RADIO TEST REPORT
FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247

Test Standard	**FCC Part 15.247 and IC RSS-247 issue 2**
FCC ID	**A4C-1000CA**
ISED ID	**10199A-1000CA**
Product name	**TND™ 740**
Brand Name	**Rand McNally**
Test Result	**Pass**

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. lnc.

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

Approved by:

Davis Tseng
Sr. Engineer

Reviewed by:

Zeus Chen
Supervisor

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	January 20, 2017	Initial Issue	Angel Cheng
01	March 17, 2017	1. Revise section 4.6.2 Duty Cycle in page 39. 2. Add Remark in page 38.	Doris Chu
02	April 11, 2017	1. Update to RSS-247 issue 2 in page 1.	Angel Cheng
03	April 12, 2017	1. Update the test result sections in page 16, 21, 23	Angel Cheng

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	RM Acquisition, LLC 9855 Woods Drive Skokie, IL 60077 USA
Equipment	TND™ 740
Model No.	TND 740
Model Discrepancy	N/A
EUT Functions	IEEE 802.11bgn+BT+GPS
Received Date	Jan, 03, 2017
Date of Test	Jan 03 ~ Jan 19, 2017
Output Power(W)	IEEE 802.11b mode: 0.0185 (EIRP : 0.0348) IEEE 802.11g mode: 0.70757 (EIRP : 0.1426) IEEE 802.11n HT 20 MHz mode: 0.0621 (EIRP : 0.1169)
Power Operation	☐ AC 120V/60Hz ☐ Adapter(Not for sale) ☐ PoE(Not for sale) ☒ Host system ☒ DC Type : ☒ Battery ☒ Car Charger ☐ DC Power Supply ☐ External DC adapter

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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
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

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**
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Category	☒ Integral: antenna permanently attached ☐ External dedicated antennas ☐ External Unique antenna connector
Antenna Type	☒ PIFA ☐ PCB ☐ Dipole ☐ Coils
Antenna Gain	2.75 (dBi)

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1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 1.4003
RF output power, conducted	+/- 1.1372
Power density, conducted	+/- 1.4003
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683
3M Semi Anechoic Chamber / 40G~60G	+/- 1.8509
3M Semi Anechoic Chamber / 60G~75G	+/- 1.9869
3M Semi Anechoic Chamber / 75G~110G	+/- 2.9651
3M Semi Anechoic Chamber / 110G~170G	+/- 2.7807
3M Semi Anechoic Chamber / 170G~220G	+/- 3.6437
3M Semi Anechoic Chamber / 220G~325G	+/- 4.2982

***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.

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1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at *No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)*

Test site	Test Engineer	Remark
AC Conduction Room	David Cheng	-
Radiation	Kevin Kuo	-
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**
Spectrum Analyzer	R&S	FSV 40	101073	08/01/2017	07/31/2017

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Due**	**Cal Due**
Bi-log Antenna	TESEQ	CBL 6112D	35403	07/03/2016	07/02/2017
Double Ridged BroadBand Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-778	07/15/2016	07/14/2017
Double Ridged Guide Horn Antenna	ETS・LINDGREN	3117	00078733	11/17/2016	11/16/2017
EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100221	04/27/2016	04/26/2017
Horn Antenna	COM-POWER	AH-840	03077	12/02/2016	12/01/2017
Loop Antenna	COM-POWER	AL-130	121060	05/24/2016	05/23/2017
Preamplifier	Agilent	8447D	2944A10052	07/13/2016	07/12/2017
Preamplifier	Agilent	8449B	3008A01916	07/13/2016	07/12/2017
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	04/13/2016	04/12/2017
Software	E3.815206a				

AC Conducted Emissions Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
EMI Test Receiver	R&S	ESCI	101201	08/20/2016	08/19/2017
LISN	Schwarzbeck	NNLK 8129	8129-286	08/19/2016	08/18/2017
LISN(EUT)	Schwarzbeck	NSLK 8127	8127-527	08/19/2016	08/18/2017
Pulse Limiter	R&S	ESH3Z2	C3010026-2	08/21/2016	08/22/2017
Software	EZ-EMC				

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

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1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
1	Car Charger	N/A	N/A	N/A	N/A
2	Docking	N/A	N/A	N/A	N/A

Support Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
1	Notebook	Acer	Z01	N/A	QDS-BRCM1018
2	Battery	YUASA	CMF75D23L	N/A	N/A
3	PS/2 Mouse	hp	M-SBF96	FATSQDC5BYJQKZ	FCC DoC
4	PS/2 Keyboard	Genius	K939	N/A	FCC DoC
5	Microphone & Earphone	INTOPIC	JASS-288	N/A	N/A
6	Monitor	DELL	P2314Ht	CN-0HMJ1V-74445-46S-156S	FCC DoC
7	Host PC	DELL	T5810	8G5NKG2	N/A
8	Modem	GALILEO	AL-56ERM	0MERM04A0212	FCC DoC
9	Printer	HP	SNPRB-1202-01	CN54K182G9	N/A

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 2 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: TW0240
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	IC 2324G-1 IC 2324G-2

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2. TEST SUMMERY

FCC Standard Section	ISED Standard Section	Chapter	Test Item	Result
15.203	-	1.2	Antenna Requirement	Pass
15.207	RSS-GEN 8.8	4.1	AC Conducted Emission	Pass
15.247(a)(2)	RSS-247(5.2)(a)	4.2	6 dB Bandwidth	Pass
-	RSS-GEN 6.6	4.2	Occupied Bandwidth (99%)	-
15.247(b)	RSS-247(5.4)(d)	4.3	Output Power Measurement	Pass
15.247(e)	RSS-247(5.2)(b)	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-247(5.5)	4.6	Radiation Band Edge	Pass
15.247(d)	RSS-247(5.5)	4.6	Radiation Spurious Emission	Pass

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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 :MCS0
Test Channel Frequencies	**IEEE 802.11b mode :** 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz **IEEE 802.11g mode :** 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz **IEEE 802.11n HT20 mode :** 1. Lowest Channel : 2412MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2462MHz

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

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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 via USB Cable
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ 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 via USB Cable
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
Worst Position	☐ Placed in fixed position. ☐ Placed in fixed position at X-Plane (E2-Plane) ☒ Placed in fixed position at Y-Plane (E1-Plane) ☐ Placed in fixed position at Z-Plane (H-Plane)
Worst Polarity	☐ Horizontal ☒ Vertical

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by host system via USB Cable Mode 2:EUT power by Car charger via Power Board(Charger mode)
Worst Mode	☒ Mode 1 ☒ Mode 2 ☐ Mode 3 ☐ Mode 4

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(Y-Plane and Vertical) were recorded in this report.

3. For below 1G AC power line conducted emission and radiation emission were performed the EUT transmit at the Maximum bandwidth and Middle channel as worse case.

4. EUT power supply had two ways (Car charger, by host system),that EUT pre-scanned two power supply(Car charger and host system) at Radiated below 1G, and the worst case was host system mode.

5. EUT Transmit only can by host system to set, and we tested car Car charger in Charger mode. Therefore EUT used host system mode for Radiated measurement above 1G and Conduction below 1G in test report.

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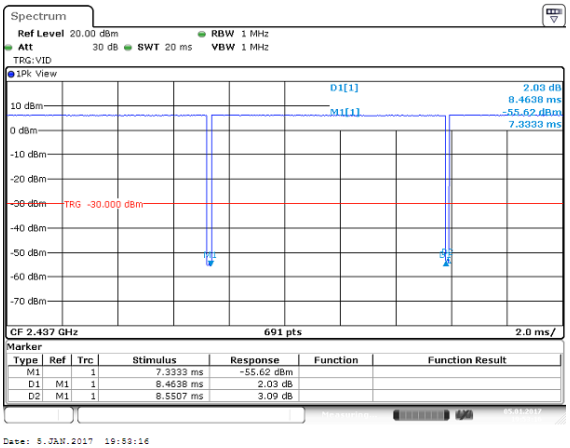
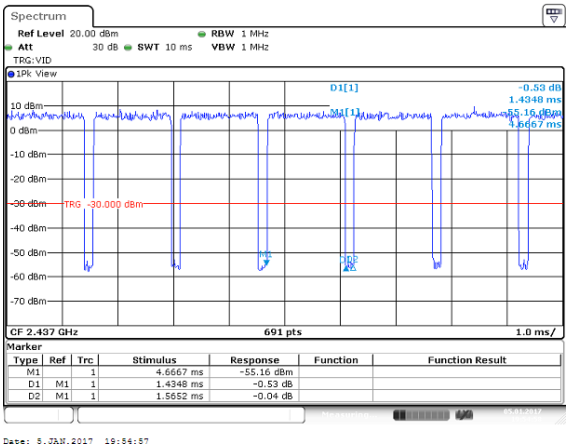
3.3 EUT DUTY CYCLE

Duty Cycle				
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)
802.11b	8.46	8.60	98.98	0.04
802.11g	1.4348	1.5652	91.67	0.38
802.11n HT20	1.3333	1.4783	90.19	0.45

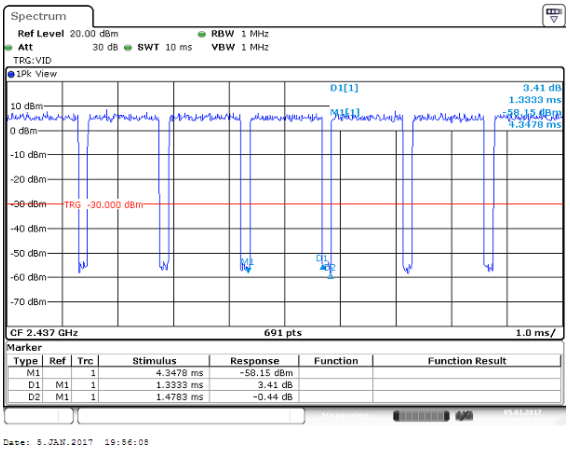
802.11b



802.11g



802.11n HT20



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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

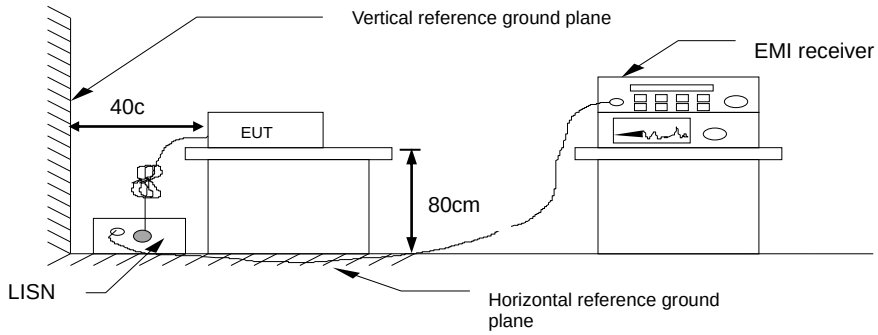
* Decreases with the logarithm of the frequency.

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.

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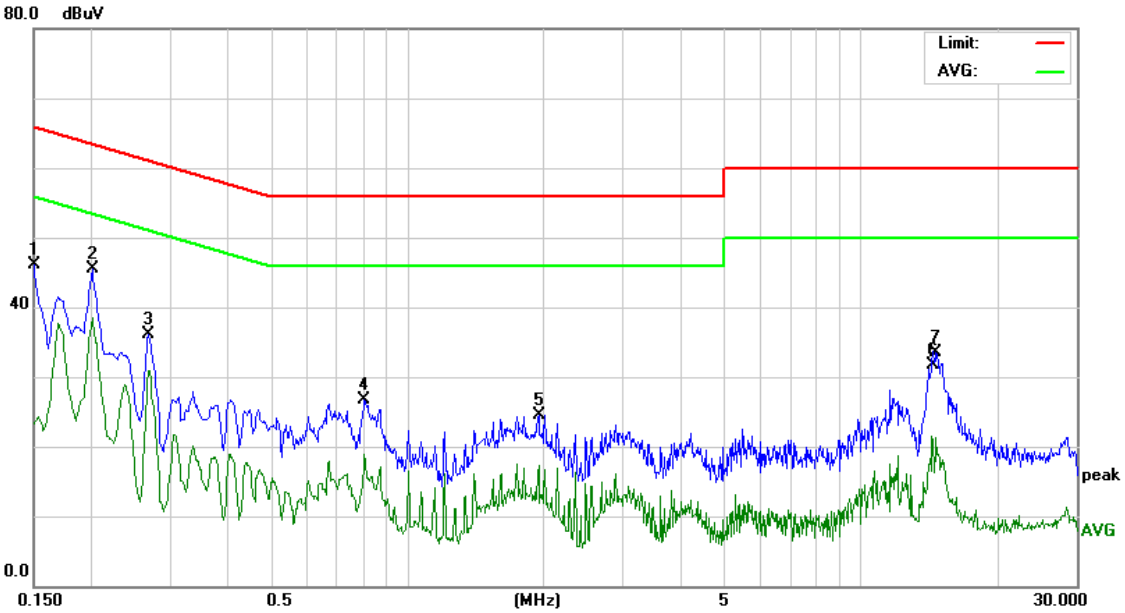
Test Data

Test Mode:	Mode 1	Temp/Hum	24(℃)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	Jan 06, 2017
Phase:	Line	Test Engineer	David Cheng



Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dB)	Limit (dBuV)	Margin (dBuV)	Detector (dBuV)
0.1500	36.03	10.09	46.12	65.99	-19.87	Peak
0.2020	35.36	10.10	45.46	63.52	-18.06	Peak
0.2700	25.98	10.11	36.09	61.12	-25.03	Peak
0.8059	16.62	10.12	26.74	56.00	-29.26	Peak
1.9500	14.20	10.29	24.49	56.00	-31.51	Peak
14.3740	20.83	10.80	31.63	60.00	-28.37	Peak

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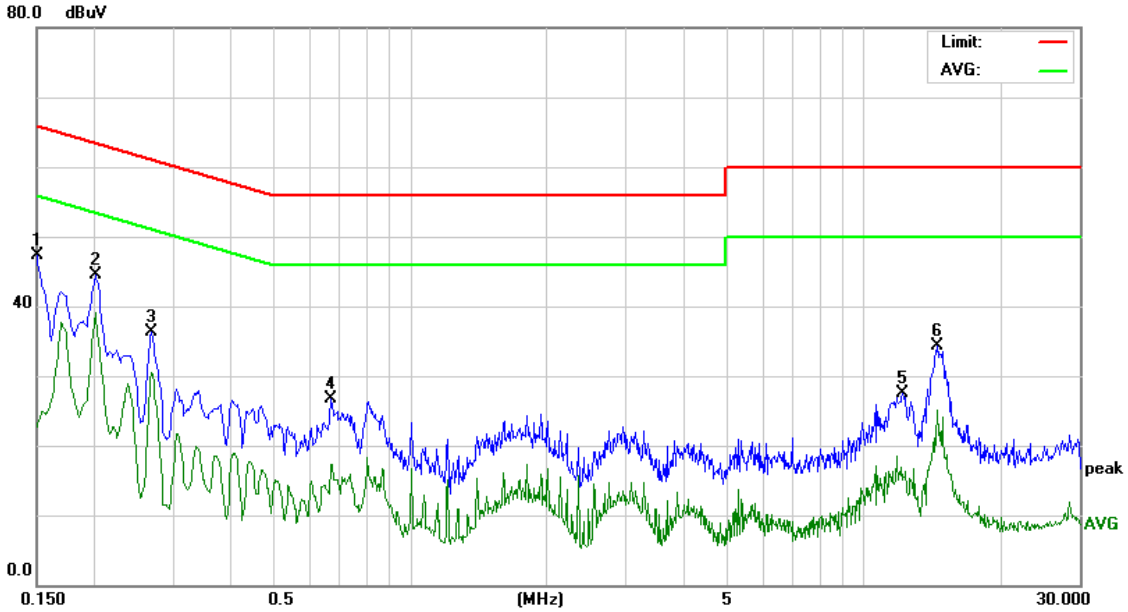
Test Mode:	Mode 1	Temp/Hum	27(℃)/ 53%RH
Test Voltage:	120Vac / 60Hz	Test Date	Jan 06, 2017
Phase:	Neutral	Test Engineer	David Cheng



Frequency (MHz)	Reading (dBuV)	Factor (dB)	Result (dB)	Limit (dBuV)	Margin (dBuV)	Detector (dBuV)
0.1500	37.18	10.05	47.23	65.99	-18.76	Peak
0.2020	34.40	10.01	44.41	63.52	-19.11	Peak
0.2700	26.29	10.04	36.33	61.12	-24.79	Peak
0.6700	16.56	10.13	26.69	56.00	-29.31	Peak
12.2140	16.83	10.74	27.57	60.00	-32.43	Peak
14.5620	23.51	10.85	34.36	60.00	-25.64	Peak

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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

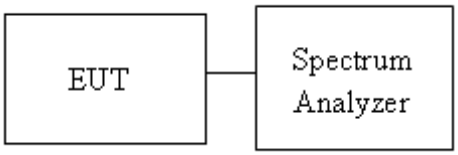
Occupied Bandwidth(99%) ： For reporting purposes only.

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 & 6.9.3.

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



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4.2.4 Test Result

Test mode: IEEE 802.11b mode / 2412-2462 MHz				
Channel	**Frequency (MHz)**	**OBW(99%) (MHz)**	**6dB BW (MHz)**	**6dB limit (kHz)**
Low	2412	12.5470	9.6087	≥500
Mid	2437	16.1070	10.1304	
High	2462	16.1939	9.6087	

Test mode: IEEE 802.11g mode / 2412-2462 MHz				
Channel	**Frequency (MHz)**	**OBW(99%) (MHz)**	**6dB BW (MHz)**	**6dB limit (kHz)**
Low	2412	16.6375	15.7826	≥500
Mid	2437	16.8451	16.1304	
High	2462	17.0188	15.7826	

Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz				
Channel	**Frequency (MHz)**	**OBW(99%) (MHz)**	**6dB BW (MHz)**	**6dB limit (kHz)**
Low	2412	17.5397	16.3478	≥500
Mid	2437	17.6087	17.6087	
High	2462	17.8437	16.3913	

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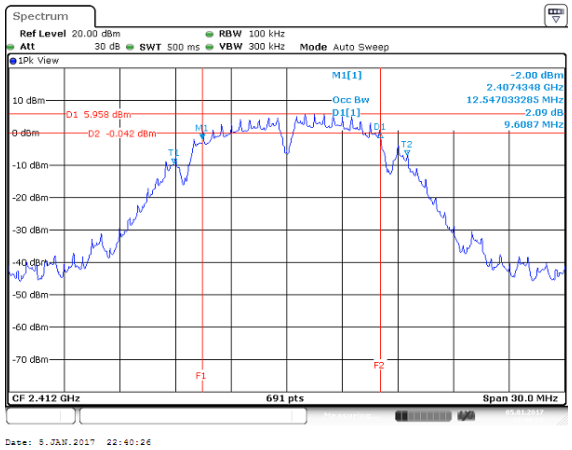
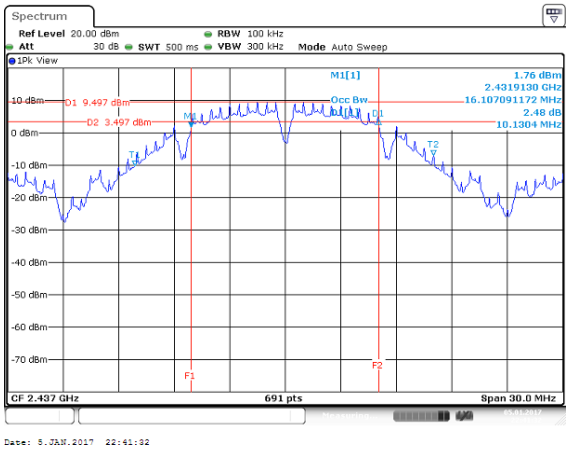
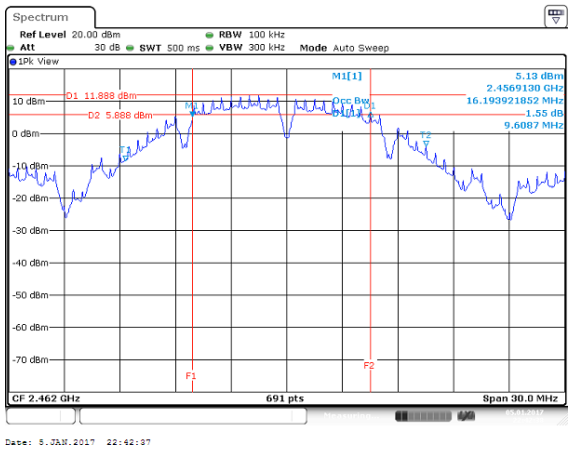
Test Data

IEEE 802.11b mode	
Low CH	**Mid CH**
	
High CH	
	

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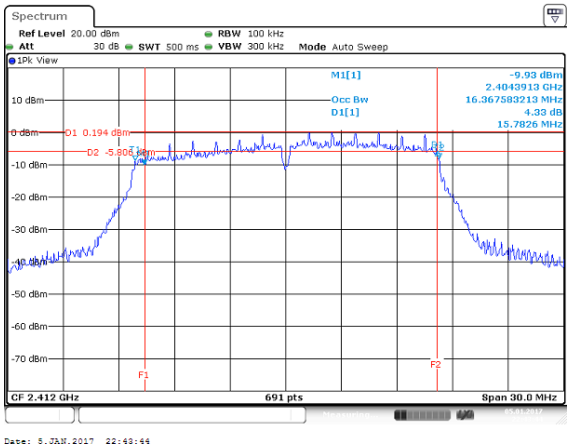
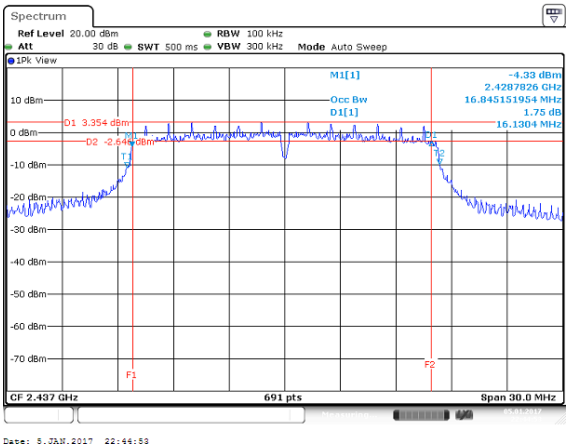
IEEE 802.11g mode

