458.600	103.93	-2.11	101.82	--	--	AVG
2483.500	54.08	-1.99	52.09	54.00	-1.91	AVG

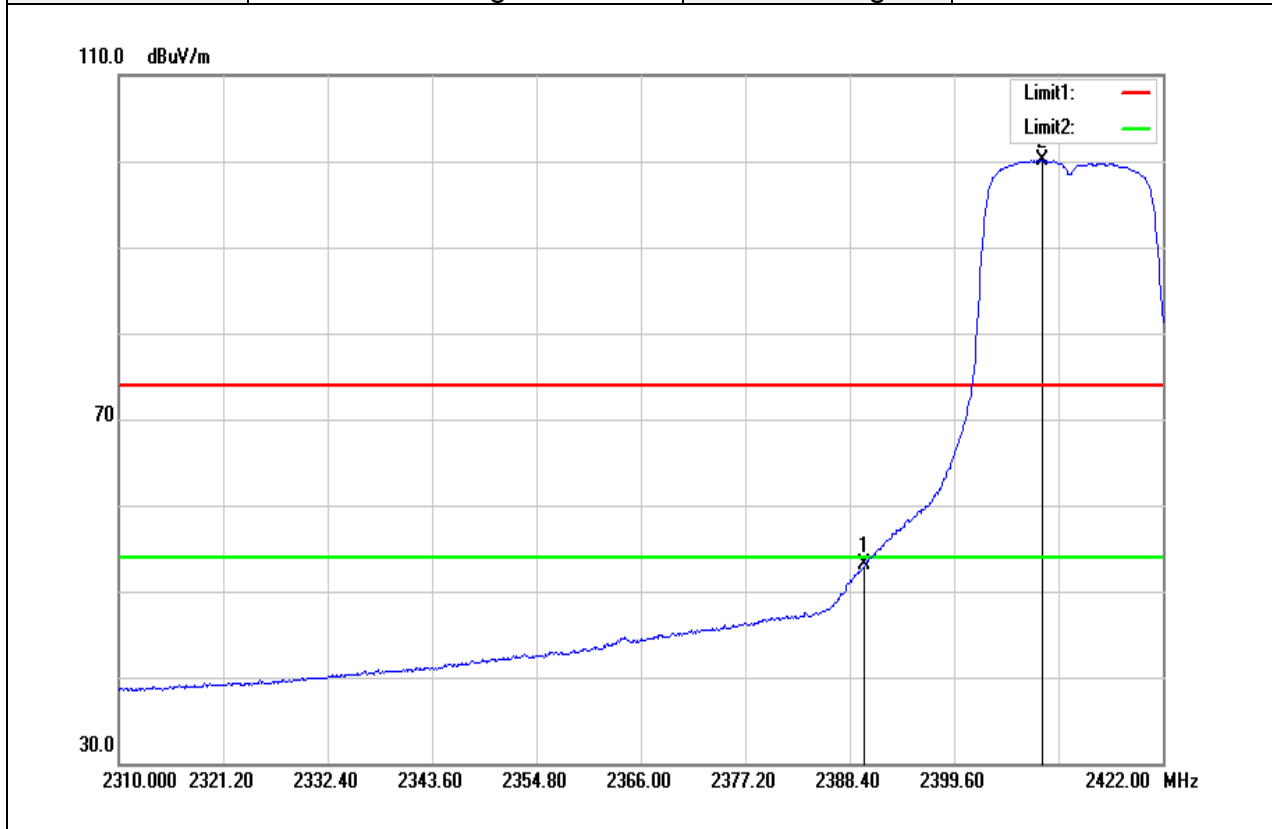
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.744	73.58	-2.49	71.09	74.00	-2.91	peak
2406.880	113.11	-2.42	110.69	--	--	peak

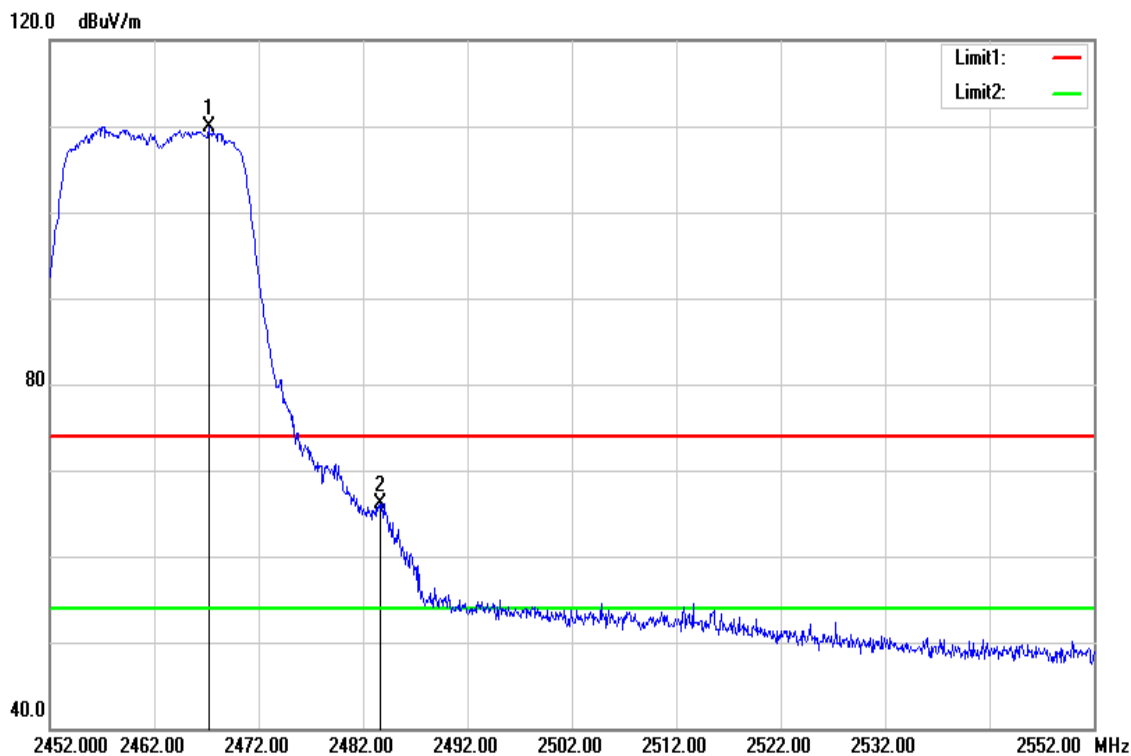


Test Mode	IEEE 802.11n HT20 Low CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



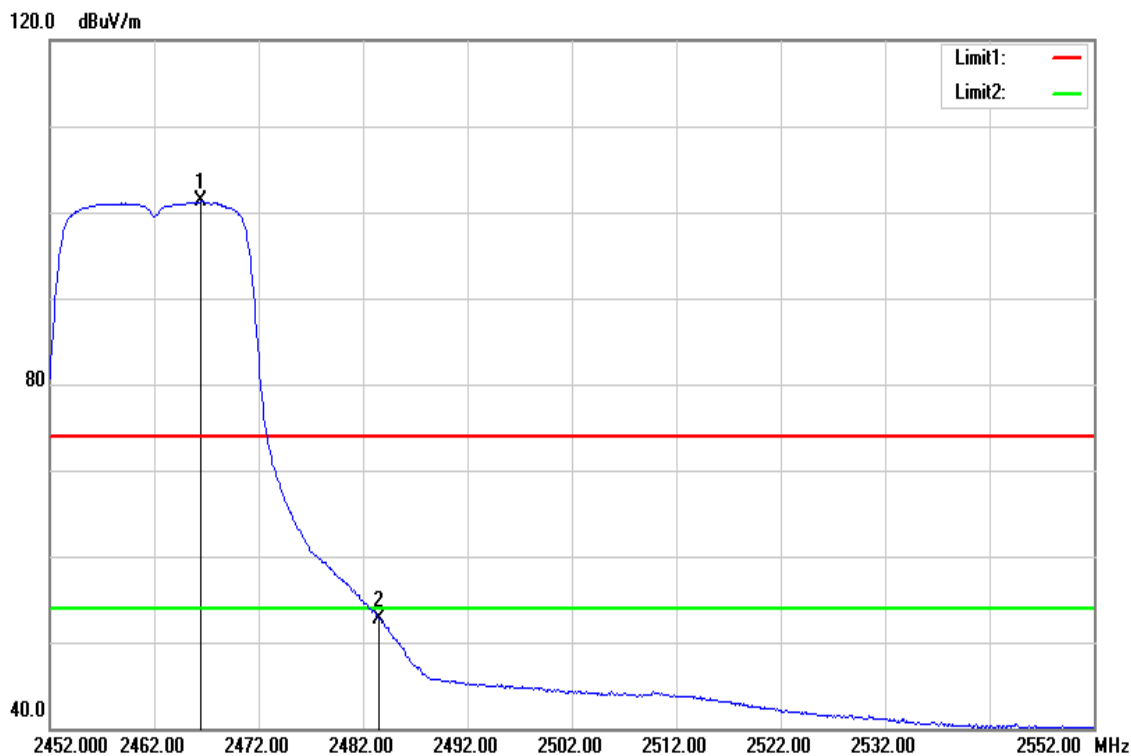
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	55.54	-2.49	53.05	54.00	-0.95	AVG
2409.008	102.50	-2.43	100.07	--	--	AVG

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



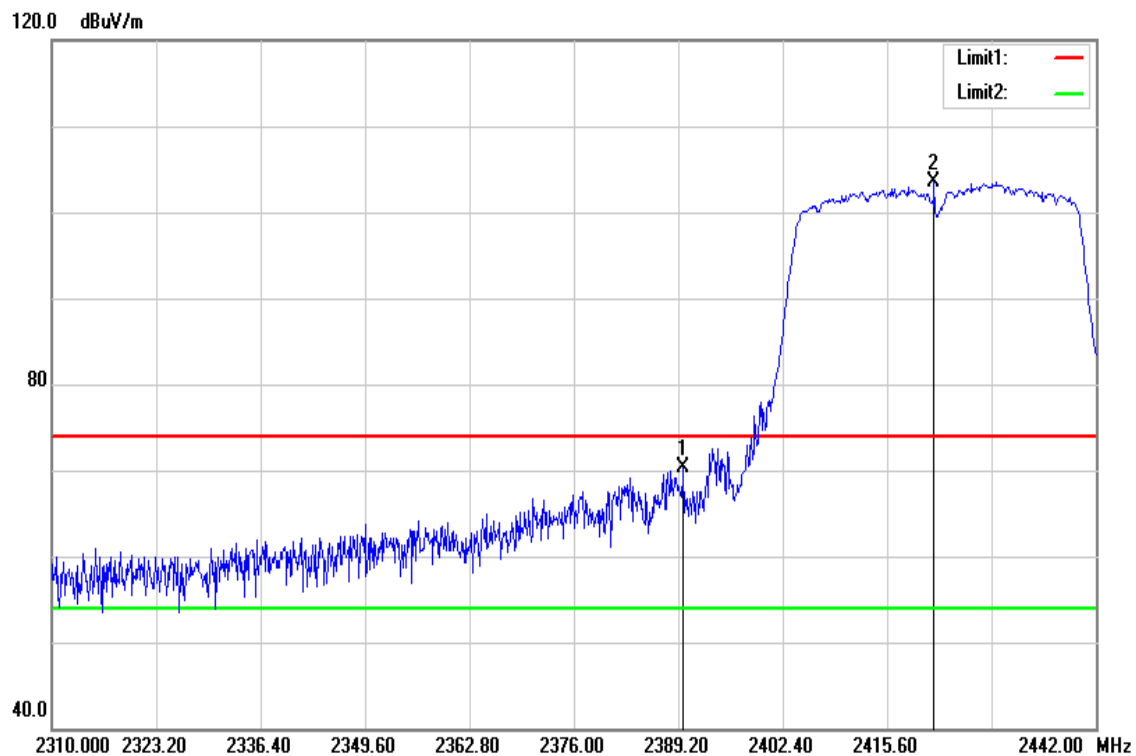
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2467.200	112.03	-2.08	109.95	--	--	peak
2483.600	68.18	-1.99	66.19	74.00	-7.81	peak

Test Mode	IEEE 802.11n HT20 High CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