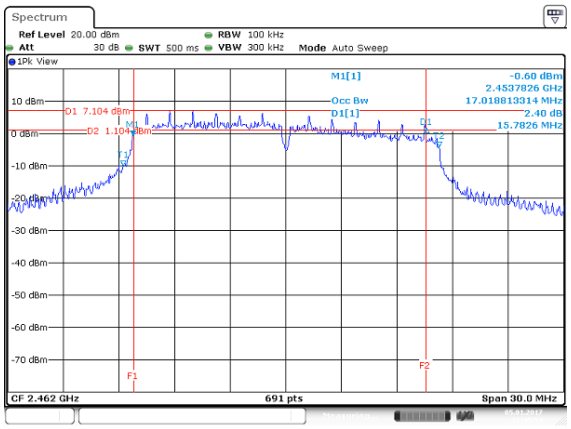
Low CH



Mid CH



High CH



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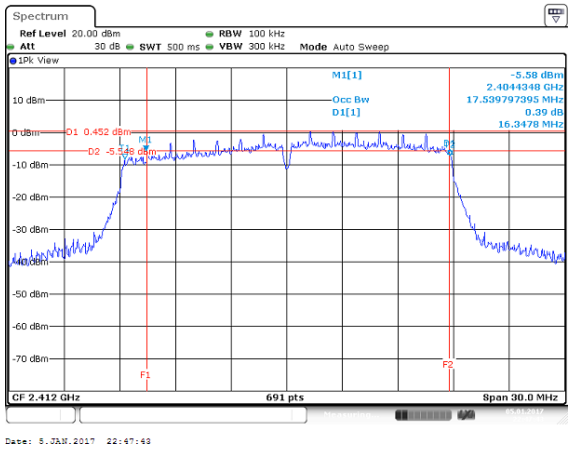
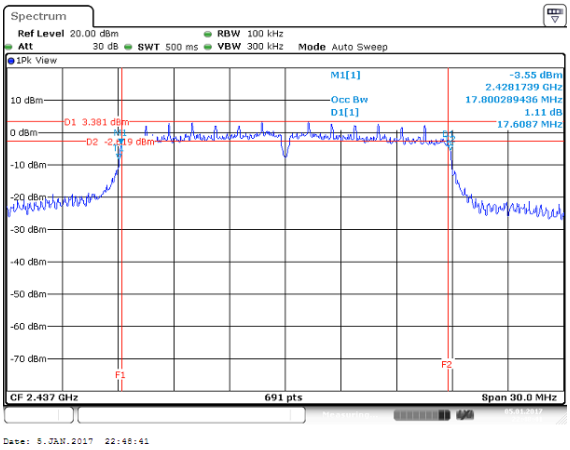
IEEE 802.11n HT20 mode	
Low CH	**Mid CH**
	
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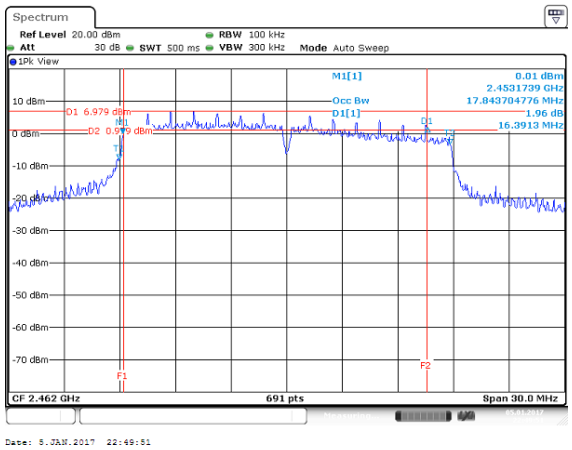	

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4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

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

Peak output power：

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 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	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)] ☐ Point-to-point operation：

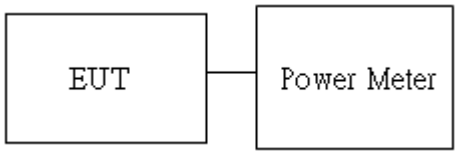
Average output power：For reporting purposes only.

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



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4.3.4 Test Result

Peak output power：

Wifi 2.4G							
Config	CH	Freq. (MHz)	PK Total Power (dBm)	EIRP PK Total Power (dBm)	PK Total Power (W)	EIRP PK Total Power (W)	Limit (dBm)
IEEE 802.11b Data rate: 1Mbps	Low	2412	12.67	15.42	0.0185	0.0348	30
	Mid	2437	12.54	15.29	0.0179	0.0338	
	High	2462	11.21	13.96	0.0132	0.0249	
IEEE 802.11g Data rate: 6Mbps	Low	2412	18.79	21.54	0.0757	0.1426	
	Mid	2437	17.75	20.50	0.0596	0.1122	
	High	2462	16.68	19.43	0.0466	0.0877	
IEEE 802.11n HT20 Data rate: MCS0	Low	2412	17.72	20.47	0.0592	0.1114	
	Mid	2437	17.19	19.94	0.0524	0.0986	
	High	2462	17.93	20.68	0.0621	0.1169	

Average output power：

Wifi 2.4G			
Config	CH	Freq. (MHz)	AV Total Power (dBm)
IEEE 802.11b Data rate: 1Mbps	Low	2412	10.84
	Mid	2437	11.25
	High	2462	9.68
IEEE 802.11g Data rate: 6Mbps	Low	2412	9.36
	Mid	2437	7.92
	High	2462	6.43
IEEE 802.11n HT20 Data rate: MCS0	Low	2412	7.98
	Mid	2437	8.05
	High	2462	8.68

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4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

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

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.

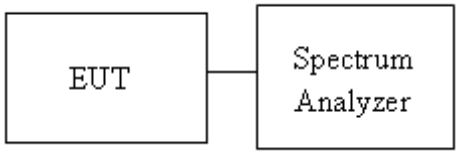
Limit	☒ Antenna not exceed 6 dBi：8dBm ☐ Antenna with DG greater than 6 dBi [Limit = 8 – (DG – 6)] ☐ Point-to-point operation：

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



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4.4.4 Test Result

Test mode: IEEE 802.11b mode / 2412-2462 MHz			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	2412	-11.84	8
Mid	2437	-13.56	
High	2462	-13.21	

Test mode: IEEE 802.11g mode / 2412-2462 MHz			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	2412	-14.96	8
Mid	2437	-17.42	
High	2462	-18.04	

Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	2412	-17.91	8
Mid	2437	-17.71	
High	2462	-15.69	

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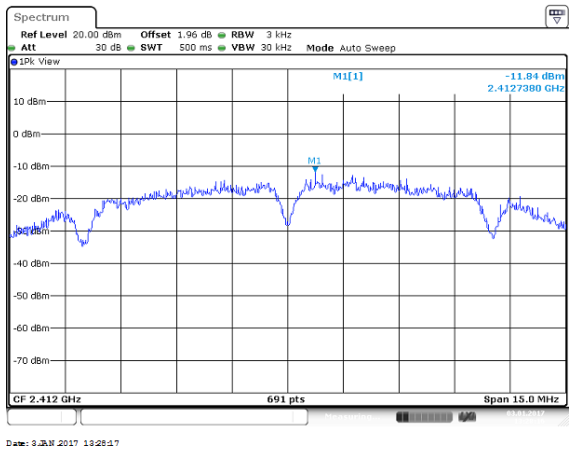
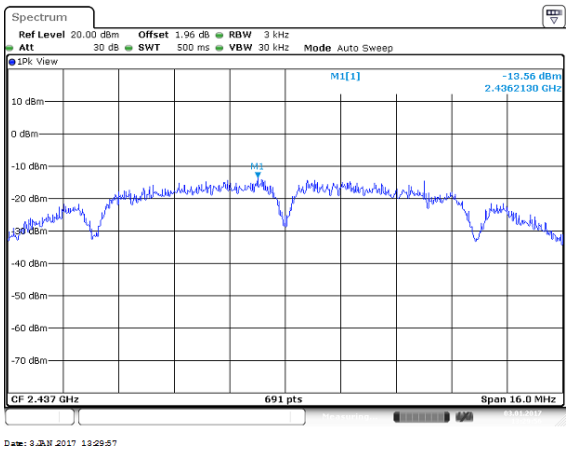
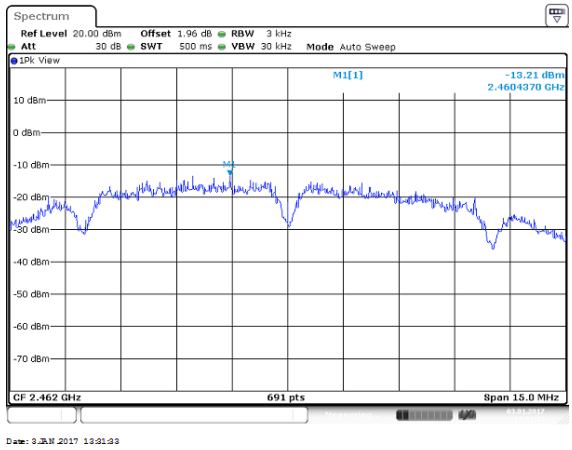
Test Data

IEEE 802.11b mode	
Low CH	**Mid CH**
	
High CH	
	

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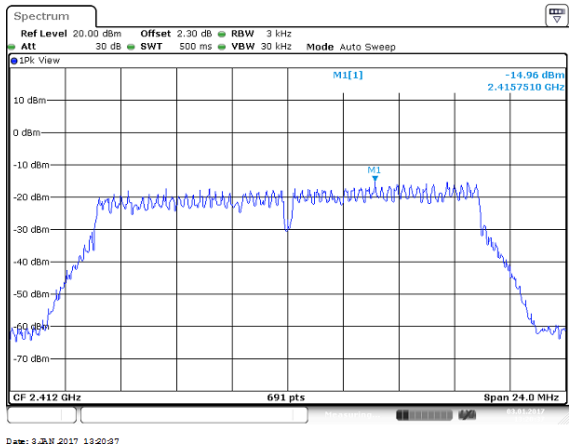
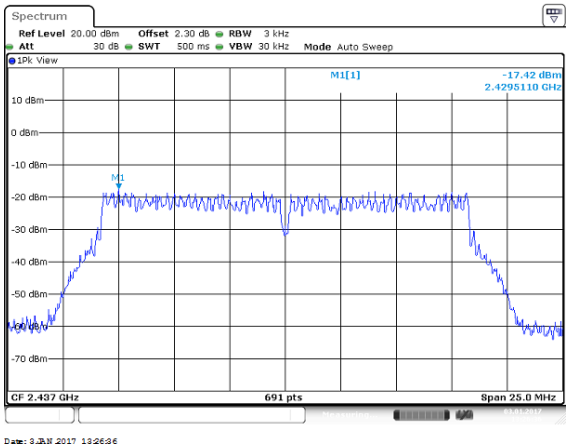
IEEE 802.11g mode

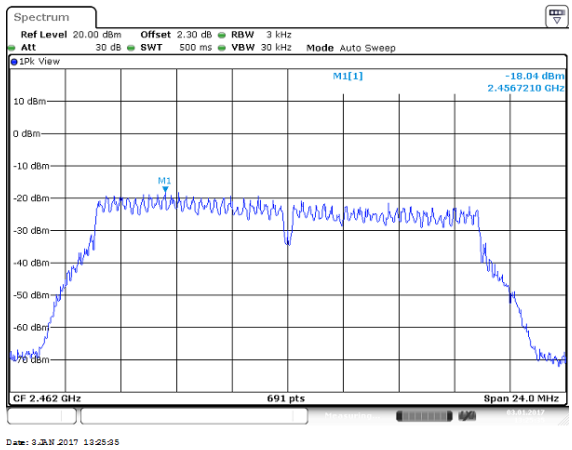
Low CH



Mid CH



High CH



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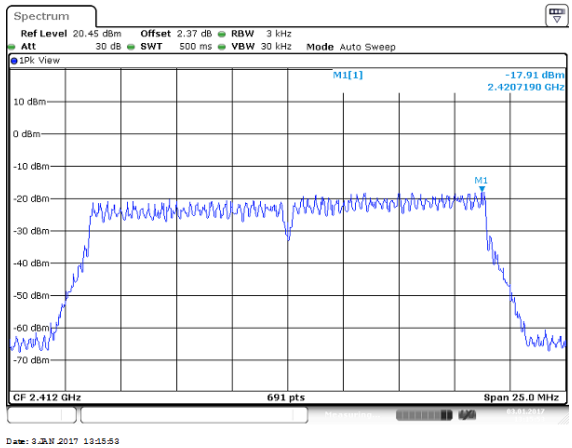
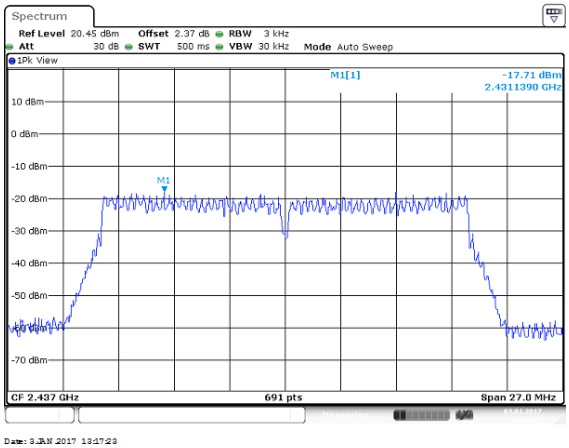
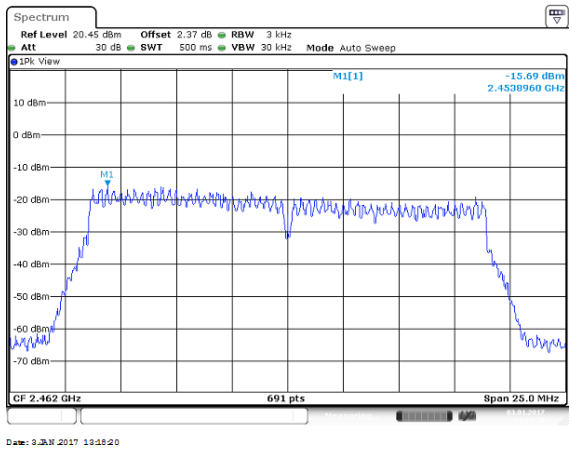
IEEE 802.11n HT20 mode	
Low CH	**Mid CH**
	
High CH	
	

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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

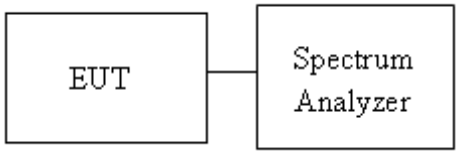
Test method Refer as KDB 558074 D01 v03r05, Section 11.

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. f 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



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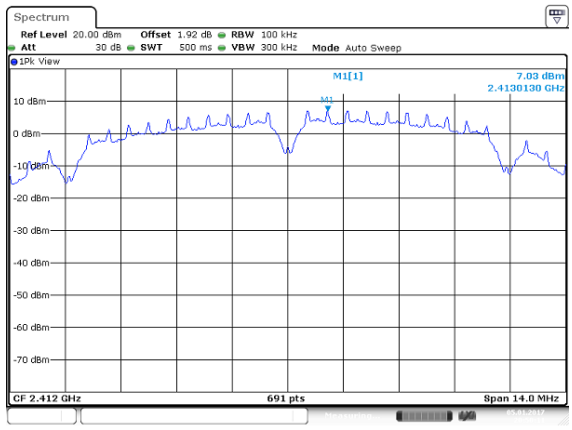
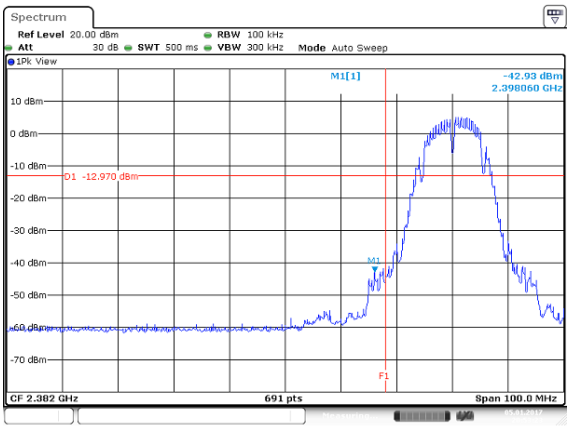
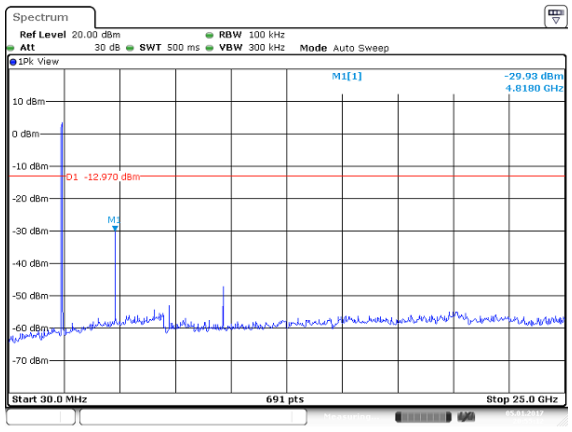
4.5.4 Test Result

Test Data

IEEE 802.11b mode Low CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

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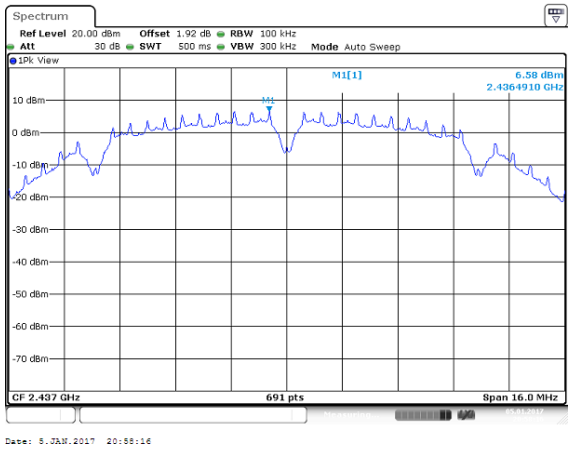
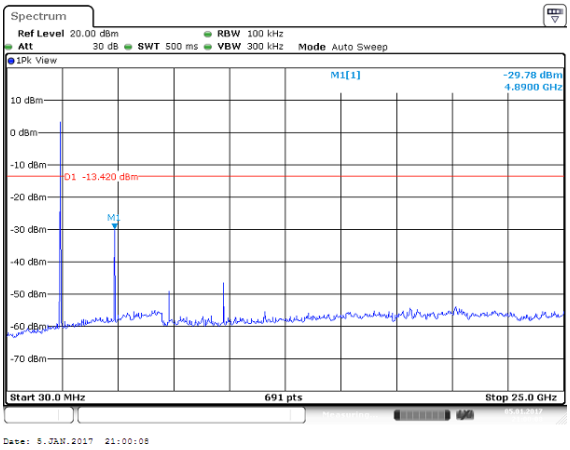
IEEE 802.11b mode Mid CH	
Reference Level of PSD in 100kHz	**Spurious Emission 30MHz-25GHz**
	

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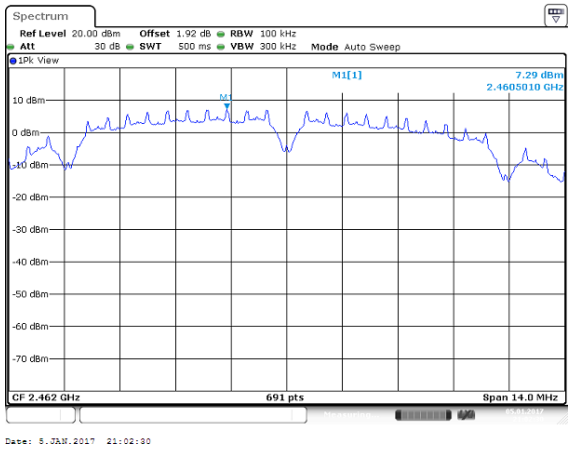
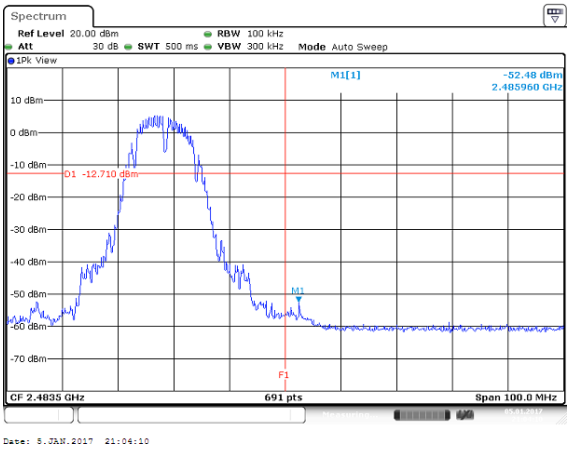
IEEE 802.11b mode High CH