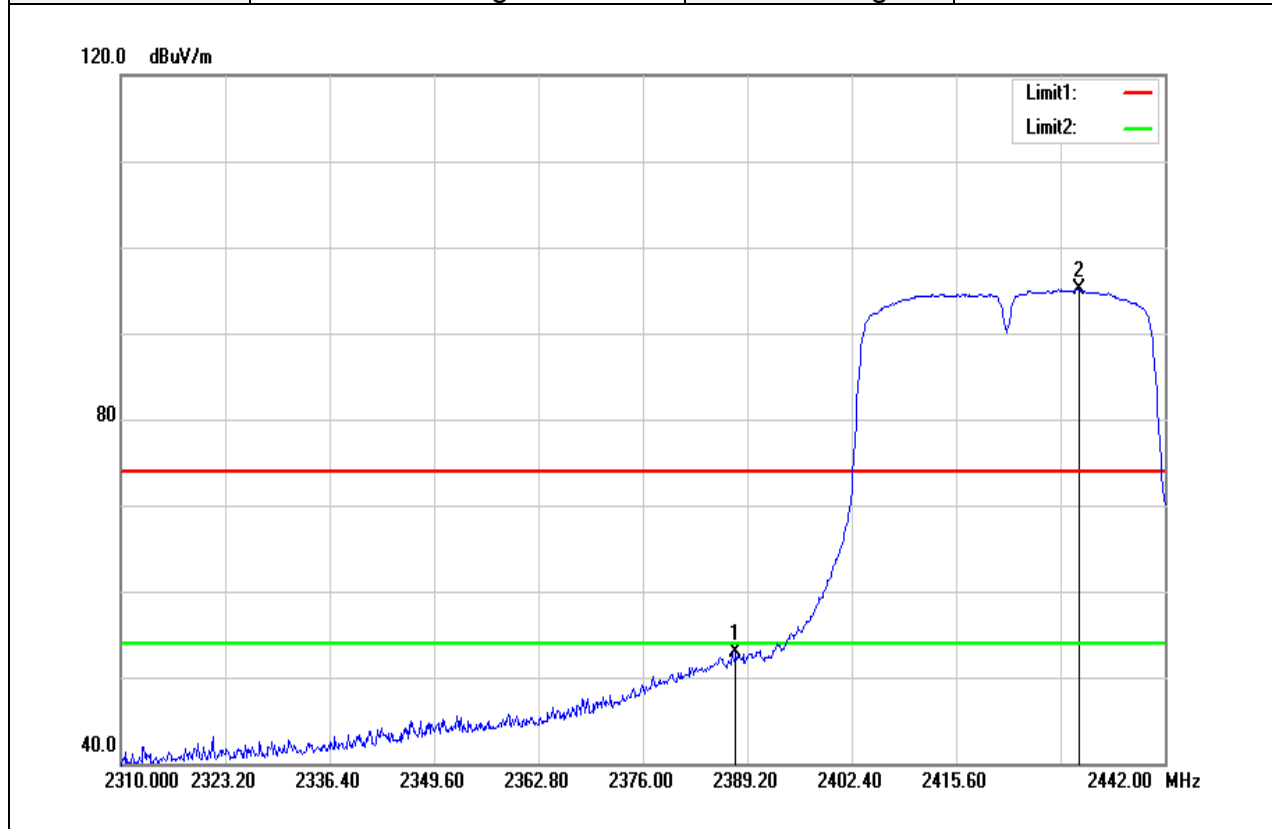
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2466.500	103.32	-2.08	101.24	--	--	AVG
2483.500	54.72	-1.99	52.73	54.00	-1.27	AVG

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



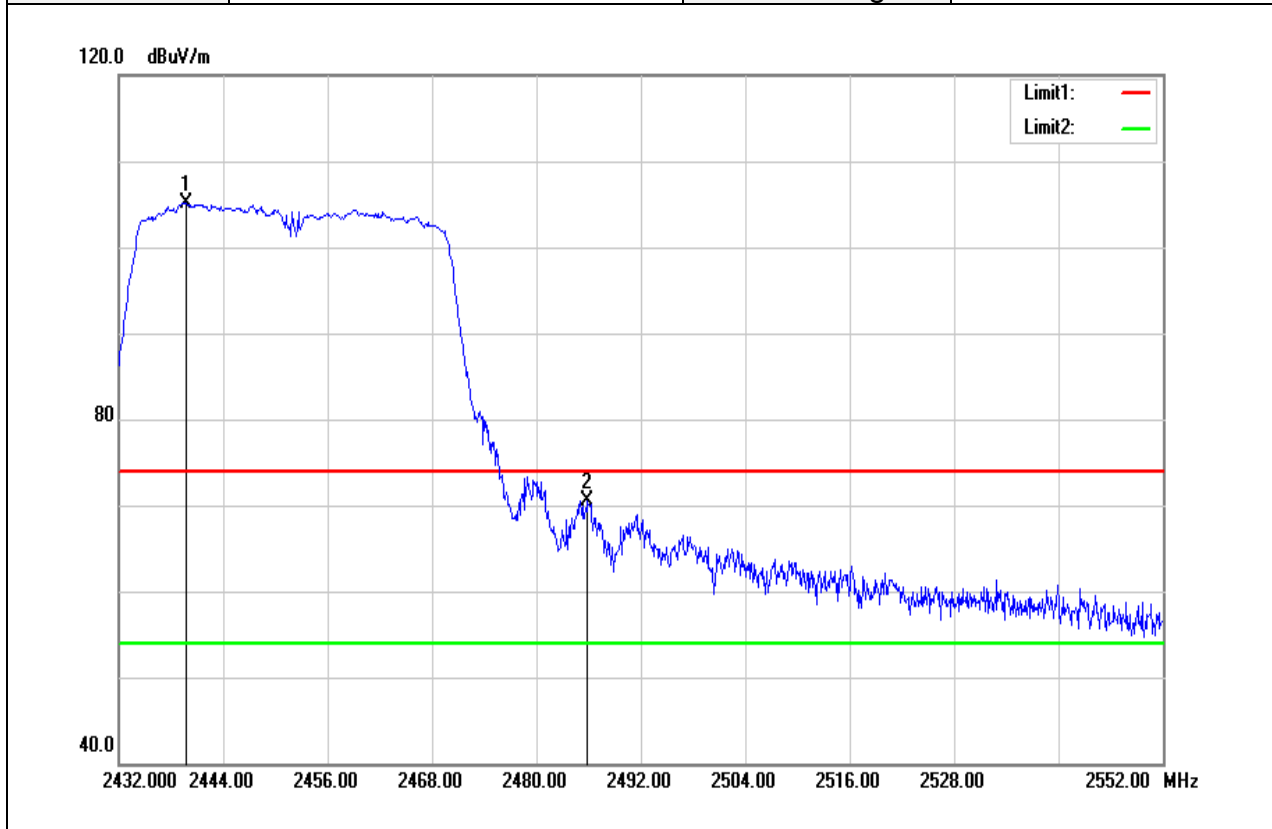
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.860	72.84	-2.49	70.35	74.00	-3.65	peak
2421.540	105.95	-2.35	103.60	--	--	peak

Test Mode	IEEE 802.11n HT40 Low CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



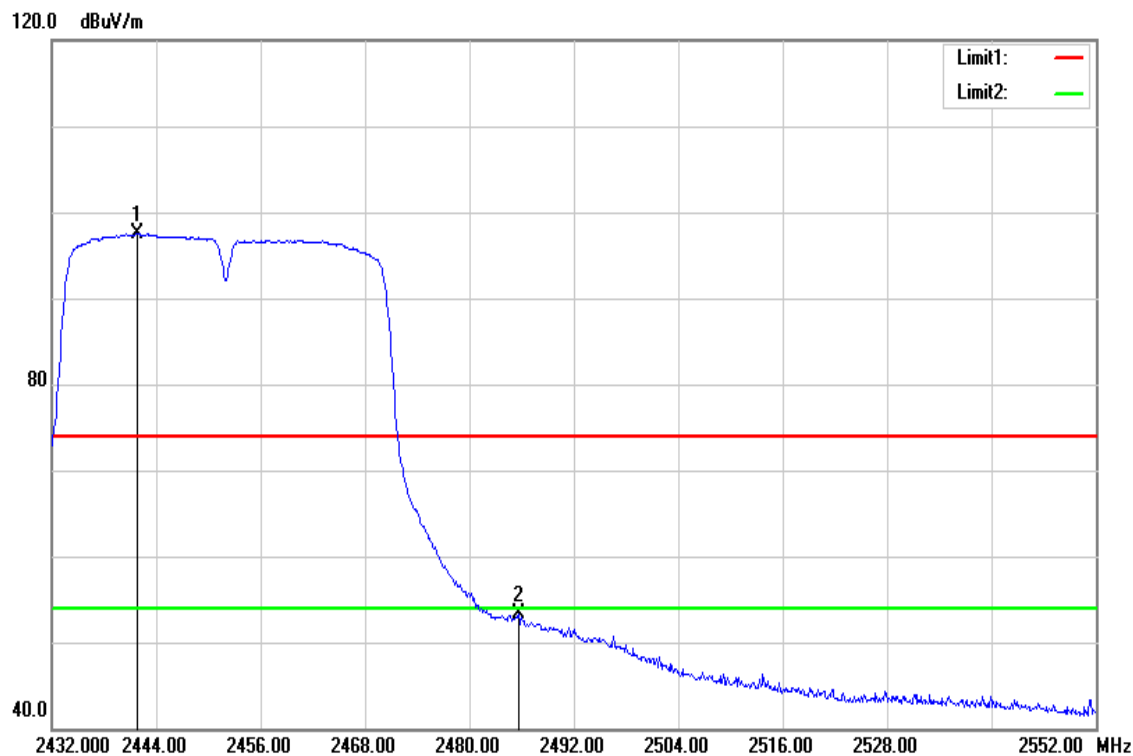
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2387.748	55.51	-2.51	53.00	54.00	-1.00	AVG
2431.176	97.45	-2.28	95.17	--	--	AVG

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2439.800	107.29	-2.21	105.08	--	--	peak
2485.880	72.45	-1.97	70.48	74.00	-3.52	peak

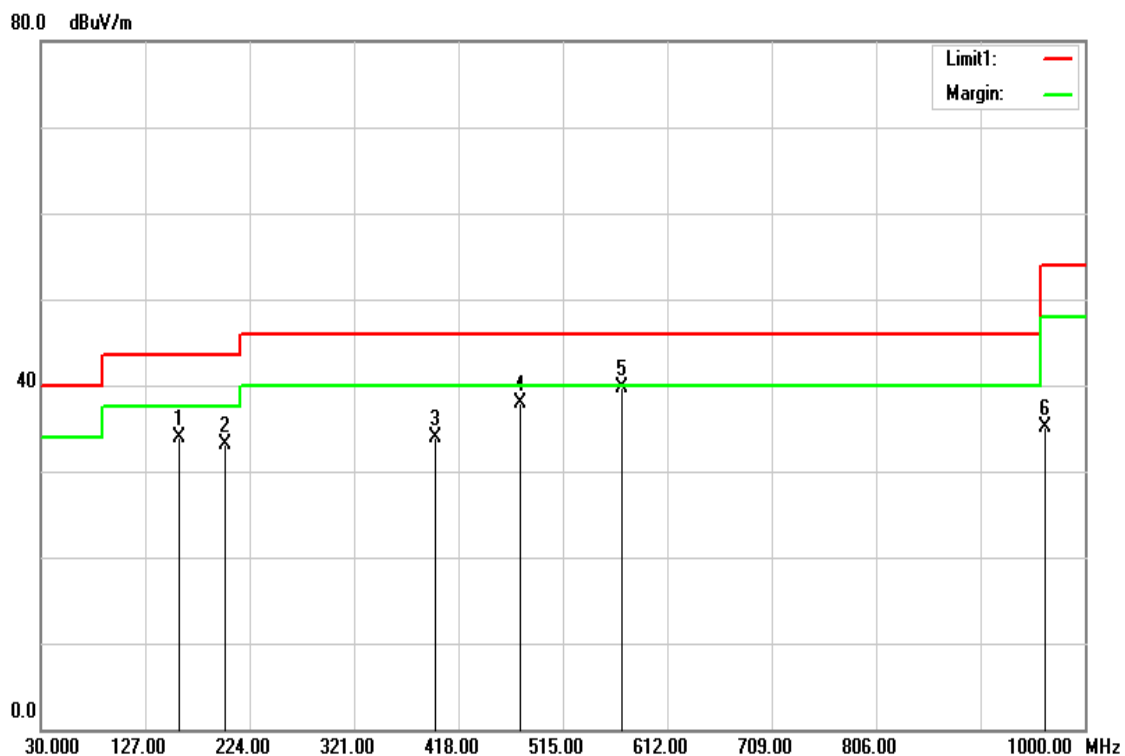
Test Mode	IEEE 802.11n HT40 High CH	Temperature:	21(°C)/ 58%RH
Test Item	Band Edge	Test Date	March 23, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2441.840	99.69	-2.20	97.49	--	--	AVG
2485.640	55.24	-1.97	53.27	54.00	-0.73	AVG

**Below 1G Test Data**

Test Mode	Mode 1	Temp/Hum	21(°C)/ 58%RH
Test Item	30MHz-1GHz	Test Date	March 29, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz

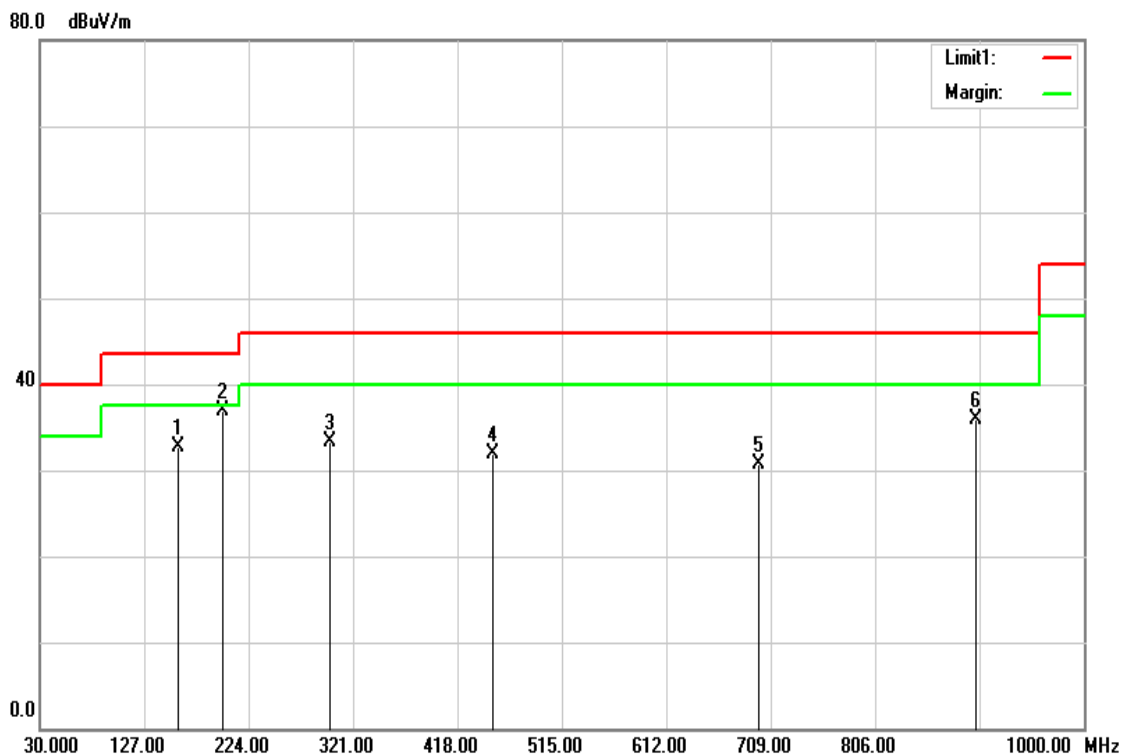


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
158.0400	50.11	-16.30	33.81	43.50	-9.69	peak
200.7200	48.71	-15.60	33.11	43.50	-10.39	peak
396.6600	45.67	-11.78	33.89	46.00	-12.11	peak
475.2300	47.55	-9.71	37.84	46.00	-8.16	peak
570.2900	47.97	-8.19	39.78	46.00	-6.22	peak
963.1400	37.30	-2.18	35.12	54.00	-18.88	peak

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)



Test Mode	Mode 1	Temp/Hum	21(°C)/ 58%RH
Test Item	30MHz-1GHz	Test Date	March 29, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak	Test Voltage	120Vac / 60Hz

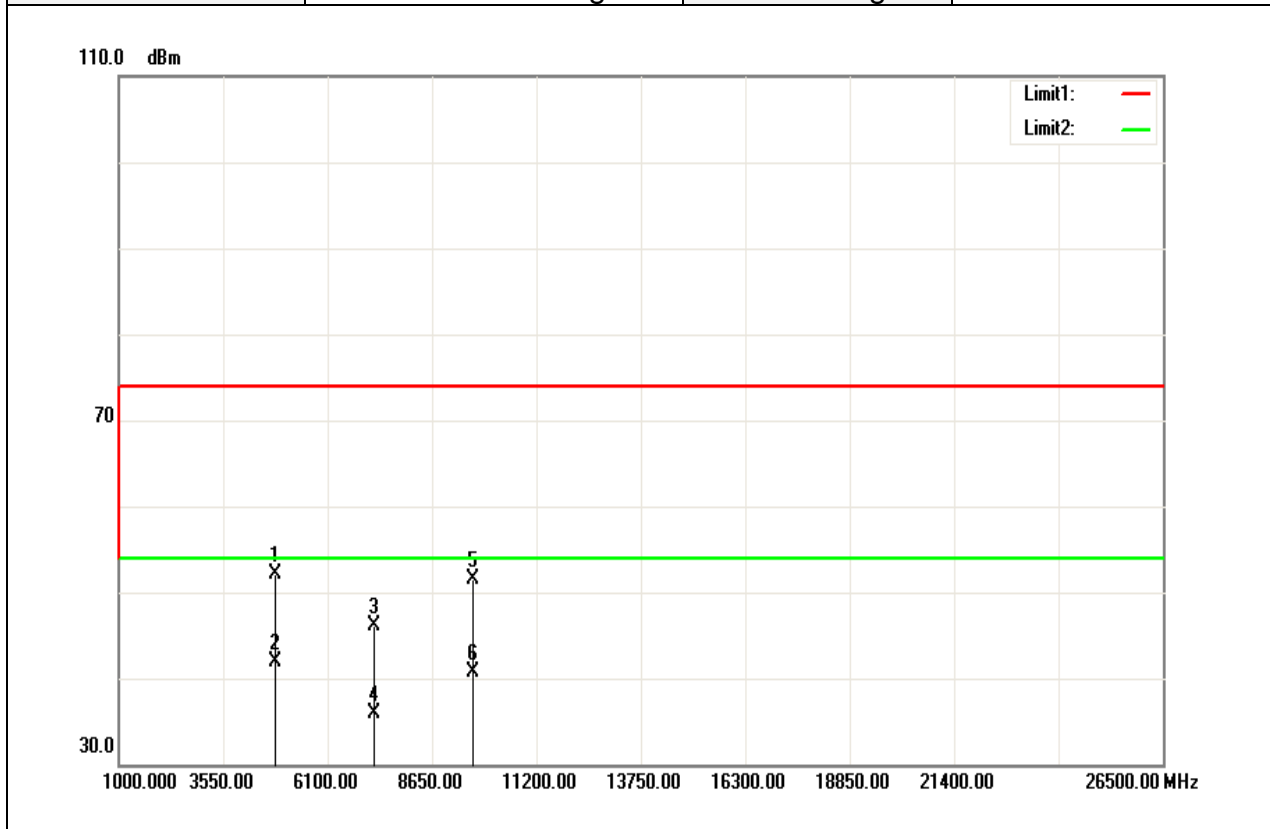


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
158.0400	49.07	-16.30	32.77	43.50	-10.73	peak
199.7500	52.53	-15.57	36.96	43.50	-6.54	peak
299.6600	47.56	-14.25	33.31	46.00	-12.69	peak
450.9800	42.07	-10.17	31.90	46.00	-14.10	peak
697.3600	36.88	-6.10	30.78	46.00	-15.22	peak
900.0900	39.00	-3.19	35.81	46.00	-10.19	peak

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

**Above 1G Test Data**

Test Mode	IEEE 802.11b Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

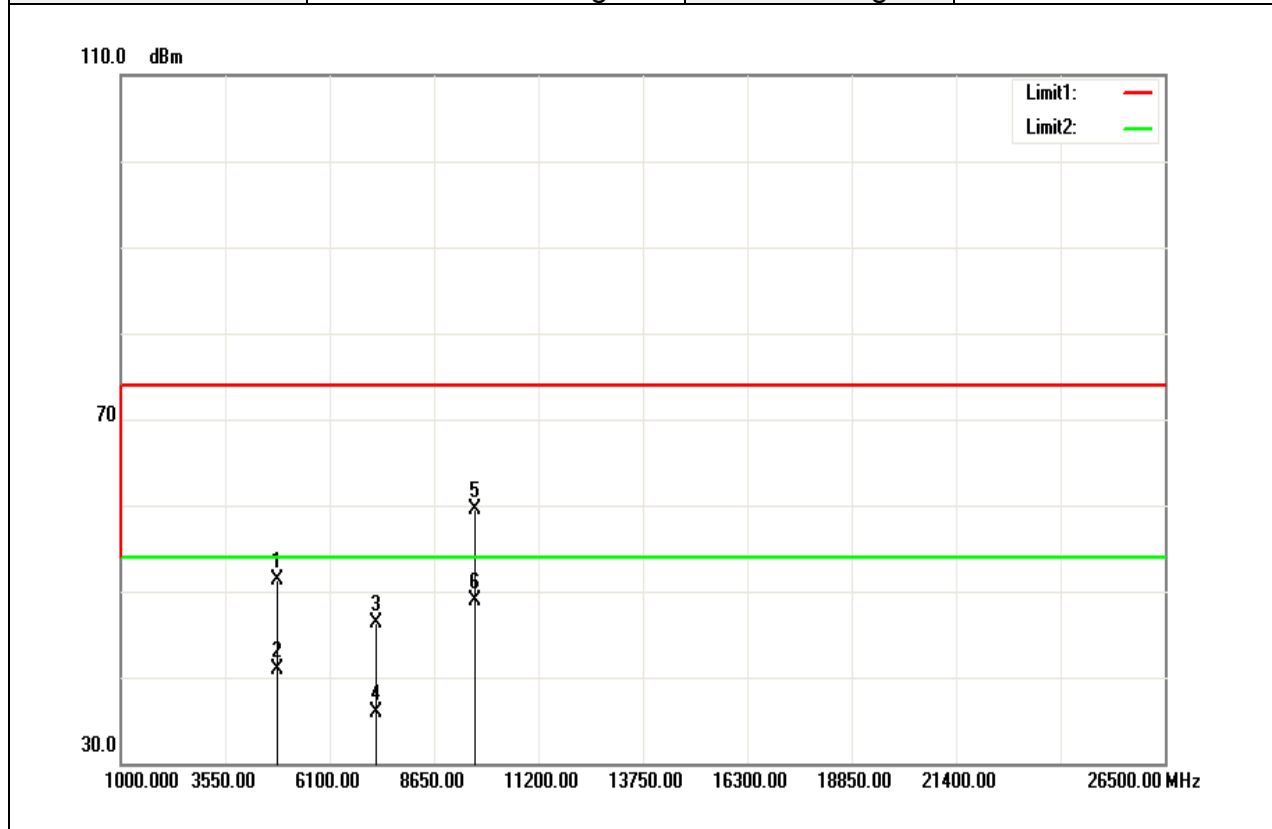


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	46.99	5.11	52.10	74.00	-21.90	peak
4827.000	36.73	5.11	41.84	54.00	-12.16	AVG
7236.000	33.39	12.71	46.10	74.00	-27.90	peak
7236.000	23.23	12.71	35.94	54.00	-18.06	AVG
9648.000	33.86	17.60	51.46	74.00	-22.54	peak
9648.000	23.02	17.60	40.62	54.00	-13.38	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11b Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

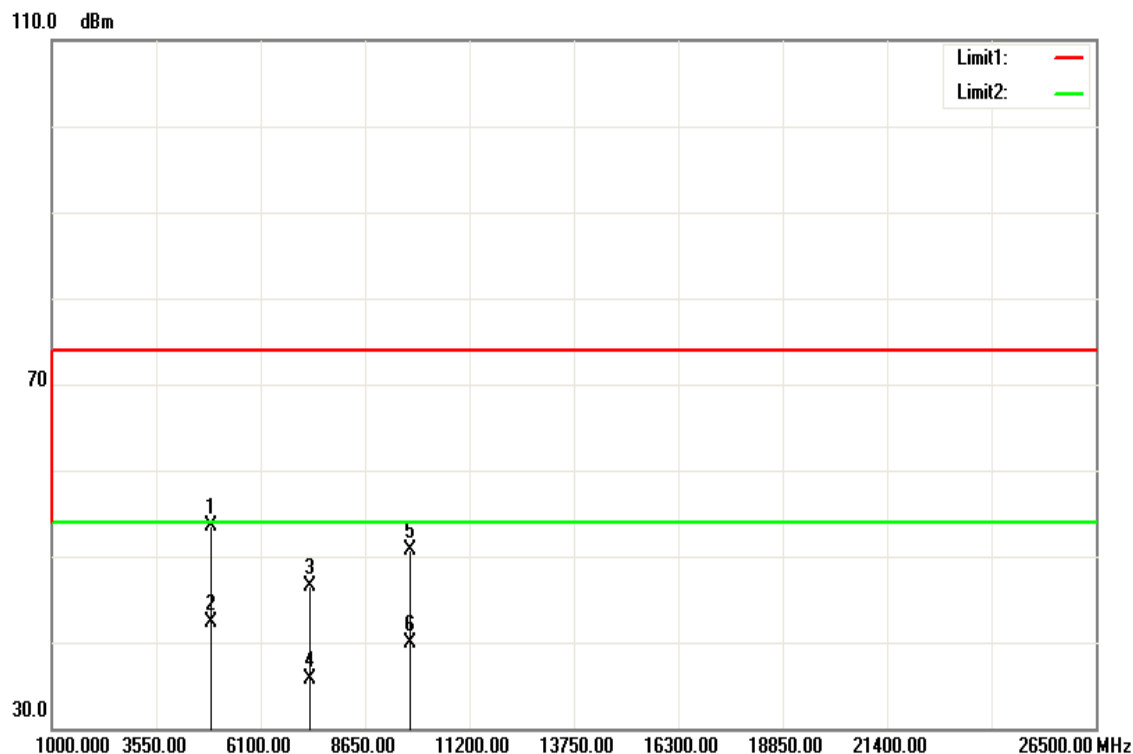


Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
4827.000	46.24	5.11	51.35	74.00	-22.65	peak
4827.000	35.73	5.11	40.84	54.00	-13.16	AVG
7236.000	33.67	12.71	46.38	74.00	-27.62	peak
7236.000	23.19	12.71	35.90	54.00	-18.10	AVG
9648.000	41.85	17.60	59.45	74.00	-14.55	peak
9648.000	31.32	17.60	48.92	54.00	-5.08	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11b Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

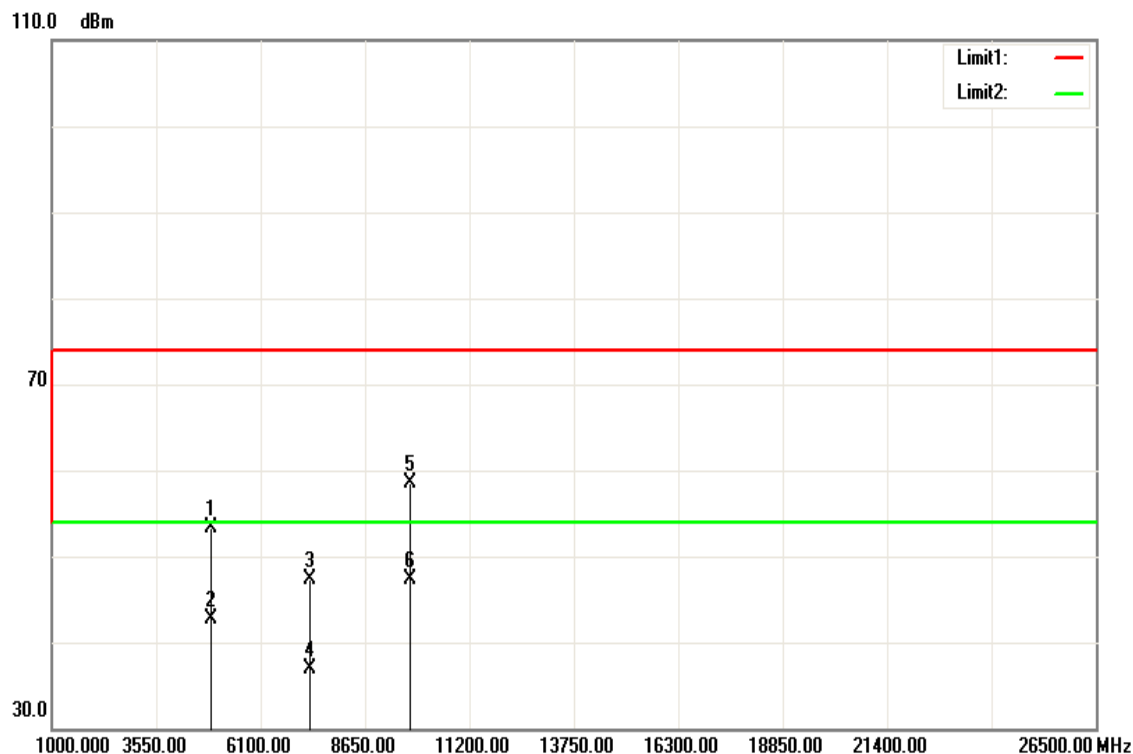


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	48.21	5.24	53.45	74.00	-20.55	peak
4876.000	37.03	5.24	42.27	54.00	-11.73	AVG
7311.000	33.60	12.94	46.54	74.00	-27.46	peak
7311.000	22.73	12.94	35.67	54.00	-18.33	AVG
9748.000	33.18	17.60	50.78	74.00	-23.22	peak
9748.000	22.22	17.60	39.82	54.00	-14.18	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11b Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