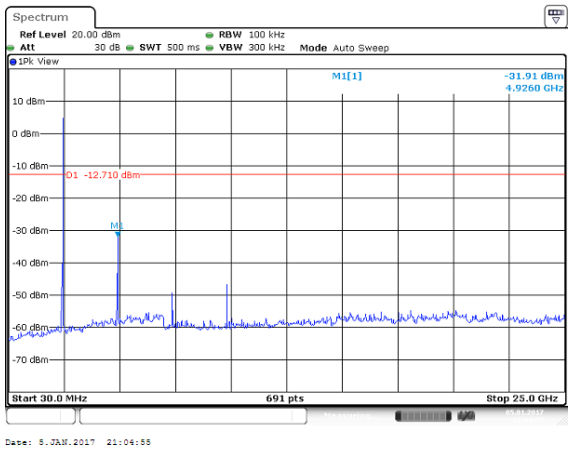
Reference Level of PSD in 100kHz



Band Edge



Spurious Emission 30MHz-25GHz



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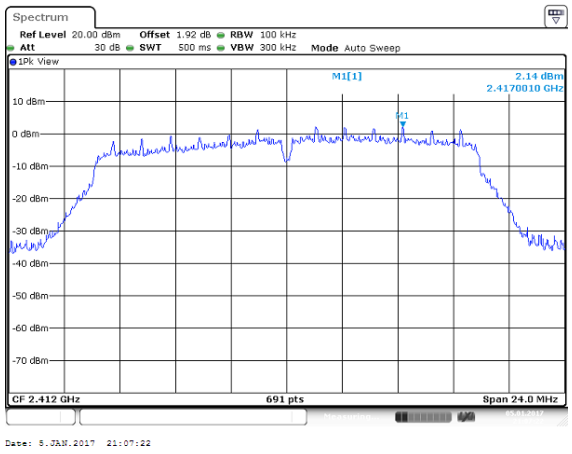
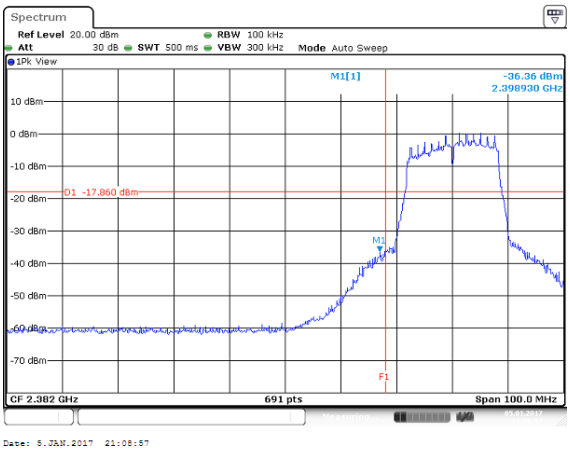
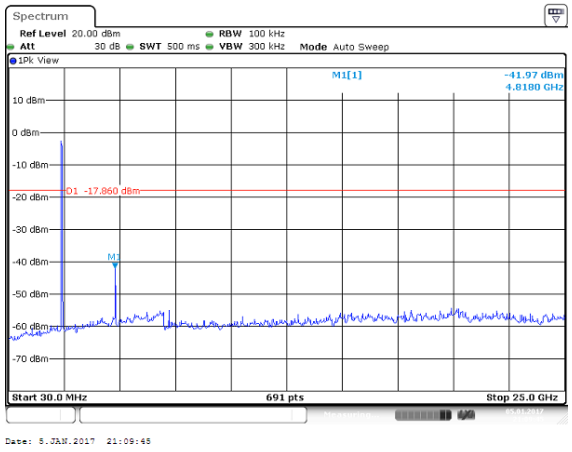
IEEE 802.11g mode Low CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

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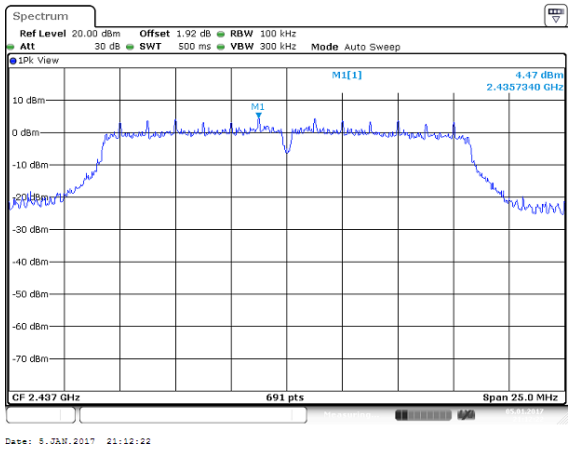
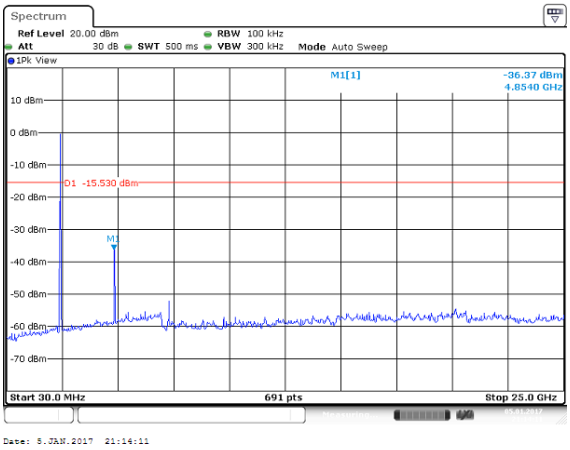
IEEE 802.11g mode Mid CH	
Reference Level of PSD in 100kHz	**Spurious Emission 30MHz-25GHz**
	

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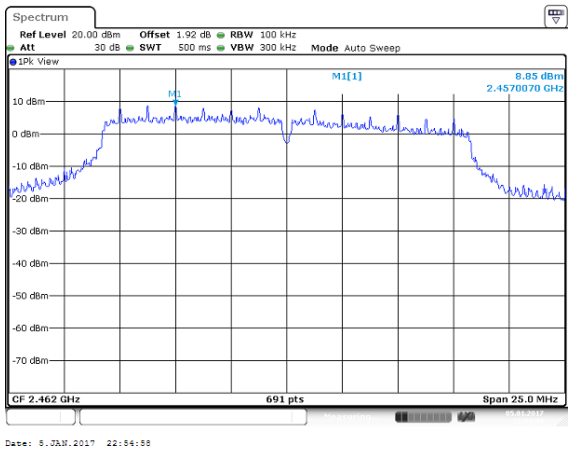
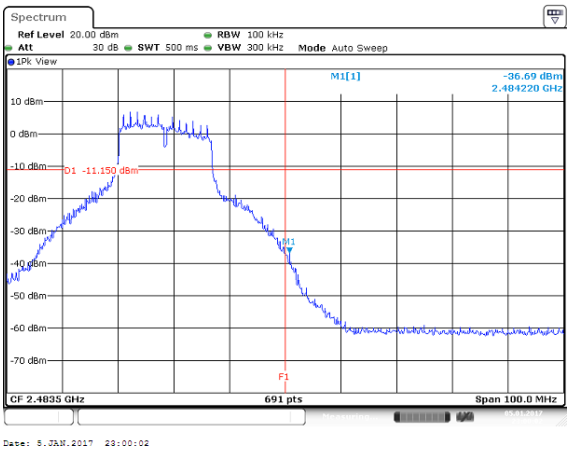
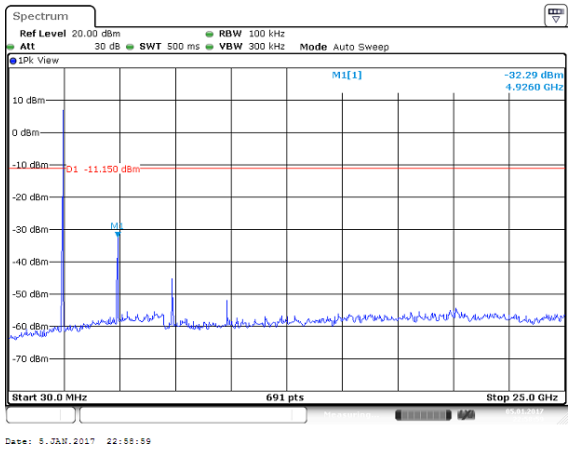
IEEE 802.11g mode High CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

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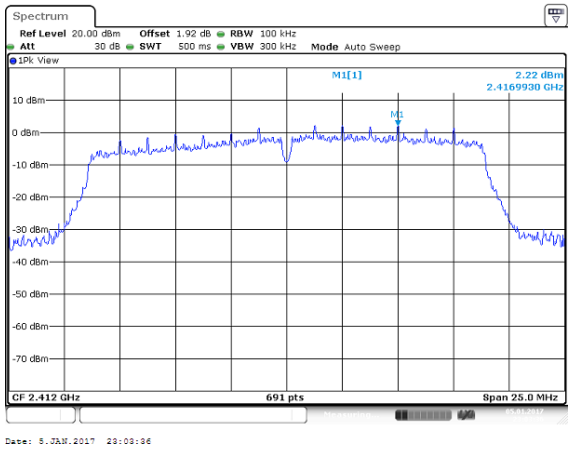
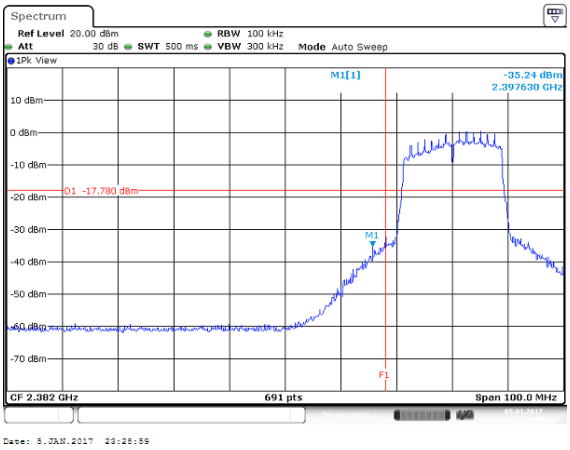
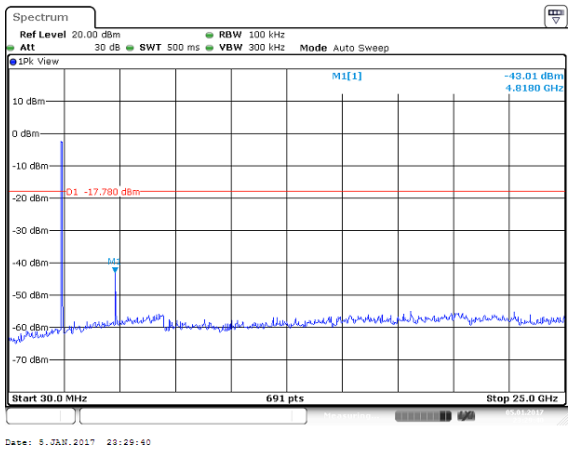
IEEE 802.11 n HT20 mode Low CH chain 0	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

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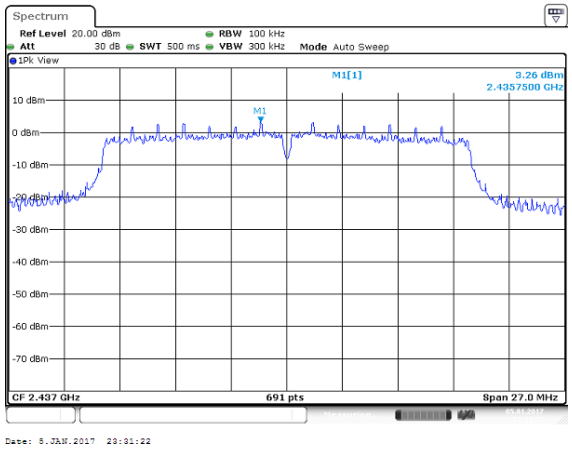
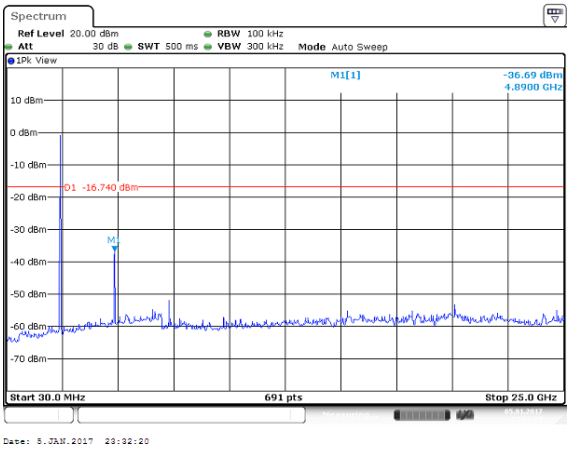
IEEE 802.11 n HT20 mode Mid CH	
Reference Level of PSD in 100kHz	**Spurious Emission 30MHz-25GHz**
	

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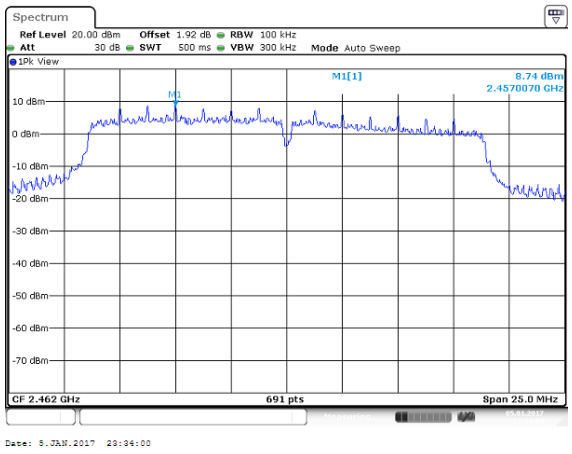
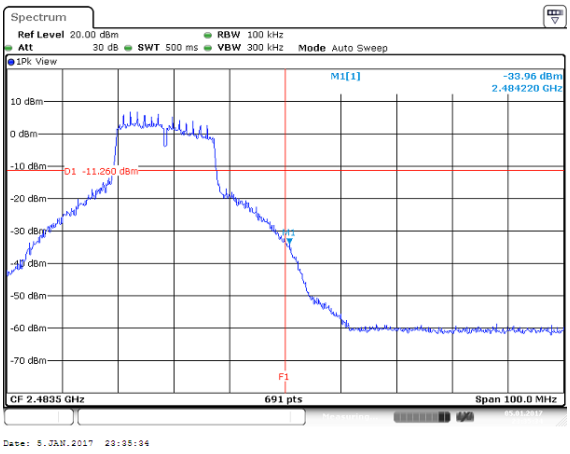
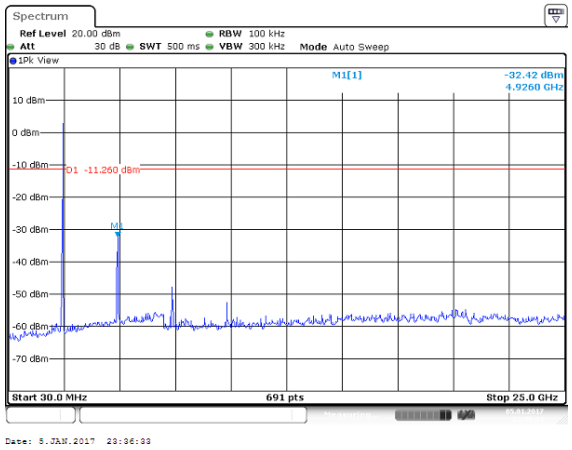
IEEE 802.11n HT20 mode High CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

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4.6 RADIATION BANDEDGE 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 (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Remark:
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606.

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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 (%)	VBW
802.11b	98.98%	10Hz
802.11g	91.67%	750Hz
802.11n HT20	90.19%	820Hz

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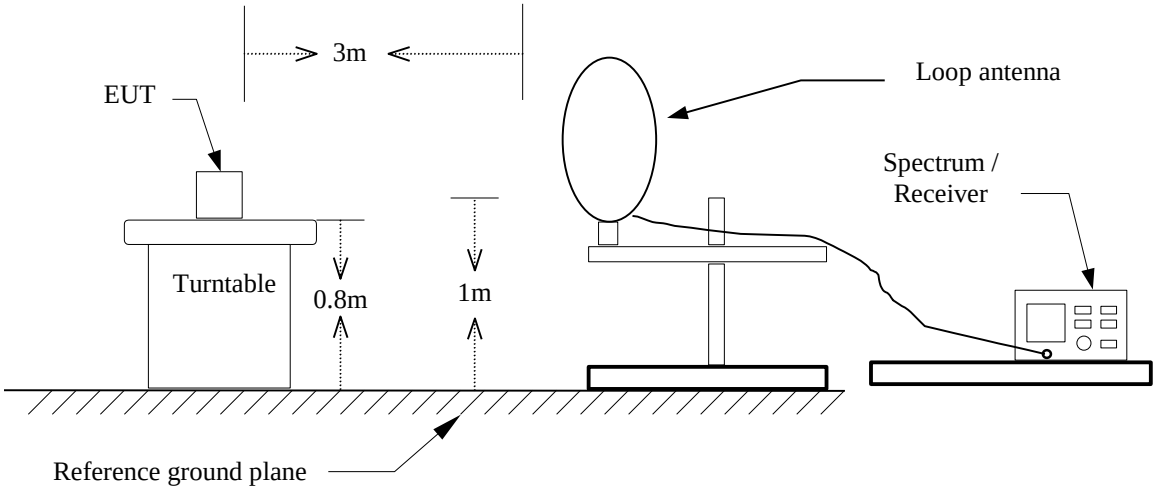
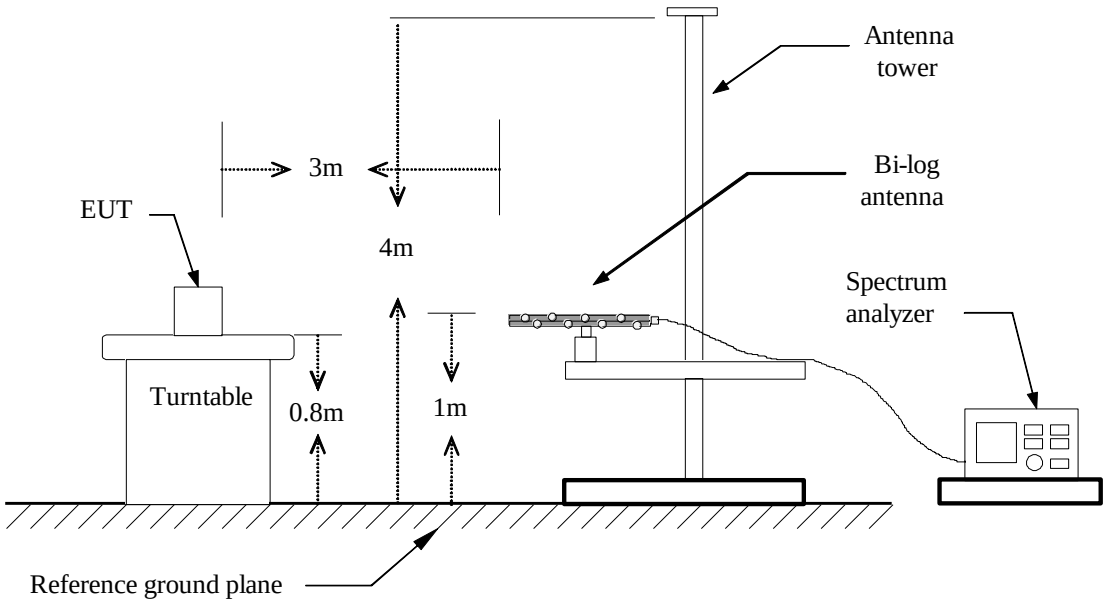
4.6.3 Test Setup

9kHz ~ 30MHz



30MHz ~ 1GHz



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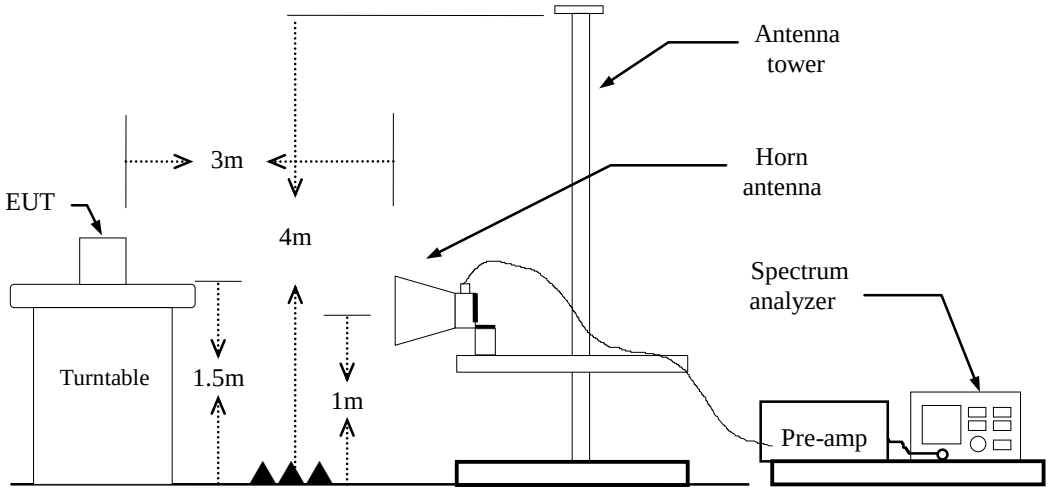
Above 1 GHz



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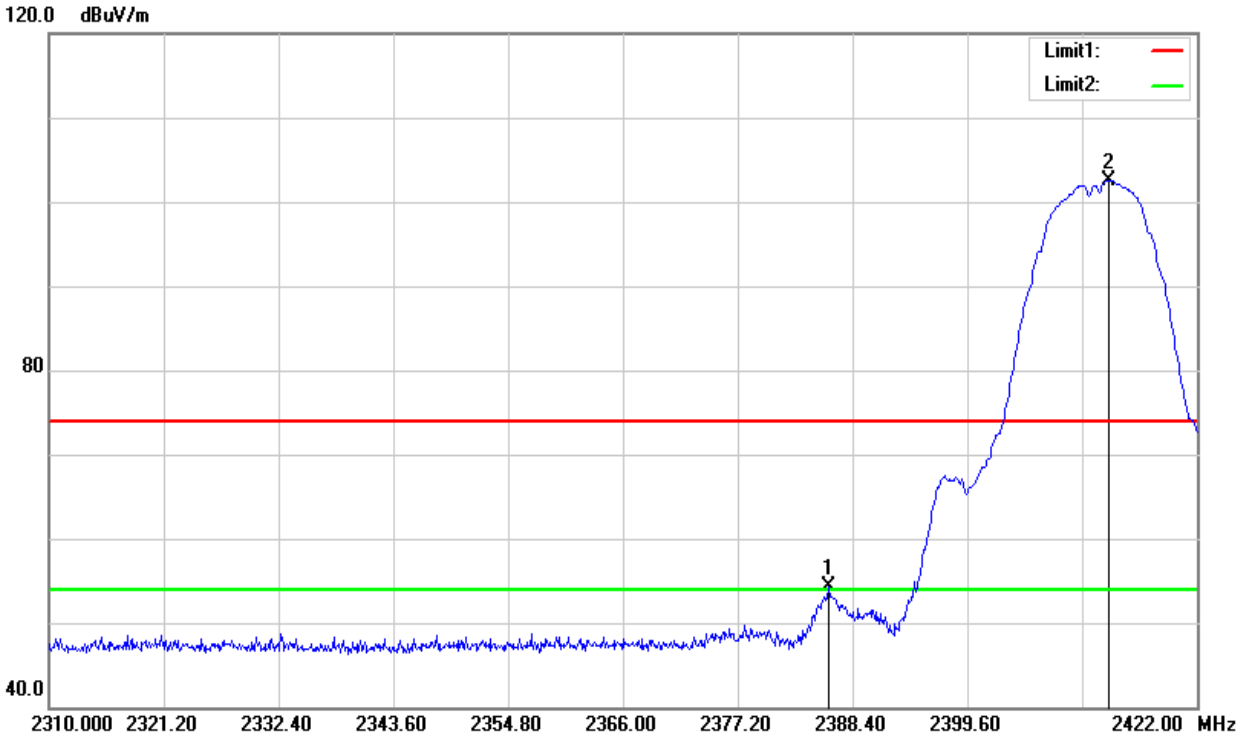
4.6.4 Test Result