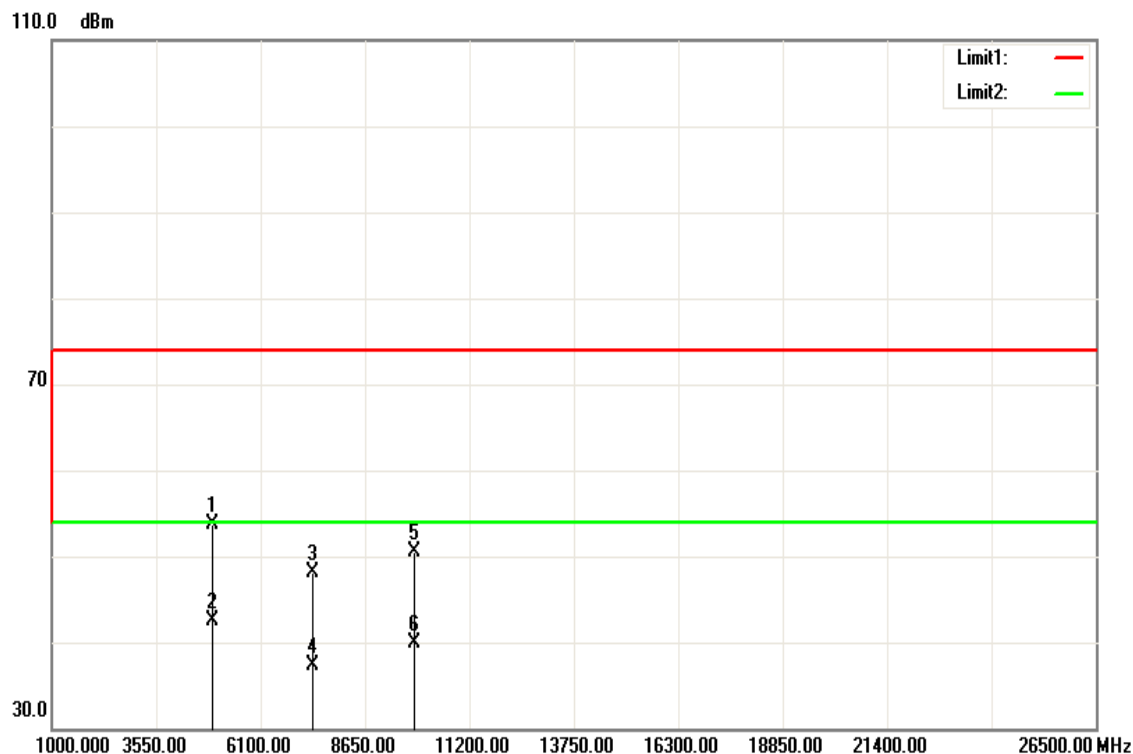


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	48.05	5.24	53.29	74.00	-20.71	peak
4876.000	37.42	5.24	42.66	54.00	-11.34	AVG
7311.000	34.32	12.94	47.26	74.00	-26.74	peak
7311.000	24.00	12.94	36.94	54.00	-17.06	AVG
9748.000	41.00	17.60	58.60	74.00	-15.40	peak
9748.000	29.68	17.60	47.28	54.00	-6.72	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11b High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

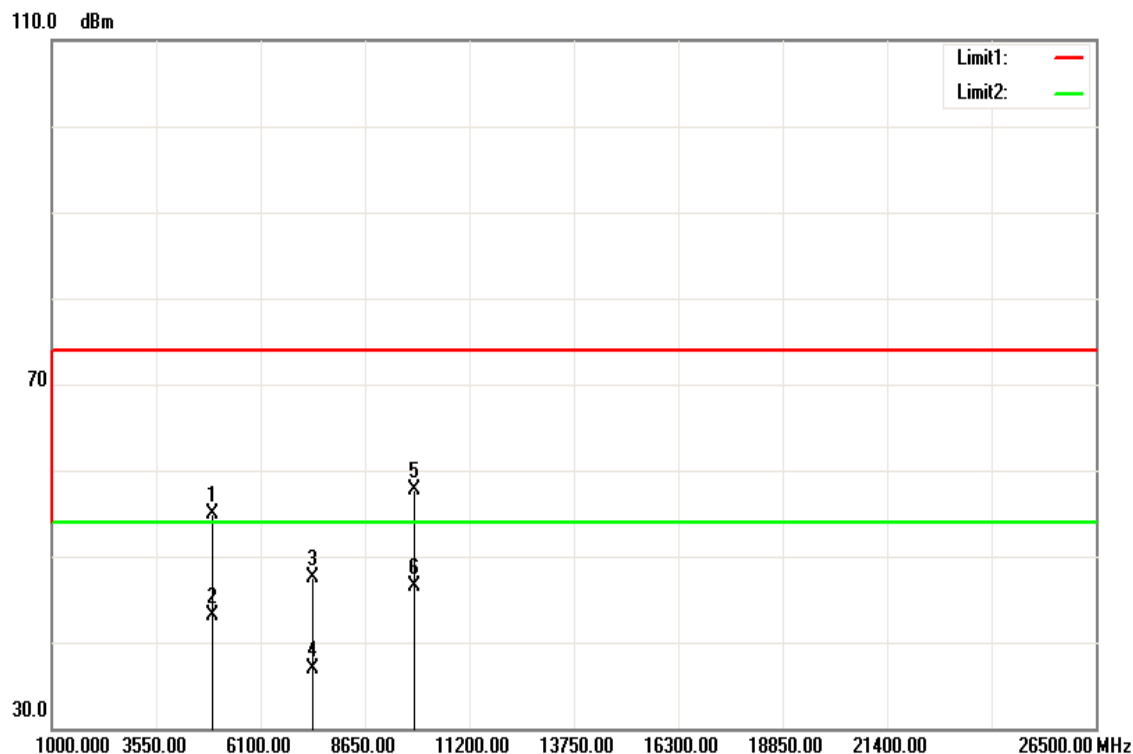


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	48.37	5.37	53.74	74.00	-20.26	peak
4925.000	37.21	5.37	42.58	54.00	-11.42	AVG
7386.000	35.02	13.17	48.19	74.00	-25.81	peak
7386.000	24.17	13.17	37.34	54.00	-16.66	AVG
9848.000	32.96	17.60	50.56	74.00	-23.44	peak
9848.000	22.28	17.60	39.88	54.00	-14.12	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11b High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

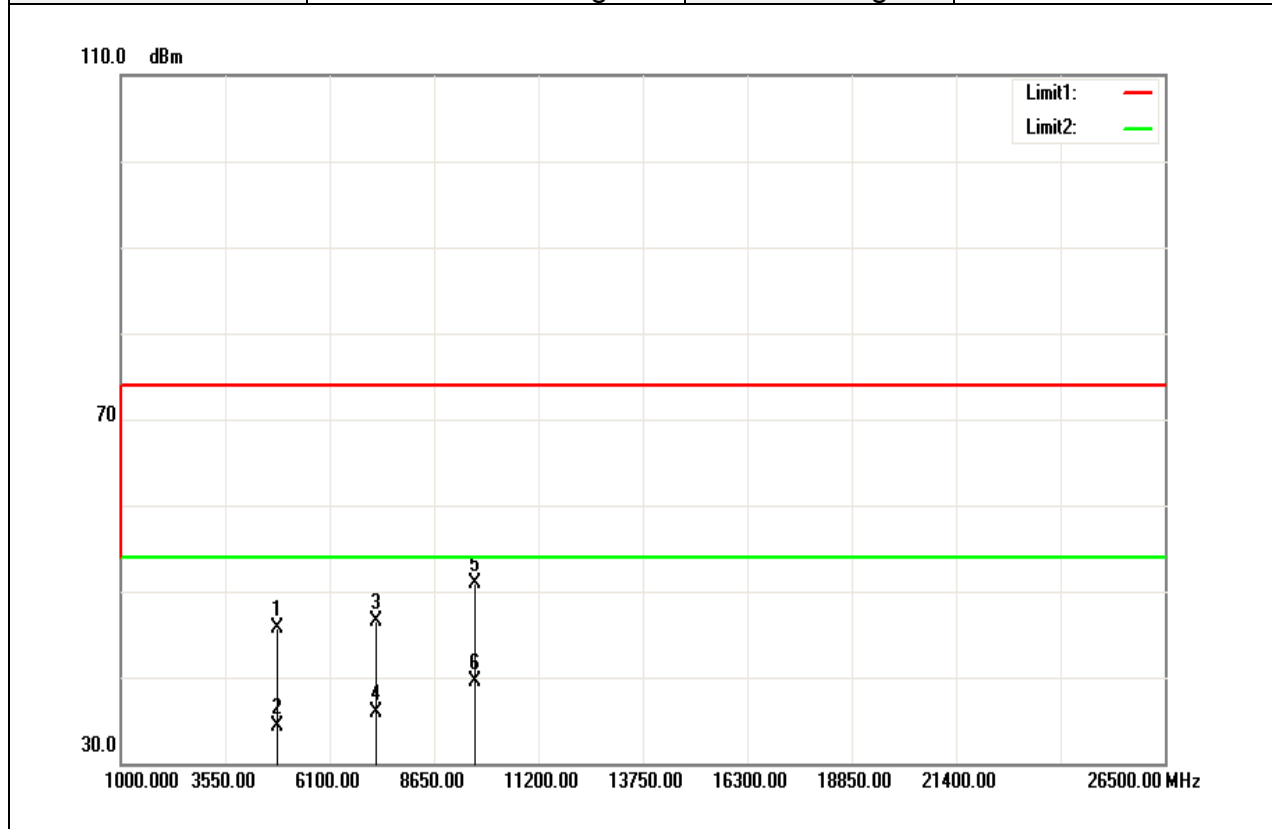


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	49.55	5.37	54.92	74.00	-19.08	peak
4925.000	37.82	5.37	43.19	54.00	-10.81	AVG
7386.000	34.28	13.17	47.45	74.00	-26.55	peak
7386.000	23.64	13.17	36.81	54.00	-17.19	AVG
9848.000	40.04	17.60	57.64	74.00	-16.36	peak
9848.000	28.98	17.60	46.58	54.00	-7.42	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11g Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



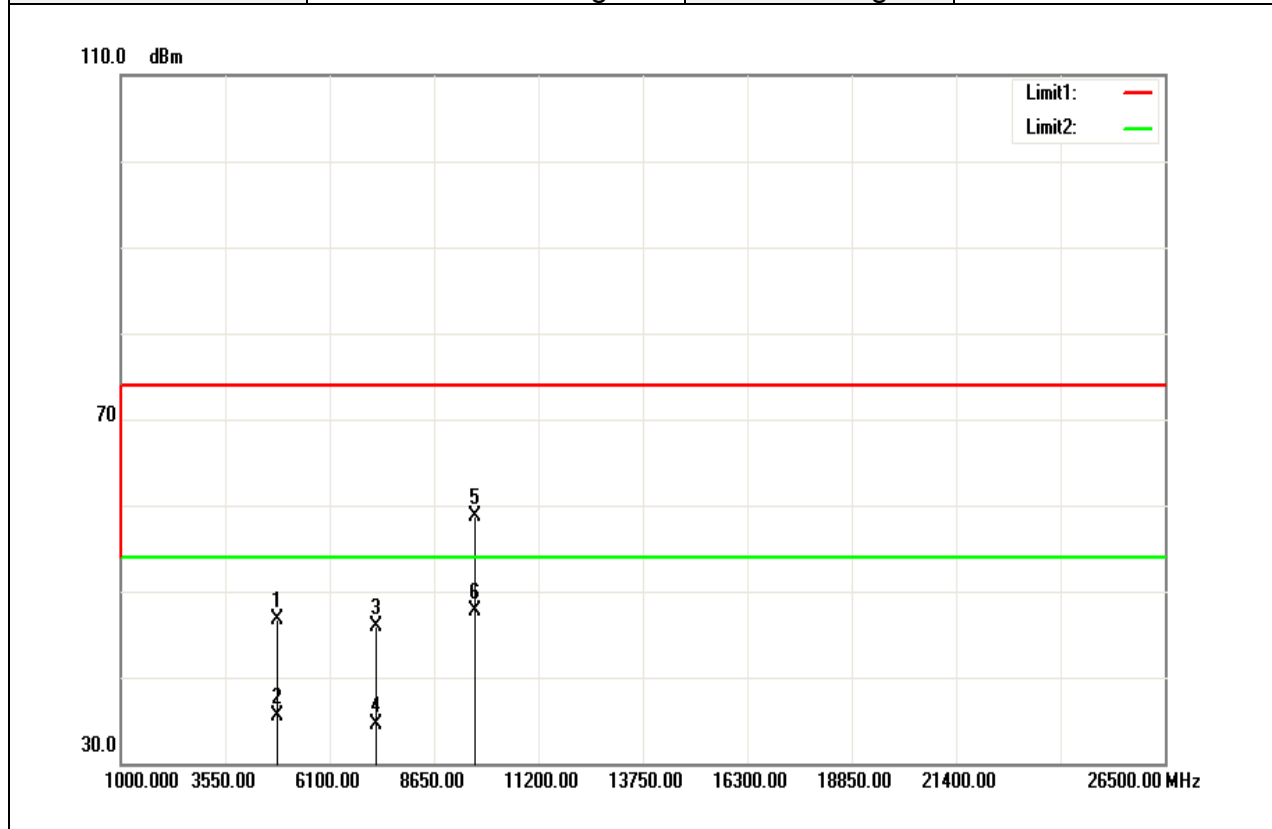
Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
4820.000	40.70	5.09	45.79	74.00	-28.21	peak
4820.000	29.29	5.09	34.38	54.00	-19.62	AVG
7236.000	33.87	12.71	46.58	74.00	-27.42	peak
7236.000	23.13	12.71	35.84	54.00	-18.16	AVG
9648.000	33.31	17.60	50.91	74.00	-23.09	peak
9648.000	21.92	17.60	39.52	54.00	-14.48	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode	IEEE 802.11g Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