Band Edge Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2386.048	56.75	-2.53	54.22	74.00	-19.78	Peak
2413.376	104.99	-2.41	102.58	-	-	Peak

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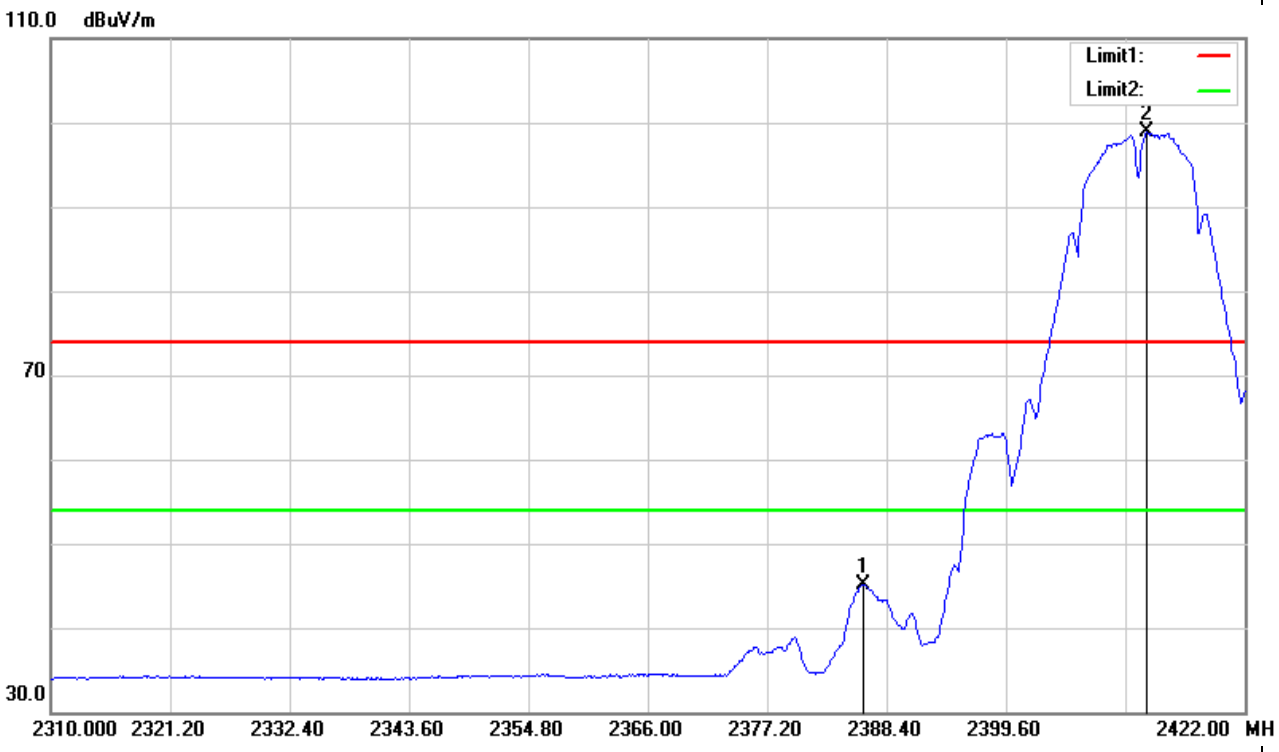
Test Mode	IEEE 802.11b Low CH	Temperature:	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2386.272	47.71	-2.52	45.19	54.00	-8.81	AVG
2412.816	101.22	-2.41	98.81	-	-	AVG

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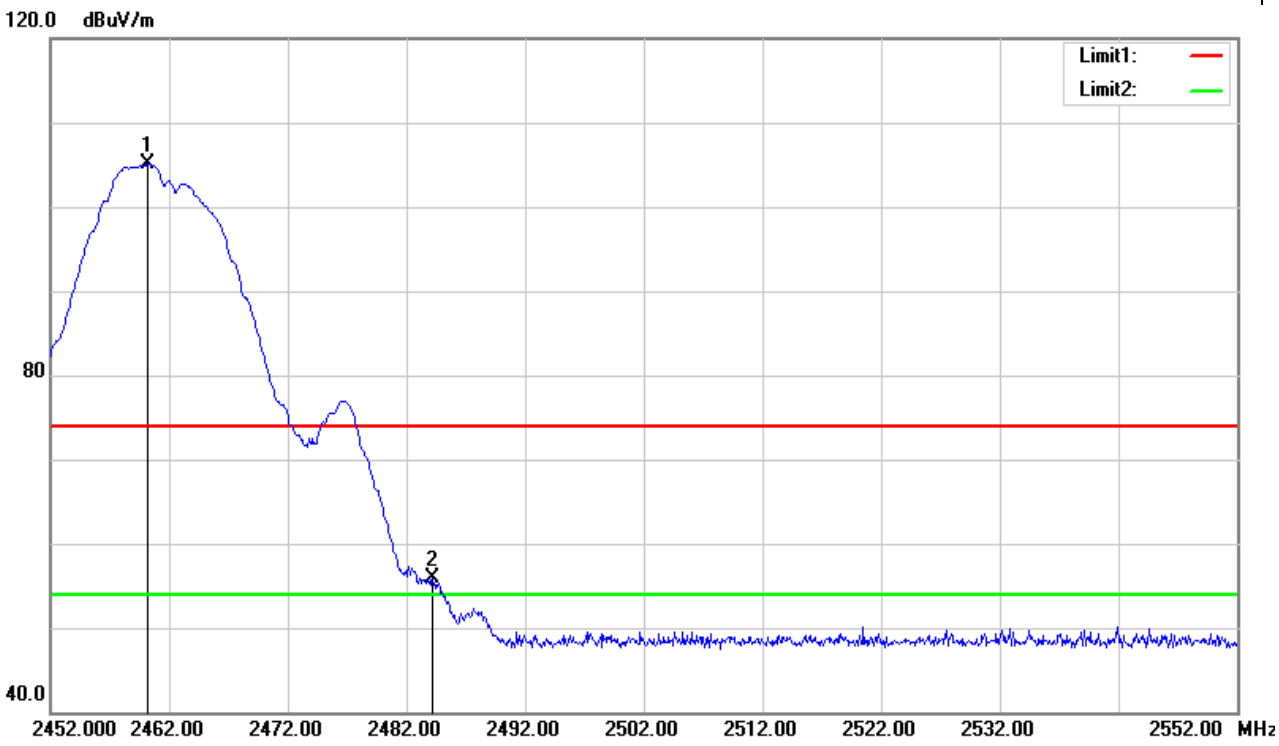
Test Mode	IEEE 802.11b High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2460.200	107.16	-2.10	105.06	-	-	Peak
2484.200	57.92	-1.99	55.93	74.00-	-18.07-	Peak

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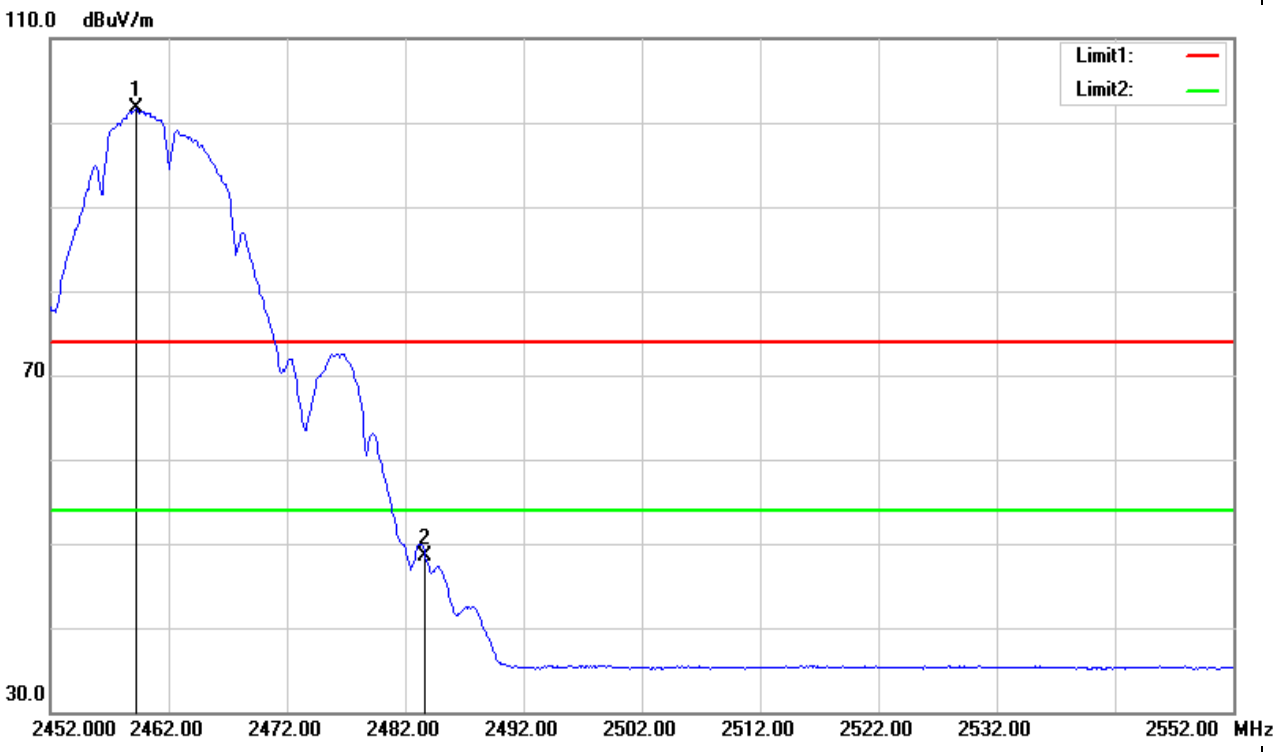
Test Mode	IEEE 802.11b High CH	Temperature:	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2459.300	103.78	-2.11	101.67	-	-	AVG
2483.700	50.47	-1.99	48.48	54.00	-5.52	AVG

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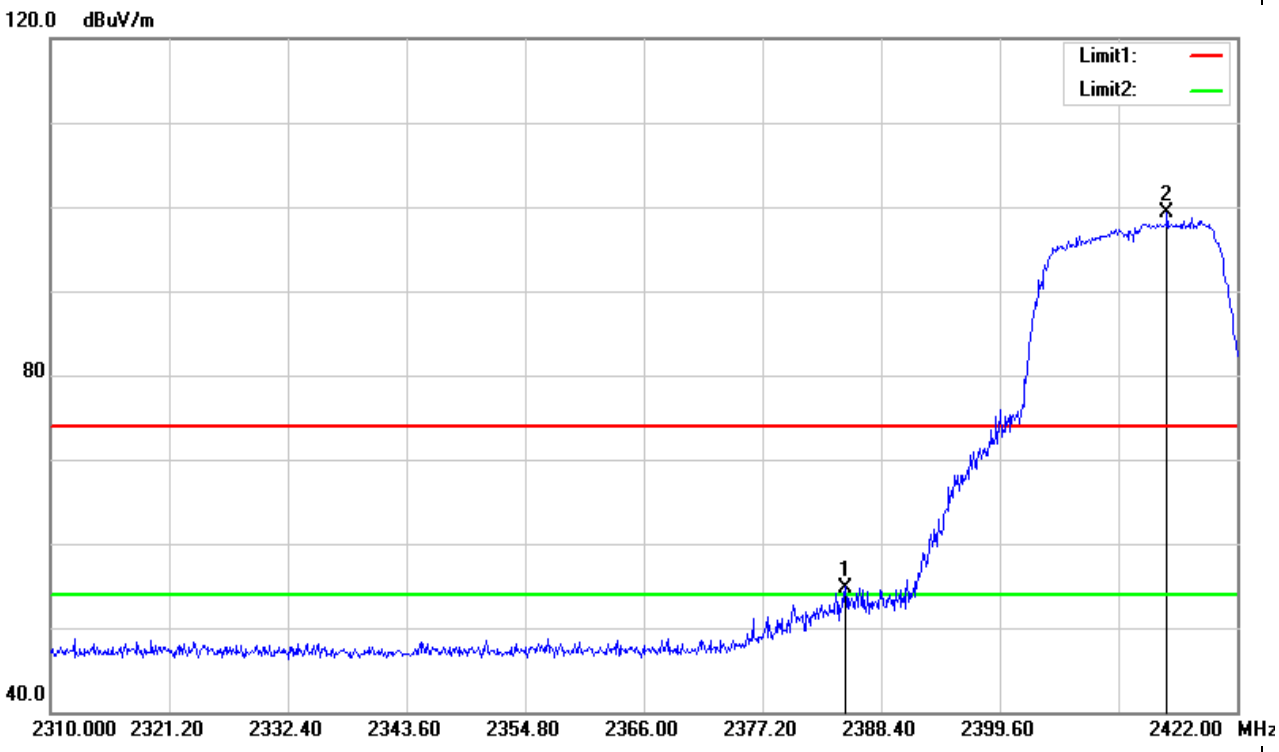
Test Mode	IEEE 802.11g Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2385.040	57.33	-2.53	54.80	74.00	-19.20	Peak
2415.392	101.72	-2.39	99.33	-	-	Peak

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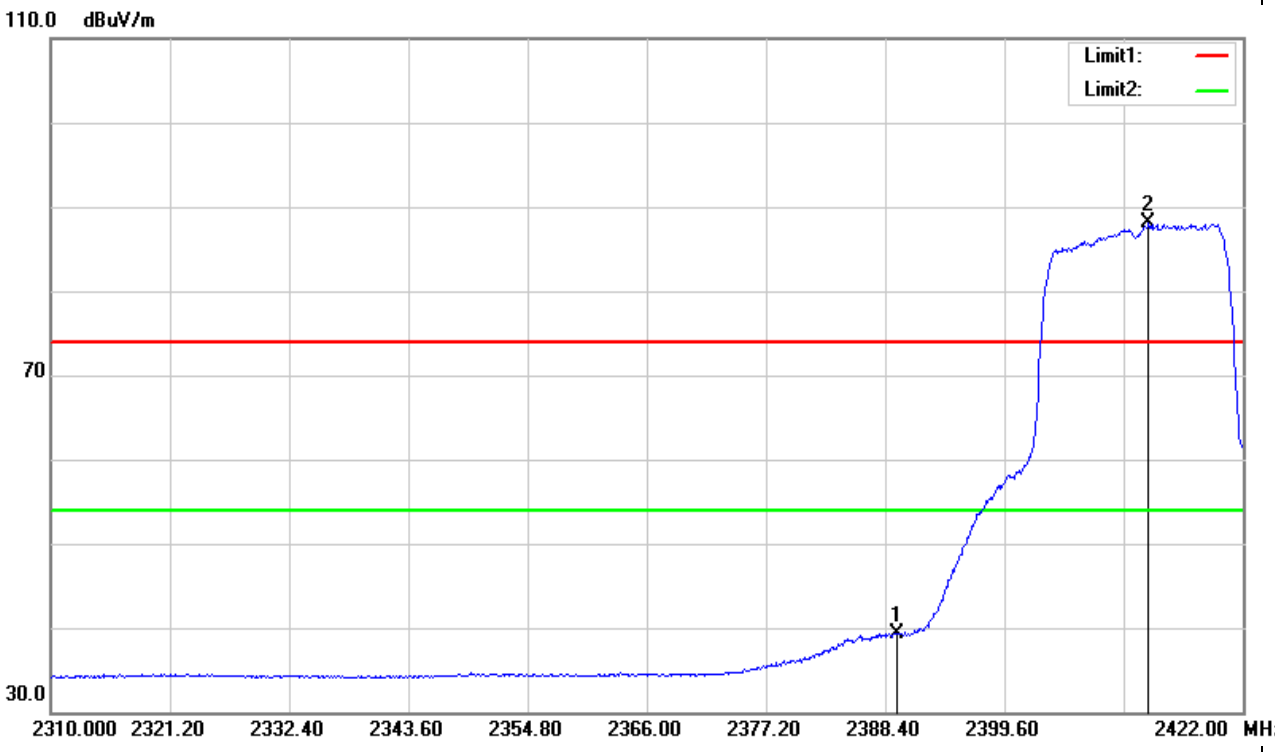
Test Mode	IEEE 802.11g Low CH	Temperature:	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.520	41.84	-2.49	39.35	54.00	-14.65	AVG
2413.152	90.55	-2.41	88.14	-	-	AVG

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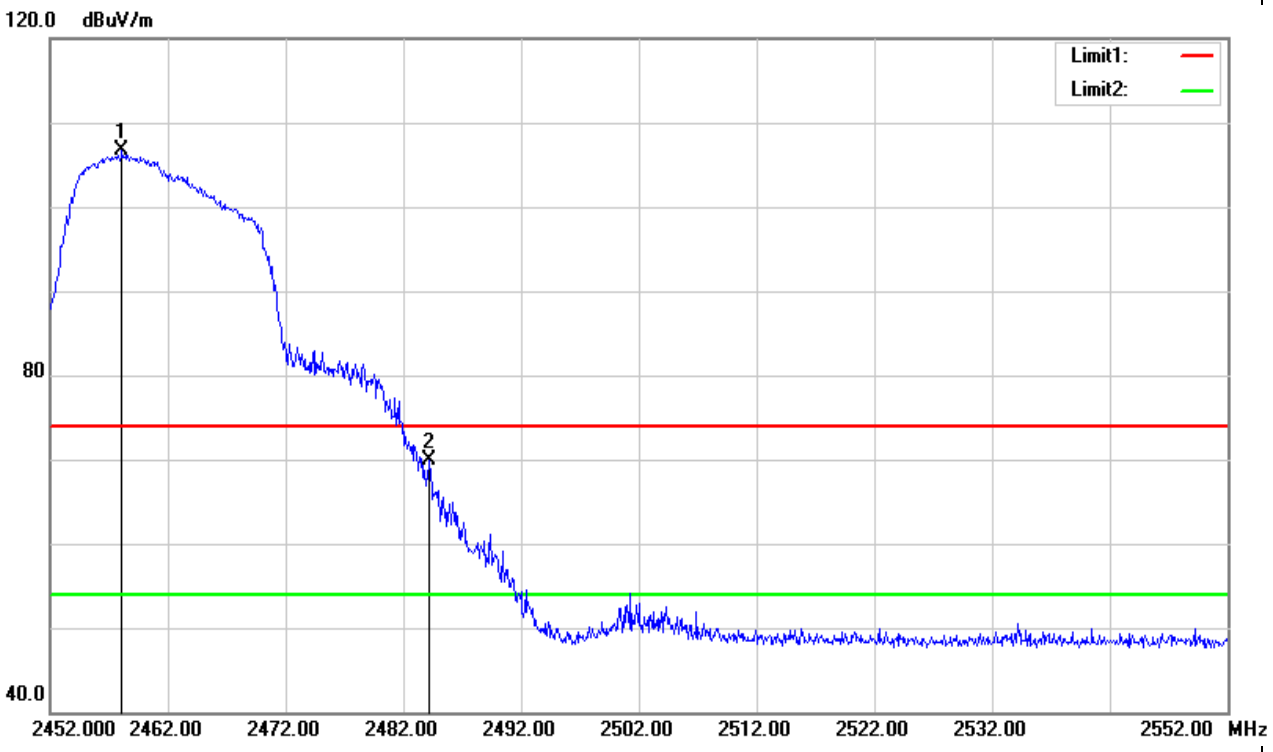
Test Mode	IEEE 802.11g High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2458.100	108.77	-2.11	106.66	-	-	Peak
2484.200	71.88	-1.99	69.89	74.00	-4.11	Peak

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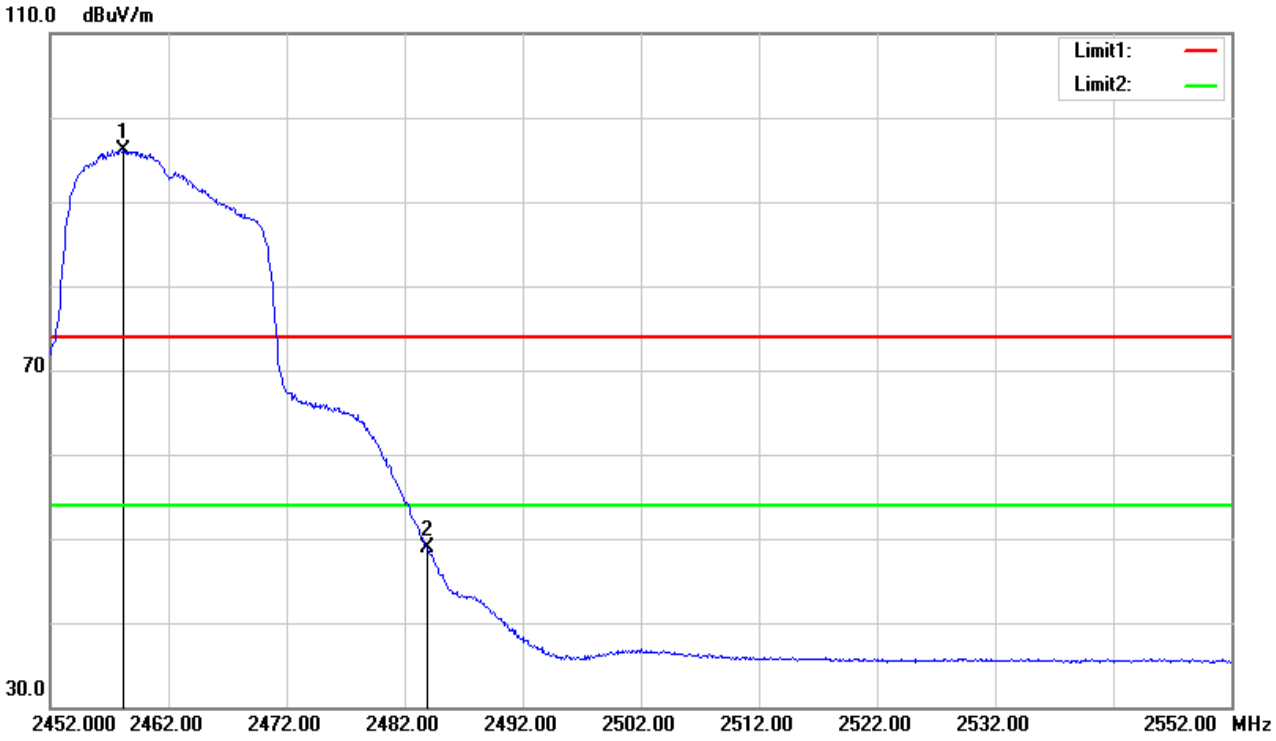
Test Mode	IEEE 802.11g High CH	Temperature:	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2458.200	98.27	-2.11	96.16	-	-	AVG
2483.900	50.93	-1.99	48.94	54.00	-5.06	AVG

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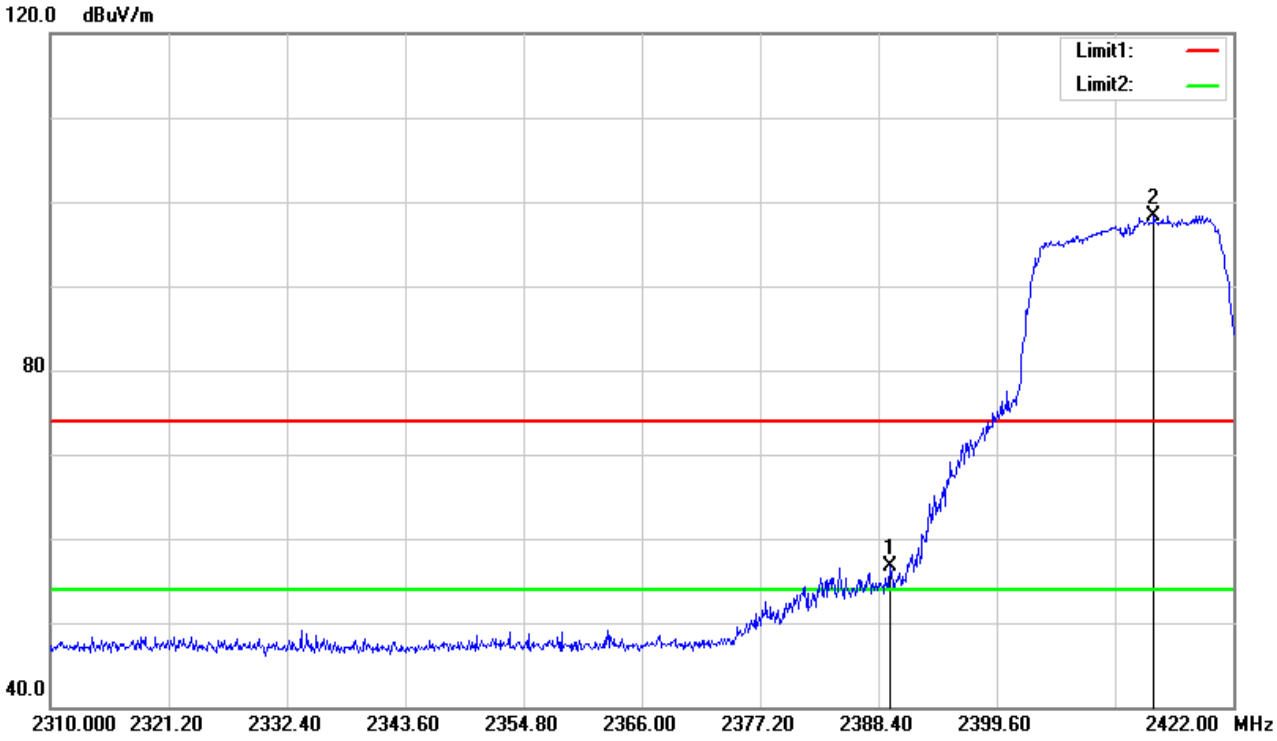
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.520	59.27	-2.49	56.78	74.00	-17.22	Peak
2414.496	100.76	-2.40	98.36	-	-	Peak

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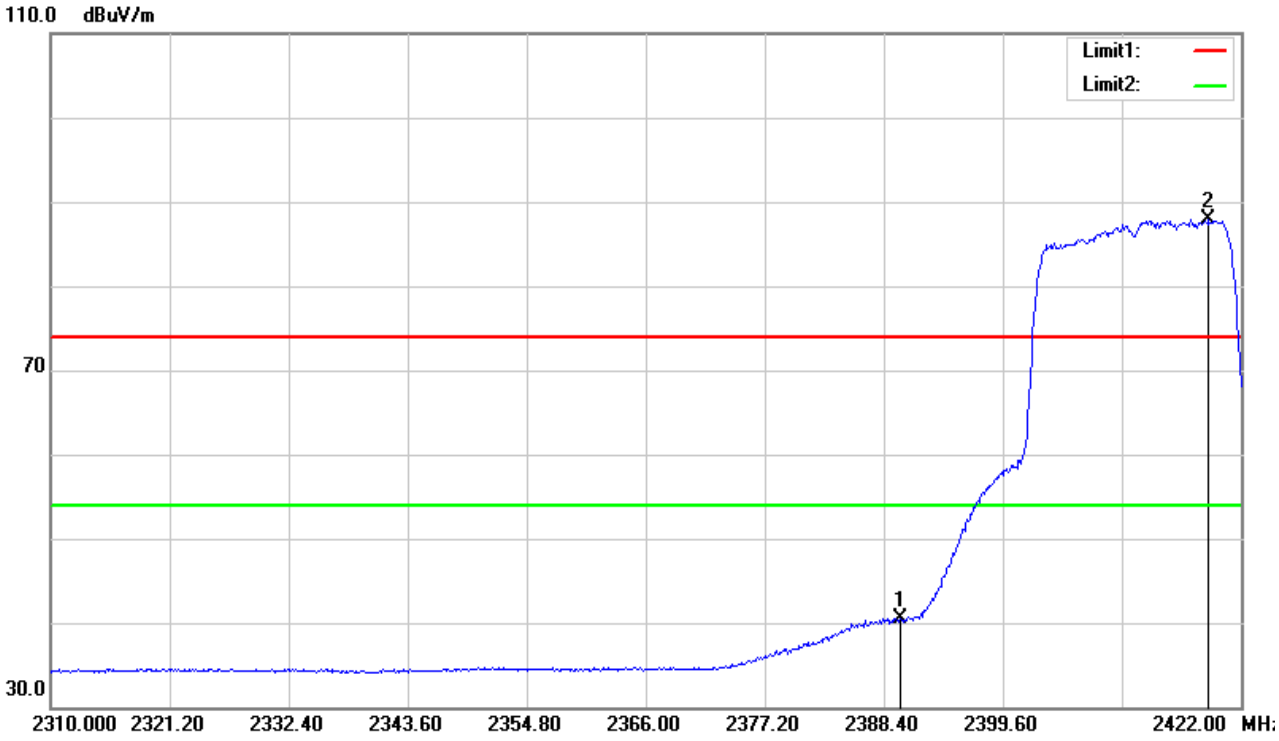
Test Mode	IEEE 802.11n HT20 Low CH	Temperature:	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.968	43.04	-2.49	40.55	54.00	-13.45	AVG
2418.976	90.36	-2.36	88.00	-	-	AVG

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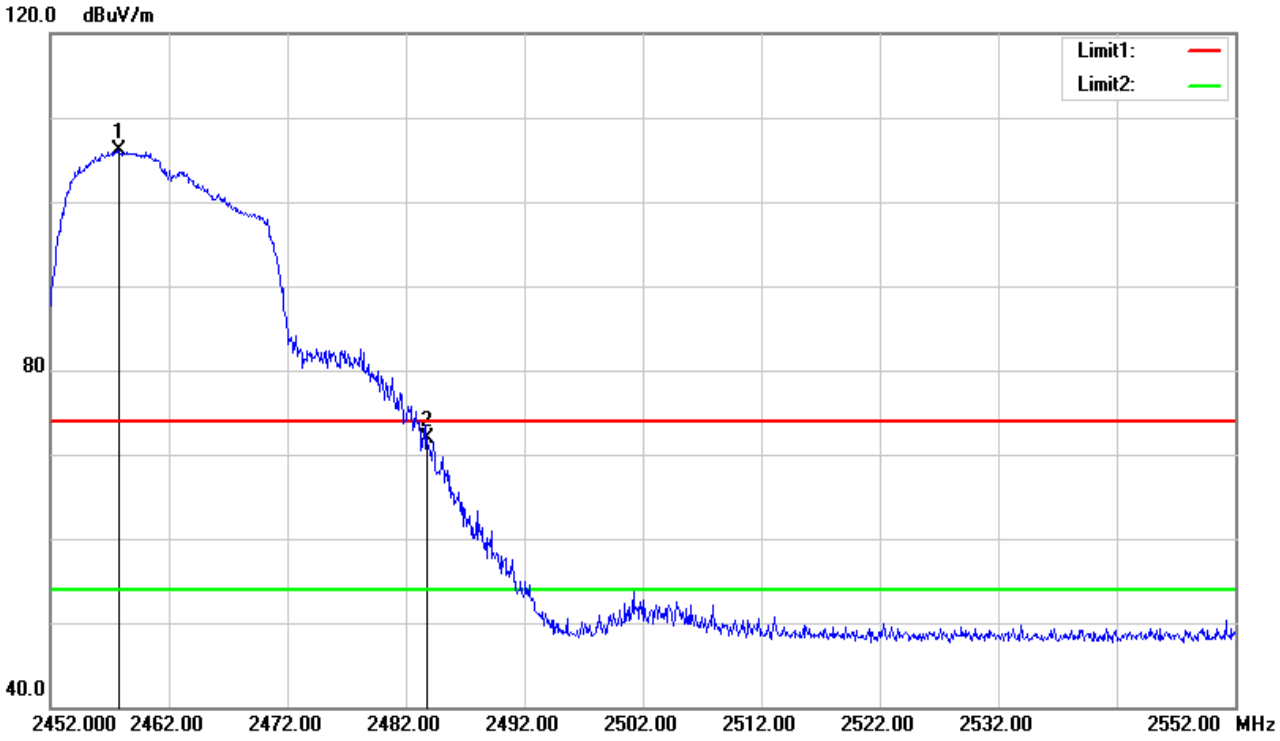
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2457.800	108.22	-2.11	106.11	-	-	Peak
2483.800	73.89	-1.99	71.90	74.00	-2.10	Peak

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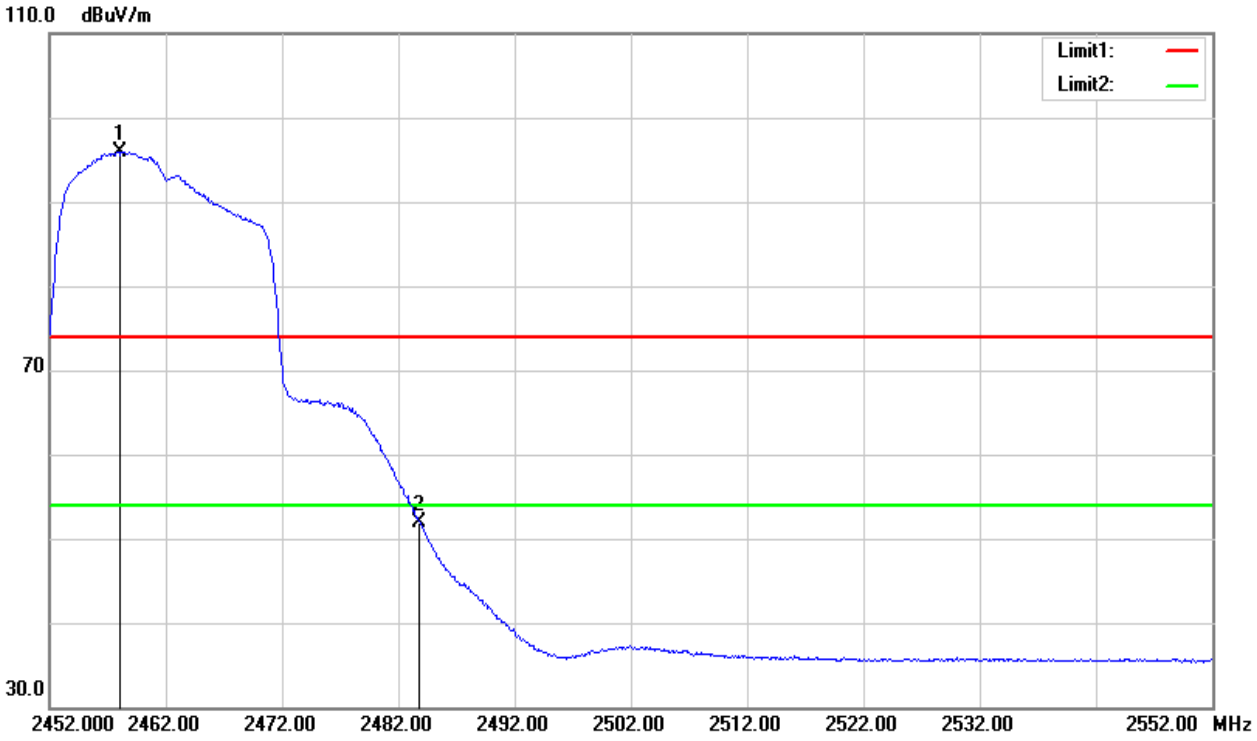
Test Mode	IEEE 802.11n HT20 High CH	Temperature:	27(℃)/ 53%RH
Test Item	Band Edge	Test Date	Jan 07, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2458.000	98.04	-2.11	95.93	-	-	AVG
2483.800	53.99	-1.99	52.00	54.00	-2.00	AVG

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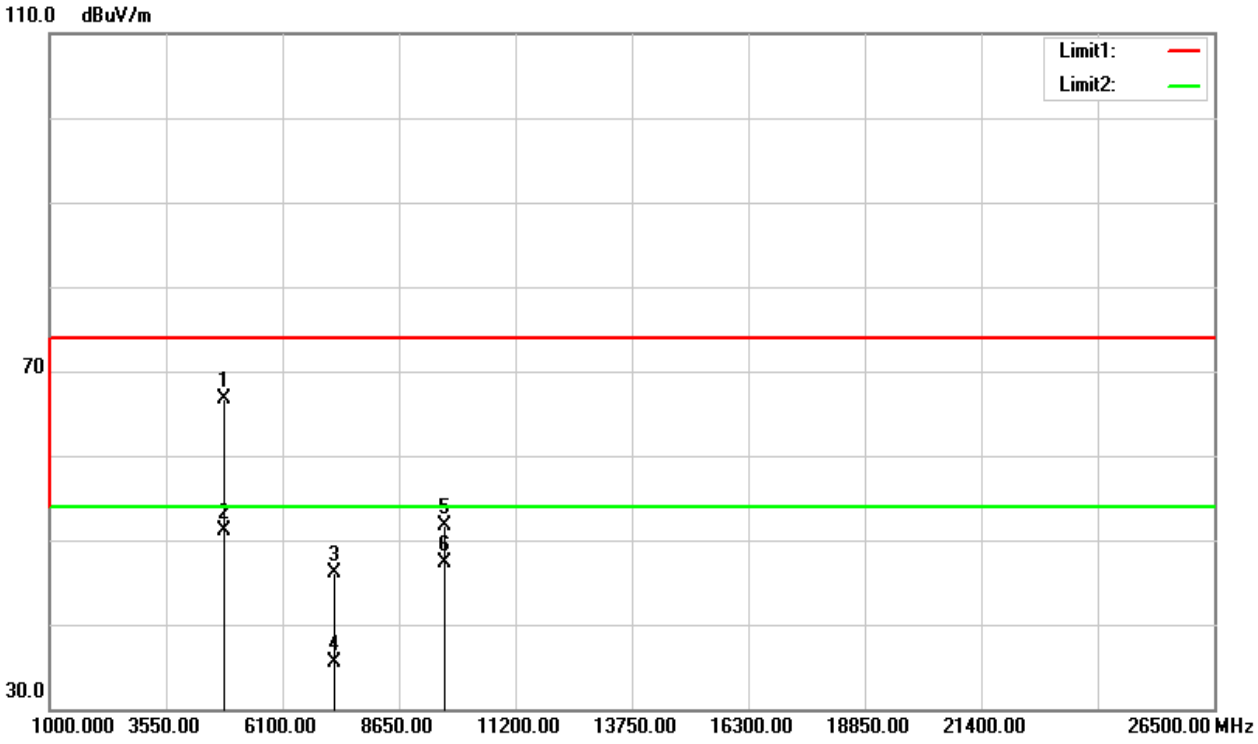
Test Mode	IEEE 802.11b Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	61.66	5.11	66.77	74.00	-7.23	peak
4827.000	46.03	5.11	51.14	54.00	-2.86	AVG
7236.000	33.31	12.71	46.02	74.00	-27.98	peak
7236.000	22.77	12.71	35.48	54.00	-18.52	AVG
9648.000	34.13	17.60	51.73	74.00	-22.27	peak
9648.000	29.71	17.60	47.31	54.00	-6.69	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*

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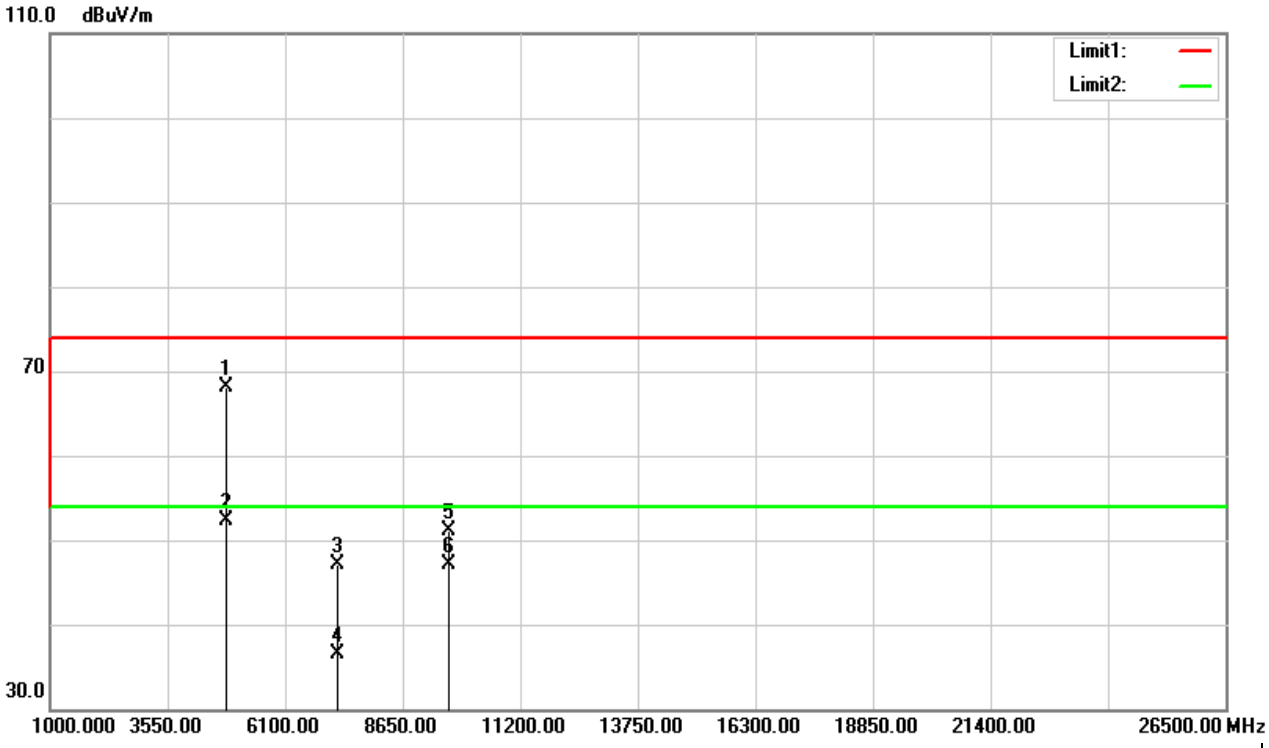
Test Mode	IEEE 802.11b Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	62.92	5.11	68.03	74.00	-5.97	peak
4827.000	47.29	5.11	52.40	54.00	-1.60	AVG
7236.000	34.36	12.71	47.07	74.00	-26.93	peak
7236.000	23.80	12.71	36.51	54.00	-17.49	AVG
9648.000	33.59	17.60	51.19	74.00	-22.81	peak
9648.000	29.50	17.60	47.10	54.00	-6.90	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*

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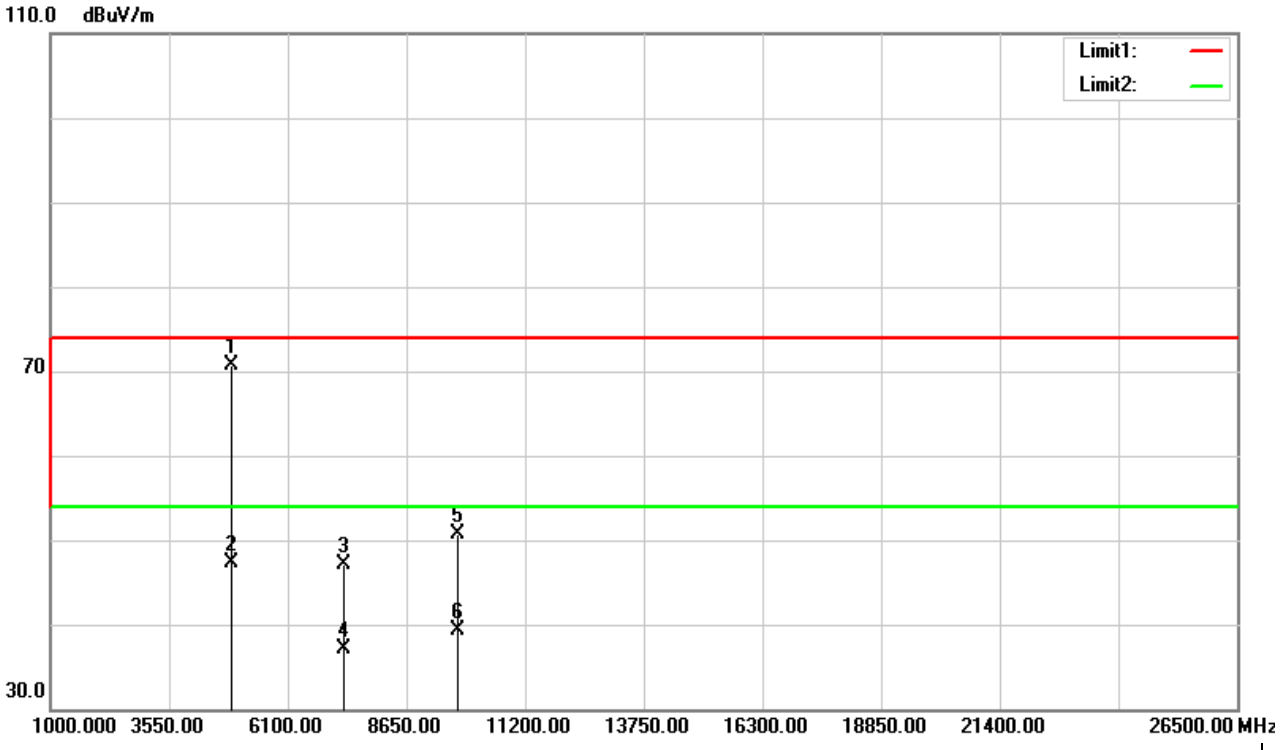
Test Mode	IEEE 802.11b Mid CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	65.46	5.24	70.70	74.00	-3.30	peak
4876.000	42.01	5.24	47.25	54.00	-6.75	AVG
7311.000	34.12	12.94	47.06	74.00	-26.94	peak
7311.000	24.07	12.94	37.01	54.00	-16.99	AVG
9748.000	33.06	17.60	50.66	74.00	-23.34	peak
9748.000	21.69	17.60	39.29	54.00	-14.71	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*

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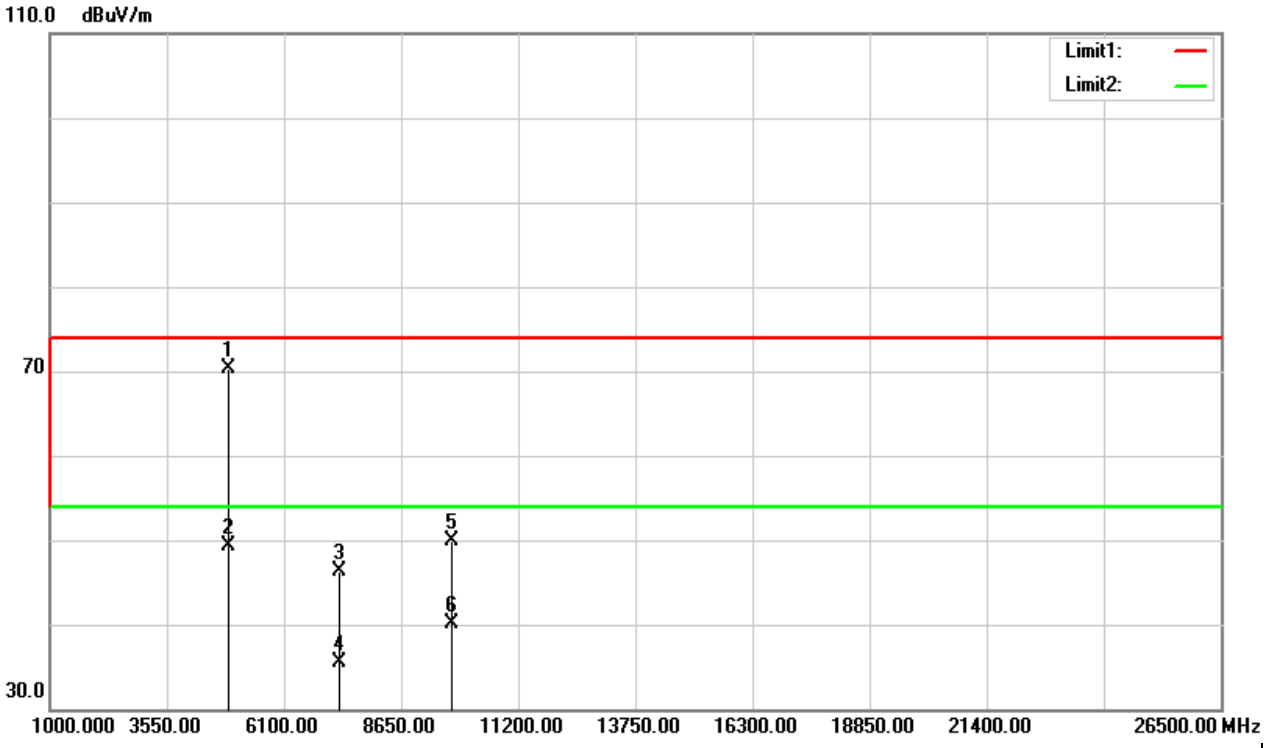
Test Mode	IEEE 802.11b Mid CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	64.98	5.24	70.22	74.00	-3.78	peak
4876.000	44.03	5.24	49.27	54.00	-4.73	AVG
7311.000	33.45	12.94	46.39	74.00	-27.61	peak
7311.000	22.56	12.94	35.50	54.00	-18.50	AVG
9748.000	32.37	17.60	49.97	74.00	-24.03	peak
9748.000	22.50	17.60	40.10	54.00	-13.90	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*

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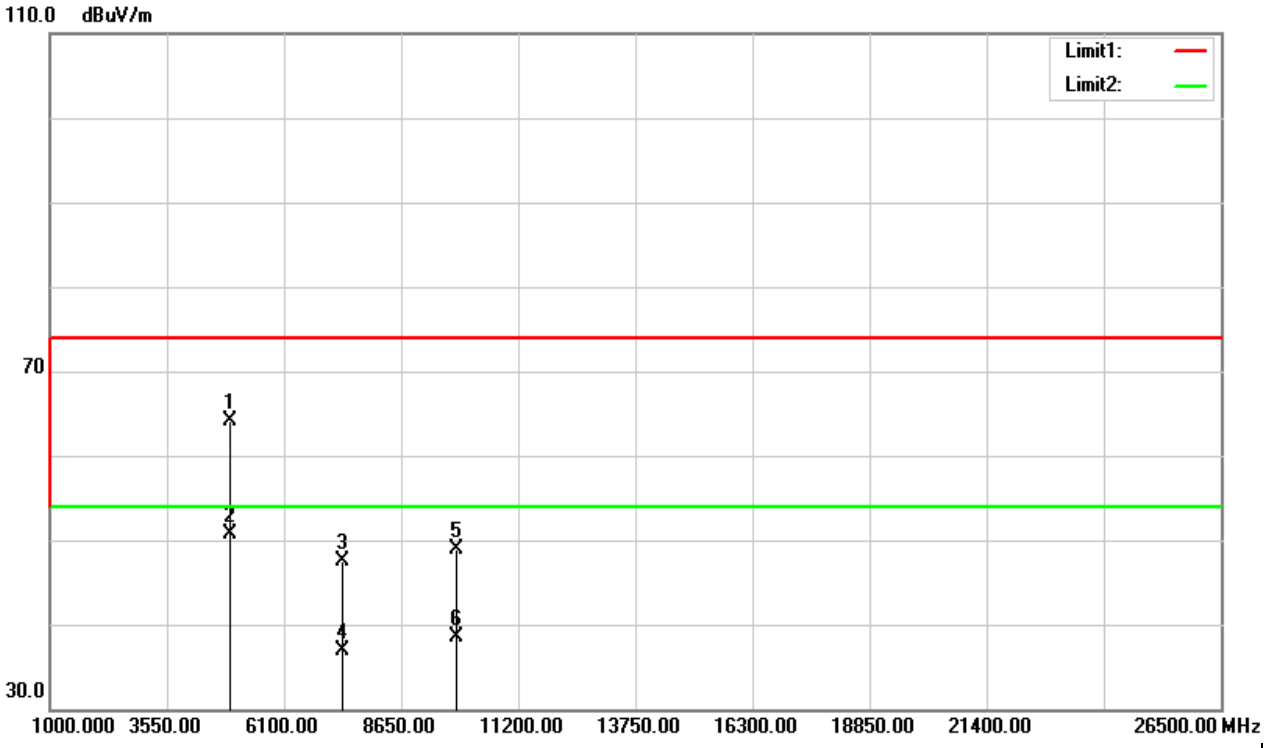
Test Mode	IEEE 802.11b High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	58.79	5.37	64.16	74.00	-9.84	peak
4925.000	45.39	5.37	50.76	54.00	-3.24	AVG
7386.000	34.43	13.17	47.60	74.00	-26.40	peak
7386.000	23.69	13.17	36.86	54.00	-17.14	AVG
9848.000	31.23	17.60	48.83	74.00	-25.17	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*

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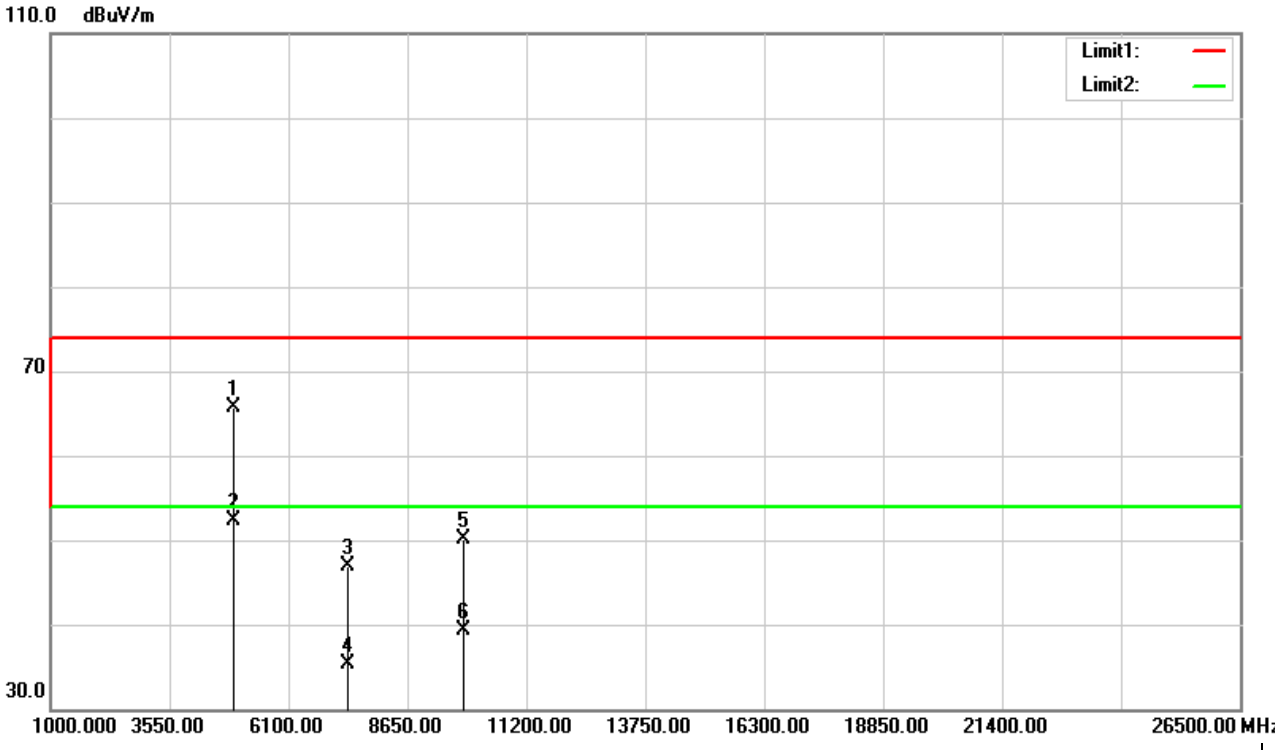
Test Mode	IEEE 802.11b High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	60.36	5.37	65.73	74.00	-8.27	peak
4925.000	46.89	5.37	52.26	54.00	-1.74	AVG
7386.000	33.67	13.17	46.84	74.00	-27.16	peak
7386.000	22.10	13.17	35.27	54.00	-18.73	AVG
9848.000	32.41	17.60	50.01	74.00	-23.99	peak
9848.000	21.73	17.60	39.33	54.00	-14.67	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*

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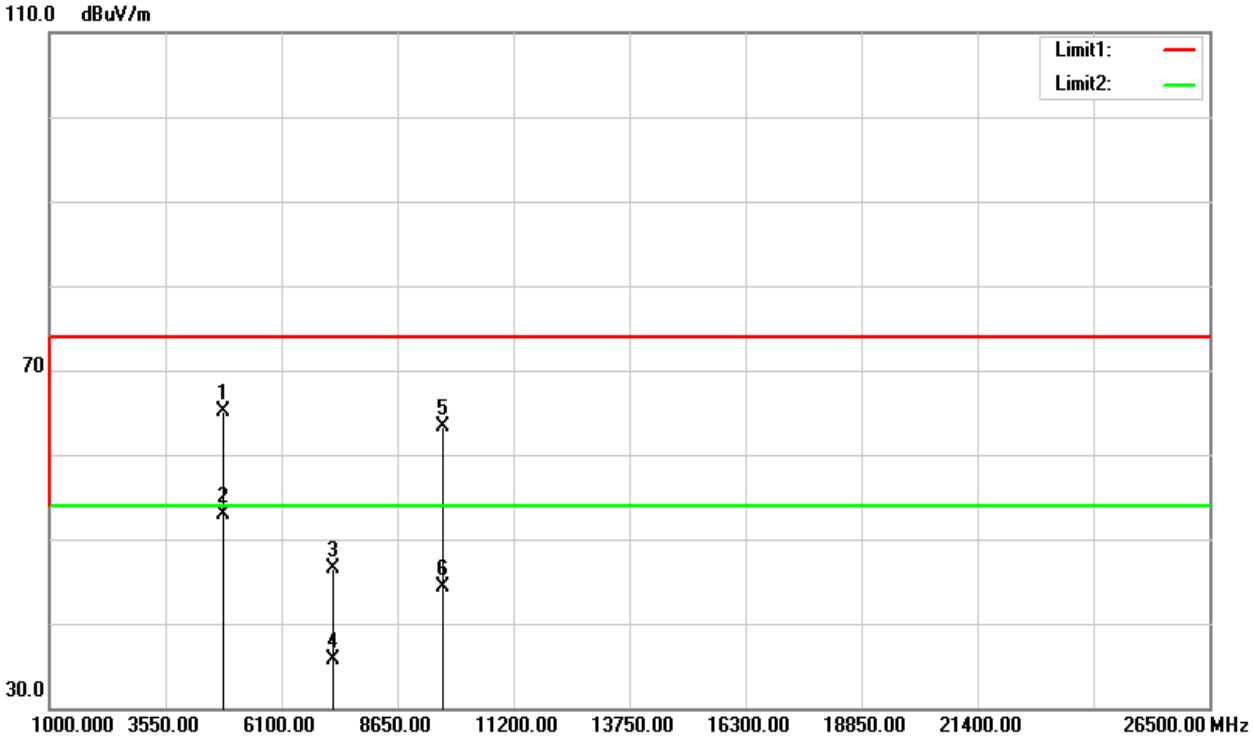
Test Mode	IEEE 802.11g Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4820.000	59.96	5.09	65.05	74.00	-8.95	peak
4820.000	47.77	5.09	52.86	54.00	-1.14	AVG
7236.000	33.78	12.71	46.49	74.00	-27.51	peak
7236.000	23.08	12.71	35.79	54.00	-18.21	AVG
9650.000	45.71	17.60	63.31	74.00	-10.69	peak
9650.000	26.76	17.60	44.36	54.00	-9.64	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*

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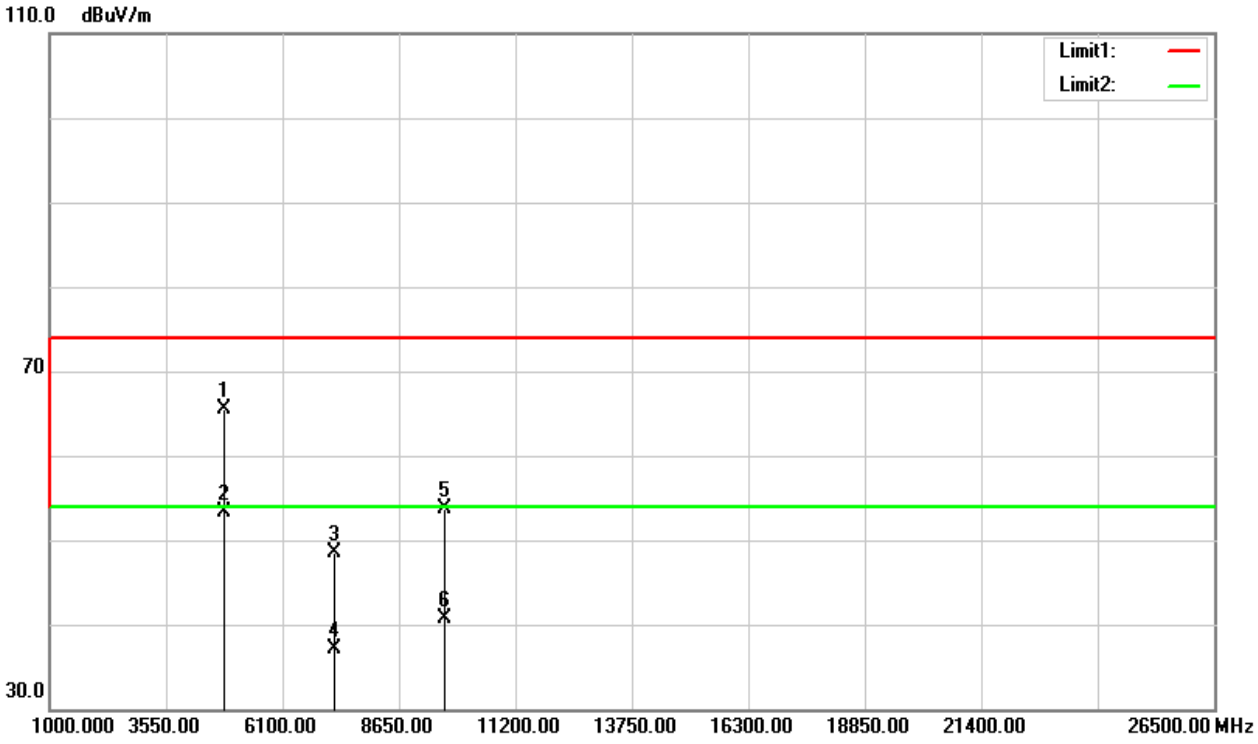
Test Mode	IEEE 802.11g Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



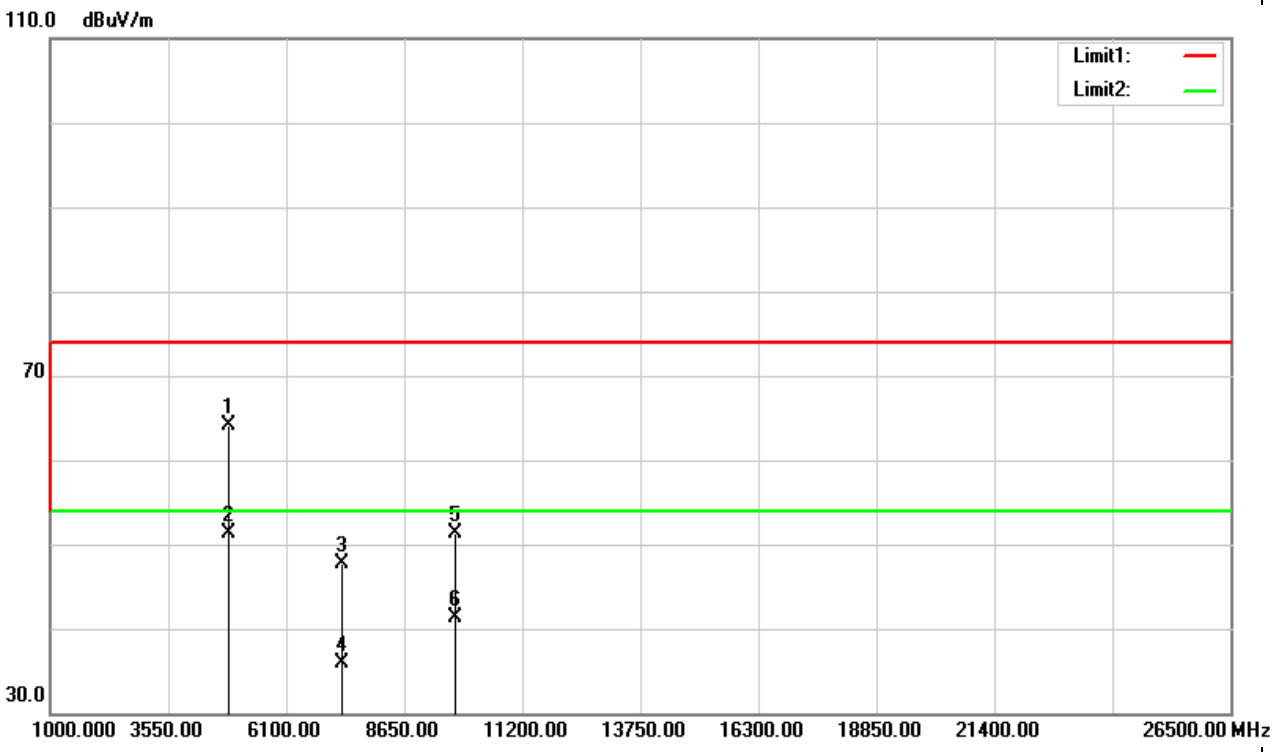
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	60.38	5.11	65.49	74.00	-8.51	peak
4827.000	48.10	5.11	53.21	54.00	-0.79	AVG
7236.000	35.70	12.71	48.41	74.00	-25.59	peak
7236.000	24.36	12.71	37.07	54.00	-16.93	AVG
9643.000	36.06	17.60	53.66	74.00	-20.34	peak
9643.000	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*

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services.

Test Mode	IEEE 802.11g Mid CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



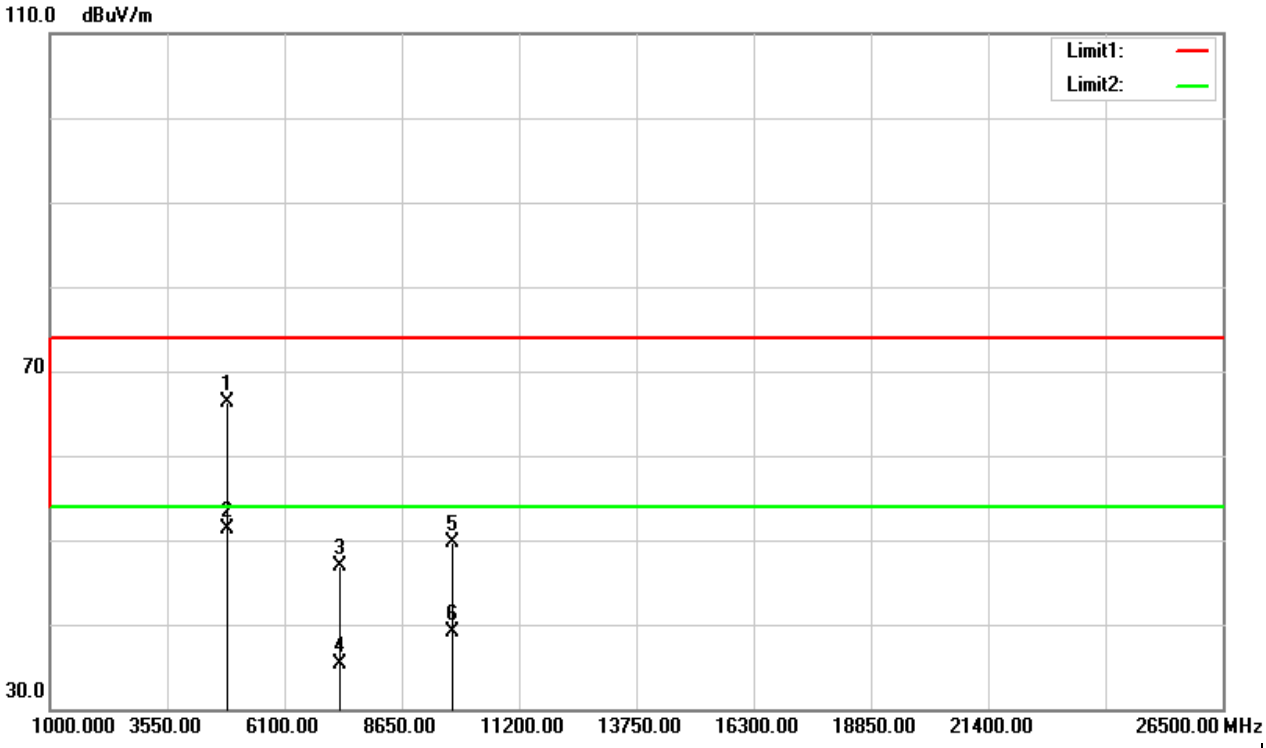
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	58.98	5.22	64.20	74.00	-9.80	peak
4869.000	46.09	5.22	51.31	54.00	-2.69	AVG
7311.000	34.82	12.94	47.76	74.00	-26.24	peak
7311.000	22.88	12.94	35.82	54.00	-18.18	AVG
9748.000	33.65	17.60	51.25	74.00	-22.75	peak
9748.000	23.74	17.60	41.34	54.00	-12.66	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*

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services.

Test Mode	IEEE 802.11g Mid CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



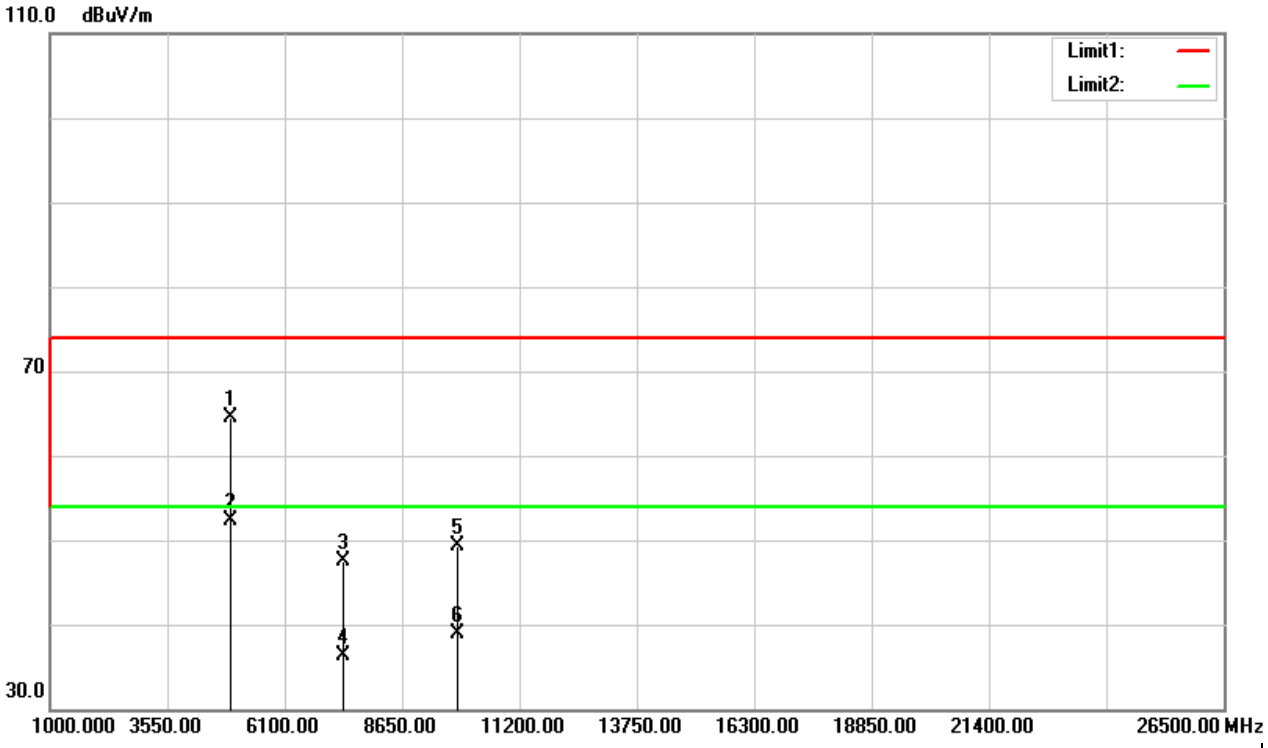
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4862.000	61.09	5.20	66.29	74.00	-7.71	peak
4862.000	46.02	5.20	51.22	54.00	-2.78	AVG
7311.000	33.94	12.94	46.88	74.00	-27.12	peak
7311.000	22.44	12.94	35.38	54.00	-18.62	AVG
9748.000	32.13	17.60	49.73	74.00	-24.27	peak
9748.000	21.59	17.60	39.19	54.00	-14.81	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*

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services.

Test Mode	IEEE 802.11g High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 10, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
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
4918.000	59.19	5.35	64.54	74.00	-9.46	peak
4918.000	46.94	5.35	52.29	54.00	-1.71	AVG
7386.000	34.39	13.17	47.56	74.00	-26.44	peak
7386.000	23.22	13.17	36.39	54.00	-17.61	AVG
9848.000	31.76	17.60	49.36	74.00	-24.64	peak
9848.000	21.22	17.60	38.82	54.00	-15.18	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*

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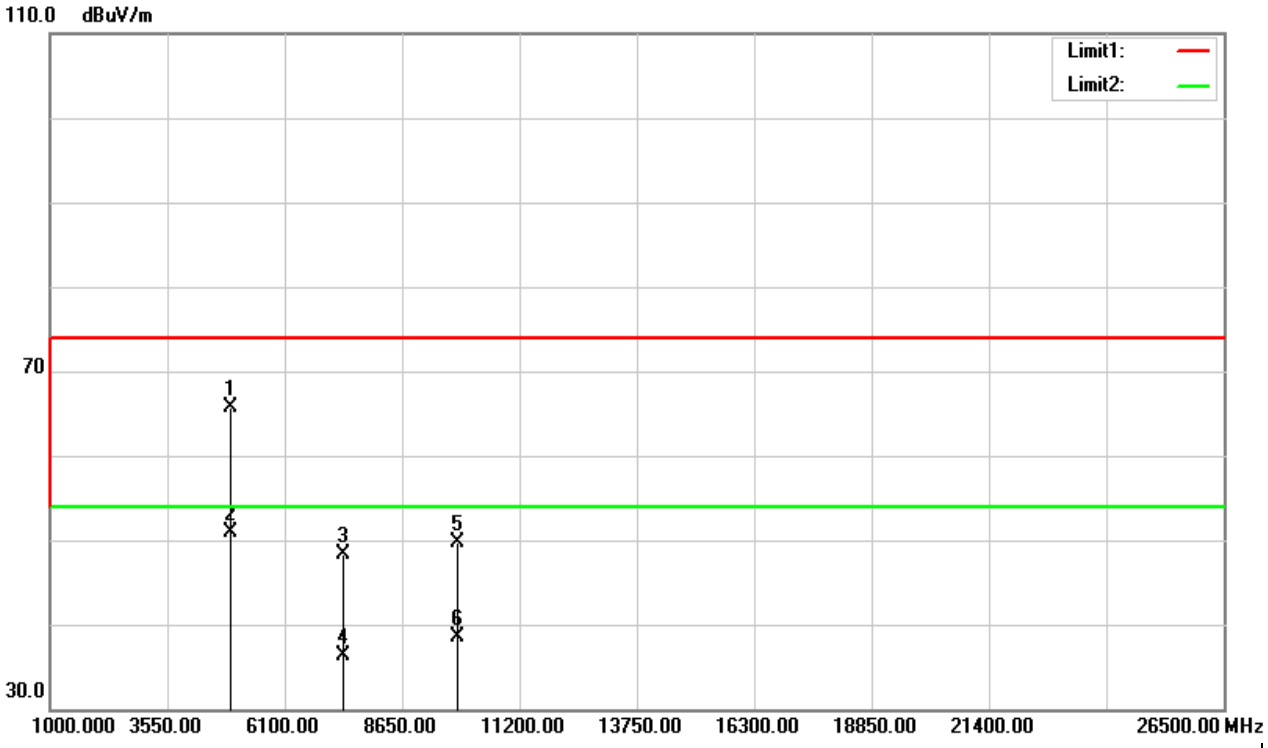
Test Mode	IEEE 802.11g High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 11, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4918.000	60.42	5.35	65.77	74.00	-8.23	peak
4918.000	45.52	5.35	50.87	54.00	-3.13	AVG
7386.000	35.15	13.17	48.32	74.00	-25.68	peak
7386.000	23.16	13.17	36.33	54.00	-17.67	AVG
9848.000	32.06	17.60	49.66	74.00	-24.34	peak
9848.000	20.92	17.60	38.52	54.00	-15.48	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*

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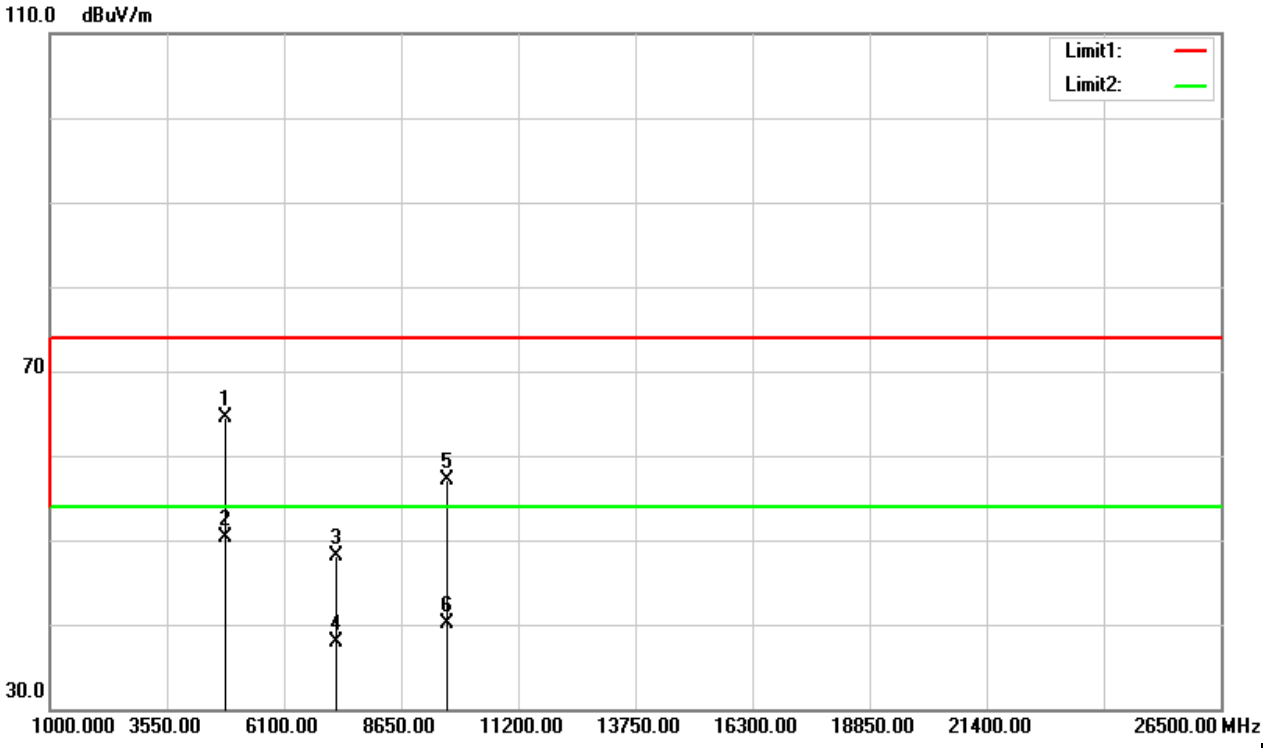
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 11, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	59.38	5.11	64.49	74.00	-9.51	peak
4827.000	45.17	5.11	50.28	54.00	-3.72	AVG
7236.000	35.31	12.71	48.02	74.00	-25.98	peak
7236.000	25.12	12.71	37.83	54.00	-16.17	AVG
9664.000	39.53	17.60	57.13	74.00	-16.87	peak
9664.000	22.41	17.60	40.01	54.00	-13.99	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*

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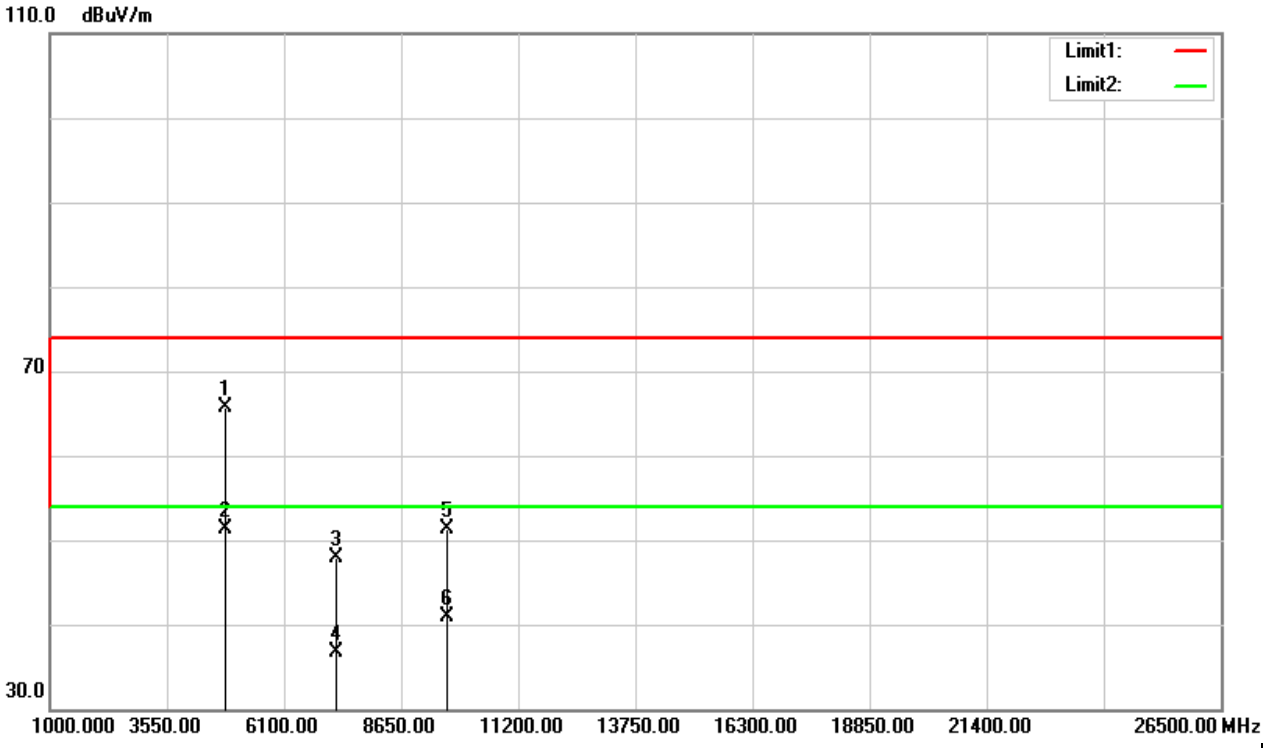
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 11, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	60.53	5.11	65.64	74.00	-8.36	peak
4827.000	46.13	5.11	51.24	54.00	-2.76	AVG
7236.000	35.22	12.71	47.93	74.00	-26.07	peak
7236.000	24.00	12.71	36.71	54.00	-17.29	AVG
9648.000	33.71	17.60	51.31	74.00	-22.69	peak
9648.000	23.38	17.60	40.98	54.00	-13.02	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*

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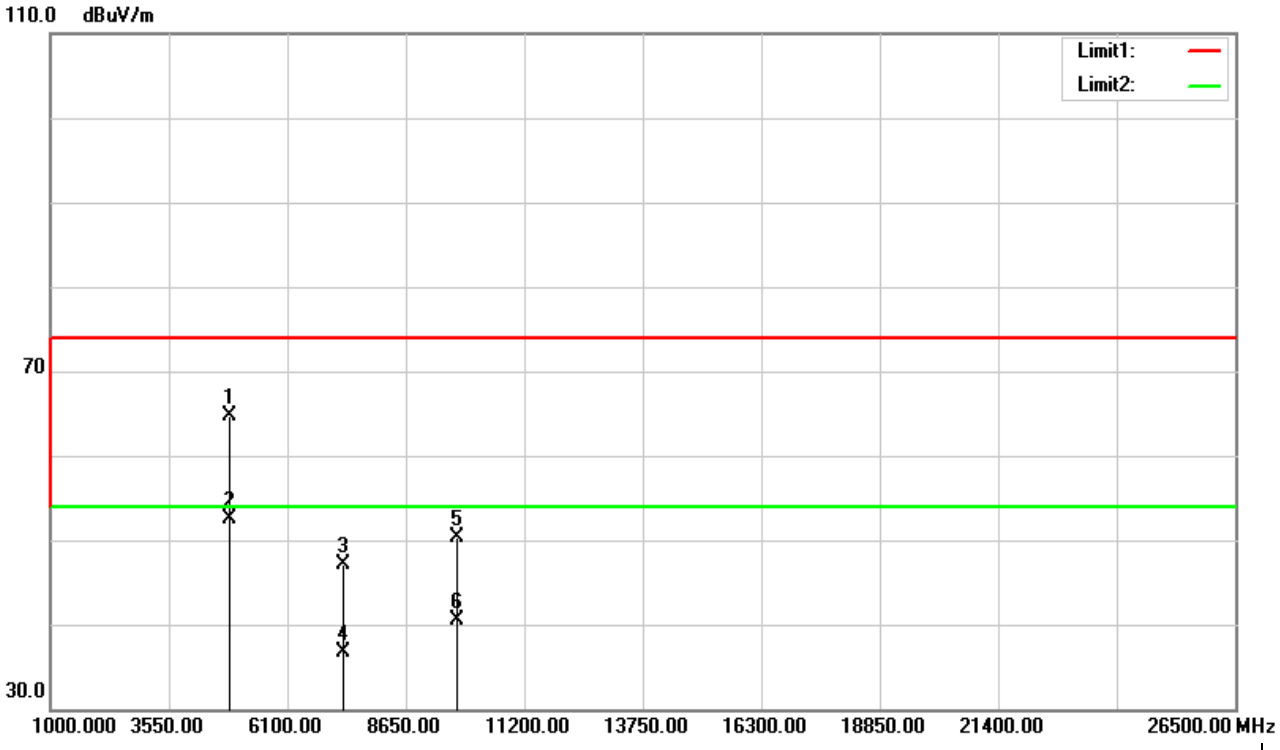
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 11, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



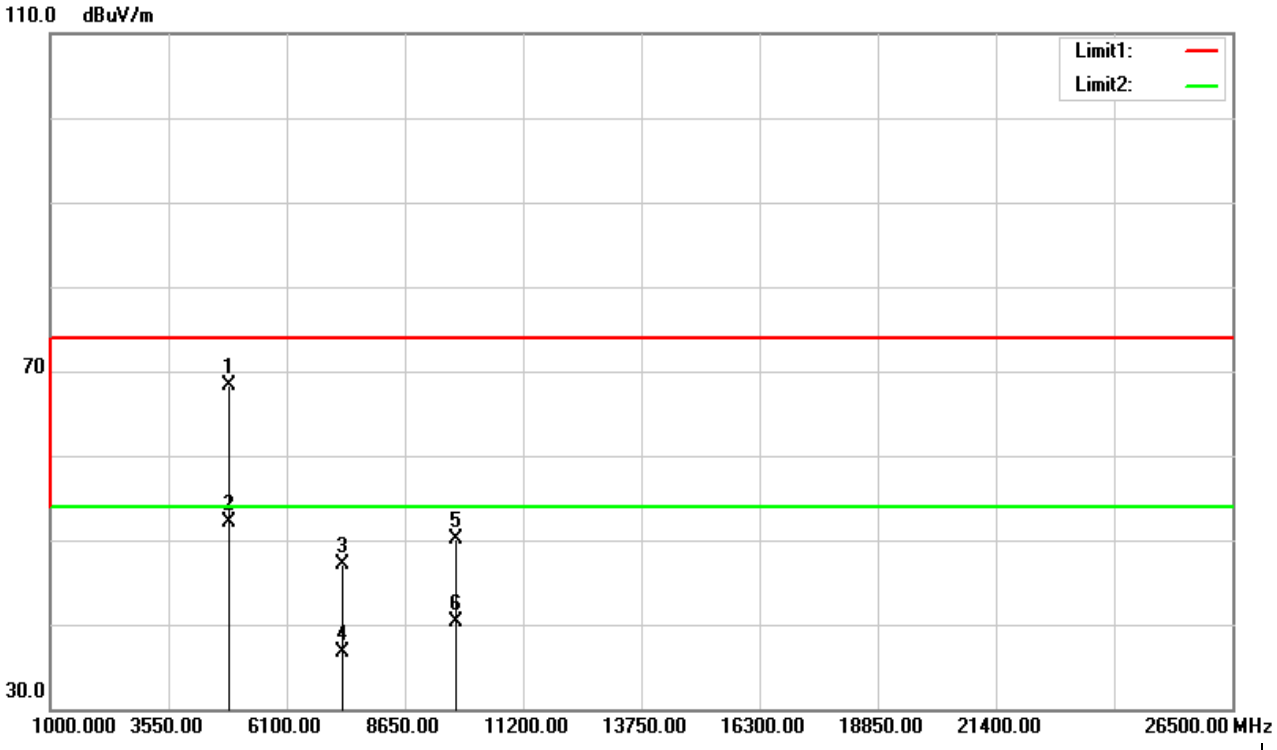
Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	59.50	5.22	64.72	74.00	-9.28	peak
4869.000	47.30	5.22	52.52	54.00	-1.48	AVG
7311.000	34.14	12.94	47.08	74.00	-26.92	peak
7311.000	23.75	12.94	36.69	54.00	-17.31	AVG
9748.000	32.73	17.60	50.33	74.00	-23.67	peak
9748.000	22.92	17.60	40.52	54.00	-13.48	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*

This report shall not be reproduced except in full, without the written approval of Compliance Certification Services.

Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 11, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
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	63.05	5.22	68.27	74.00	-5.73	peak
4869.000	46.94	5.22	52.16	54.00	-1.84	AVG
7311.000	34.19	12.94	47.13	74.00	-26.87	peak
7311.000	23.84	12.94	36.78	54.00	-17.22	AVG
9748.000	32.58	17.60	50.18	74.00	-23.82	peak
9748.000	22.61	17.60	40.21	54.00	-13.79	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*

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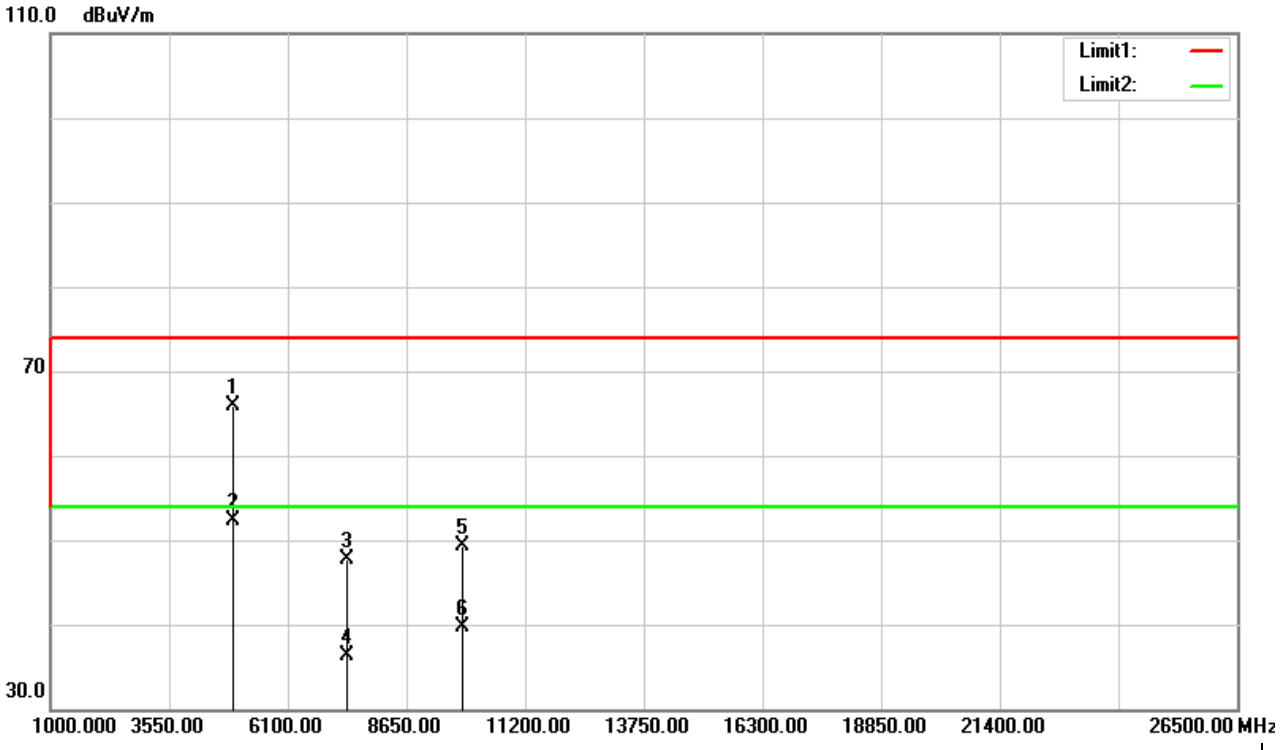
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 11, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4918.000	60.54	5.35	65.89	74.00	-8.11	peak
4918.000	46.89	5.35	52.24	54.00	-1.76	AVG
7386.000	34.47	13.17	47.64	74.00	-26.36	peak
7386.000	23.05	13.17	36.22	54.00	-17.78	AVG
9848.000	31.79	17.60	49.39	74.00	-24.61	peak
9848.000	22.18	17.60	39.78	54.00	-14.22	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*

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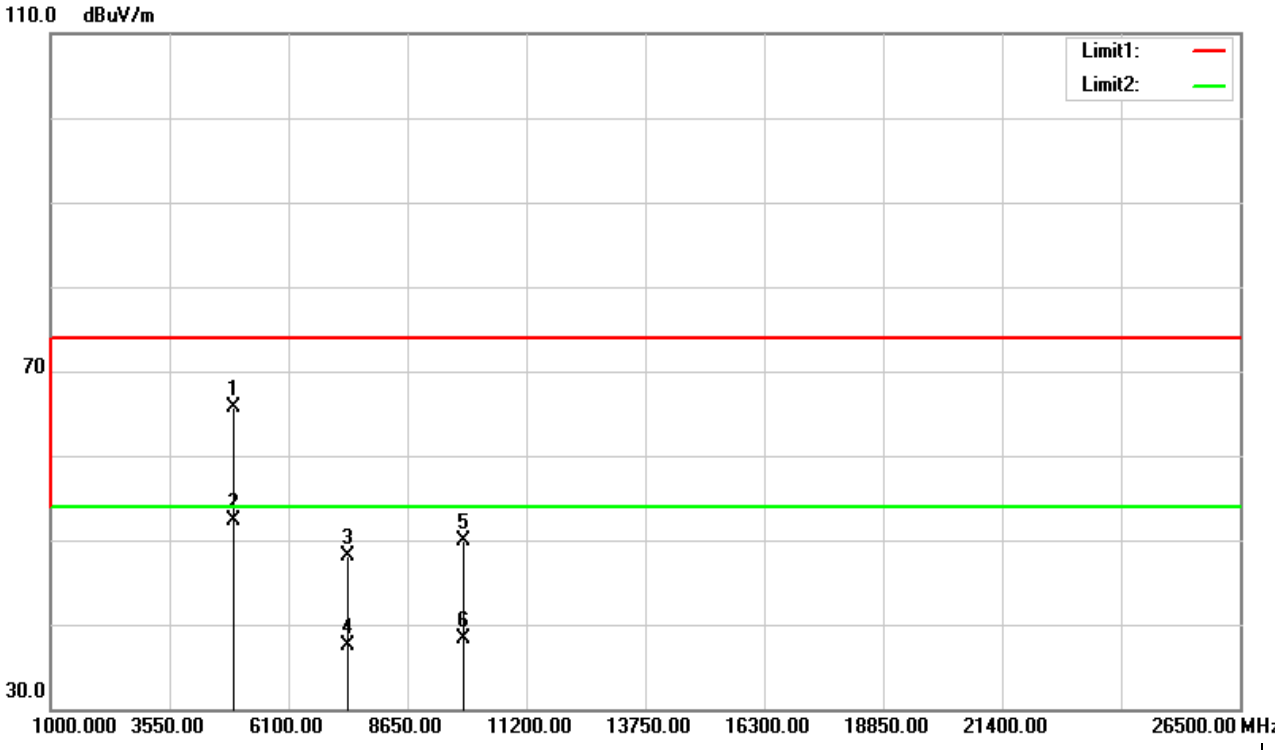
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	27(℃)/ 53%RH
Test Item	Harmonic	Test Date	Jan 11, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4918.000	60.32	5.35	65.67	74.00	-8.33	peak
4918.000	46.90	5.35	52.25	54.00	-1.75	AVG
7386.000	34.86	13.17	48.03	74.00	-25.97	peak
7386.000	24.39	13.17	37.56	54.00	-16.44	AVG
9848.000	32.25	17.60	49.85	74.00	-24.15	peak
9848.000	20.79	17.60	38.39	54.00	-15.61	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*

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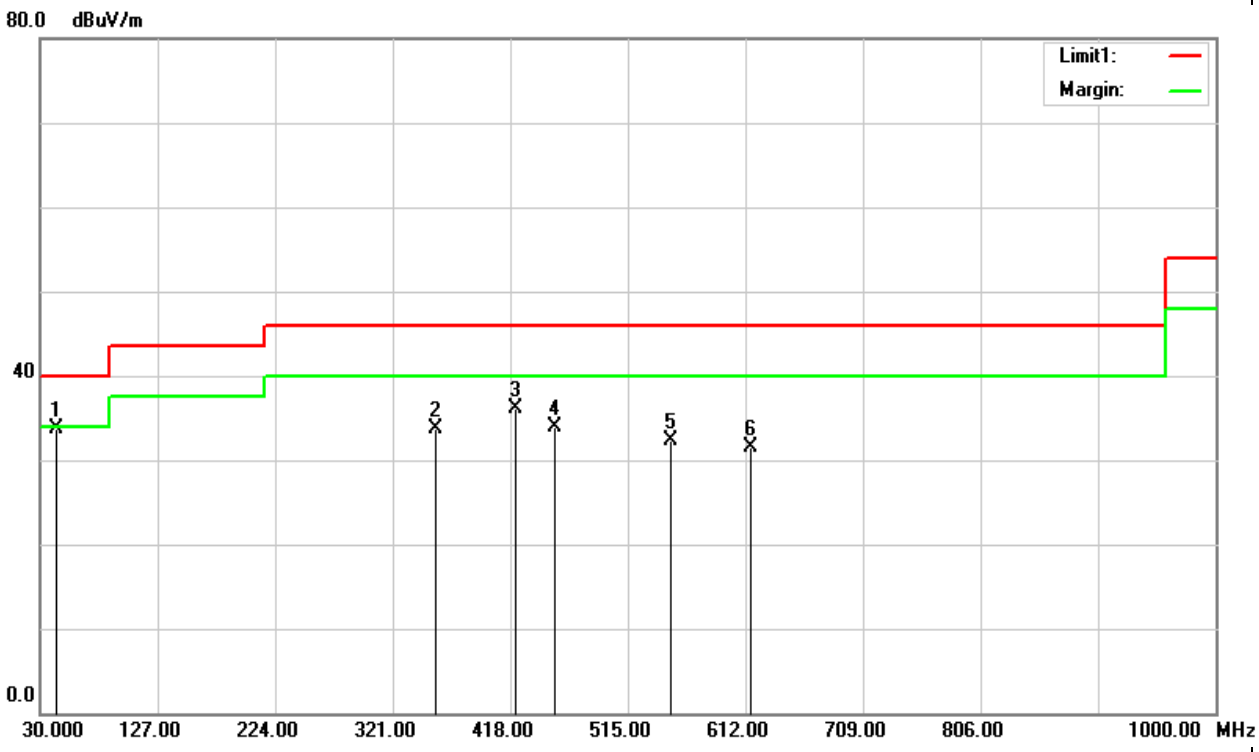
Below 1G Test Data

Test Mode	Mode 1	Temp/Hum	27(℃)/ 53%RH
Test Item	30MHz-1GHz	Test Date	Jan 10, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Qusi-peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
43.5800	51.18	-17.39	33.79	40.00	-6.21	QP
355.9200	46.46	-12.75	33.71	46.00	-12.29	Peak
421.8800	47.11	-11.04	36.07	46.00	-9.93	Peak
454.8600	44.07	-10.10	33.97	46.00	-12.03	QP
549.9200	40.85	-8.49	32.36	46.00	-13.64	Peak
615.8800	38.82	-7.38	31.44	46.00	-14.56	Peak

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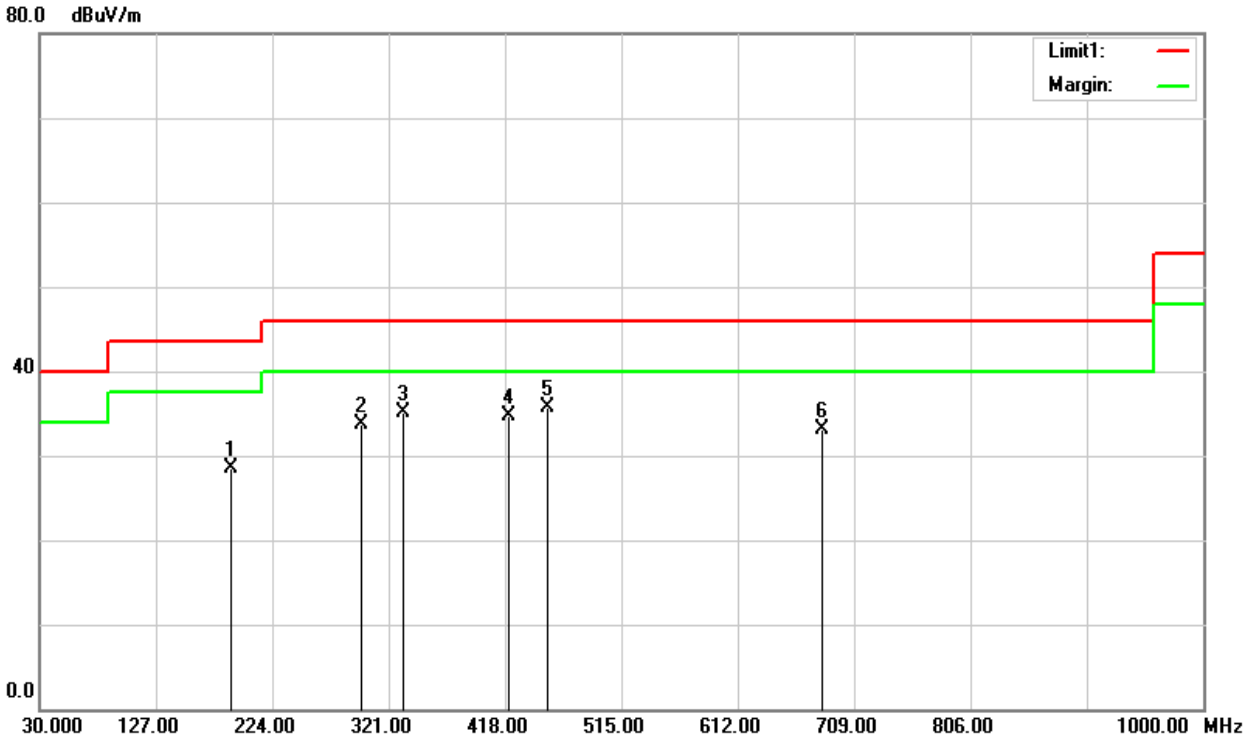
Test Mode	Mode 1	Temp/Hum	27(℃)/ 53%RH
Test Item	30MHz-1GHz	Test Date	Jan 10, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Qusi-peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
190.0500	44.89	-16.44	28.45	43.50	-15.05	Peak
298.6900	48.00	-14.26	33.74	46.00	-12.26	Peak
332.6400	48.43	-13.36	35.07	46.00	-10.93	Peak
420.9100	45.87	-11.07	34.80	46.00	-11.20	Peak
452.9200	45.86	-10.13	35.73	46.00	-10.27	Peak
681.8400	39.35	-6.25	33.10	46.00	-12.90	Peak

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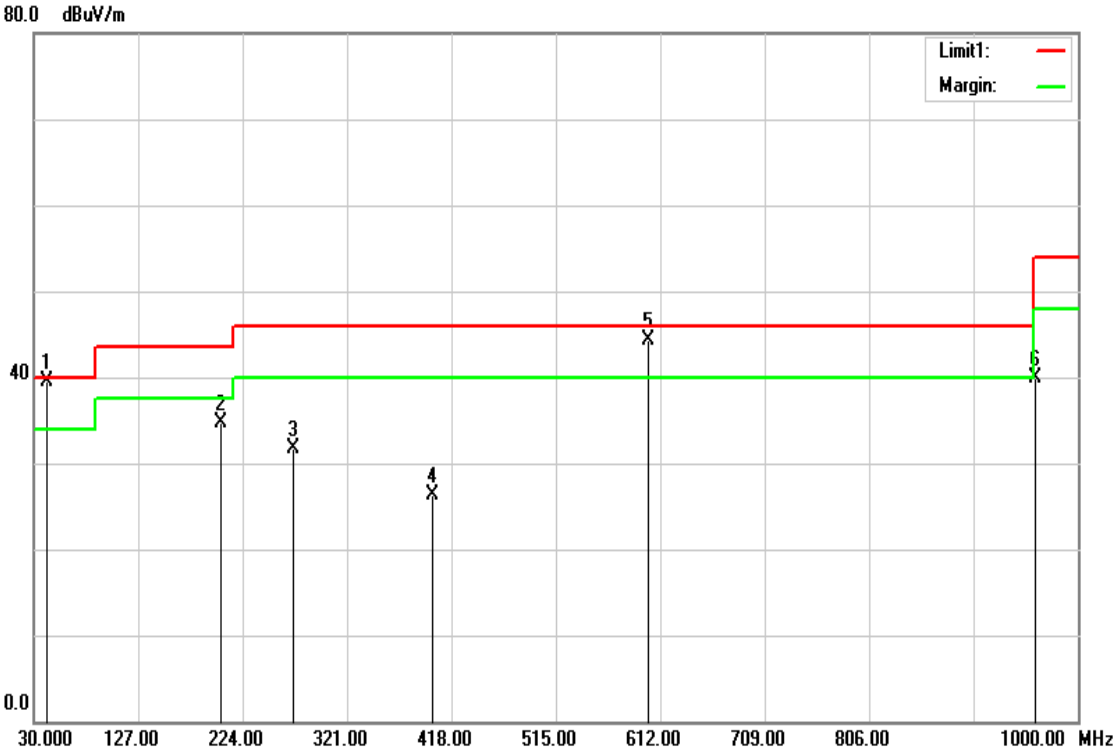
Test Mode	Mode 2	Temp/Hum	27(℃)/ 53%RH
Test Item	30MHz-1GHz	Test Date	Jan 19, 2017
Polarize	Vertical	Test Engineer	Kevin Kuo
Detector	Peak and Qusi-peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
41.6400	55.76	-16.28	39.48	40.00	-0.52	QP
203.6300	50.50	-15.81	34.69	43.50	-8.81	Peak
270.5600	46.49	-14.79	31.70	46.00	-14.30	Peak
400.5400	38.03	-11.68	26.35	46.00	-19.65	Peak
600.3600	52.11	-7.75	44.36	46.00	-1.64	QP
960.2300	42.07	-2.23	39.84	54.00	-14.16	Peak

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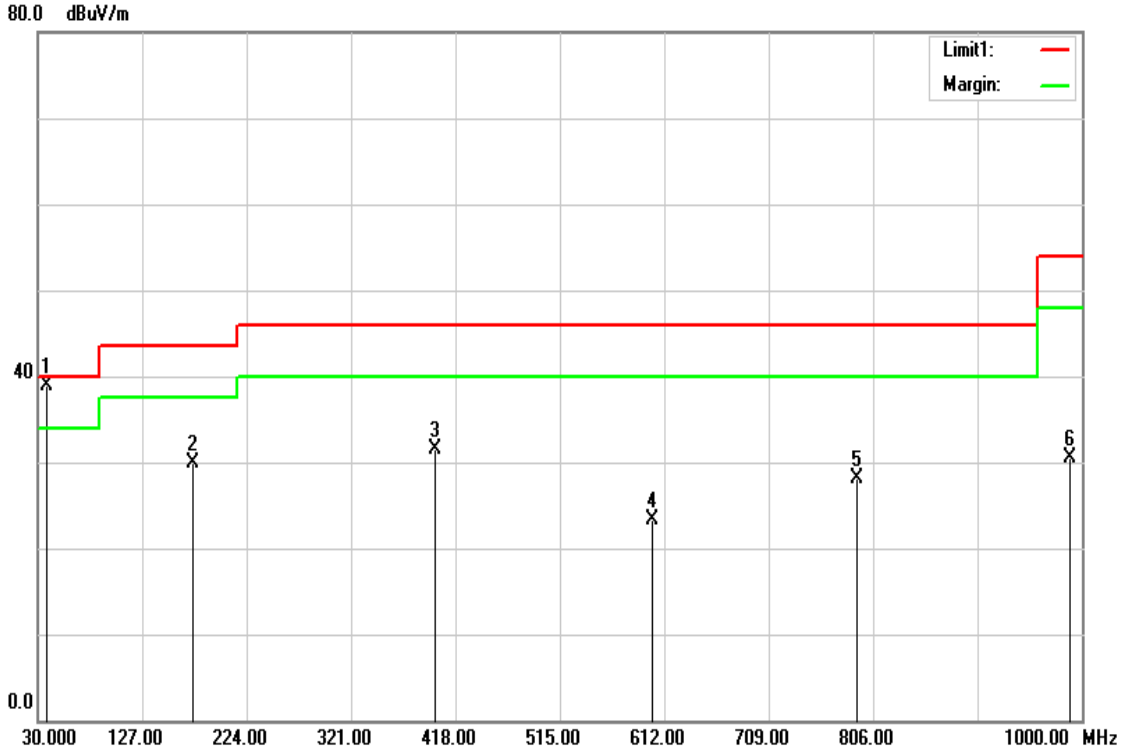
Test Mode	Mode 2	Temp/Hum	27(℃)/ 53%RH
Test Item	30MHz-1GHz	Test Date	Jan 19, 2017
Polarize	Horizontal	Test Engineer	Kevin Kuo
Detector	Peak and Qusi-peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
37.7600	52.53	-13.68	38.85	40.00	-1.15	QP
173.5600	46.96	-17.02	29.94	43.50	-13.56	Peak
399.5700	43.13	-11.71	31.42	46.00	-14.58	Peak
600.3600	30.97	-7.75	23.22	46.00	-22.78	Peak
791.4500	32.62	-4.57	28.05	46.00	-17.95	Peak
989.3300	32.28	-1.75	30.53	54.00	-23.47	Peak

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