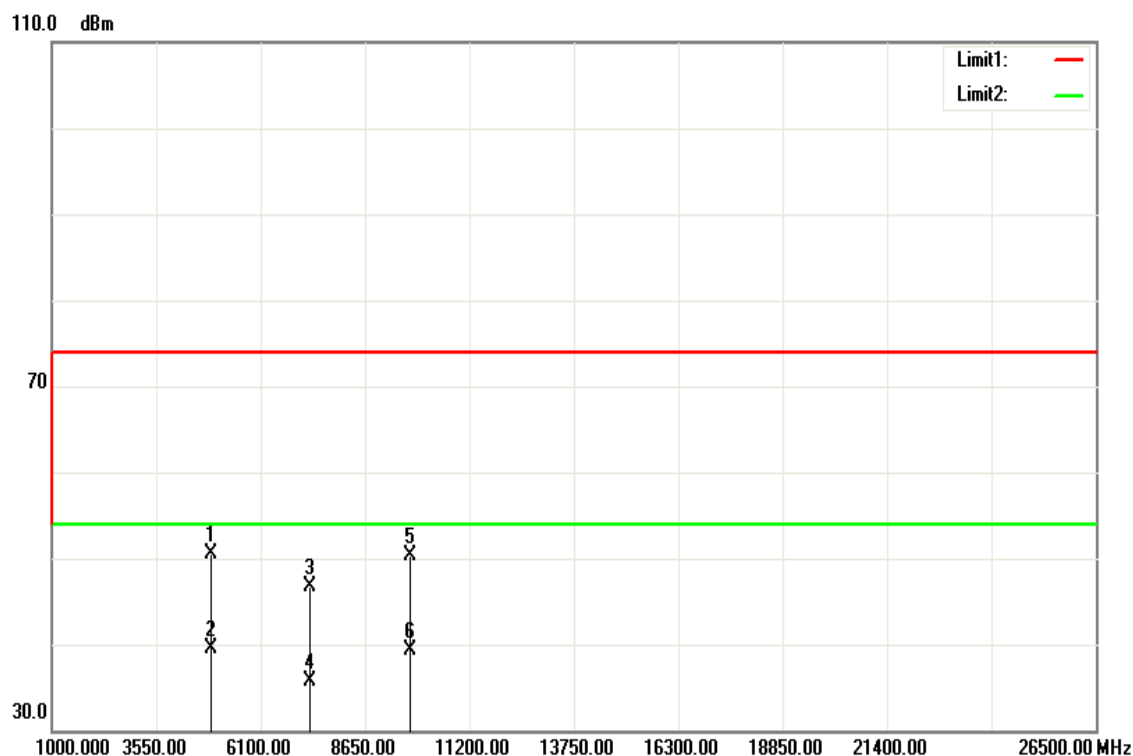


Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
4827.000	41.63	5.11	46.74	74.00	-27.26	peak
4827.000	30.36	5.11	35.47	54.00	-18.53	AVG
7236.000	33.24	12.71	45.95	74.00	-28.05	peak
7236.000	21.85	12.71	34.56	54.00	-19.44	AVG
9650.000	41.10	17.60	58.70	74.00	-15.30	peak
9650.000	30.08	17.60	47.68	54.00	-6.32	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11g Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

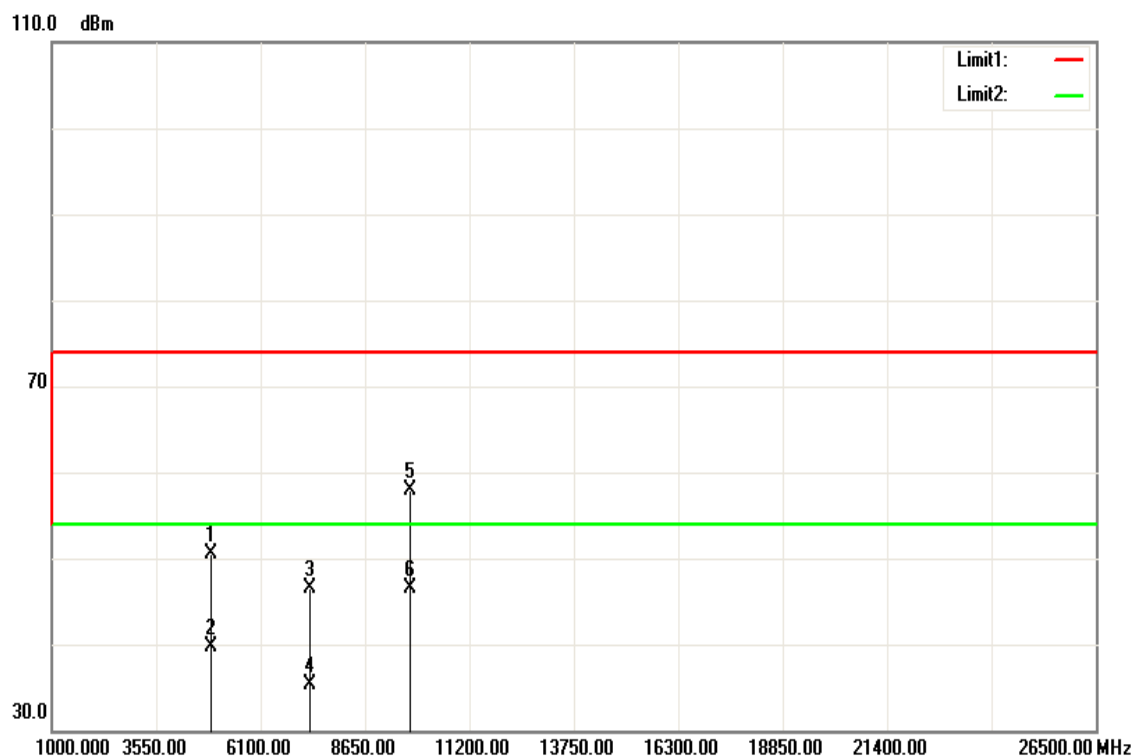


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	45.17	5.24	50.41	74.00	-23.59	peak
4876.000	34.32	5.24	39.56	54.00	-14.44	AVG
7311.000	33.83	12.94	46.77	74.00	-27.23	peak
7311.000	22.70	12.94	35.64	54.00	-18.36	AVG
9748.000	32.70	17.60	50.30	74.00	-23.70	peak
9748.000	21.67	17.60	39.27	54.00	-14.73	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11g Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

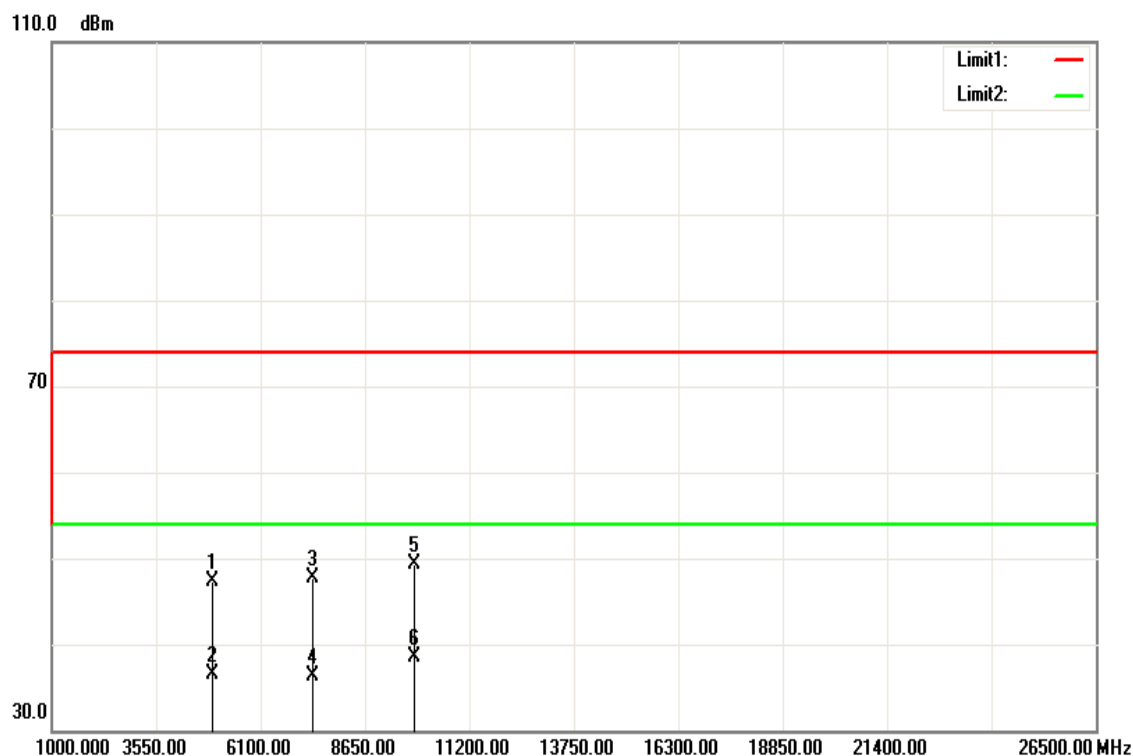


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin ( B)	Remark
4876.000	45.21	5.24	50.45	74.00	-23.55	peak
4876.000	34.40	5.24	39.64	54.00	-14.36	AVG
7311.000	33.64	12.94	46.58	74.00	-27.42	peak
7311.000	22.33	12.94	35.27	54.00	-18.73	AVG
9748.000	40.38	17.60	57.98	74.00	-16.02	peak
9748.000	28.98	17.60	46.58	54.00	-7.42	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11g High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

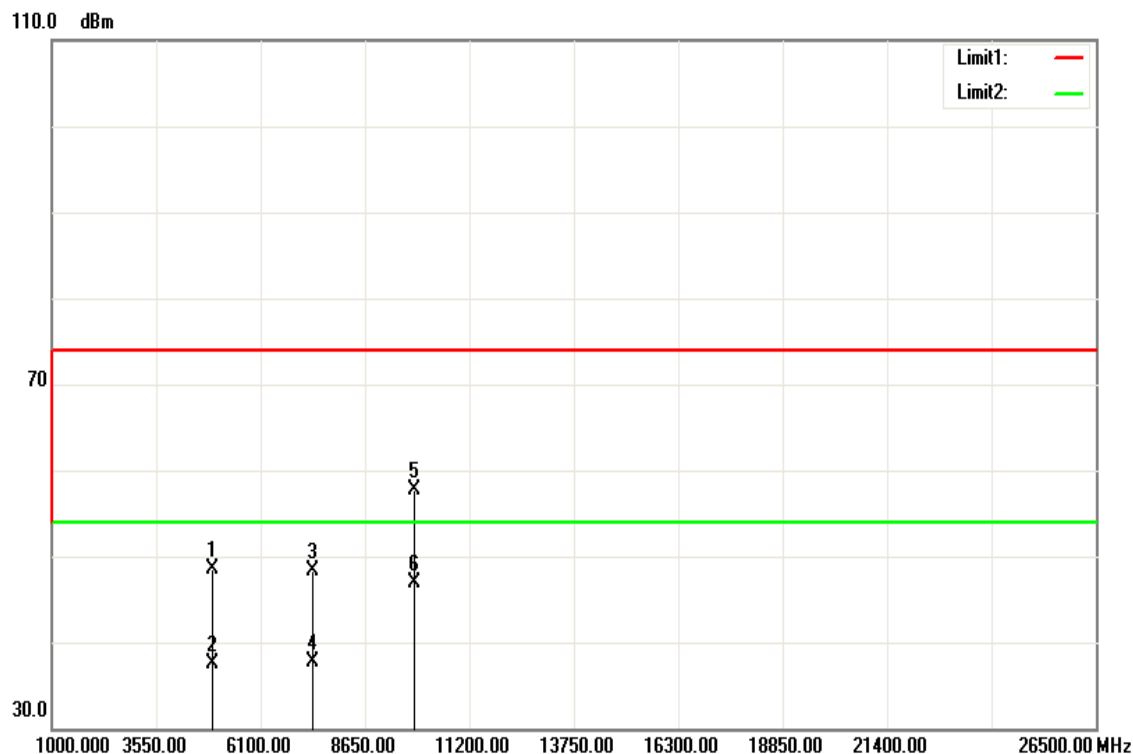


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	41.93	5.37	47.30	74.00	-26.70	peak
4925.000	31.07	5.37	36.44	54.00	-17.56	AVG
7386.000	34.63	13.17	47.80	74.00	-26.20	peak
7386.000	23.09	13.17	36.26	54.00	-17.74	AVG
9848.000	31.65	17.60	49.25	74.00	-24.75	peak
9848.000	20.94	17.60	38.54	54.00	-15.46	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11g High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

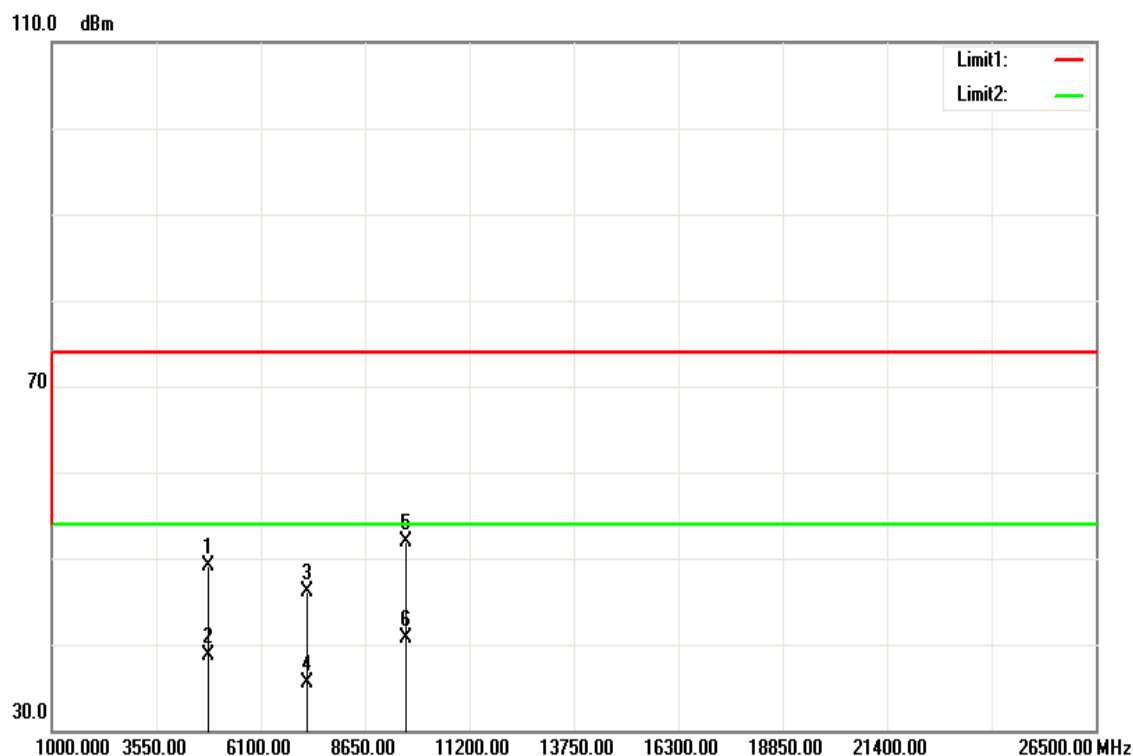


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	43.09	5.37	48.46	74.00	-25.54	peak
4925.000	32.22	5.37	37.59	54.00	-16.41	AVG
7386.000	35.12	13.17	48.29	74.00	-25.71	peak
7386.000	24.48	13.17	37.65	54.00	-16.35	AVG
9846.000	40.08	17.60	57.68	74.00	-16.32	peak
9846.000	29.32	17.60	46.92	54.00	-7.08	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

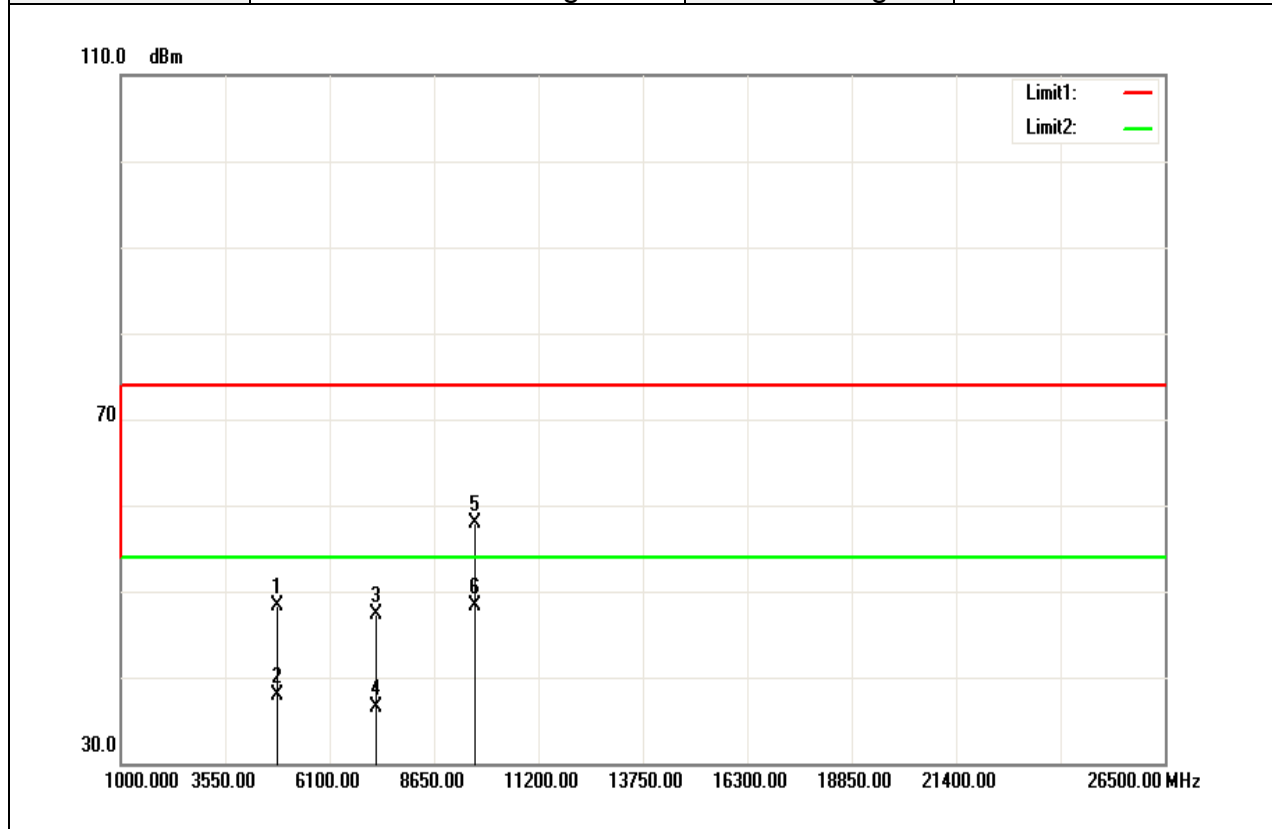


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	R mark
4827.000	43.94	5.11	49.05	74.00	-24.95	peak
4827.000	33.52	5.11	38.63	54.00	-15.37	AVG
7236.000	33.40	12.71	46.11	74.00	-27.89	peak
7236.000	22.76	12.71	35.47	54.00	-18.53	AVG
9648.000	34.31	17.60	51.91	74.00	-22.09	peak
9648.000	23.20	17.60	40.80	54.00	-13.20	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

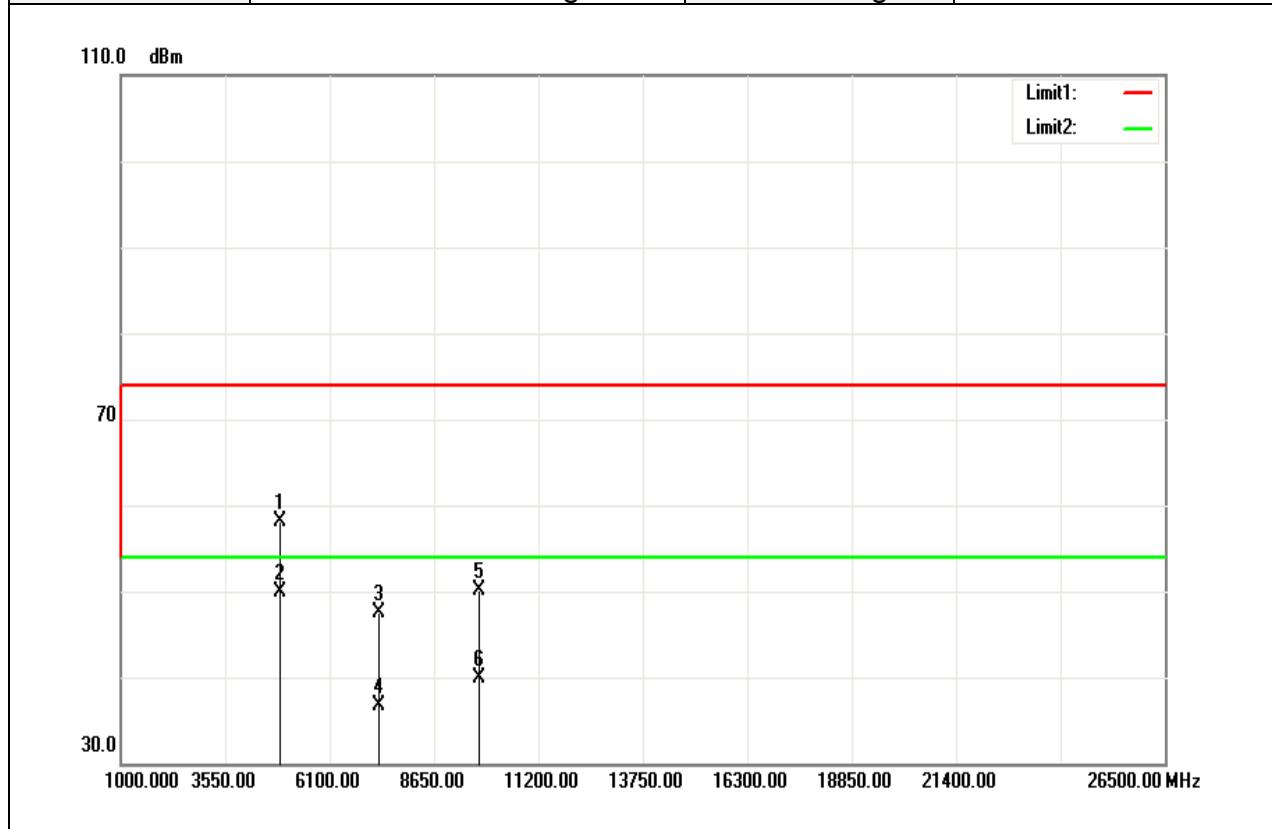


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	43.23	5.11	48.34	74.00	-25.66	peak
4827.000	32.80	5.11	37.91	54.00	-16.09	AVG
7236.000	34.66	12.71	47.37	74.00	-26.63	peak
7236.000	23.70	12.71	36.41	54.00	-17.59	AVG
9648.000	40.24	17.60	57.84	74.00	-16.16	peak
9648.000	30.61	17.60	48.21	54.00	-5.79	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



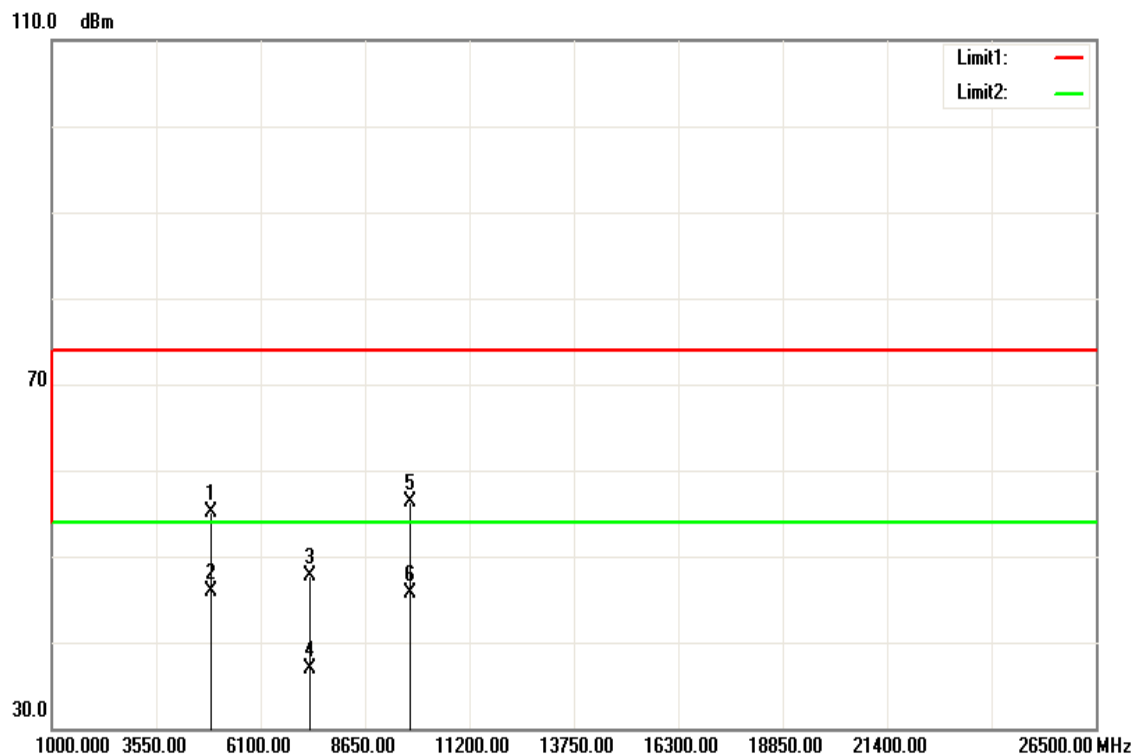
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	R mark
4876.000	52.81	5.24	58.05	74.00	-15.95	peak
4876.000	44.70	5.24	49.94	54.00	-4.06	AVG
7311.000	34.60	12.94	47.54	74.00	-26.46	peak
7311.000	23.80	12.94	36.74	54.00	-17.26	AVG
9748.000	32.52	17.60	50.12	74.00	-23.88	peak
9748.000	22.24	17.60	39.84	54.00	-14.16	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

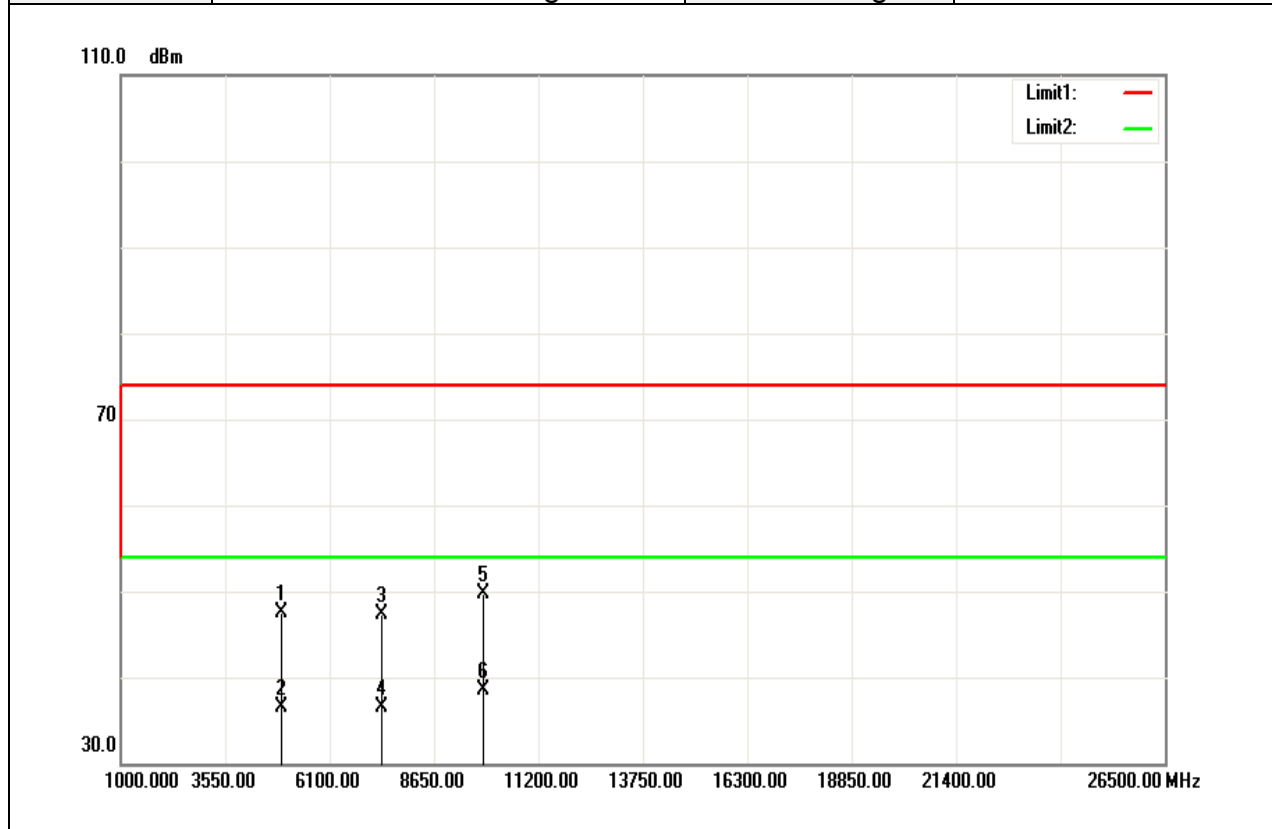


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	49.81	5.24	55.05	74.00	-18.95	peak
4876.000	40.68	5.24	45.92	54.00	-8.08	AVG
7311.000	34.69	12.94	47.63	74.00	-26.37	peak
7311.000	23.90	12.94	36.84	54.00	-17.16	AVG
9748.000	38.61	17.60	56.21	74.00	-17.79	peak
9748.000	28.03	17.60	45.63	54.00	-8.37	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

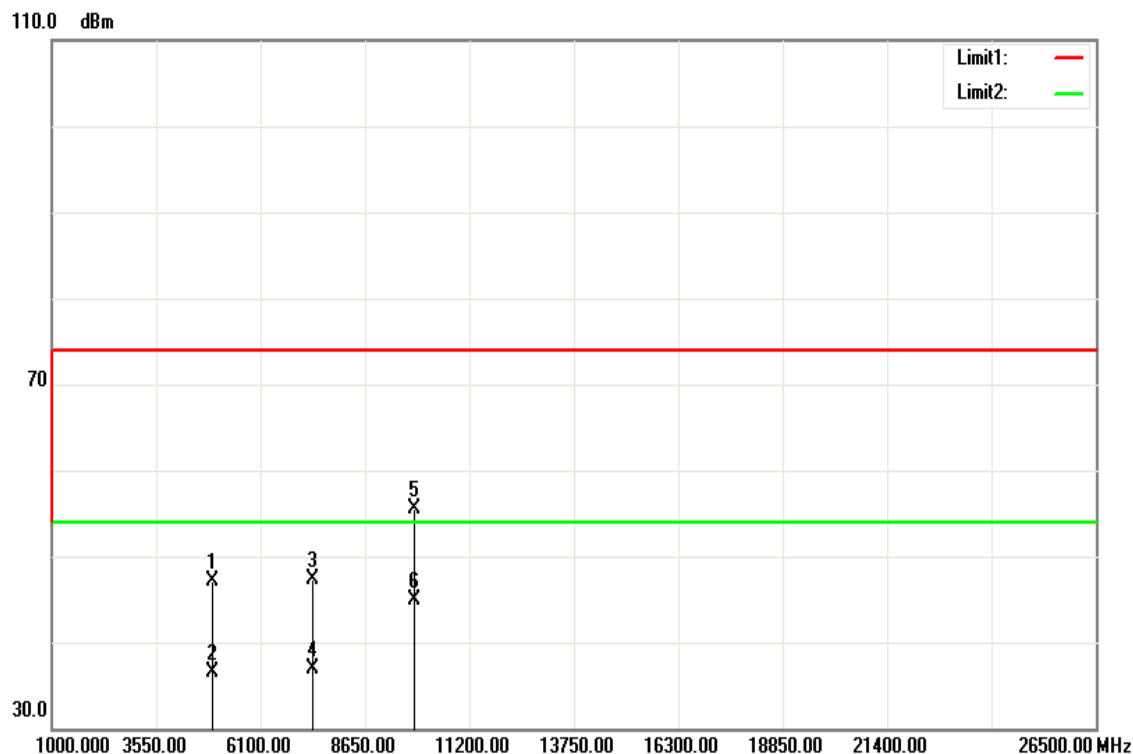


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	42.23	5.37	47.60	74.00	-26.40	peak
4925.000	31.11	5.37	36.48	54.00	-17.52	AVG
7386.000	34.04	13.17	47.21	74.00	-26.79	peak
7386.000	23.41	13.17	36.58	54.00	-17.42	AVG
9848.000	32.03	17.60	49.63	74.00	-24.37	peak
9848.000	20.84	17.60	38.44	54.00	-15.56	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

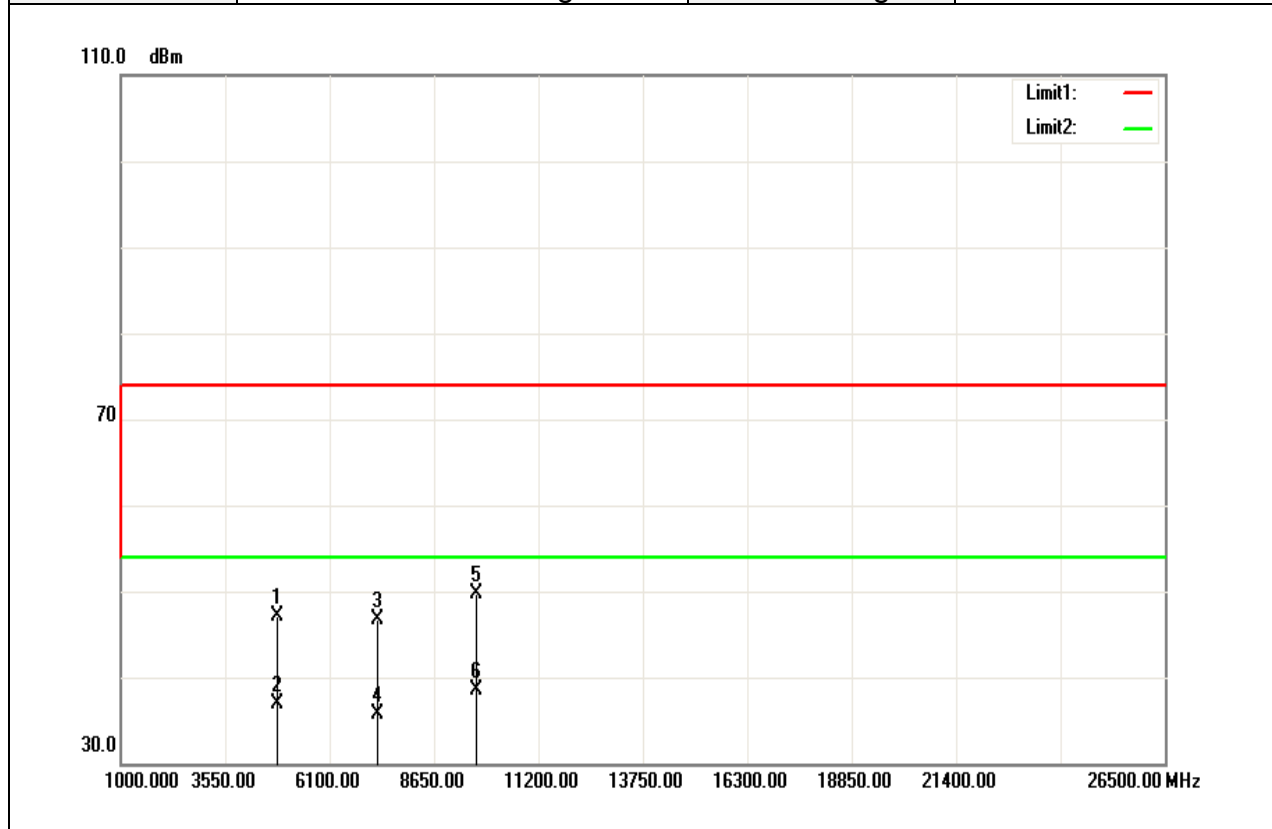


Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
4925.000	41.69	5.37	47.06	74.00	-26.94	peak
4925.000	31.18	5.37	36.55	54.00	-17.45	AVG
7386.000	34.21	13.17	47.38	74.00	-26.62	peak
7386.000	23.64	13.17	36.81	54.00	-17.19	AVG
9848.000	37.90	17.60	55.50	74.00	-18.50	peak
9848.000	27.32	17.60	44.92	54.00	-9.08	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

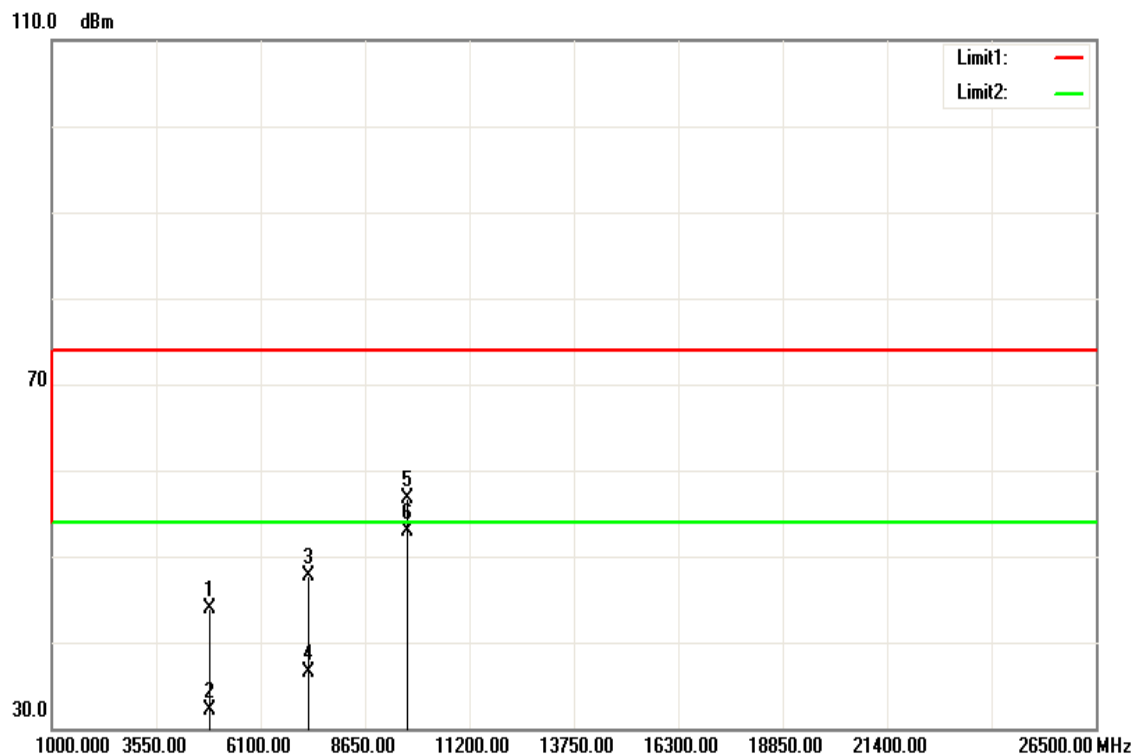


Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
4841.000	41.98	5.14	47.12	74.00	-26.88	peak
4841.000	31.79	5.14	36.93	54.00	-17.07	AVG
7266.000	33.95	12.80	46.75	74.00	-27.25	peak
7266.000	22.80	12.80	35.60	54.00	-18.40	AVG
9688.000	32.03	17.60	49.63	74.00	-24.37	peak
9688.000	20.88	17.60	38.48	54.00	-15.52	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

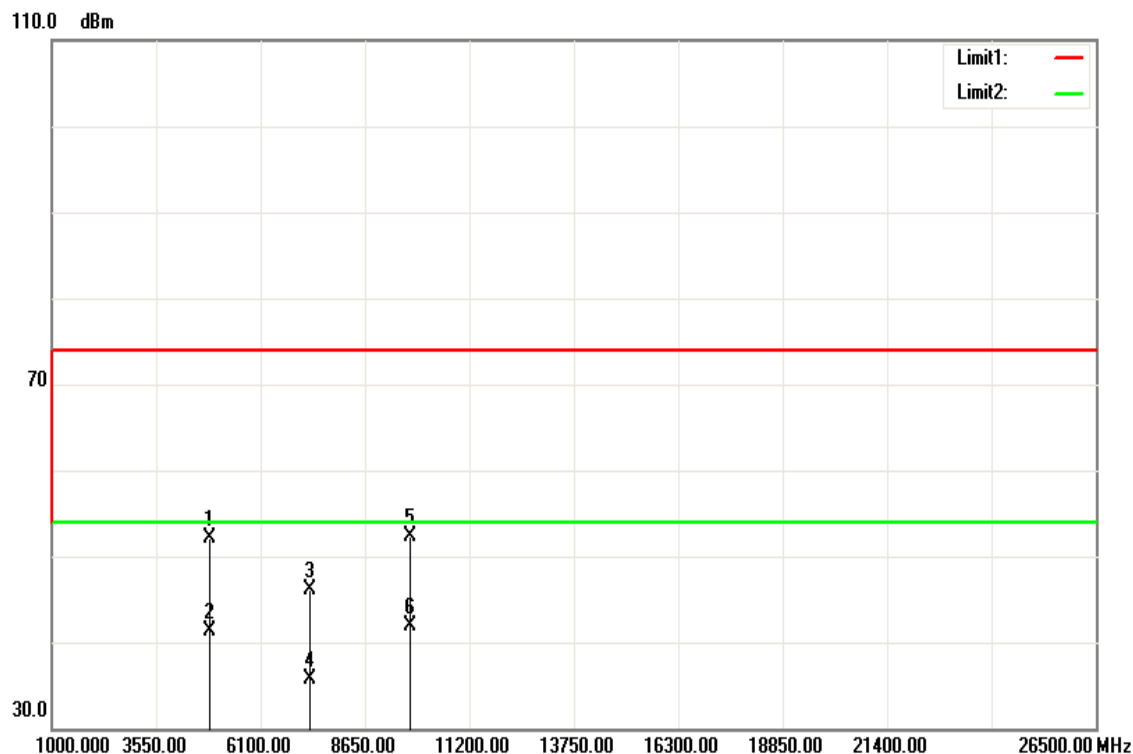


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4844.000	38.84	5.15	43.99	74.00	-30.01	peak
4844.000	27.00	5.15	32.15	54.00	-21.85	AVG
7266.000	34.93	12.80	47.73	74.00	-26.27	peak
7266.000	23.68	12.80	36.48	54.00	-17.52	AVG
9685.000	39.14	17.60	56.74	74.00	-17.26	peak
9685.000	35.23	17.60	52.83	54.00	-1.17	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT40 Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

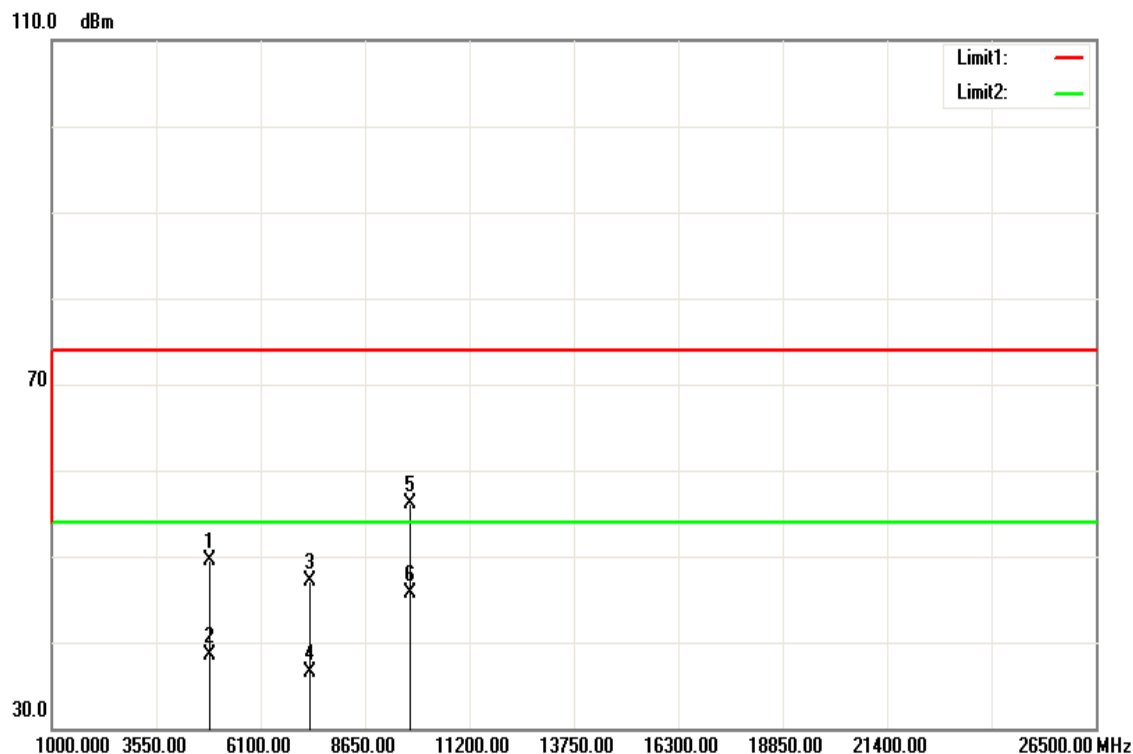


Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
4869.000	46.91	5.22	52.13	74.00	-21.87	peak
4869.000	36.02	5.22	41.24	54.00	-12.76	AVG
7311.000	33.12	12.94	46.06	74.00	-27.94	peak
7311.000	22.75	12.94	35.69	54.00	-18.31	AVG
9748.000	34.66	17.60	52.26	74.00	-21.74	peak
9748.000	24.24	17.60	41.84	54.00	-12.16	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT40 Mid CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

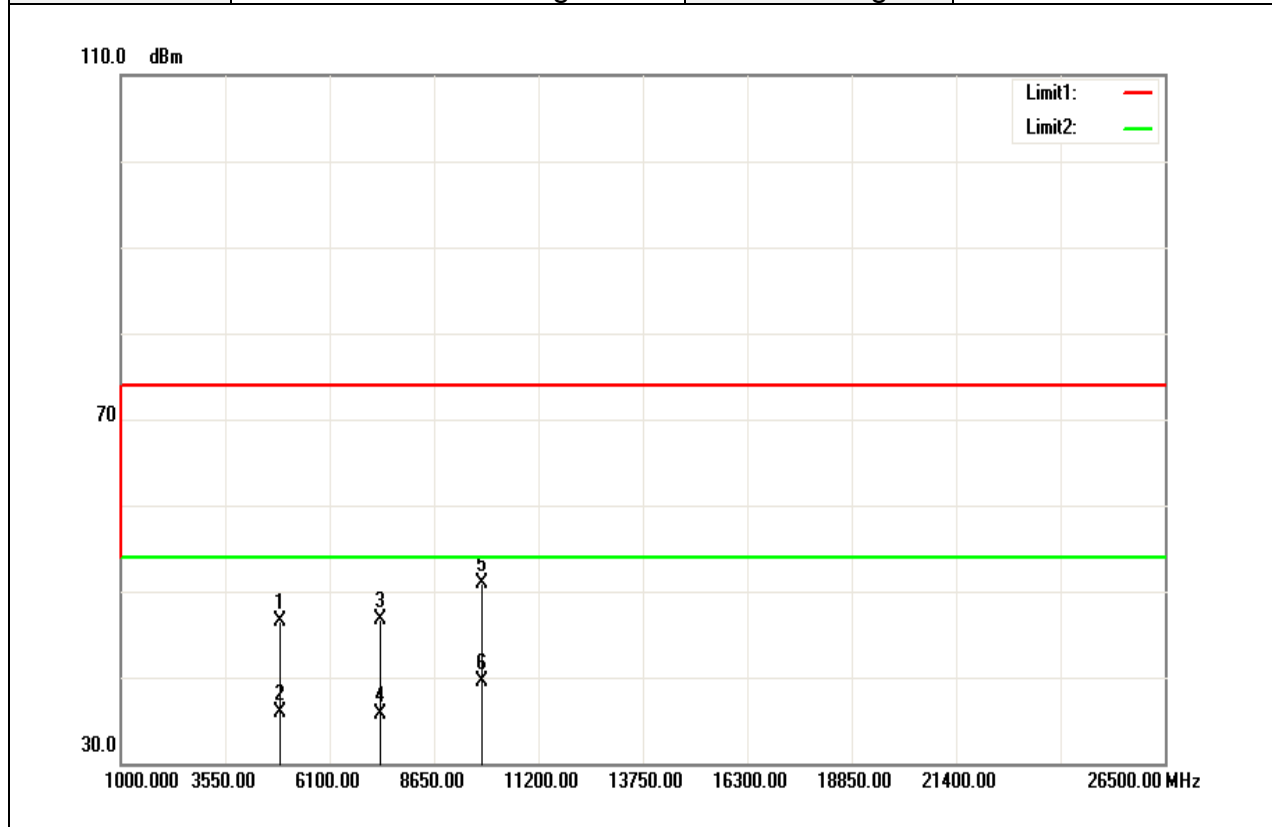


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	44.29	5.22	49.51	74.00	-24.49	peak
4869.000	33.27	5.22	38.49	54.00	-15.51	AVG
7311.000	34.21	12.94	47.15	74.00	-26.85	peak
7311.000	23.61	12.94	36.55	54.00	-17.45	AVG
9748.000	38.53	17.60	56.13	74.00	-17.87	peak
9748.000	28.14	17.60	45.74	54.00	-8.26	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Vertical	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



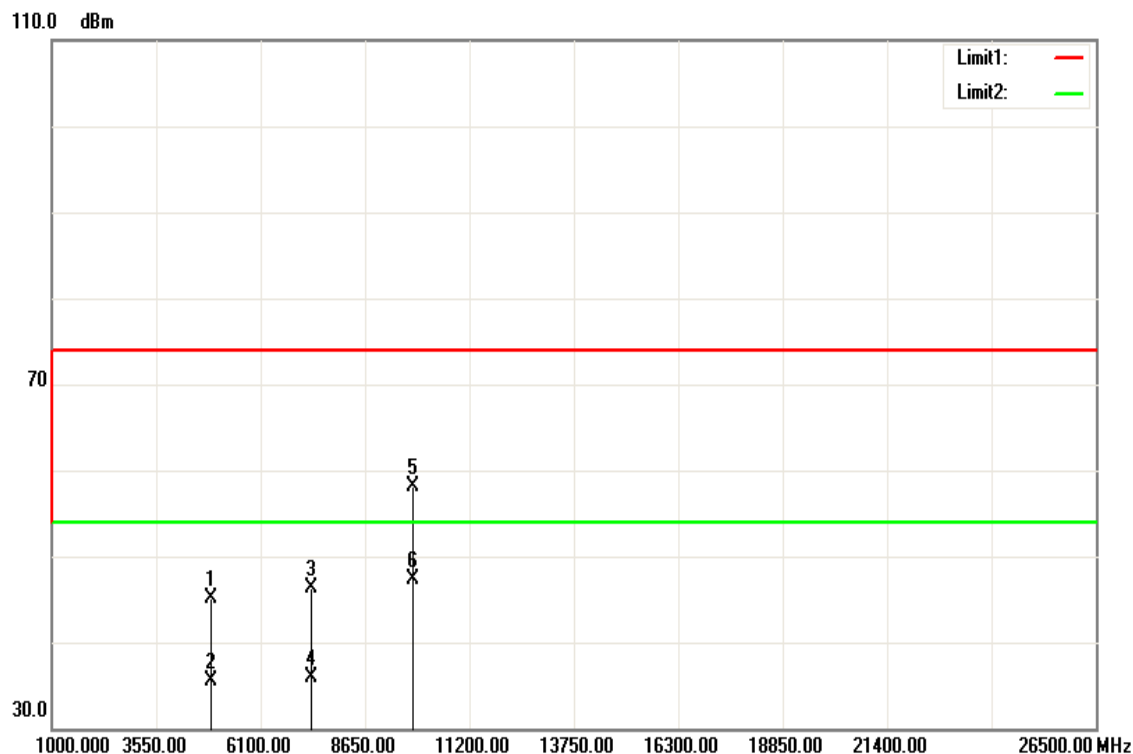
Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
4904.000	41.29	5.31	46.60	74.00	-27.40	peak
4904.000	30.53	5.31	35.84	54.00	-18.16	AVG
7356.000	33.55	13.08	46.63	74.00	-27.37	peak
7356.000	22.63	13.08	35.71	54.00	-18.29	AVG
9808.000	33.27	17.60	50.87	74.00	-23.13	peak
9808.000	21.88	17.60	39.48	54.00	-14.52	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	23.6(°C)/ 46%RH
Test Item	Harmonic	Test Date	March 27, 2017
Polarize	Horizontal	Test Engineer	ED Chiang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4904.000	39.80	5.31	45.11	74.00	-28.89	peak
4904.000	30.15	5.31	35.46	54.00	-18.54	AVG
7356.000	33.19	13.08	46.27	74.00	-27.73	peak
7356.000	22.76	13.08	35.84	54.00	-18.16	AVG
9811.000	40.50	17.60	58.10	74.00	-15.90	peak
9811.000	29.75	17.60	47.35	54.00	-6.65	AVG

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit