RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

INDUSTRY CANADA RSS-247

Test Standard	**FCC Part 15.247 + IC RSS-247 issue 2**
Brand name	**InnoComm Mobile**
Product name	**Wireless Console Module**
Model No.	**Hercules**
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 Compliance Certification Services Inc. (Wugu Laboratory).

Approved by:

Sam Chuang
Manager

Tested by:

Jerry Chuang
Engineer

Revision History

Rev.	Issue Date	Revisions	Revised By
00	September 18, 2018	Initial Issue	May Lin
01	September 25, 2018	1. Update KDB 937606 to KDB 414788 in P.50.	May Lin

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1 GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	InnoComm Mobile Technology Corp. FCC: 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu , Taiwan , 30078 IC: 3F, No. 6, Hsin Ann Rd., Hsinchu ,30078,Taiwan
Manufacturer	InnoComm Mobile Technology Corp. FCC: 3F, No. 6, Hsin Ann Rd., Hsinchu Science Park, Hsinchu , Taiwan , 30078 IC: 3F, No. 6, Hsin Ann Rd., Hsinchu ,30078,Taiwan
Equipment	Wireless Console Module
Model Name	Hercules
Model Discrepancy	N/A
Received Date	June 14, 2018
Date of Test	July 18 ~ September 13, 2018
Output Power(W)	IEEE 802.11b mode: 0.1109 (EIRP: 0.2636) IEEE 802.11g mode: 0.1722 (EIRP: 0.4093) IEEE 802.11n HT 20 mode: 0.1824 (EIRP: 0.4335) IEEE 802.11n HT 40 mode: 0.2158 (EIRP: 0.5129)
Power Supply	1. Power by power supply (DC 15V) 2. Power by host system via USB
HW Version	v1.0
FW Version	v1.0

1.2 EUT CHANNEL INFORMATION

Frequency Range	802.11b/g/n HT 20: 2412MHz ~ 2462MHz 802.11n HT 40: 2422MHz ~ 2452MHz
Modulation Type	1. IEEE 802.11b mode: CCK 2. IEEE 802.11g mode: OFDM 3. IEEE 802.11n HT 20 mode : OFDM 4. IEEE 802.11n HT 40 mode : OFDM
Number of channel	1. IEEE 802.11b mode: 11 Channels 2. IEEE 802.11g mode: 11 Channels 3. IEEE 802.11n HT 20 mode : 11 Channels 4. IEEE 802.11n HT 40 mode : 7 Channels

Remark:
Refer as ANSI 63.10:2013 clause 5.6.1 Table 4 and RSS-GEN Table 1 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 Type	☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Gain	Gain: 3.76 dBi

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.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)*

Test site	Test Engineer	Remark
AC Conduction Room	Dally Hong	-
Radiation	Jerry Chuang	-
RF Conducted	Jerry Chuang	-

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					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Directional Couplers	Agilent	87301D	MY44350252	07/25/2017	07/24/2018
Power Meter	Anritsu	ML2495A	1012009	09/18/2017	09/17/2018
Power Seneor	Anritsu	MA2411B	1126148	02/06/2018	02/05/2019
Signal Analyzer	R&S	FSV 40	101073	10/02/2017	10/01/2018
Divider	Solvang Technology	STI08-0015	008	N.C.R	N.C.R

AC Conducted Emissions Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
LISN	R&S	ENV216	101054	02/06/2018	02/05/2019
LISN	SCHWARZBECK	NSLK 8127	8127-541	02/09/2018	02/08/2019
EMI Test Receiver	R&S	ESCI	101203	11/02/2017	11/01/2018
CABLE	EMCI	CFD300-NL	CERF	07/03/2018	07/02/2019

3M 966 Chamber Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	120	05/14/2018	05/13/2019
Bilog Antenna	Sunol Sciences	JB3	A030105	07/13/2018	07/12/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	06/29/2018	06/28/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	06/29/2018	06/28/2019
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	02/08/2018	02/07/2019
Double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/20/2018	08/19/2019
Loop Ant	COM-POWER	AL-130	121051	03/21/2018	03/20/2019
Pre-Amplifier	EMEC	EM330	060609	06/29/2018	06/28/2019
Pre-Amplifier	HP	8449B	3008A00965	06/29/2018	06/28/2019
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/31/2018	05/30/2019
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

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.**	**FCC ID**
1	DC Power Source	GWINSTEK	SPS-3610	N/A	N/A
2	NB(H)	Acer	Aspire 4320 series	N/A	QDS-BRCM1018
3	NB	Lenovo	TP00056A	N/A	PD97260HU

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 DTS Meas Guidance, RSS-247 Issue 2 and RSS-GEN Issue 5.

2 TEST SUMMERY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	-	1.3	Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	5.1	AC Conducted Emission	Pass
15.247(a)(2)	RSS-247(5.2)(a)	5.2	6 dB Bandwidth	Pass
-	RSS-GEN 6.7	5.2	Occupied Bandwidth (99%)	Pass
15.247(b)	RSS-247(5.4)(d)	5.3	Output Power Measurement	Pass
15.247(e)	RSS-247(5.2)(b)	5.4	Power Spectral Density	Pass
15.247(d)	RSS-247(5.5)	5.5	Conducted Band Edge	Pass
15.247(d)	RSS-247(5.5)	5.5	Conducted Emission	Pass
15.247(d)	RSS-GEN 8.9, 8.10	5.6	Radiation Band Edge	Pass
15.247(d)	RSS-GEN 8.9, 8.10	5.6	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: MCS0 IEEE 802.11n HT40 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 **IEEE 802.11n HT40 mode:** 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: 1T1R IEEE 802.11n HT40 mode: 1T1R

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
Power supply Mode	Mode 1: EUT power by power supply (DC 15V) Mode 2: EUT power by host system via USB
Worst Mode	☐ Mode 1 ☒ Mode 2 ☐ Mode 3 ☐ Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Power supply Mode	Mode 1: EUT power by power supply (DC 15V) Mode 2: EUT power by host system via USB
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

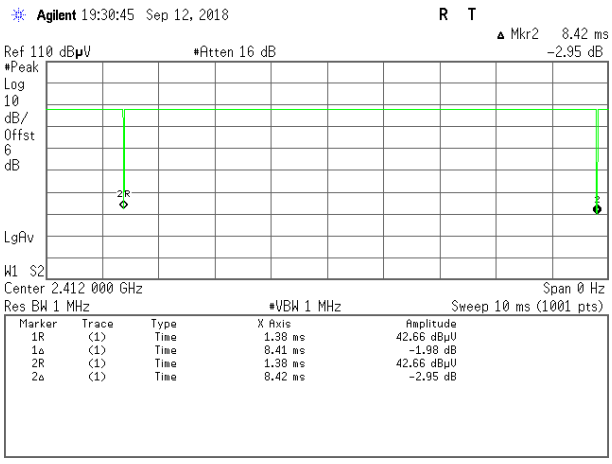
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by power supply (DC 15V) Mode 2: EUT power by host system via USB
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

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 (X-Plane and Horizontal) were recorded in this report
3. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.

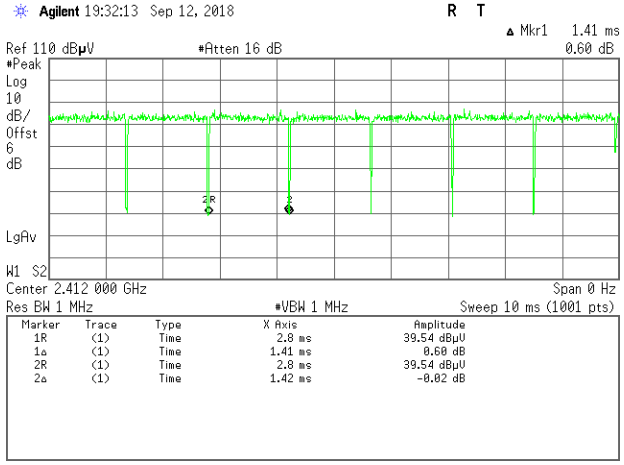
4 EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)
802.11b	8.4100	8.4200	99.88%
802.11g	1.4100	1.4200	99.30%
802.11n HT20	1.3200	1.3300	99.25%
802.11n HT40	0.6700	0.6900	97.10%

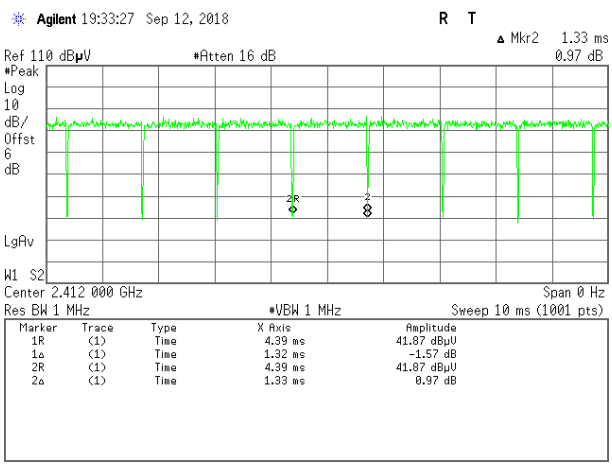
802.11b



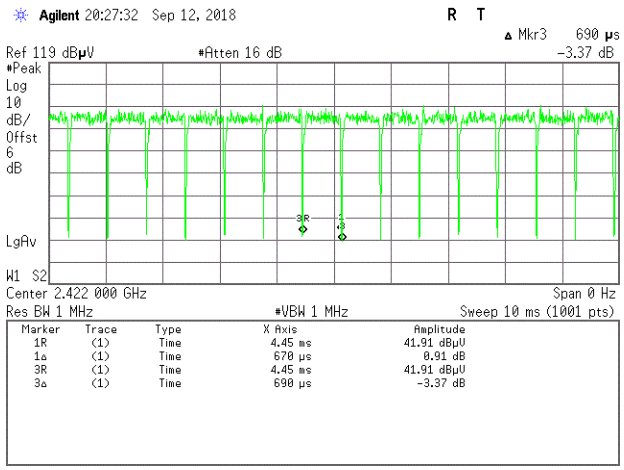
802.11g



802.11n HT20



802.11n HT40



5 TEST RESULT

5.1 AC POWER LINE CONDUCTED EMISSION

5.1.1 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

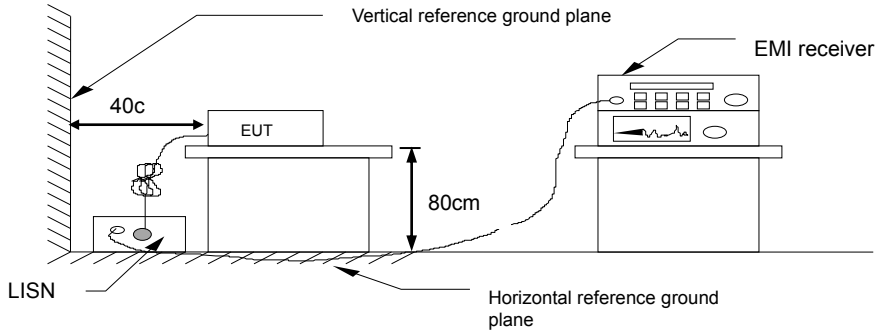
* Decreases with the logarithm of the frequency.

5.1.2 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.

5.1.3 Test Setup

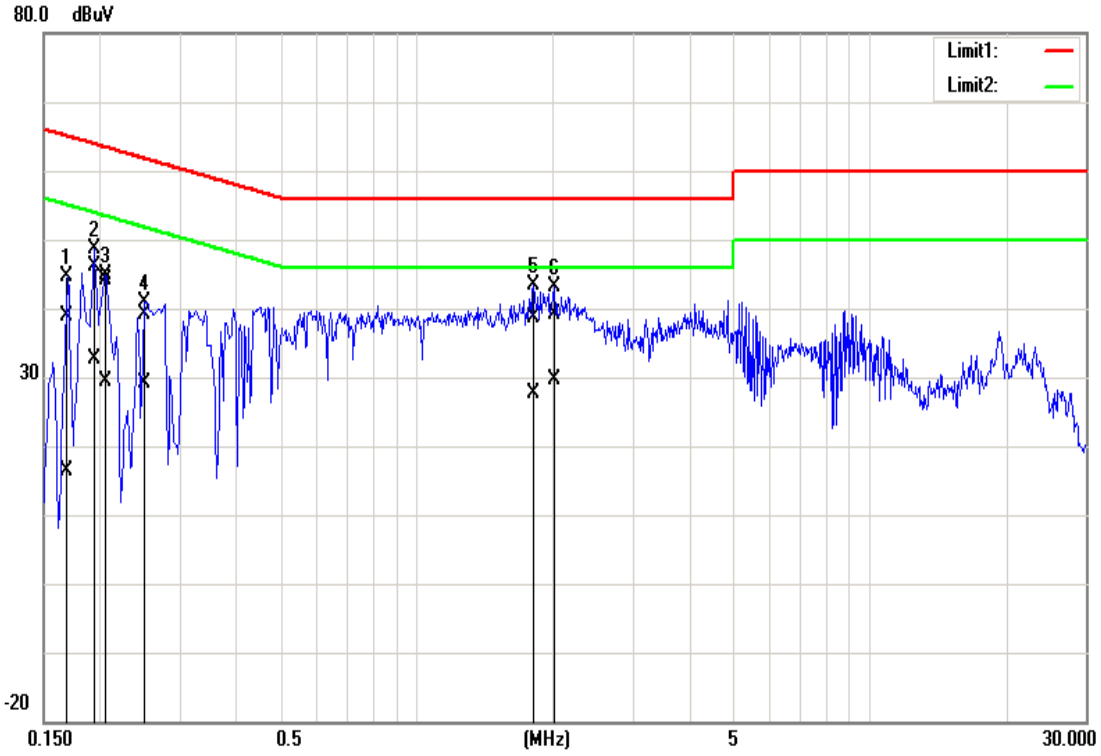


5.1.4 Test Result

Pass.

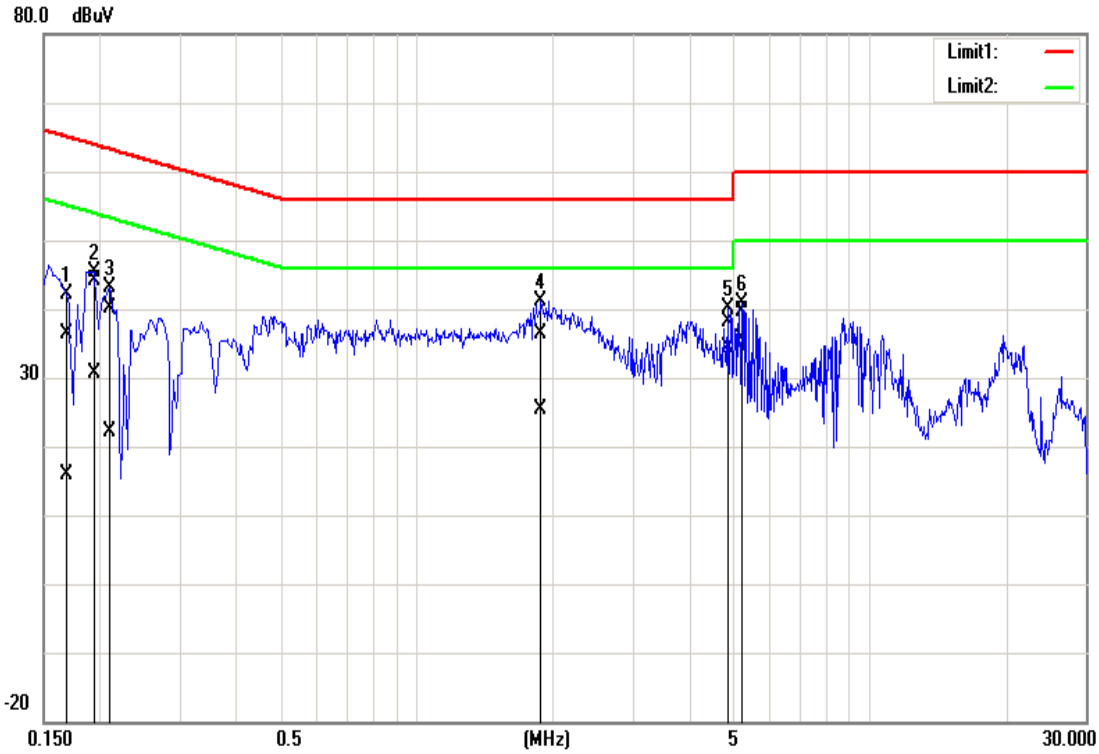
Test Data

Test Mode:	Mode 2	Temp/Hum	24(℃)/ 50%RH
Phase:	Line	Test Date	2018/07/23
		Test Engineer	Dally Hong



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1700	38.86	16.21	0.11	38.97	16.32	64.96	54.96	-25.99	-38.64	Pass
2	0.1940	45.91	32.52	0.11	46.02	32.63	63.86	53.86	-17.84	-21.23	Pass
3	0.2060	43.95	29.39	0.11	44.06	29.50	63.37	53.37	-19.31	-23.87	Pass
4	0.2500	38.97	29.05	0.11	39.08	29.16	61.76	51.76	-22.68	-22.60	Pass
5	1.8180	38.55	27.47	0.15	38.70	27.62	56.00	46.00	-17.30	-18.38	Pass
6	2.0220	39.05	29.47	0.15	39.20	29.62	56.00	46.00	-16.80	-16.38	Pass

Test Mode:	Mode 2	Temp/Hum	24(℃)/ 50%RH
Phase:	Neutral	Test Date	2018/07/23
		Test Engineer	Dally Hong



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1700	36.18	15.74	0.14	36.32	15.88	64.96	54.96	-28.64	-39.08	Pass
2	0.1940	44.01	30.41	0.13	44.14	30.54	63.86	53.86	-19.72	-23.32	Pass
3	0.2100	40.11	21.88	0.13	40.24	22.01	63.21	53.21	-22.97	-31.20	Pass
4	1.8820	36.10	25.27	0.16	36.26	25.43	56.00	46.00	-19.74	-20.57	Pass
5	4.8580	37.80	34.26	0.21	38.01	34.47	56.00	46.00	-17.99	-11.53	Pass
6	5.2420	39.35	35.53	0.22	39.57	35.75	60.00	50.00	-20.43	-14.25	Pass

5.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

5.2.1 Test Limit

According to §15.247(a)(2)、RSS-247 section 5.2(a) and RSS-GEN 6.7

6 dB Bandwidth ：

Limit	Shall be at least 500kHz

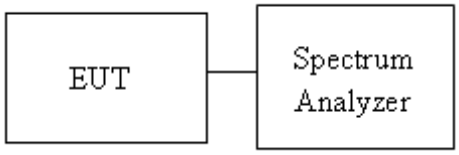
Occupied Bandwidth(99%) ： For reporting purposes only.

5.2.2 Test Procedure

Test method Refer as KDB 558074 D01, 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.
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

5.2.3 Test Setup



5.2.4 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	12.6338	9.5652	≥500
Mid	2437	12.8943	9.087	
High	2462	12.6772	9.5217	

Test mode: IEEE 802.11g mode / 2412-2462 MHz				
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**	**6dB limit (kHz)**
Low	2412	16.5412	15.087	≥500
Mid	2437	16.5846	15.1304	
High	2462	15.5412	15.4348	

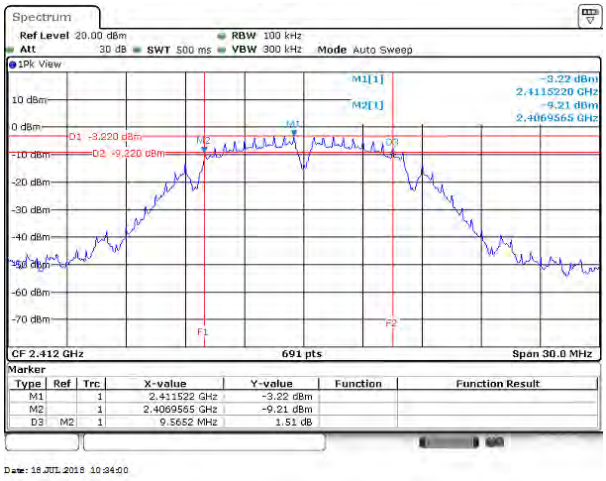
Test mode: IEEE 802.11n HT 20 mode / 2412-2462 MHz				
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**	**6dB limit (kHz)**
Low	2412	17.5397	15.9565	≥500
Mid	2437	17.6700	15.4348	
High	2462	17.5832	16.087	

Test mode: IEEE 802.11n HT 40 mode / 2422-2452 MHz				
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**	**6dB limit (kHz)**
Low	2422	36.3531	36.058	>500
Mid	2437	36.7004	35.246	
High	2452	36.4688	36.174	

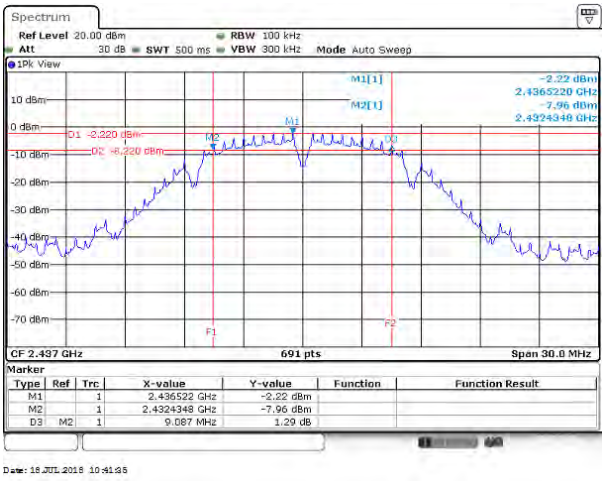
Test Data (6dB BANDWIDTH)

IEEE 802.11b mode

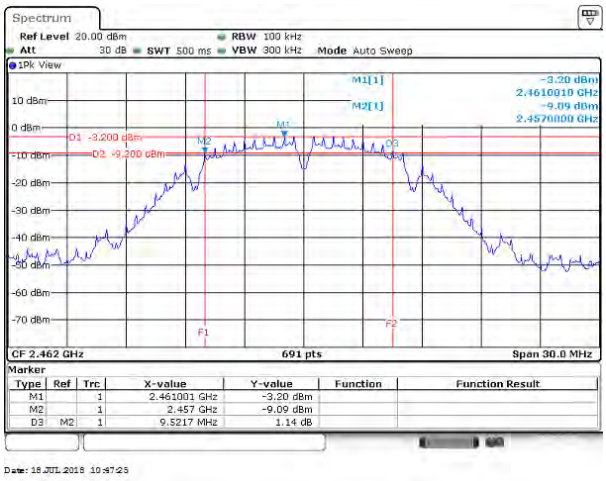
Low CH

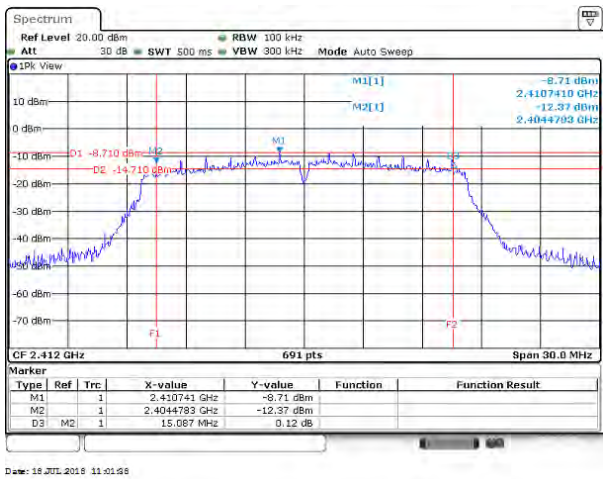
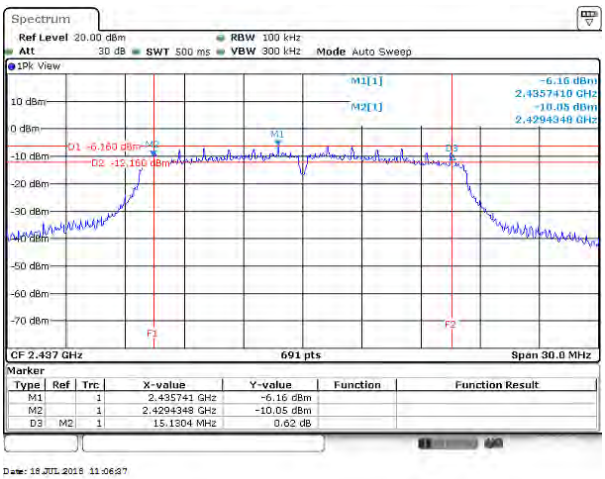


Mid CH



High CH



IEEE 802.11g mode	
Low CH	**Mid CH**
	
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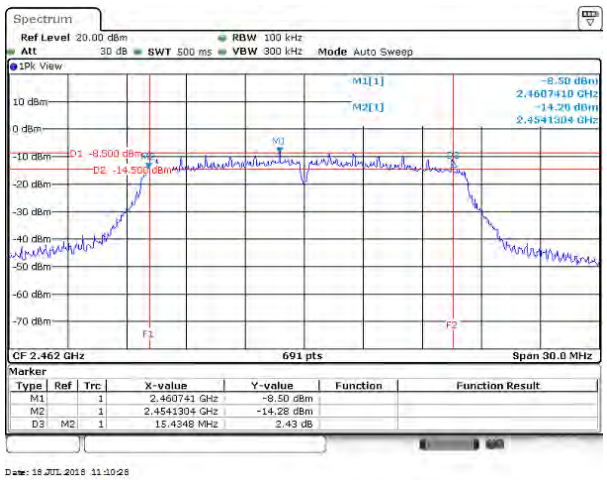
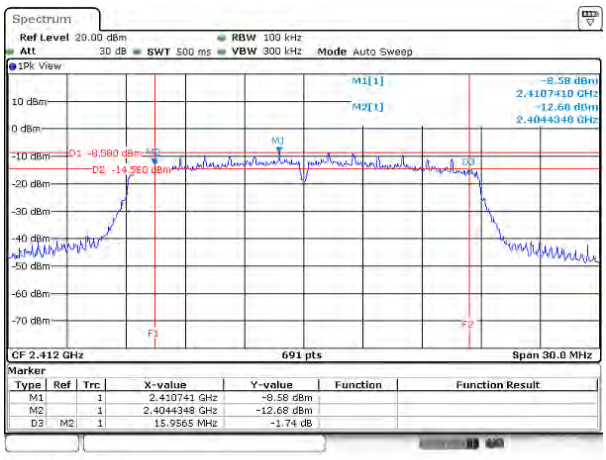
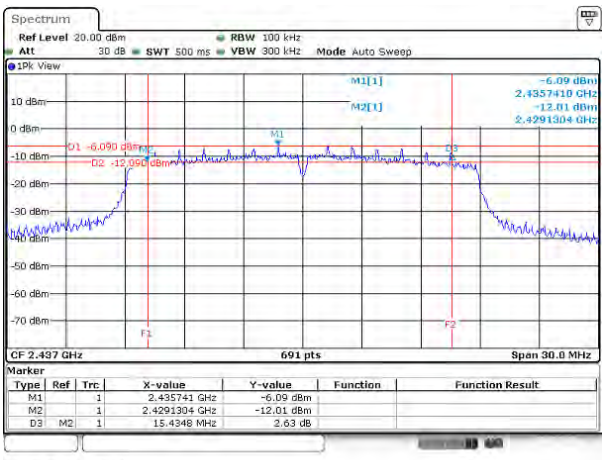
	

IEEE 802.11n HT20 mode	
Low CH	**Mid CH**
	
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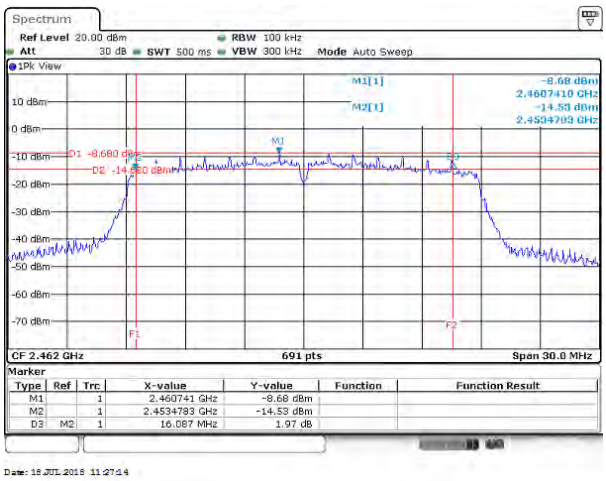
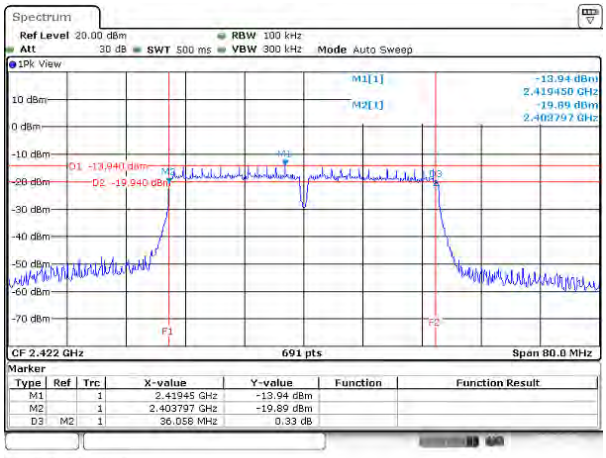
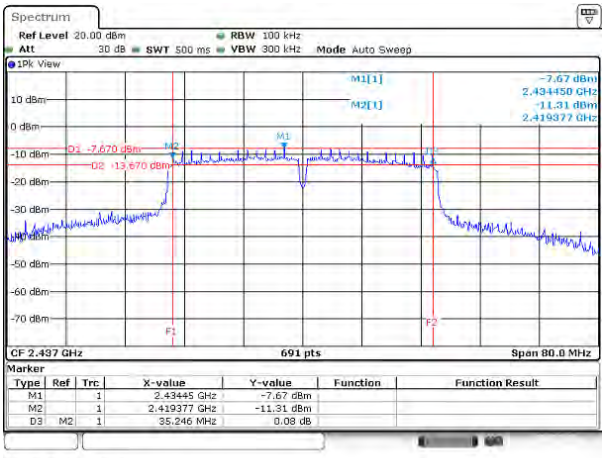
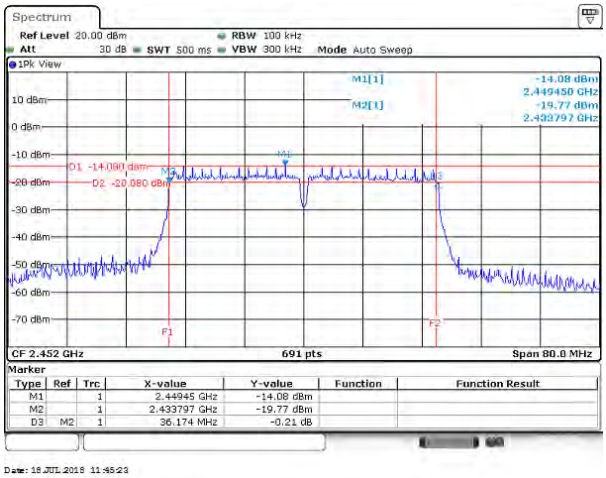
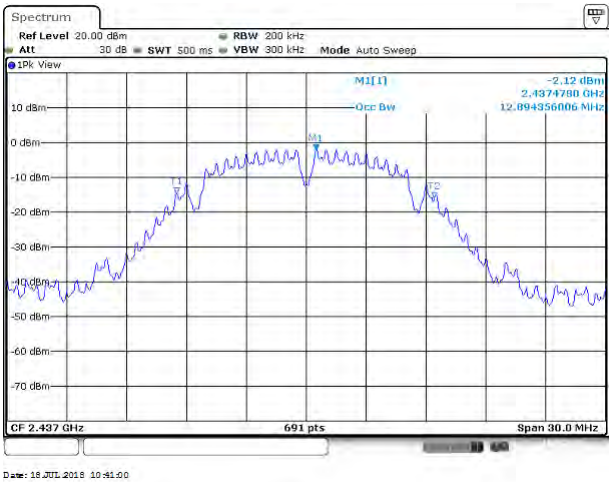
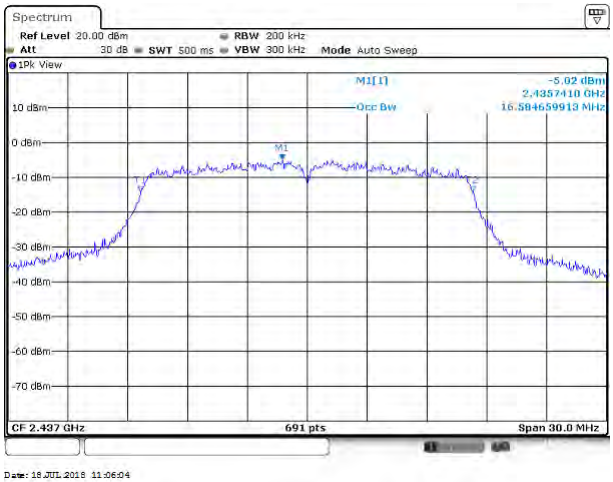
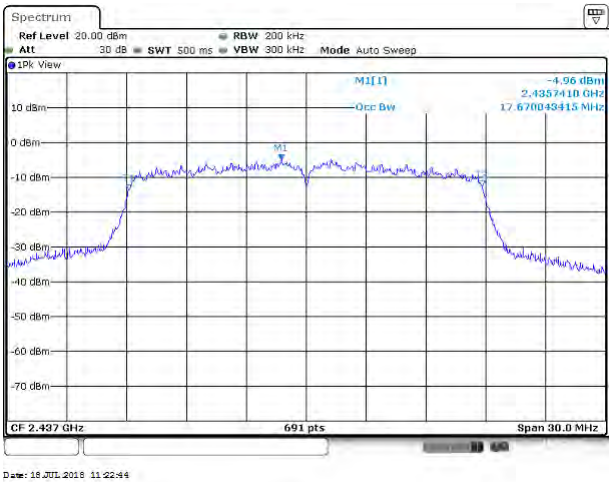
	

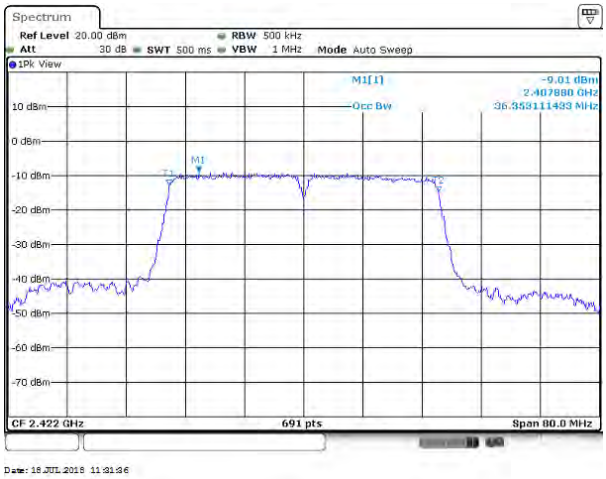
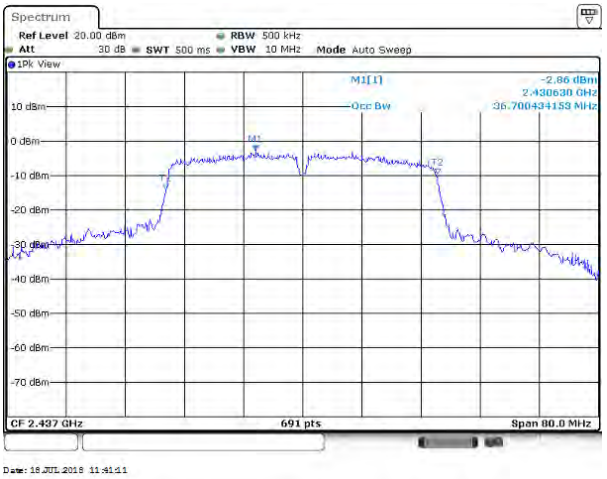
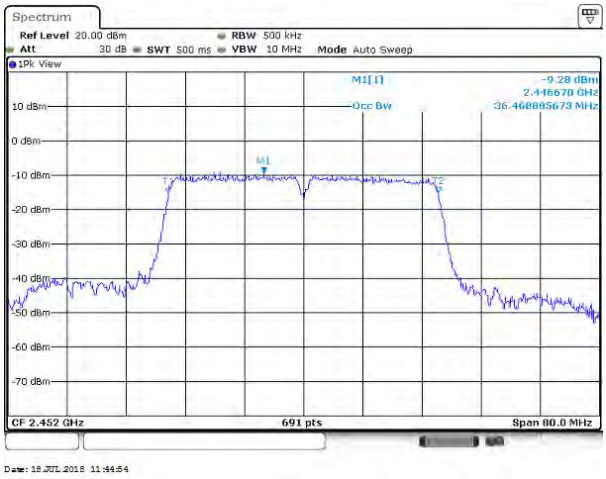
IEEE 802.11n HT40 mode	
Low CH	**Mid CH**
	
High CH	
	

Test Data (BANDWIDTH 99%)

IEEE 802.11b mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

IEEE 802.11g mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

IEEE 802.11n HT20 mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

IEEE 802.11n HT40 mode	
Low CH	**Mid CH**
	
High CH	
	

5.3 OUTPUT POWER MEASUREMENT

5.3.1 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) 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	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 30 – (DG – 6)] ☐ Point-to-point operation：

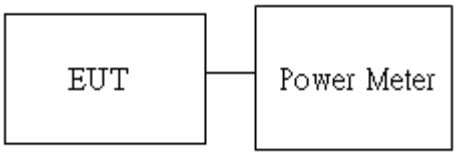
Average output power：For reporting purposes only.

5.3.2 Test Procedure

Test method Refer as KDB 558074 D01, 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.

5.3.3 Test Setup



5.3.4 Test Result

Peak output power：

Wifi 2.4G										
Config	CH	Freq. (MHz)	power set	PK Power (dBm)	PK Total Power (W)	EIRP PK Power (dBm)	EIRP PK Power (W)	DG (dBi)	Limit (dBm)	EIRP Limit (dBm)
IEEE 802.11b Data rate: 1Mbps	Low	2412	20	19.68	0.0929	23.44	0.2208	3.76	30	36
	Mid	2437	20	20.45	0.1109	24.21	0.2636			
	High	2462	20	19.65	0.0923	23.41	0.2193			
IEEE 802.11g Data rate: 6Mbps	Low	2412	15	21.45	0.1396	25.21	0.3319			
	Mid	2437	17.5	22.36	0.1722	26.12	0.4093			
	High	2462	16	21.31	0.1352	25.07	0.3214			
IEEE 802.11n HT20 Data rate: MCS0	Low	2412	16	21.77	0.1503	25.53	0.3573			
	Mid	2437	17.5	22.61	0.1824	26.37	0.4335			
	High	2462	15	21.57	0.1435	25.33	0.3412			
IEEE 802.11n HT40 Data rate: MCS0	Low	2422	15	21.02	0.1265	24.78	0.3006			
	Mid	2437	19.5	23.34	0.2158	27.10	0.5129			
	High	2452	15	21.22	0.1324	24.98	0.3148			

Average output power：

Wifi 2.4G			
Config	**CH**	**Freq. (MHz)**	**AV Power (dBm)**
IEEE 802.11b Data rate: 1Mbps	Low	2412	16.93
	Mid	2437	17.87
	High	2462	16.82
IEEE 802.11g Data rate: 6Mbps	Low	2412	12.80
	Mid	2437	15.22
	High	2462	12.82
IEEE 802.11n HT20 Data rate: MCS0	Low	2412	12.93
	Mid	2437	15.10
	High	2462	12.81
IEEE 802.11n HT40 Data rate: MCS0	Low	2422	10.83
	Mid	2437	16.79
	High	2452	10.84

5.4 POWER SPECTRAL DENSITY

5.4.1 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.

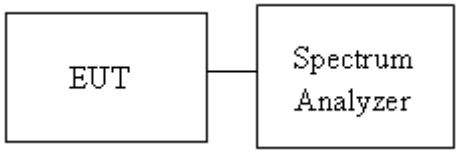
Limit	☒ Antenna not exceed 6 dBi：8dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 8 – (DG – 6)] ☐ Point-to-point operation：

5.4.2 Test Procedure

Test method Refer as KDB 558074 D01, 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.

5.4.3 Test Setup



5.4.4 Test Result

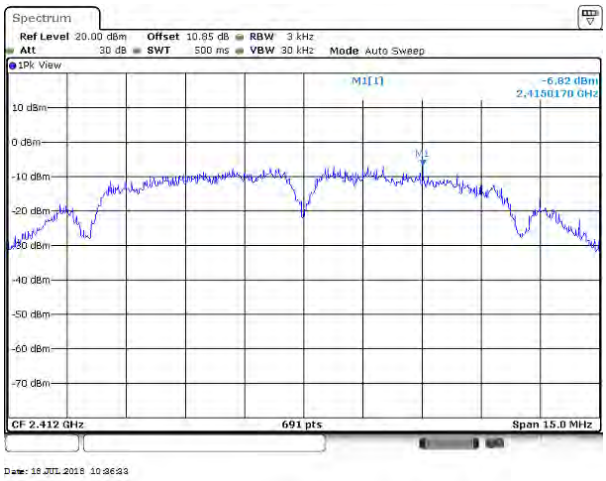
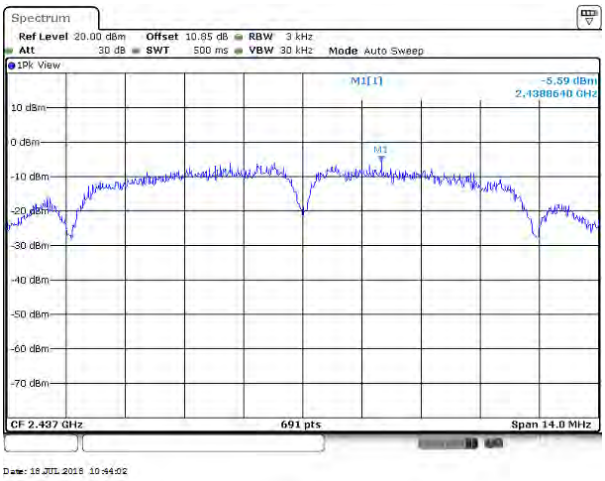
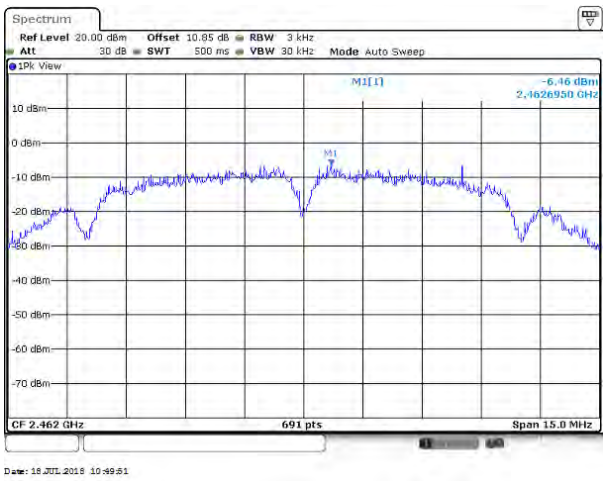
Test mode: IEEE 802.11b mode / 2412-2462 MHz			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	2412	-6.82	8
Mid	2437	-5.59	
High	2462	-6.46	

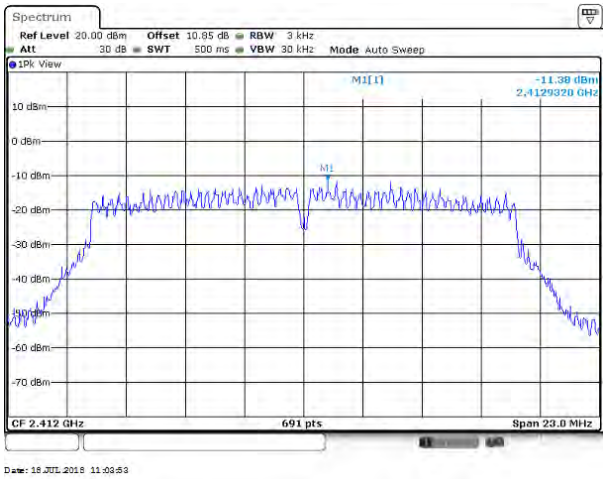
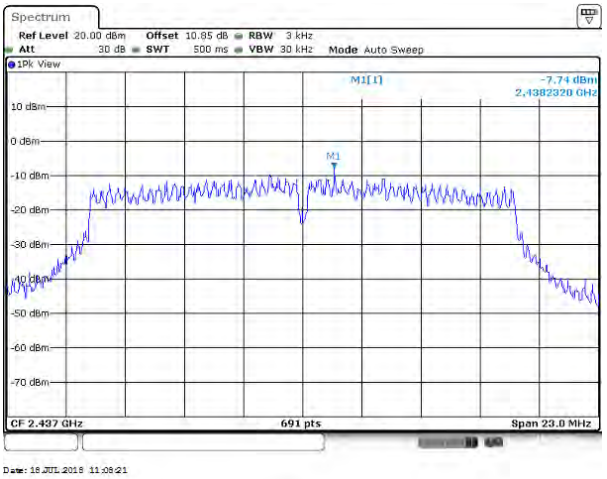
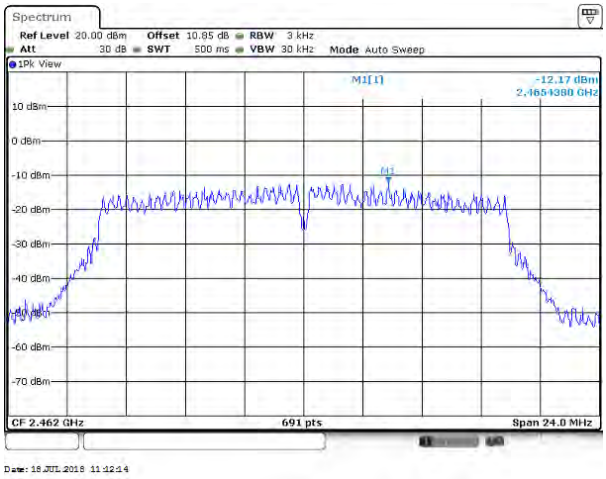
Test mode: IEEE 802.11g mode / 2412-2462 MHz			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	2412	-11.38	8
Mid	2437	-7.74	
High	2462	-12.17	

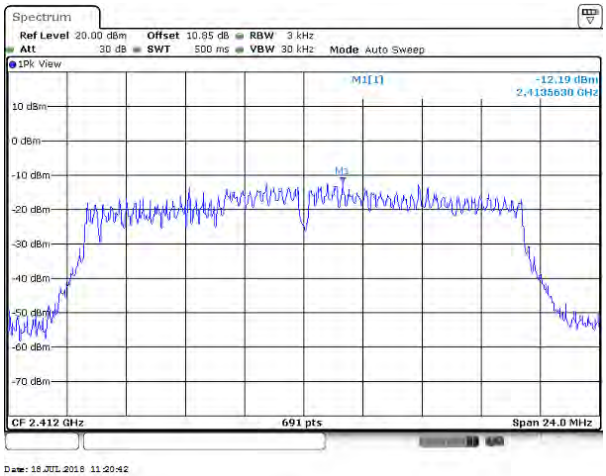
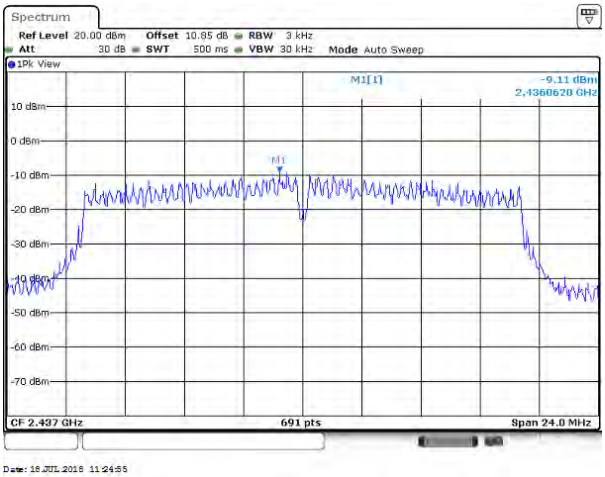
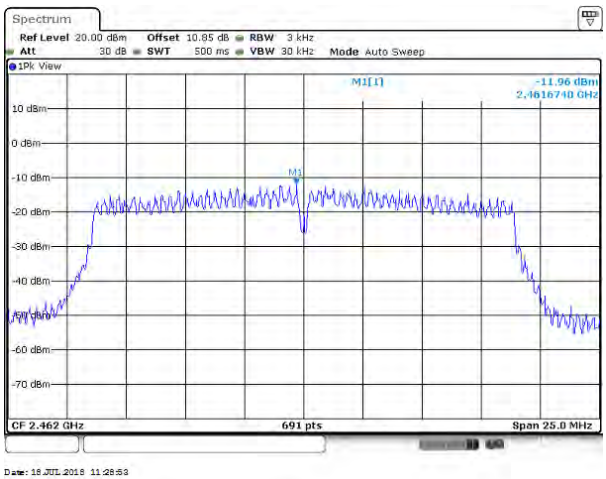
Test mode: IEEE 802.11n HT 20 mode / 2412-2462 MHz			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	2412	-12.19	8
Mid	2437	-9.11	
High	2462	-11.96	

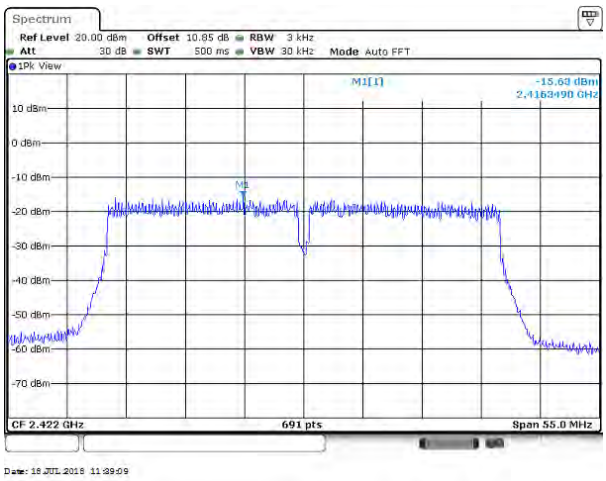
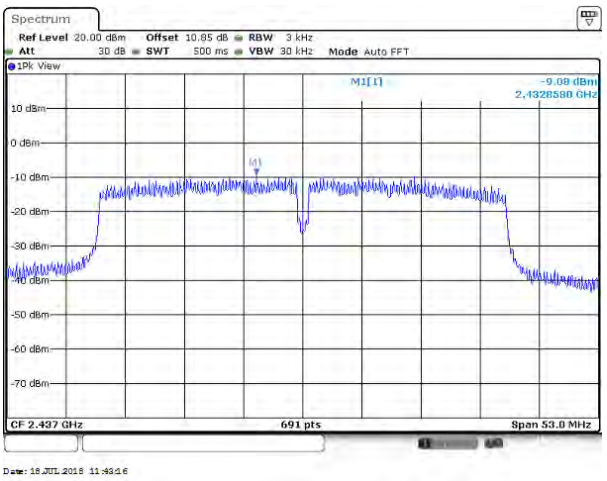
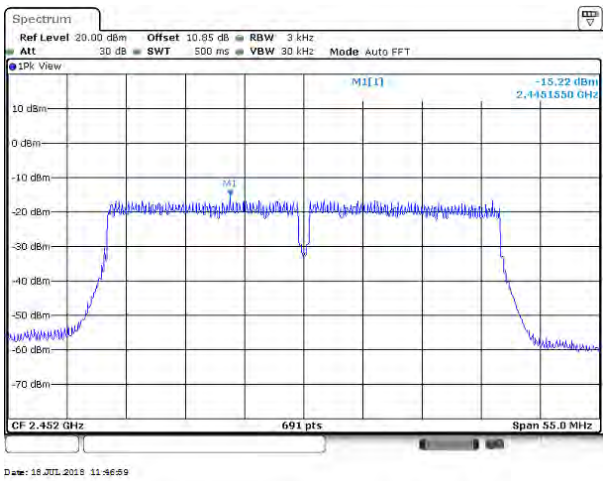
Test mode: IEEE 802.11n HT 40 mode / 2422-2452 MHz			
Channel	**Frequency (MHz)**	**PPSD (dBm)**	**Limit (dBm)**
Low	2422	-15.63	8
Mid	2437	-9.08	
High	2452	-15.22	

Test Data

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

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

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

IEEE 802.11n HT40 mode	
Low CH	**Mid CH**
	
High CH	
	

5.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

5.5.1 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).

5.5.2 Test Procedure

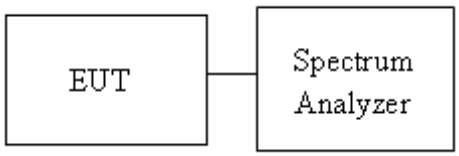
Test method Refer as KDB 558074 D01, Section 11.

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.

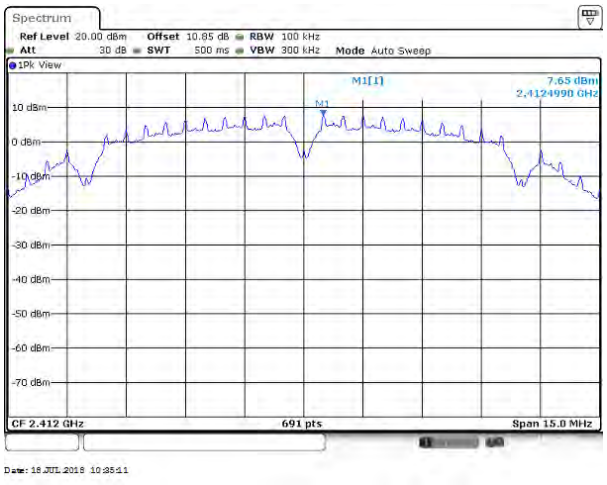
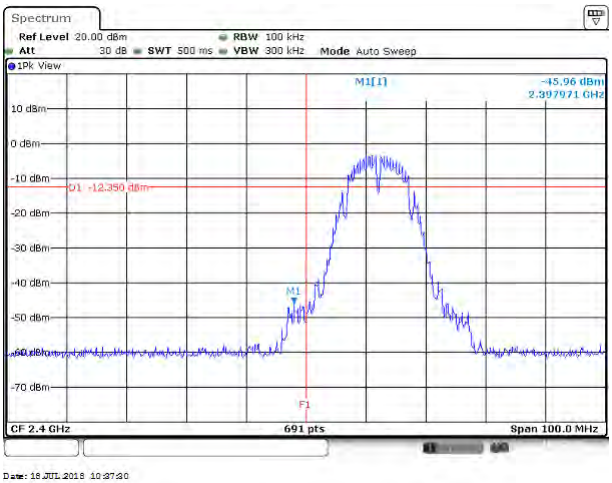
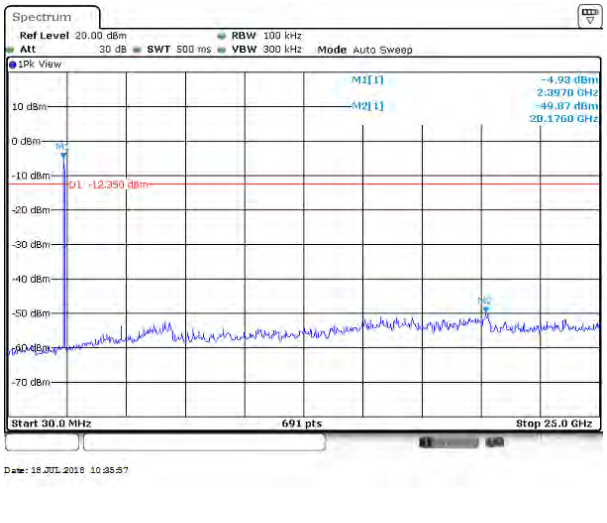
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. f the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

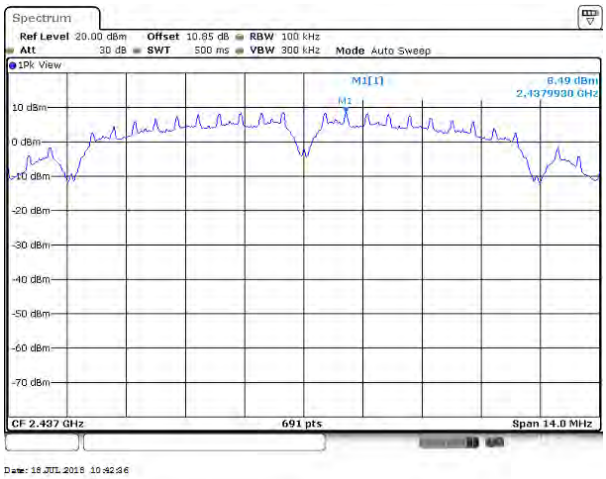
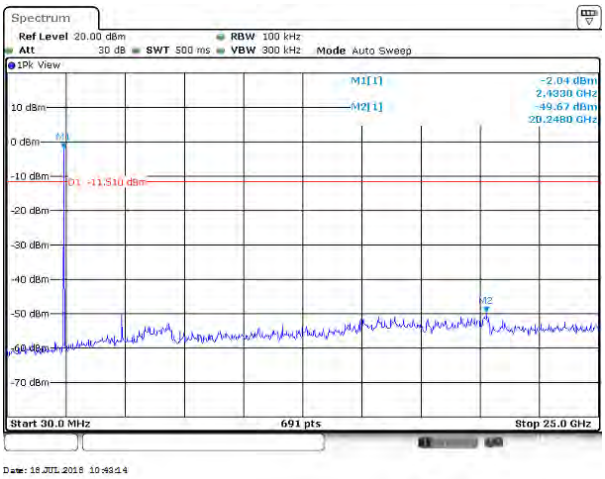
5.5.3 Test Setup

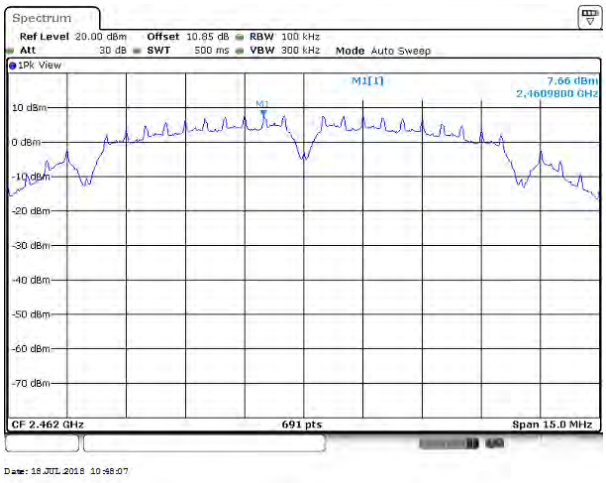
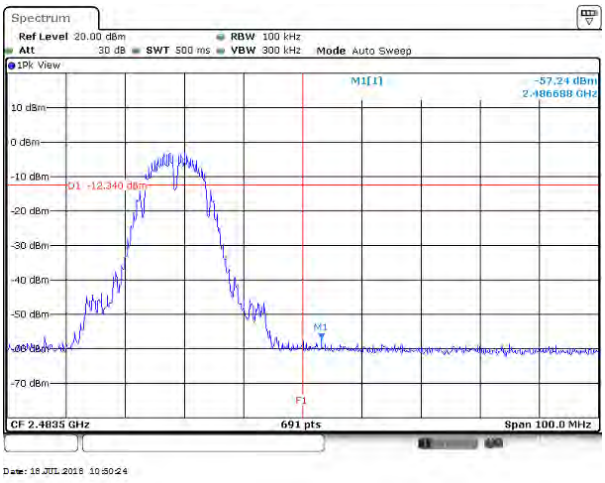
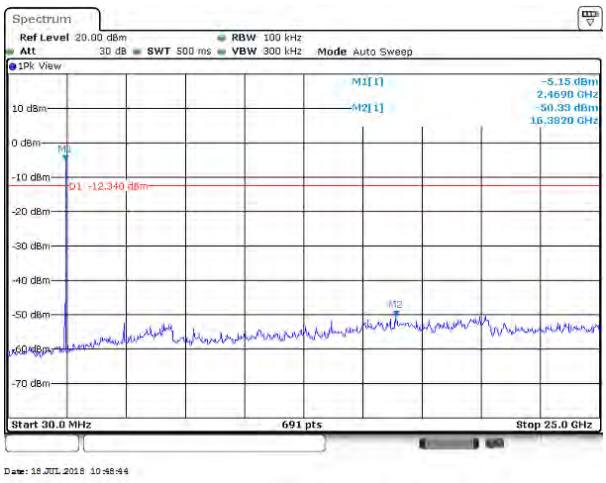


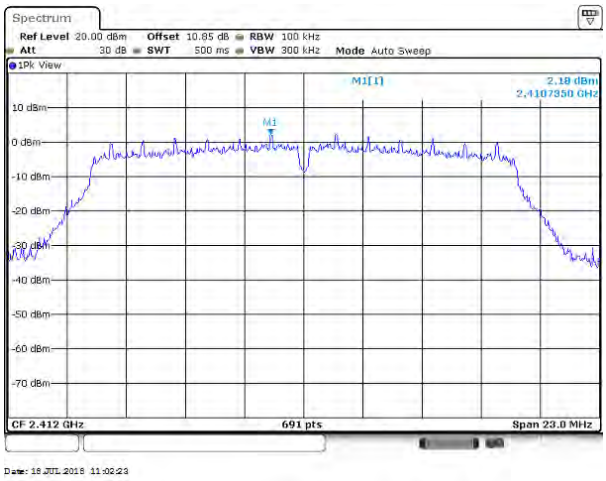
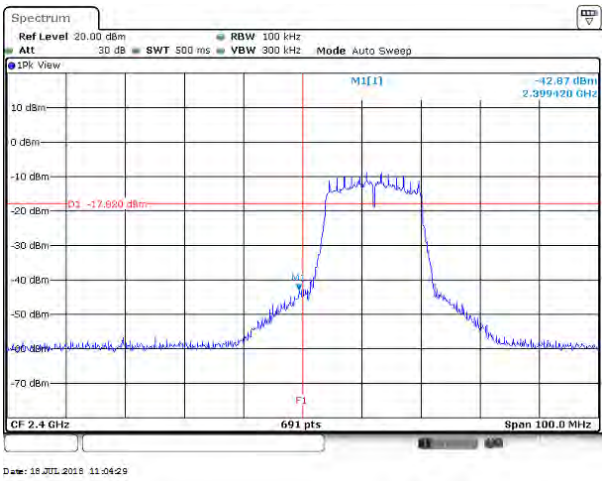
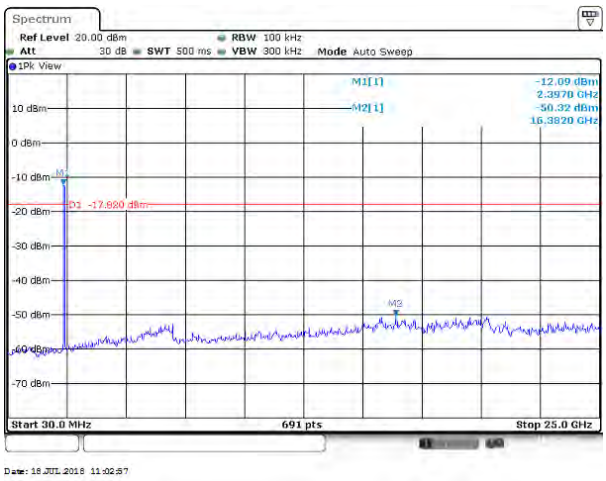
5.5.4 Test Result

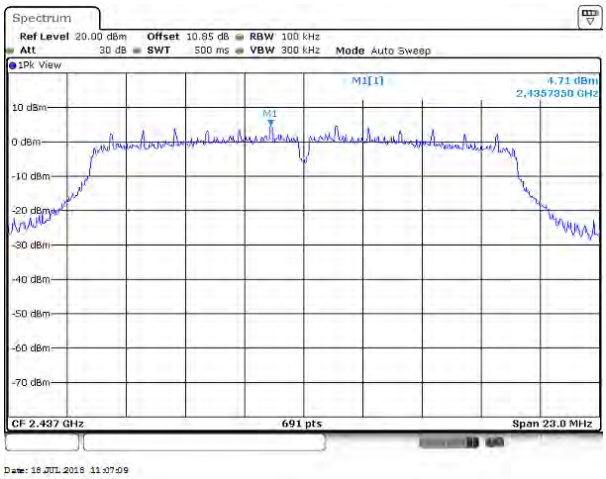
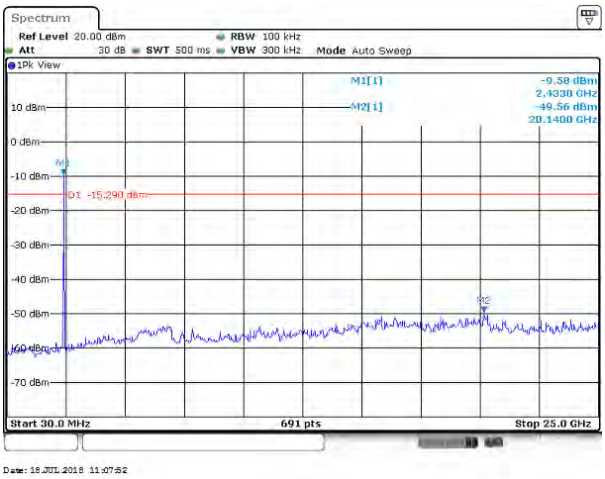
Test Data

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

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

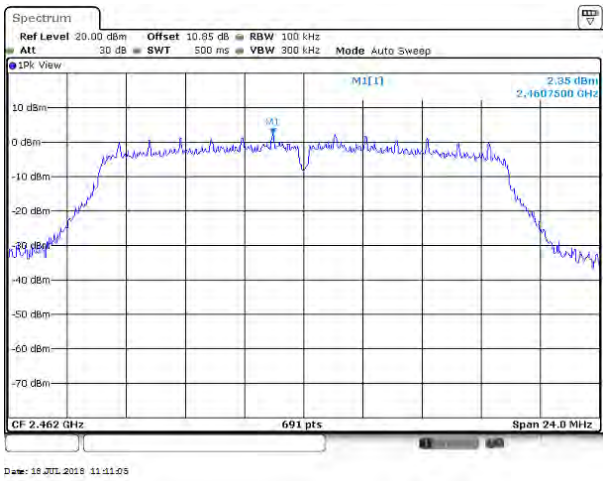
IEEE 802.11b mode High CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

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

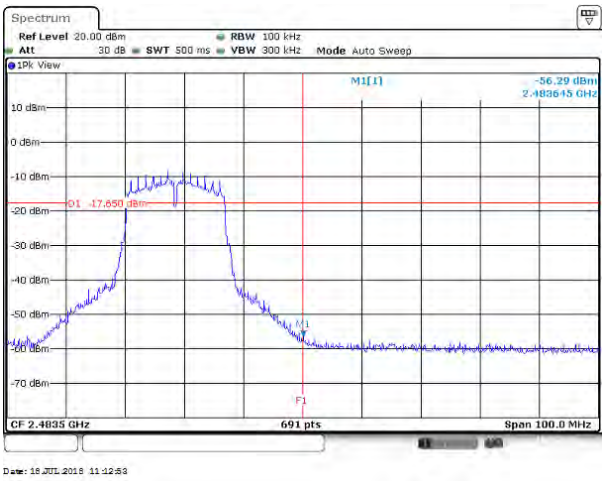
IEEE 802.11g mode Mid CH	
Reference Level of PSD in 100kHz	**Spurious Emission 30MHz-25GHz**
	

IEEE 802.11g mode High CH

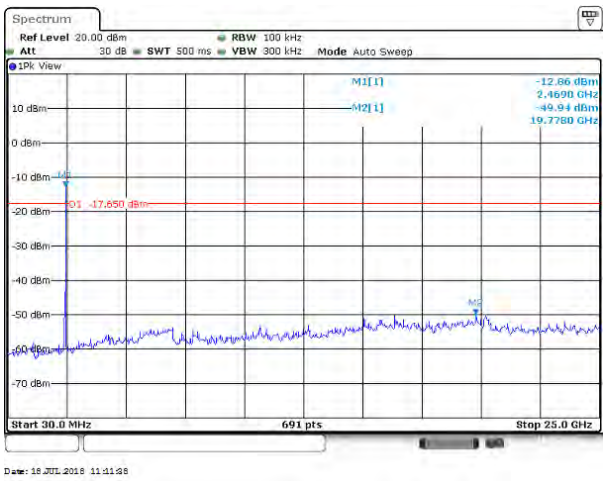
Reference Level of PSD in 100kHz

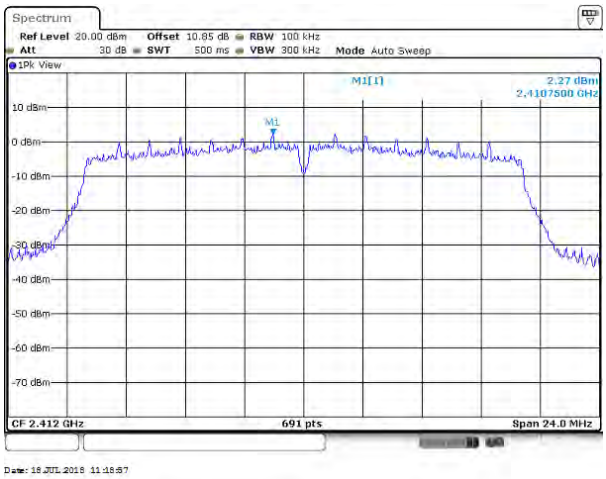
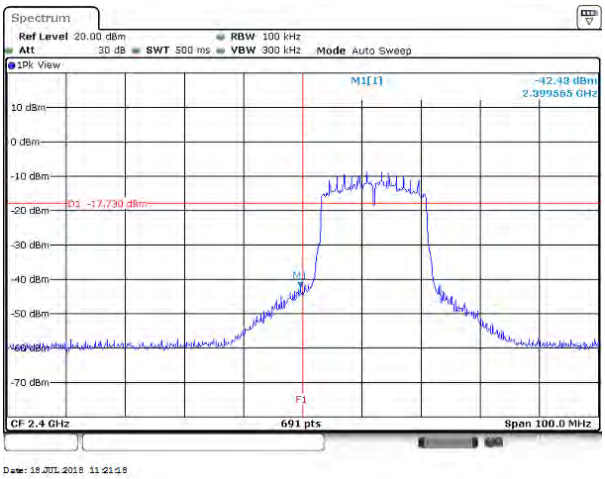
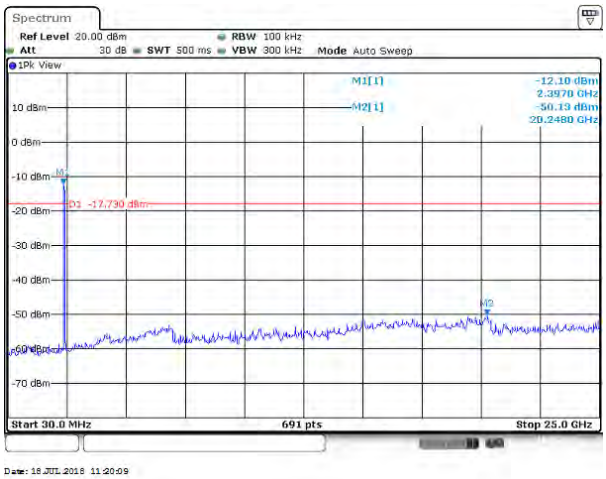


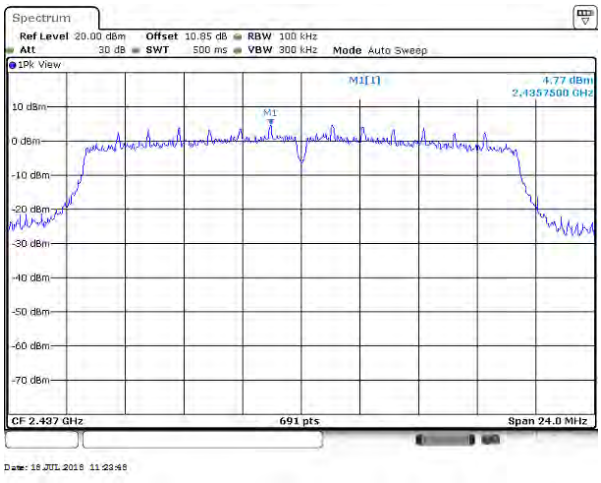
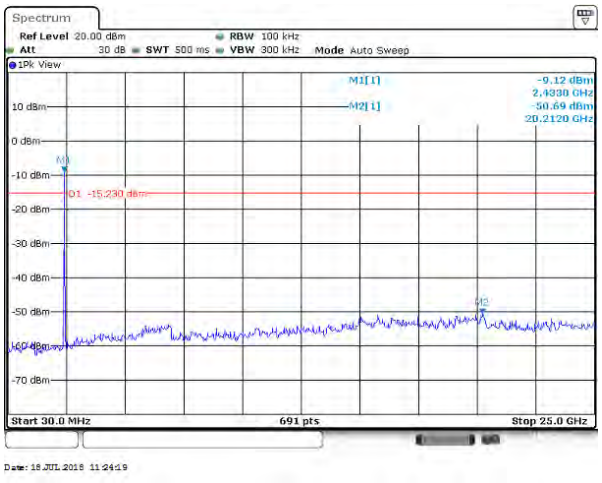
Band Edge

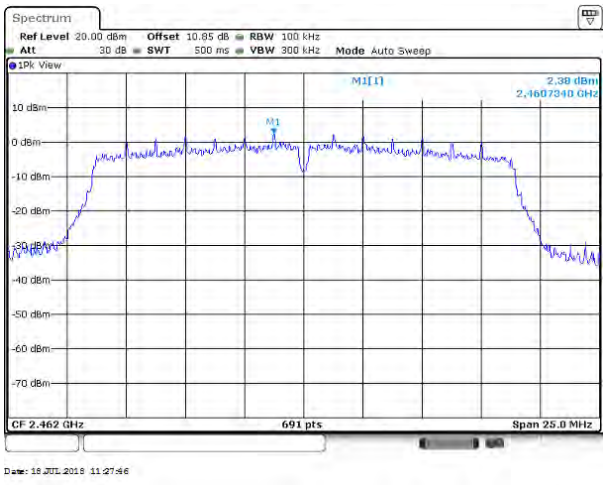
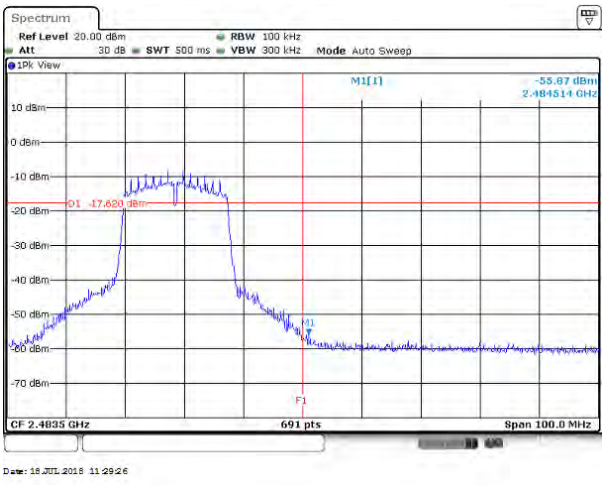
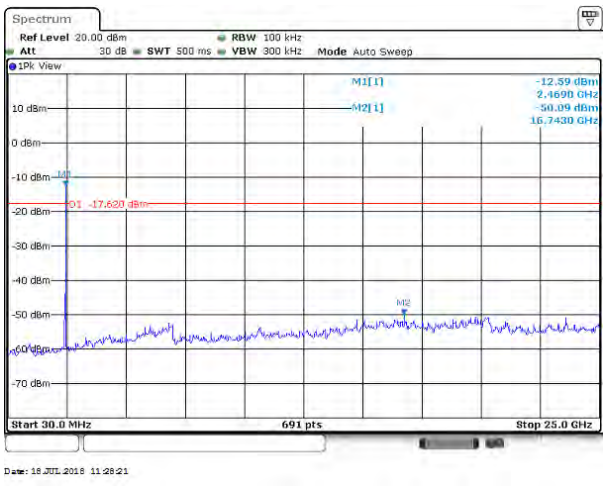


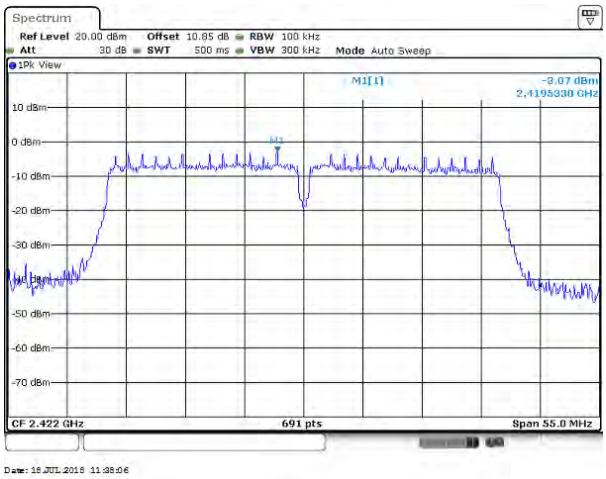
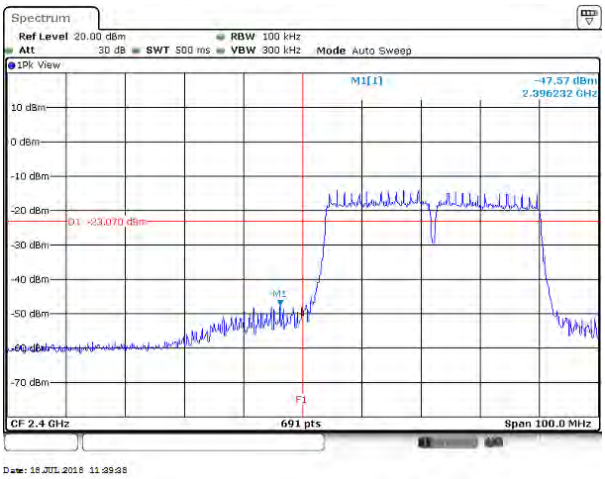
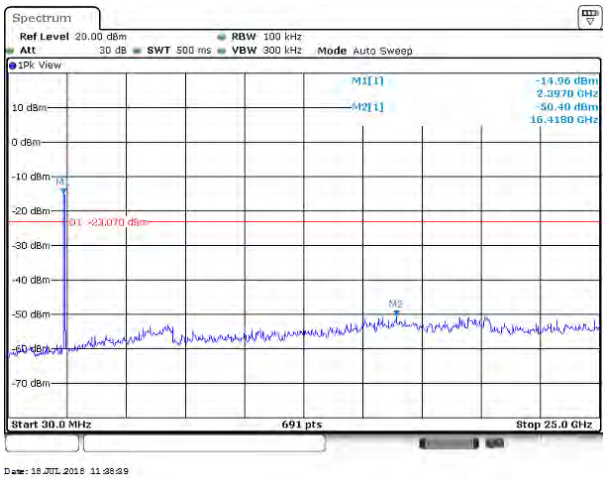
Spurious Emission 30MHz-25GHz

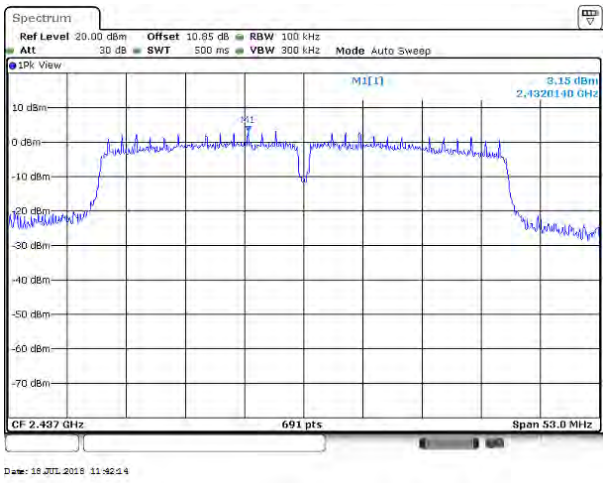
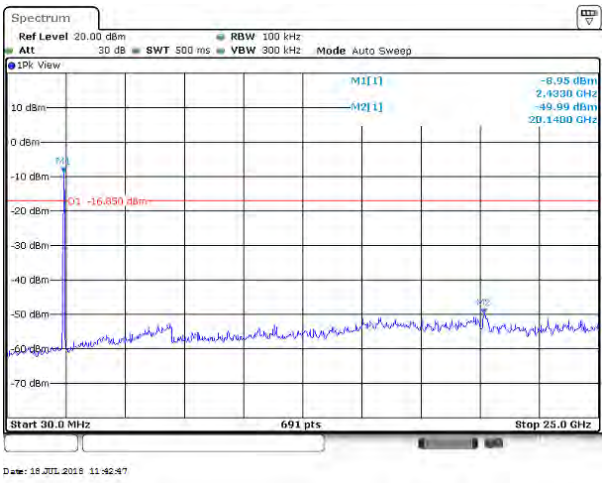


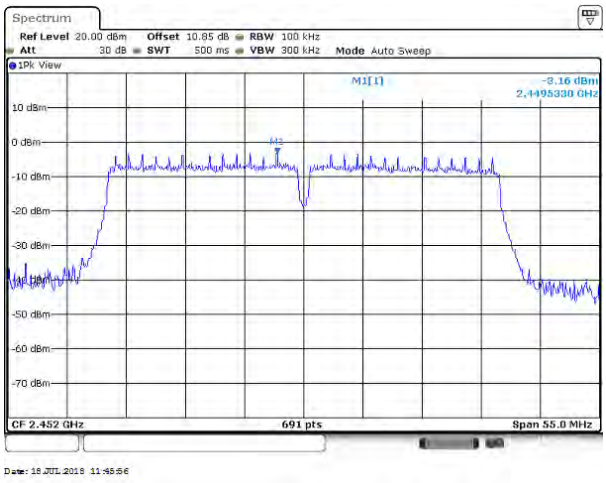
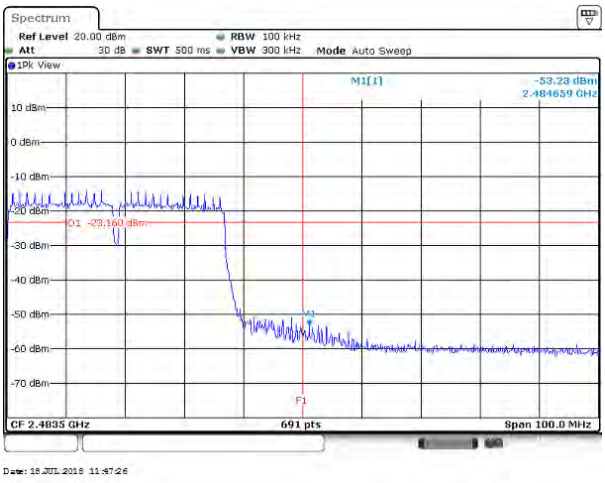
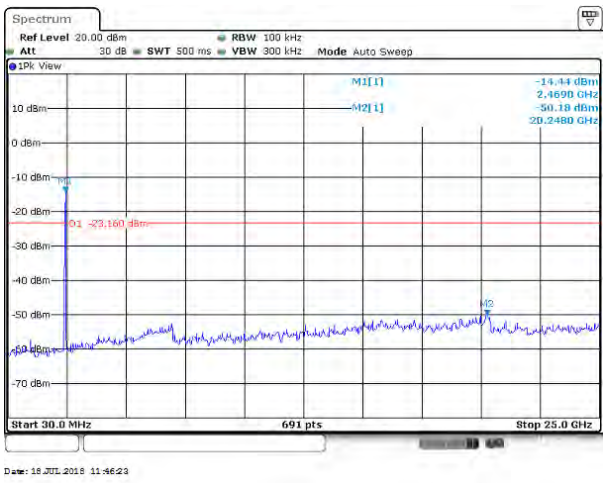
IEEE 802.11 n HT20 mode Low CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

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

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

IEEE 802.11 n HT40 mode Low CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

IEEE 802.11 n HT40 mode Mid CH	
Reference Level of PSD in 100kHz	**Spurious Emission 30MHz-25GHz**
	

IEEE 802.11n HT40 mode High CH	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

5.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

5.6.1 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

5.6.2 Test Procedure

Test method Refer as KDB 558074 D01, 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 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

Remark:
1. 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 414788.
2. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

4. 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.

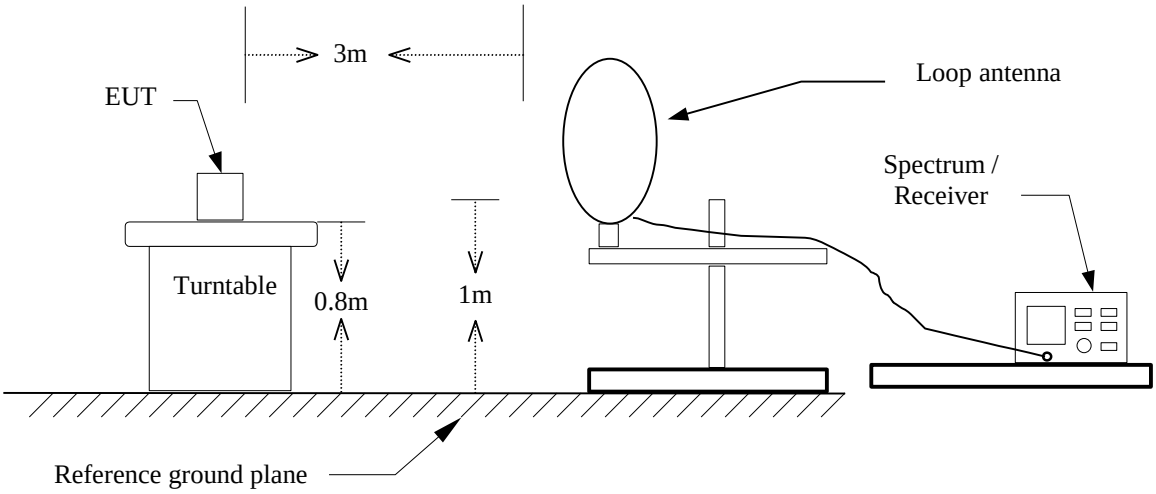
(2.2) For Average measurement：RBW = 1MHz, VBW

- If Duty Cycle ≥ 98%, VBW=10Hz.
- If Duty Cycle < 98%, VBW=1/T.

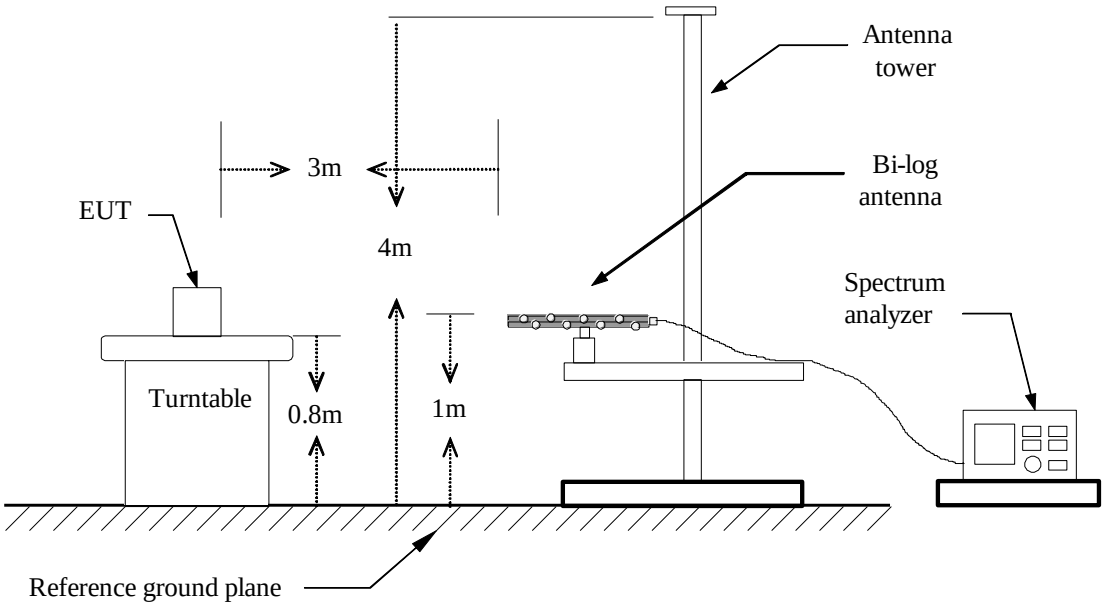
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
802.11b	99.88%	8.4100	-	10Hz
802.11g	99.30%	1.4100	-	10Hz
802.11n HT20	99.25%	1.3200	-	10Hz
802.11n HT40	97.10%	0.6700	1.493	1.5KH

5.6.3 Test Setup

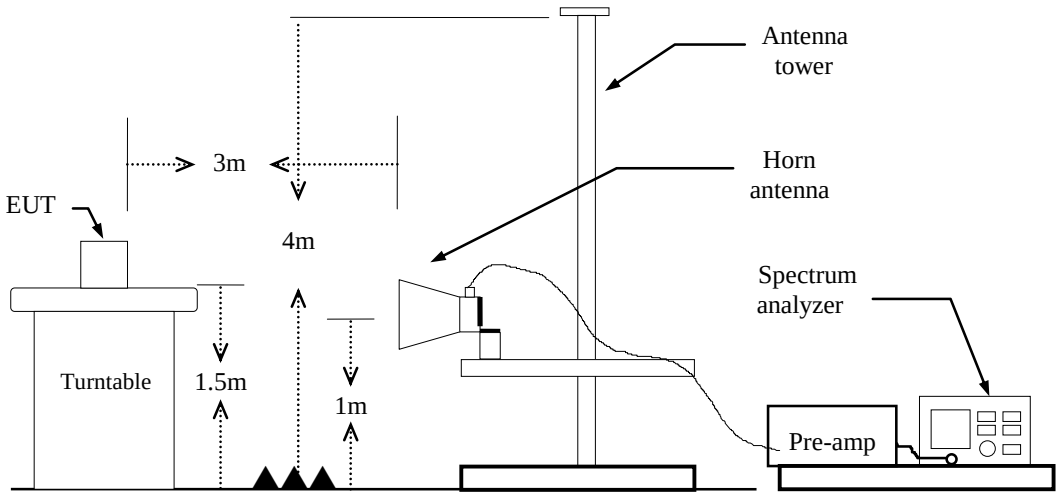
9kHz ~ 30MHz



30MHz ~ 1GHz



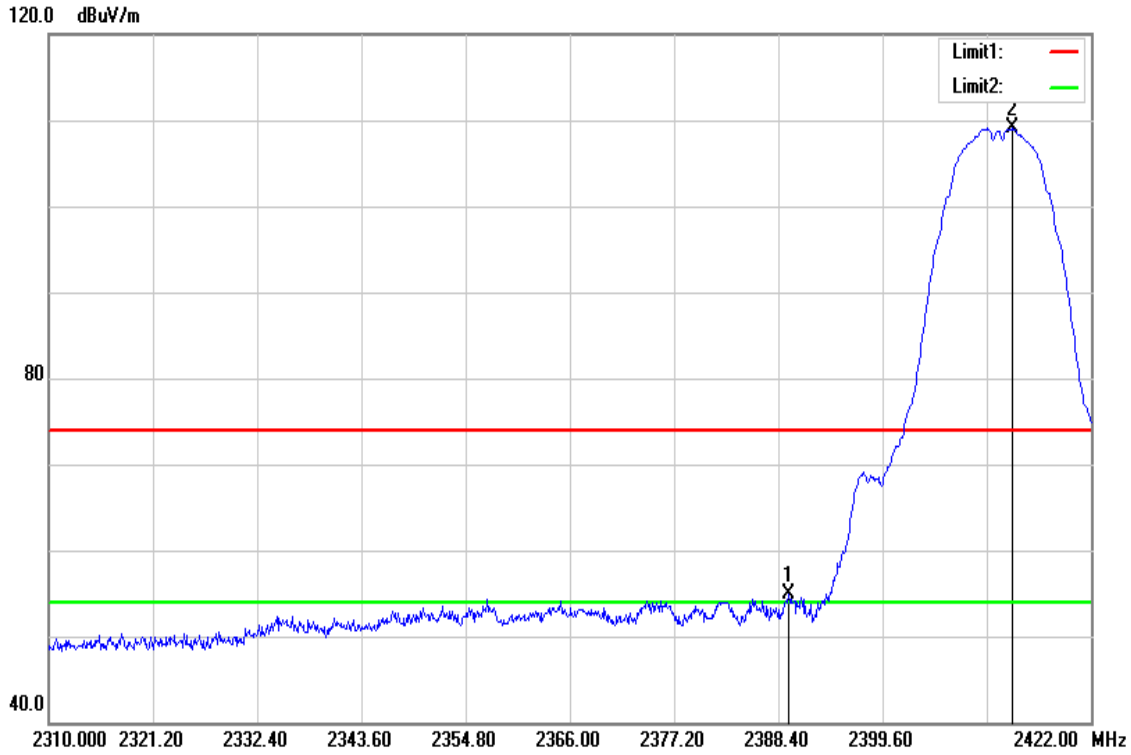
Above 1 GHz



5.6.4 Test Result

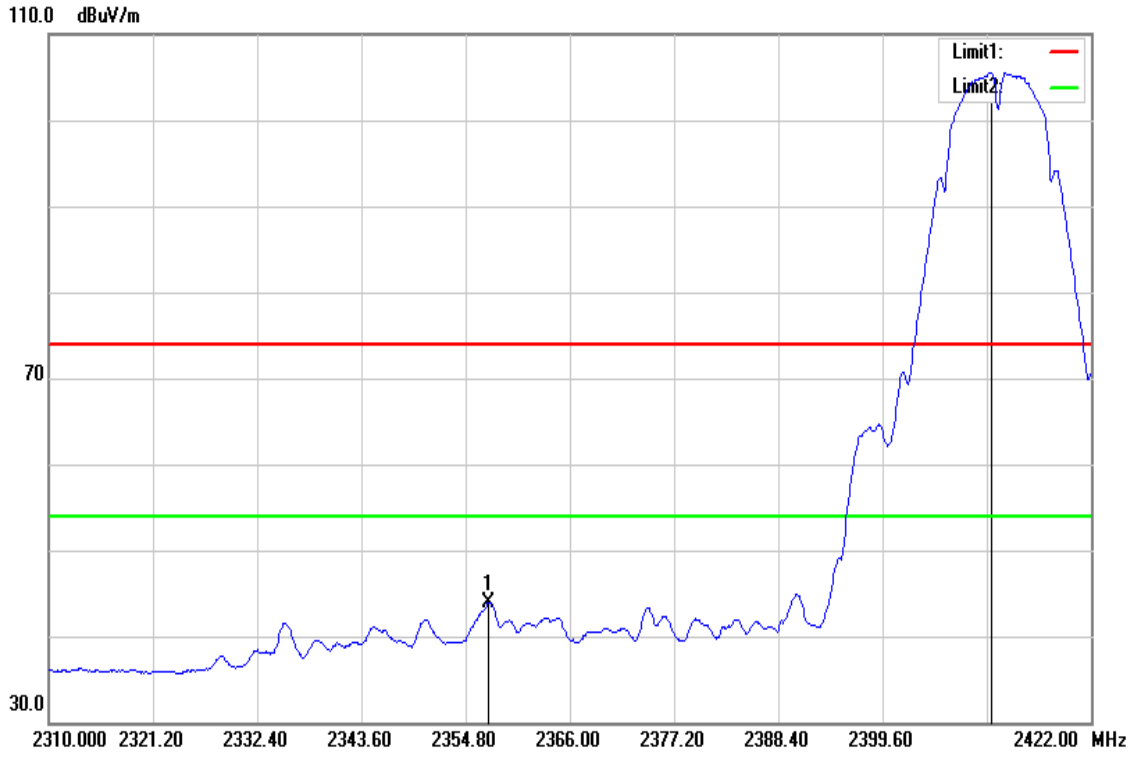
Band Edge Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



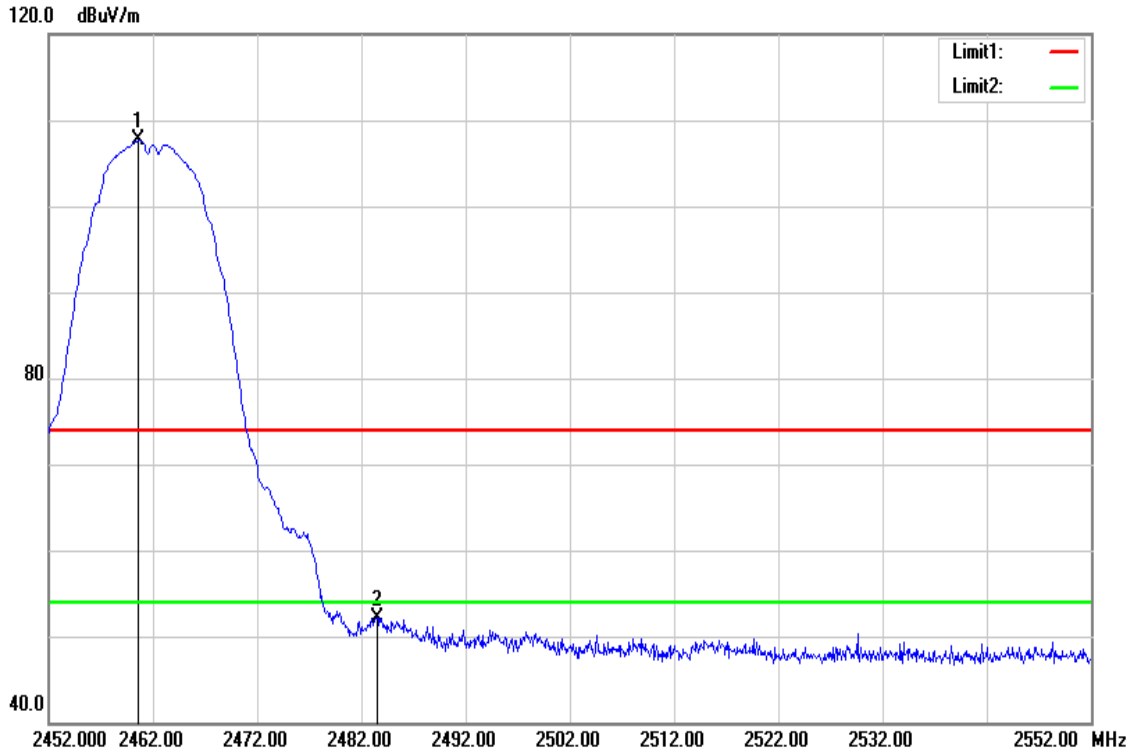
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.520	58.11	-3.13	54.98	74.00	-19.02	peak
2413.488	112.09	-3.06	109.03	-	-	peak

Test Mode	IEEE 802.11b Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



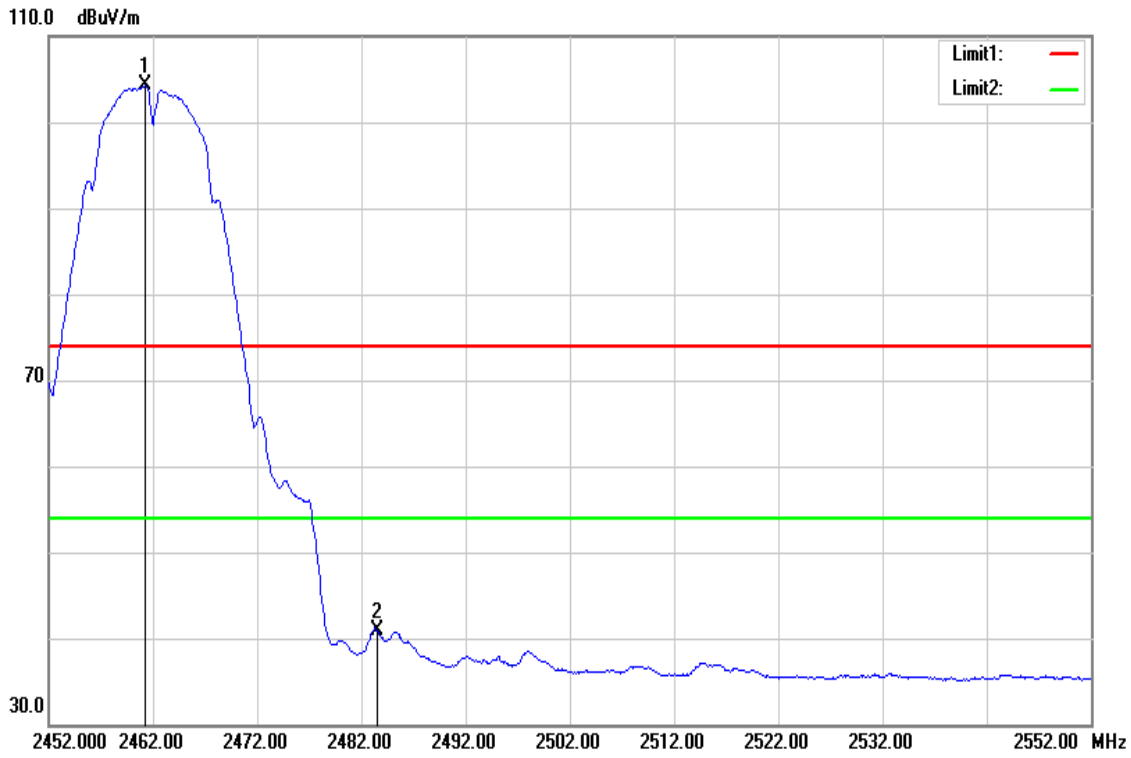
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2357.264	47.00	-3.08	43.92	54.00	-10.08	AVG
2411.248	108.66	-3.08	105.58	-	-	AVG

Test Mode	IEEE 802.11b High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



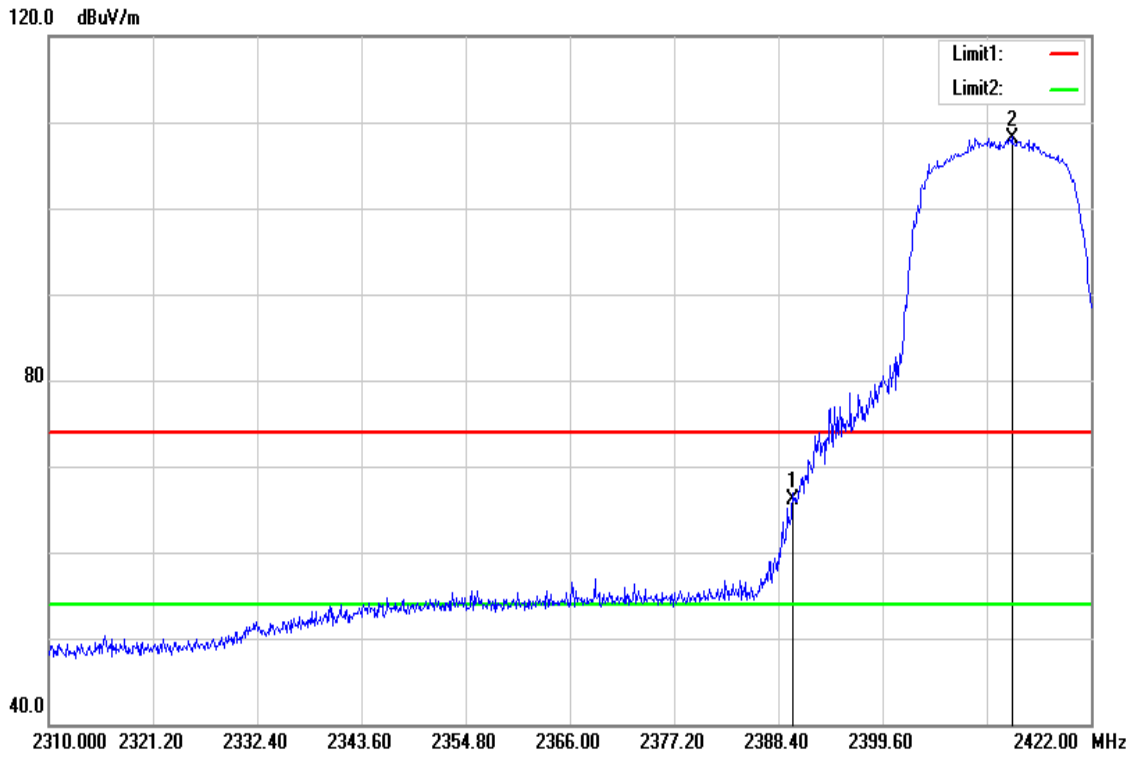
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2460.600	110.47	-2.84	107.63	-	-	peak
2483.500	54.87	-2.71	52.16	74.00	-21.84	peak

Test Mode	IEEE 802.11b High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



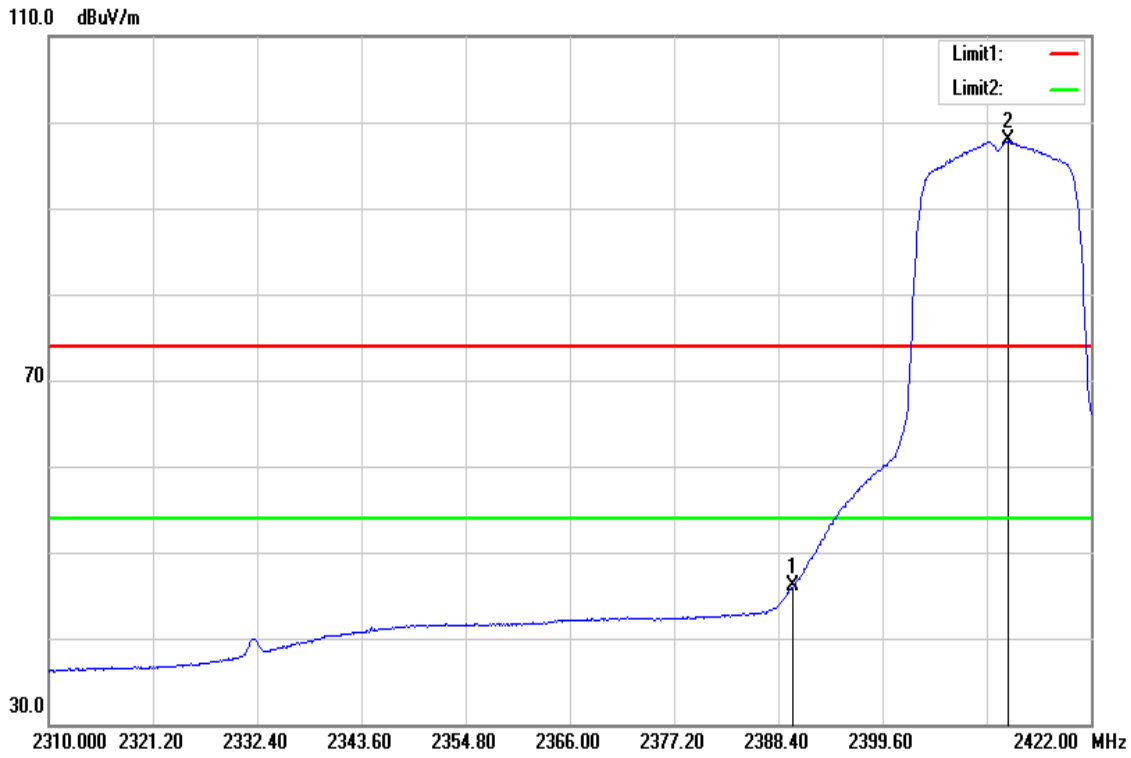
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2461.200	107.09	-2.84	104.25	-	-	AVG
2483.500	43.54	-2.71	40.83	54.00	-13.17	AVG

Test Mode	IEEE 802.11g Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



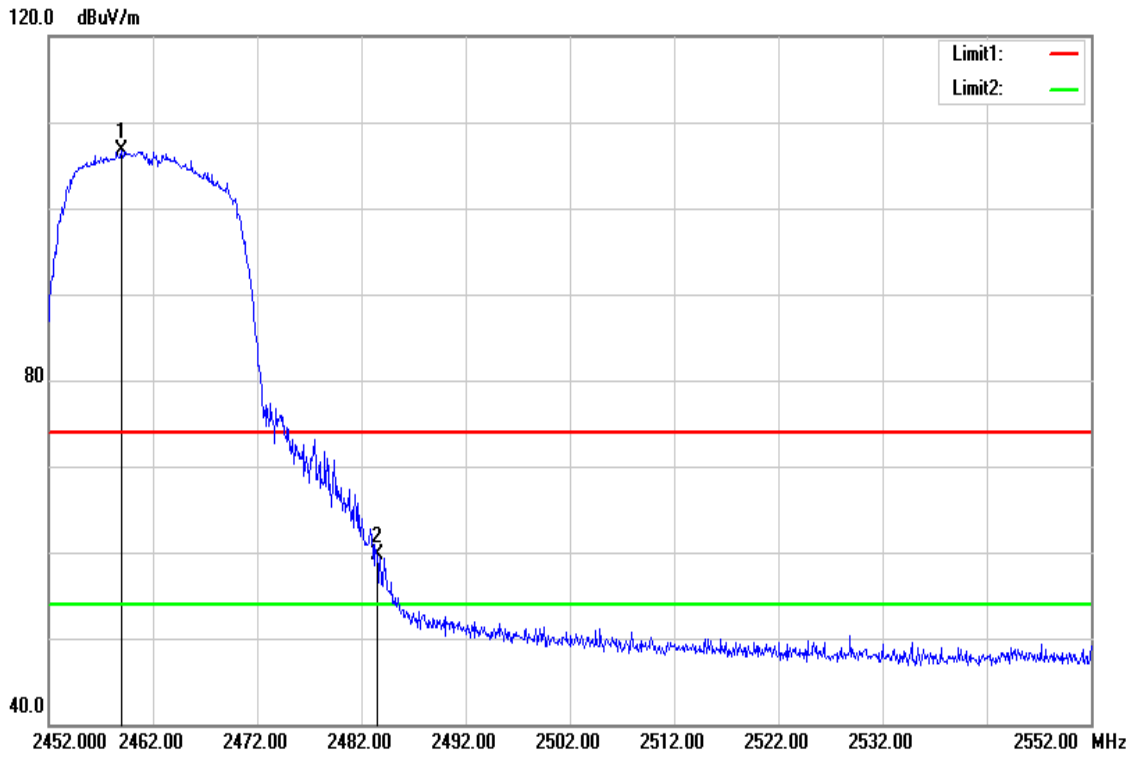
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	69.24	-3.13	66.11	74.00	-7.89	peak
2413.488	111.26	-3.06	108.20	-	-	peak

Test Mode	IEEE 802.11g Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



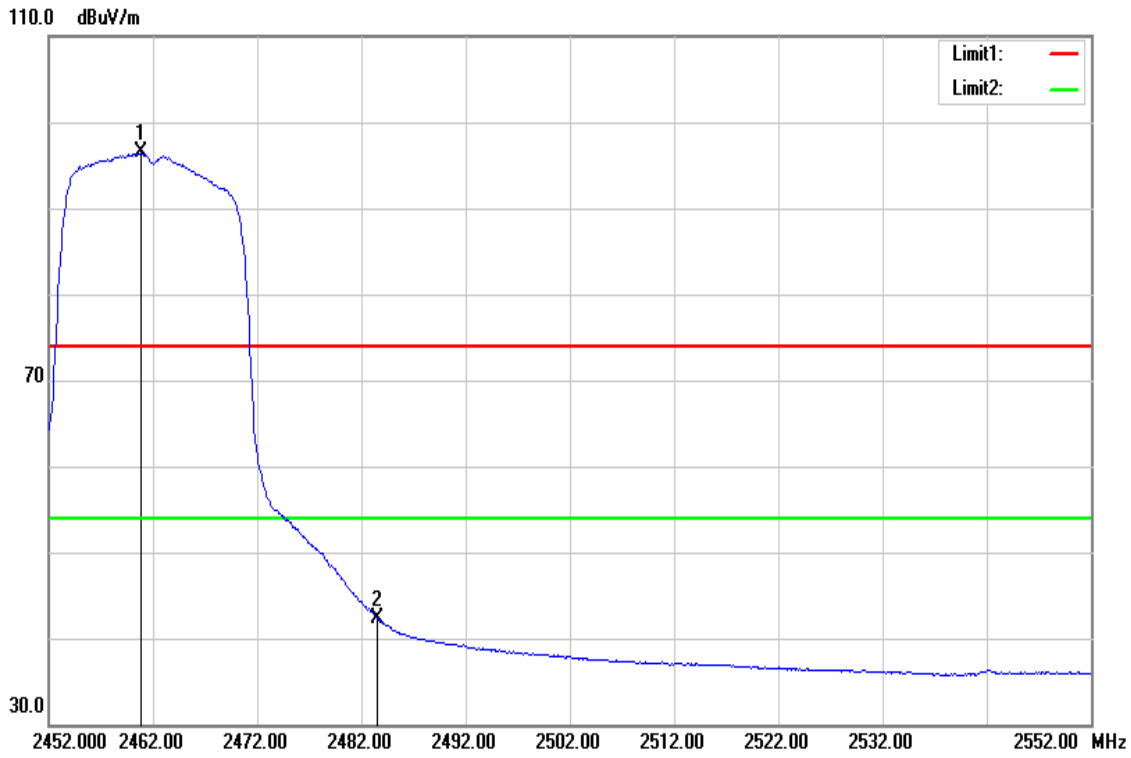
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	49.32	-3.13	46.19	54.00	-7.81	AVG
2413.152	100.89	-3.07	97.82	-	-	AVG

Test Mode	IEEE 802.11g High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



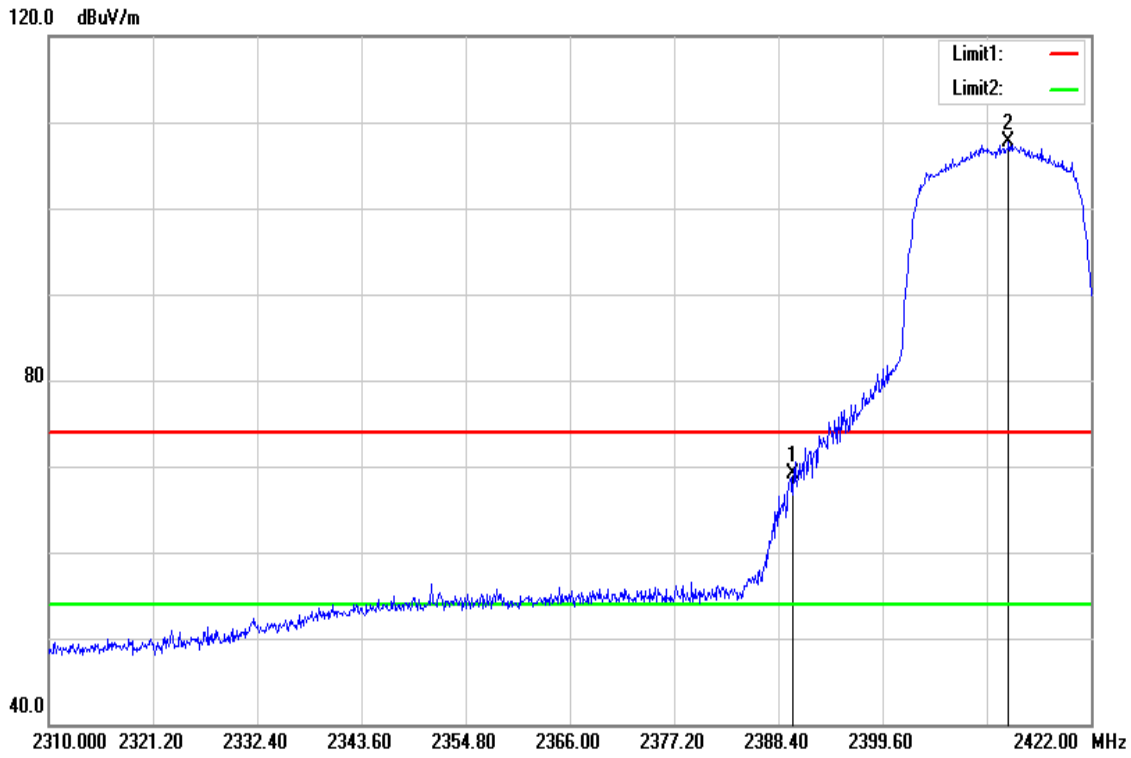
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2459.000	109.63	-2.84	106.79	-	-	peak
2483.500	62.32	-2.71	59.61	74.00	-14.39	peak

Test Mode	IEEE 802.11g High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



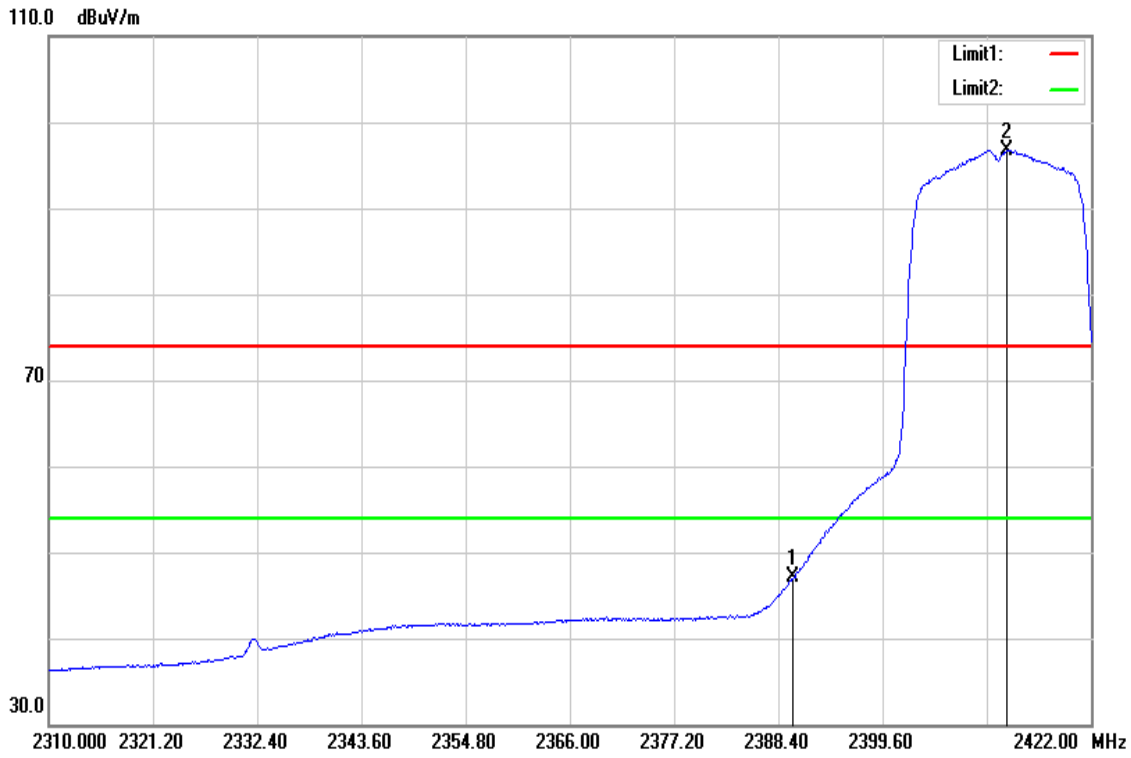
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2460.800	99.27	-2.84	96.43	-	-	AVG
2483.500	45.11	-2.71	42.40	54.00	-11.60	AVG

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



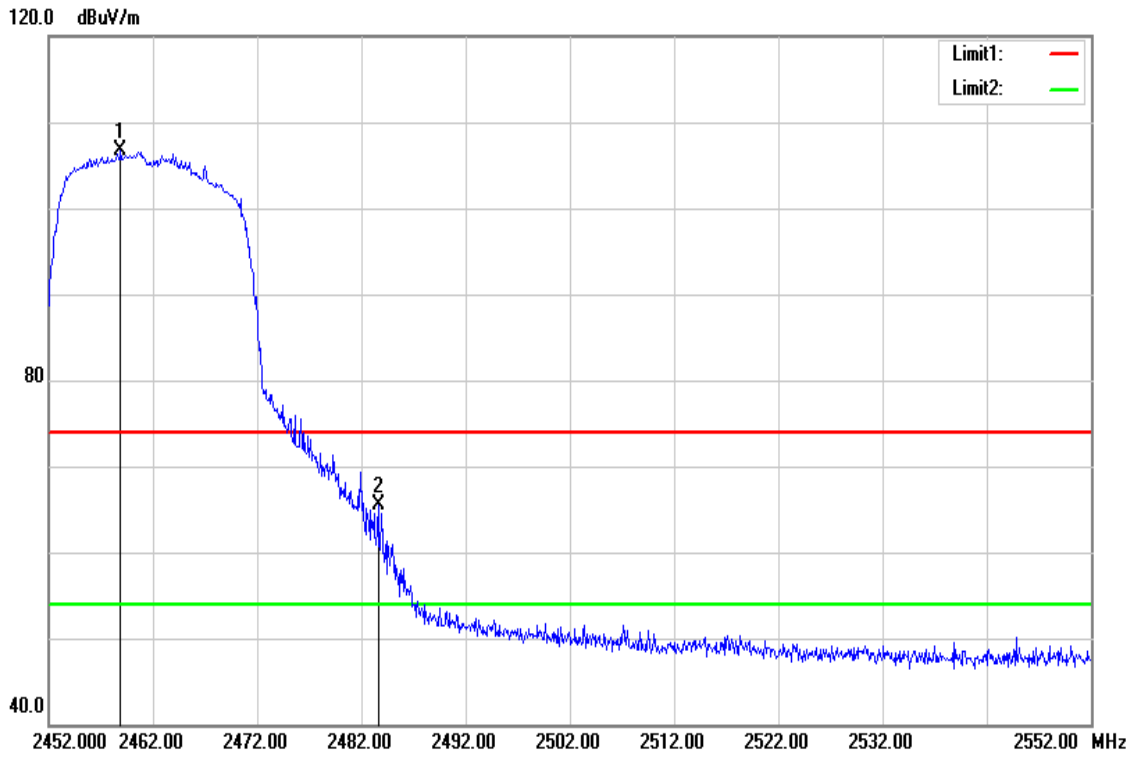
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	72.30	-3.13	69.17	74.00	-4.83	peak
2413.152	110.82	-3.07	107.75	-	-	peak

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



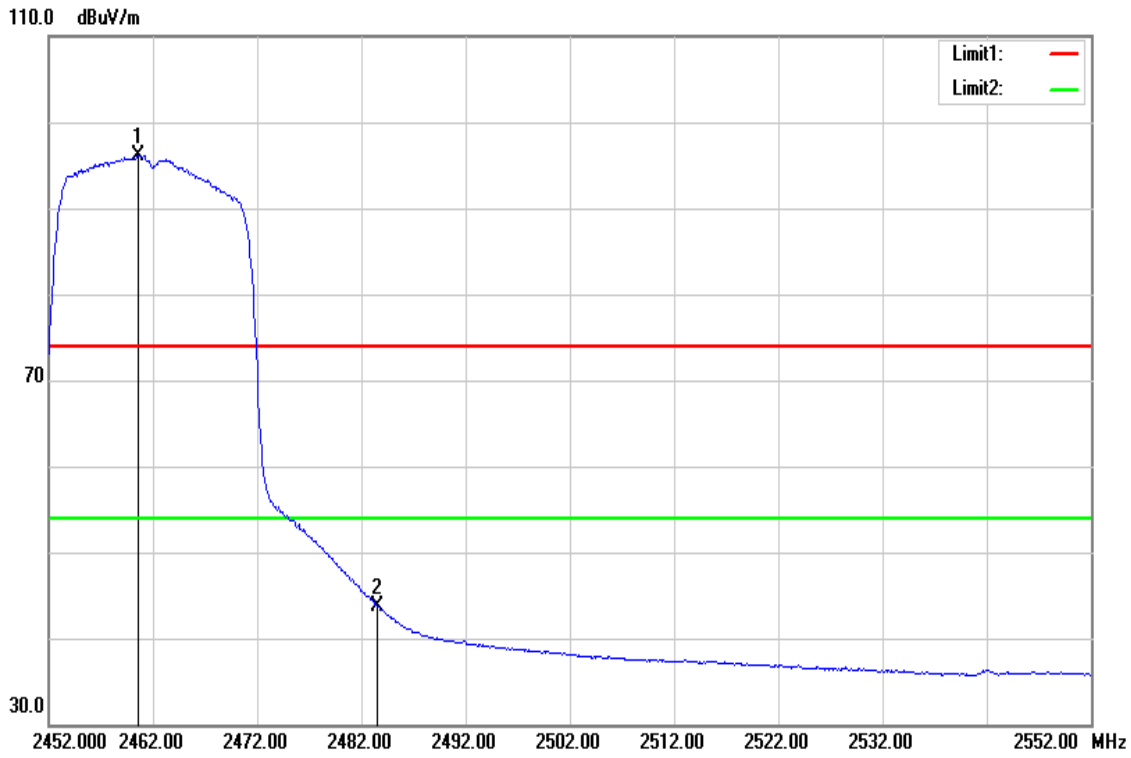
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	50.25	-3.13	47.12	54.00	-6.88	AVG
2412.928	99.81	-3.07	96.74	-	-	AVG

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



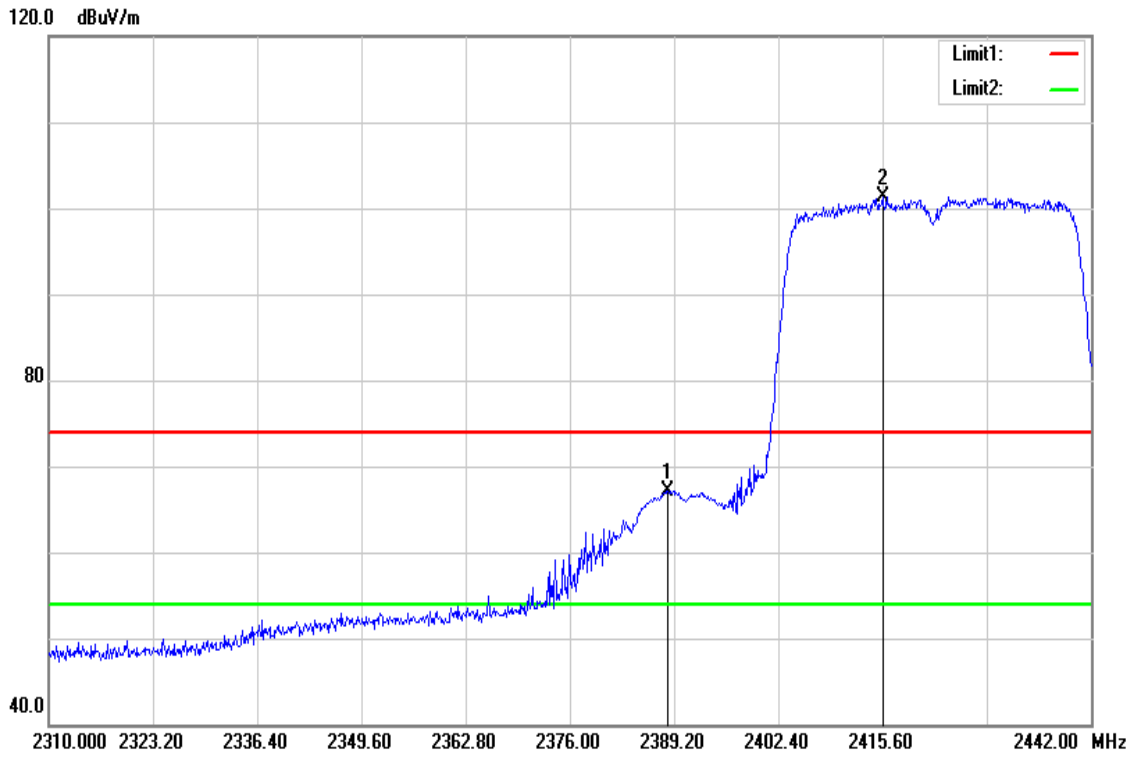
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2458.900	109.47	-2.84	106.63	-	-	peak
2483.600	68.20	-2.71	65.49	74.00	-8.51	peak

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



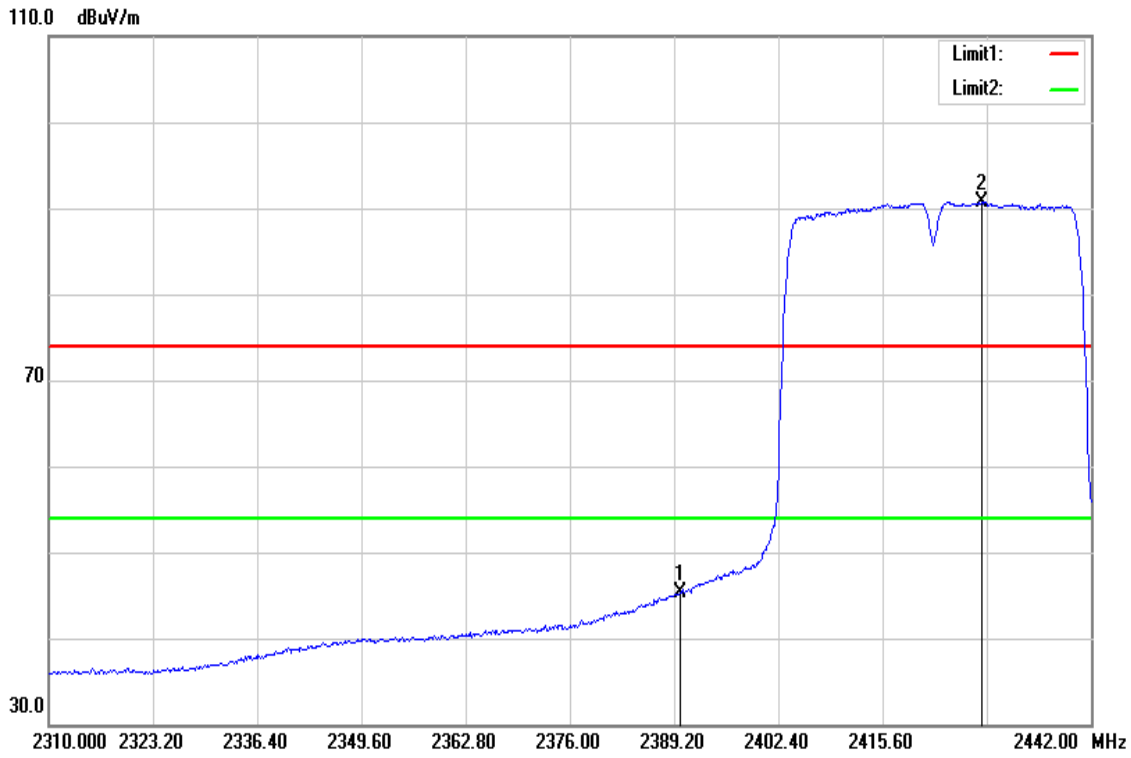
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2460.600	99.03	-2.84	96.19	-	-	AVG
2483.500	46.46	-2.71	43.75	54.00	-10.25	AVG

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



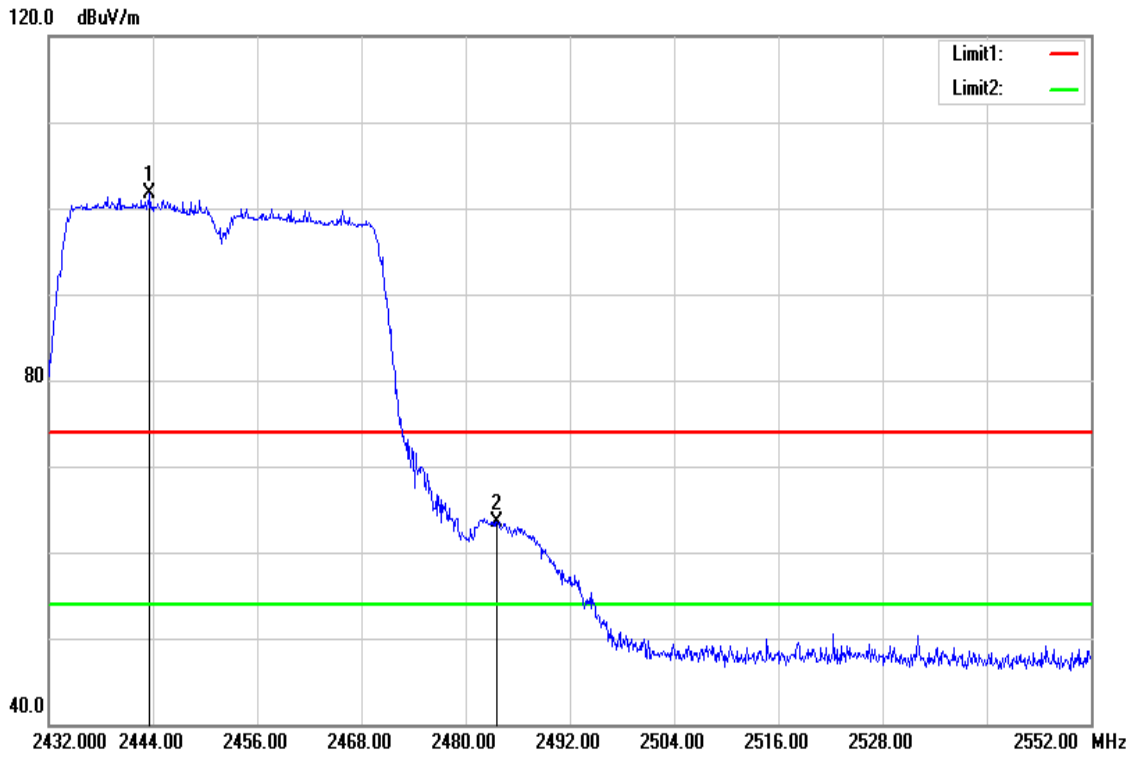
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2388.408	70.31	-3.13	67.18	74.00	-6.82	peak
2415.600	104.37	-3.06	101.31	-	-	peak

Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



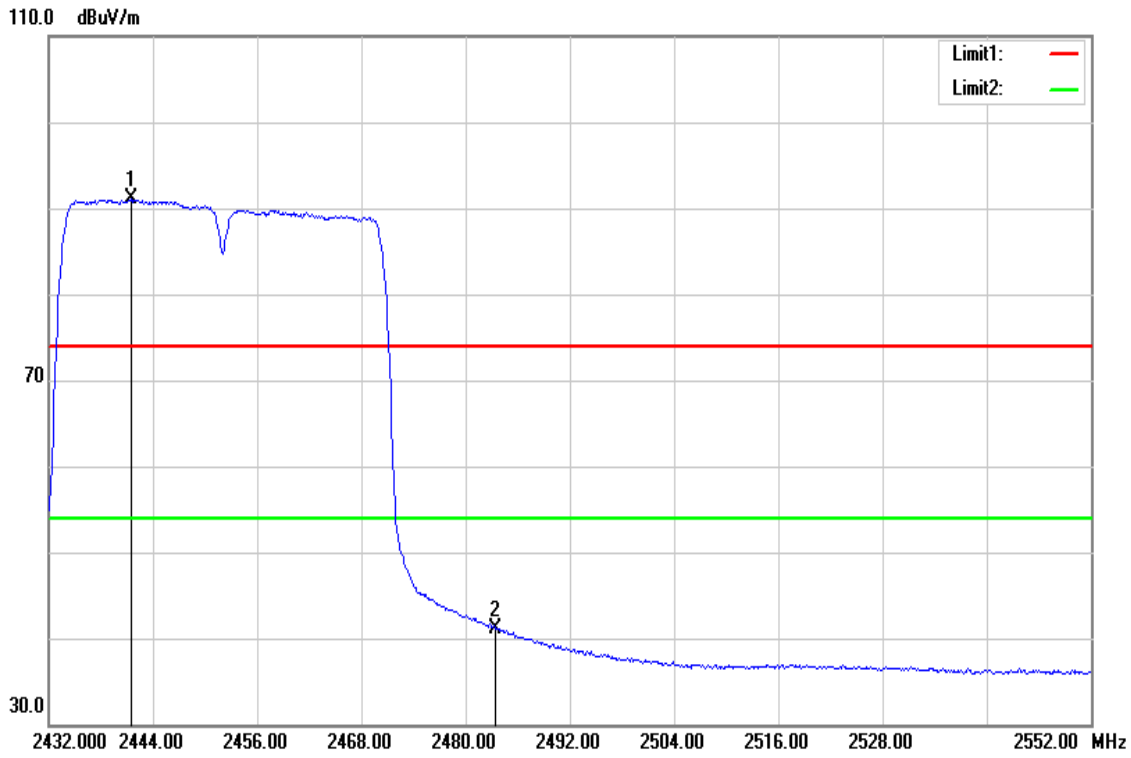
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	48.47	-3.13	45.34	54.00	-8.66	AVG
2428.140	93.74	-2.99	90.75	-	-	AVG

Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2443.640	104.63	-2.92	101.71	-	-	peak
2483.600	66.23	-2.71	63.52	74.00	-10.48	peak

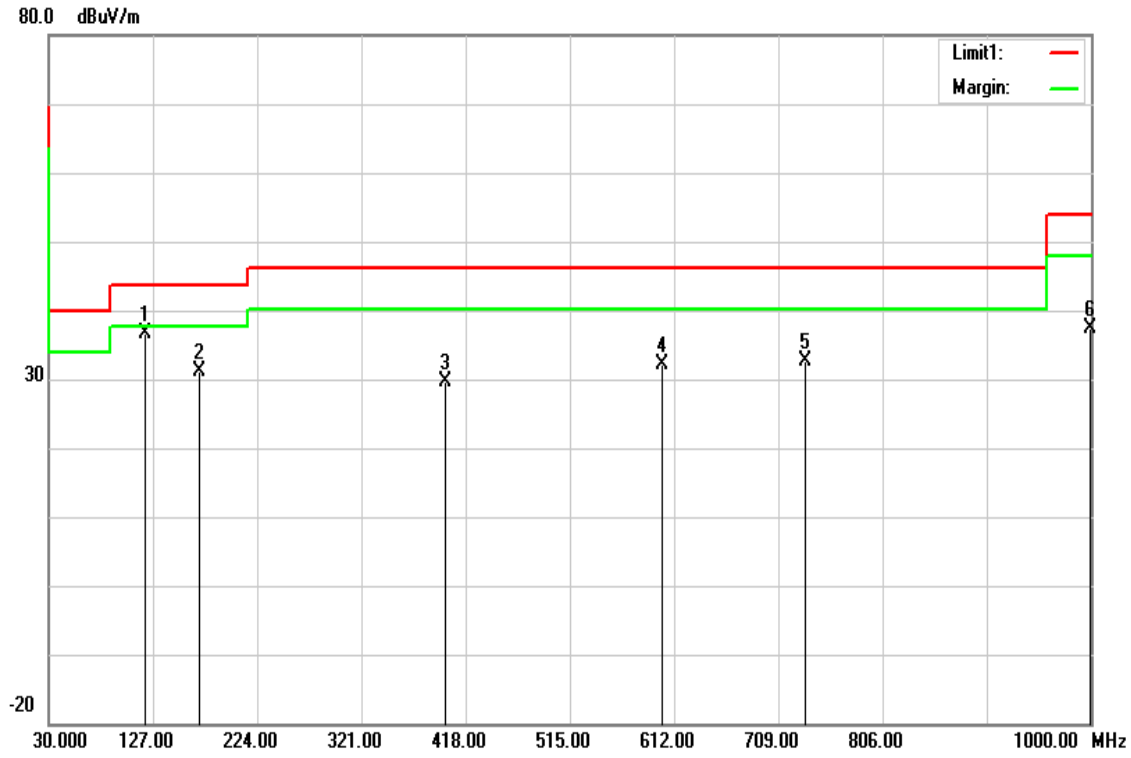
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Band Edge	Test Date	September 12, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2441.480	93.93	-2.92	91.01	-	-	AVG
2483.500	43.85	-2.71	41.14	54.00	-12.86	AVG

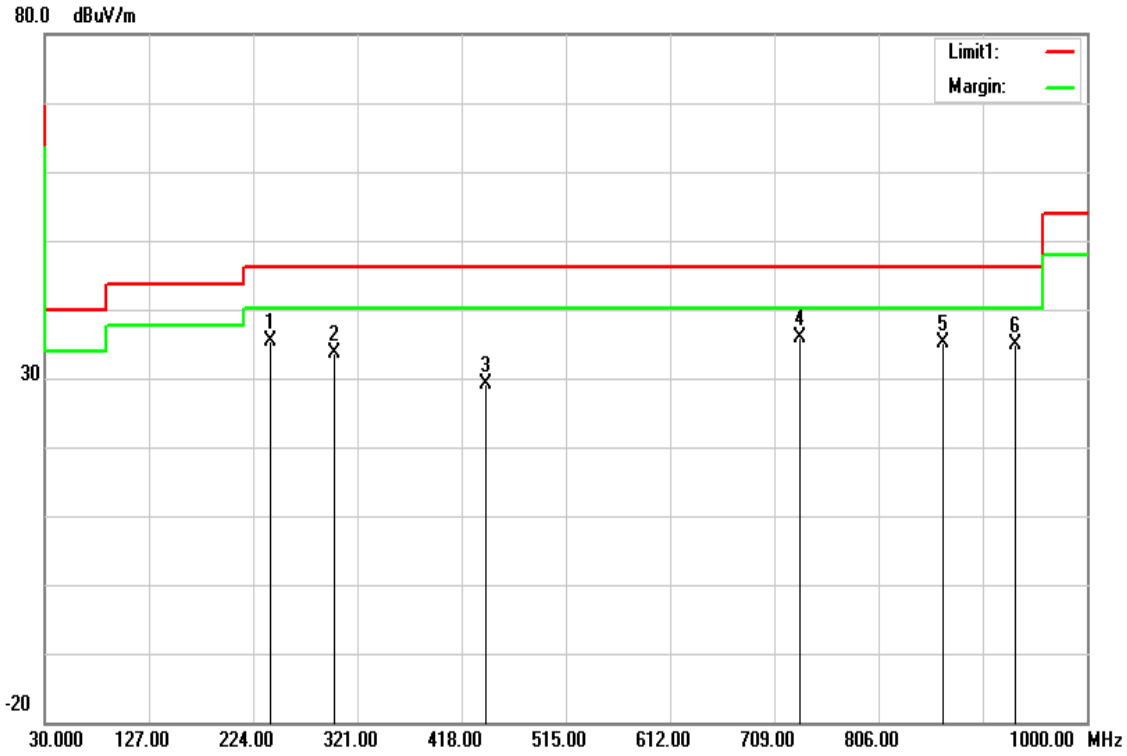
Below 1G Test Data

Test Mode	Mode 1	Temp/Hum	22.3(℃)/ 41%RH
Test Item	30MHz-1GHz	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
120.2100	44.98	-8.41	36.57	43.52	-6.95	peak
170.6500	41.08	-10.05	31.03	43.52	-12.49	peak
399.5700	34.42	-4.81	29.61	46.02	-16.41	peak
600.3600	33.01	-0.79	32.22	46.02	-13.80	peak
734.2200	30.70	1.86	32.56	46.02	-13.46	peak
999.0300	31.08	6.42	37.50	54.00	-16.50	peak

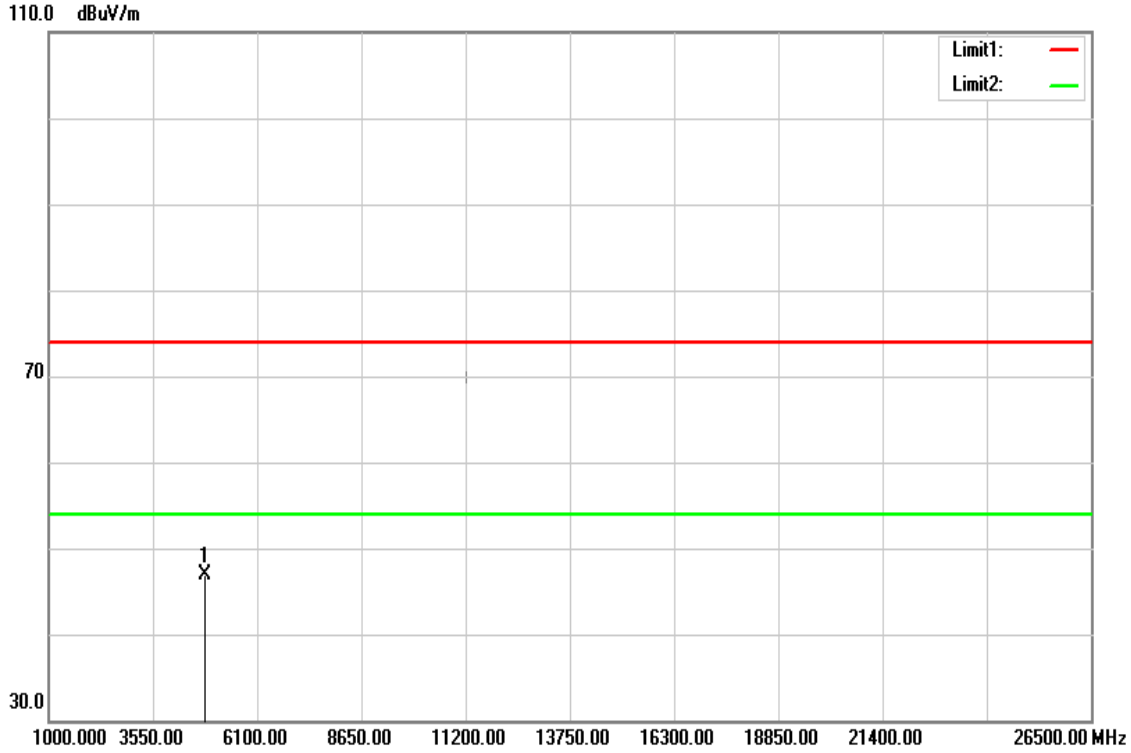
Test Mode	Mode 1	Temp/Hum	22.3(℃)/ 41%RH
Test Item	30MHz-1GHz	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB	Remark
240.4900	45.11	-9.64	35.47	46.02	-10.55	peak
299.6600	41.25	-7.51	33.74	46.02	-12.28	peak
440.3100	32.56	-3.49	29.07	46.02	-16.95	peak
733.2500	34.07	1.86	35.93	46.02	-10.09	peak
866.1400	31.16	4.01	35.17	46.02	-10.85	peak
933.0700	29.78	5.01	34.79	46.02	-11.23	peak

Above 1G Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

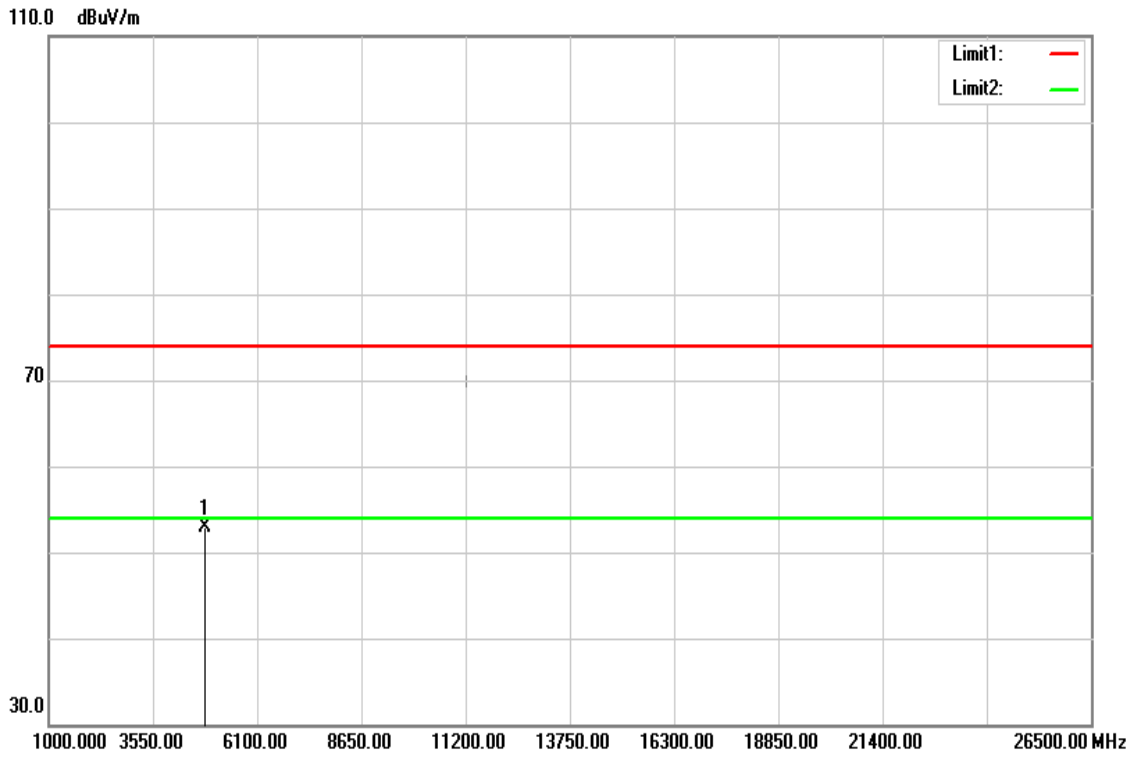


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	43.66	3.25	46.91	74.00	-27.09	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

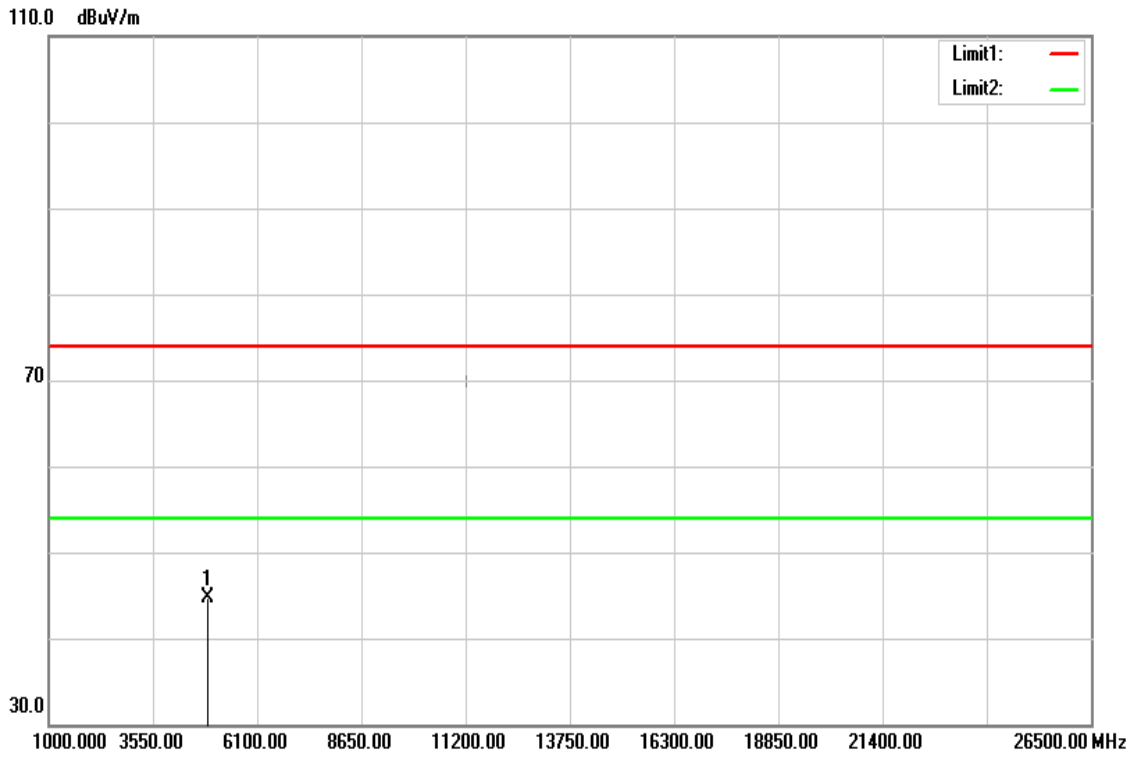


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	49.62	3.25	52.87	74.00	-21.13	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

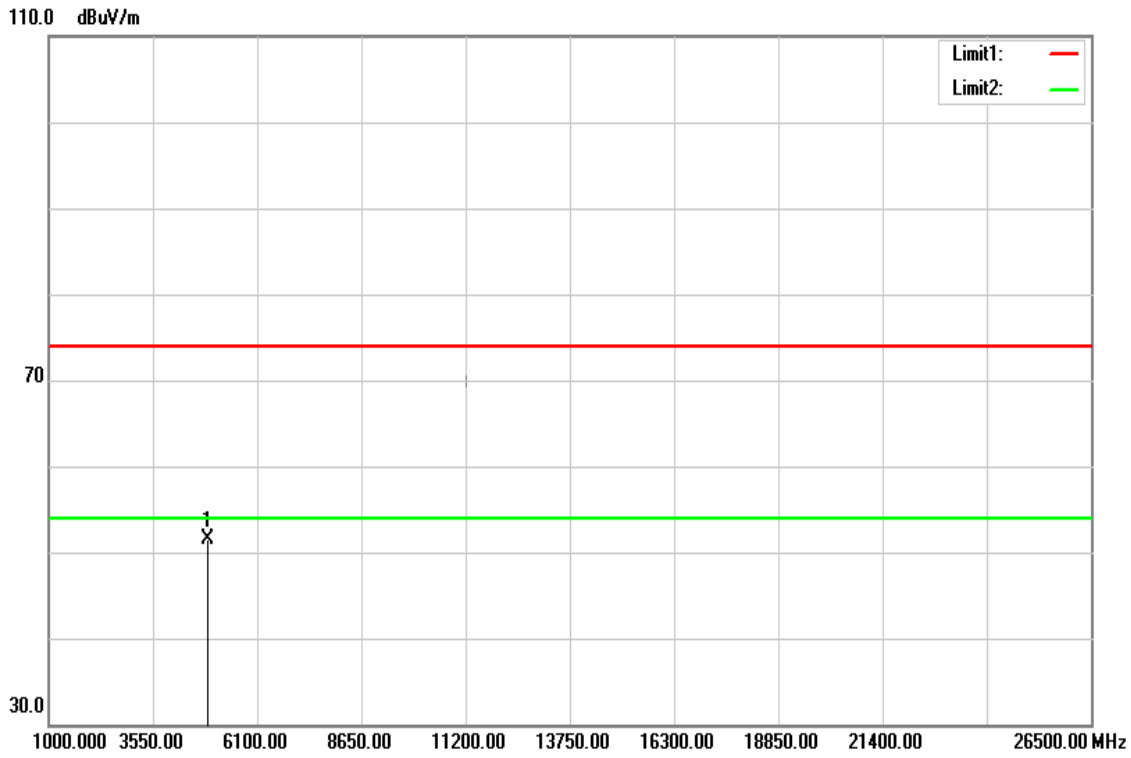


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	41.07	3.57	44.64	74.00	-29.36	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

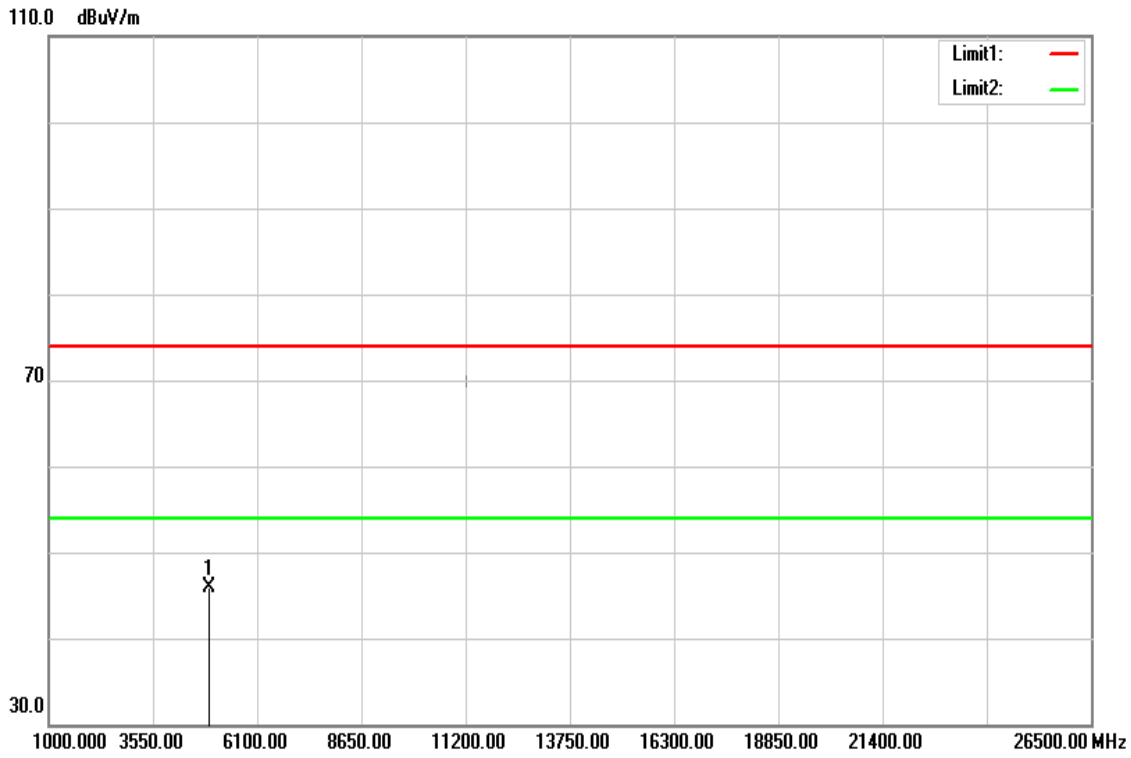


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	47.99	3.57	51.56	74.00	-22.44	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

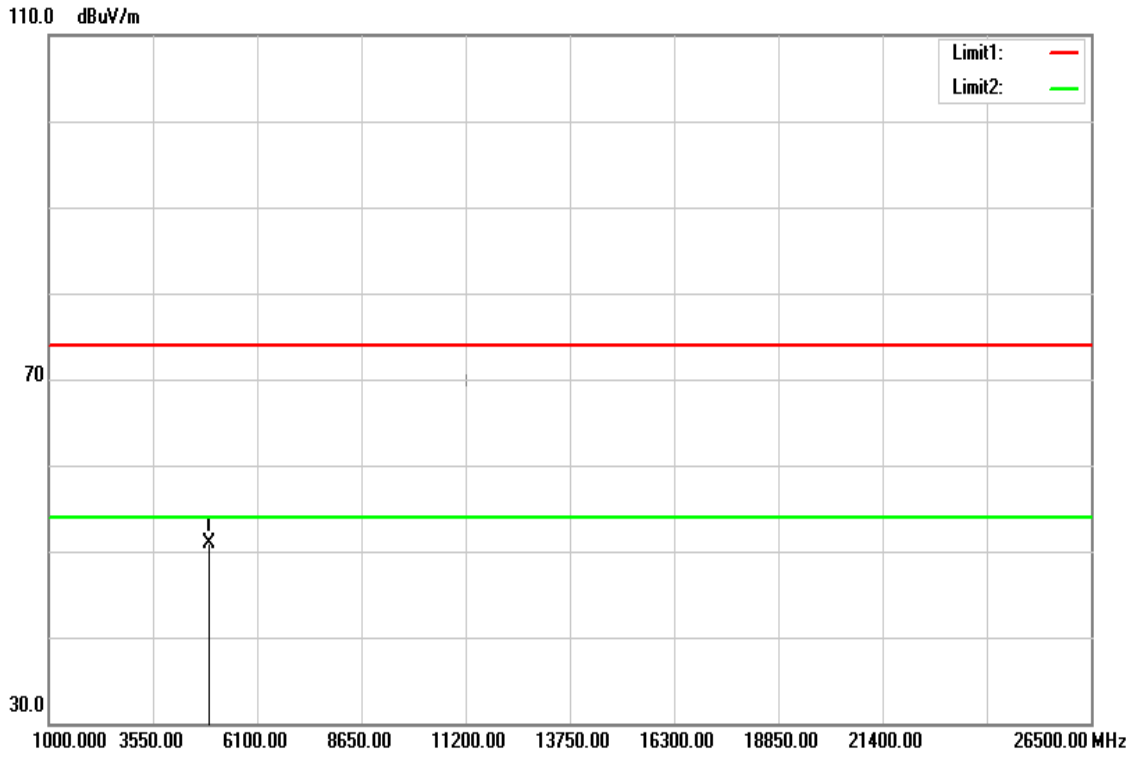


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	42.03	3.90	45.93	74.00	-28.07	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

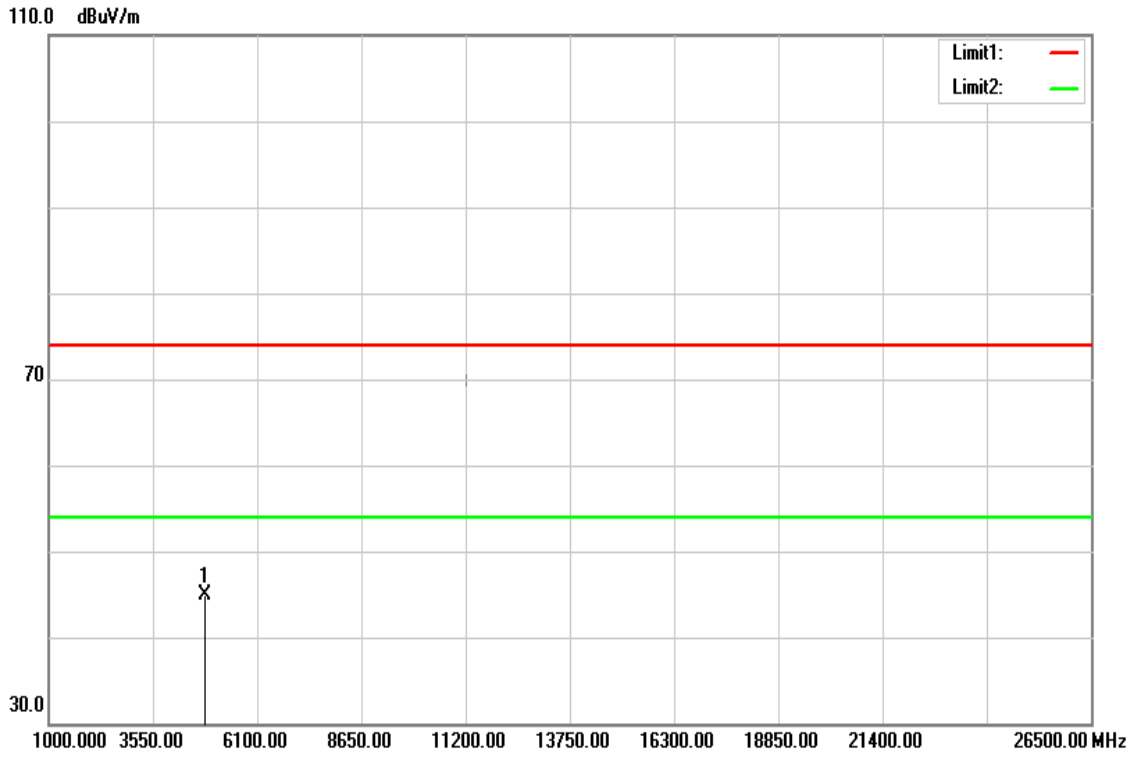


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	47.07	3.90	50.97	74.00	-23.03	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

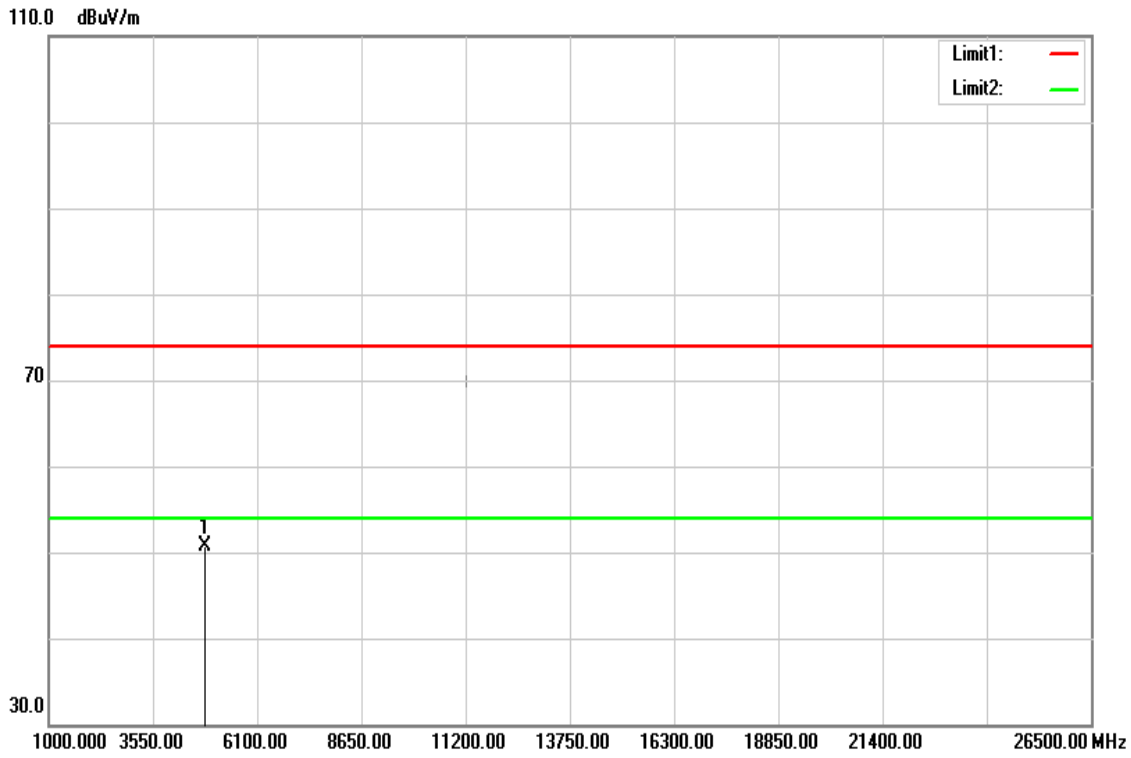


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	41.67	3.25	44.92	74.00	-29.08	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

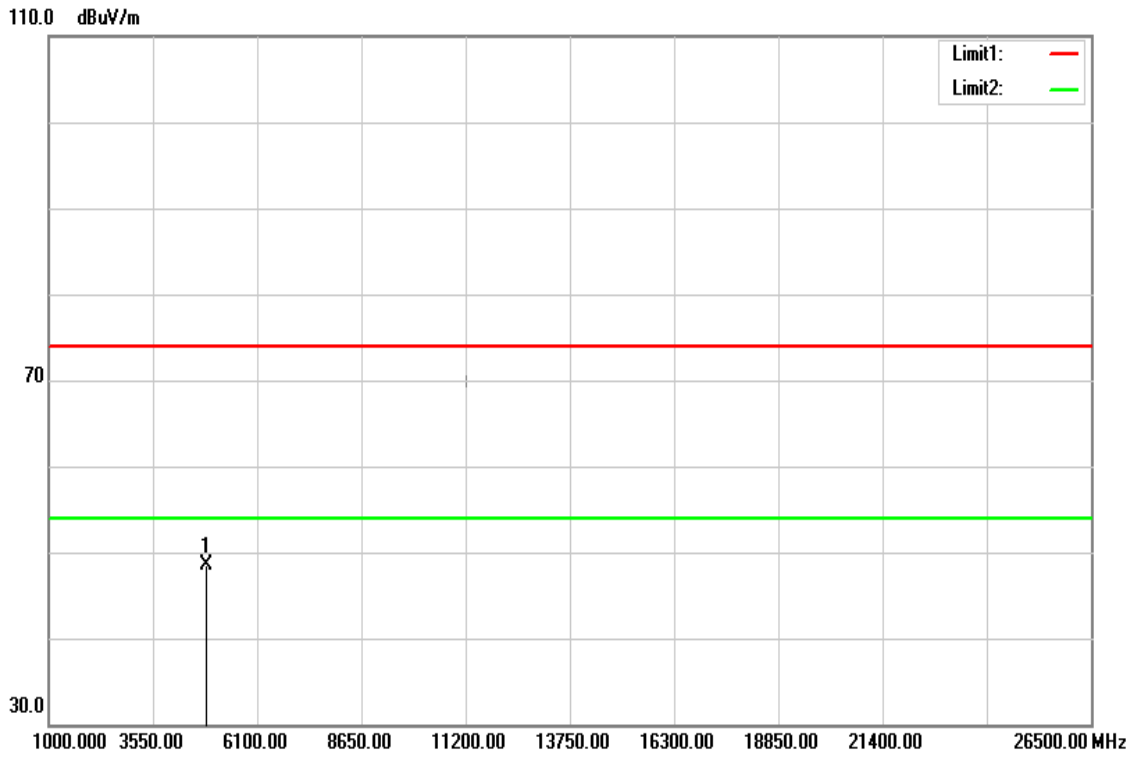


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4820.000	47.55	3.20	50.75	74.00	-23.25	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

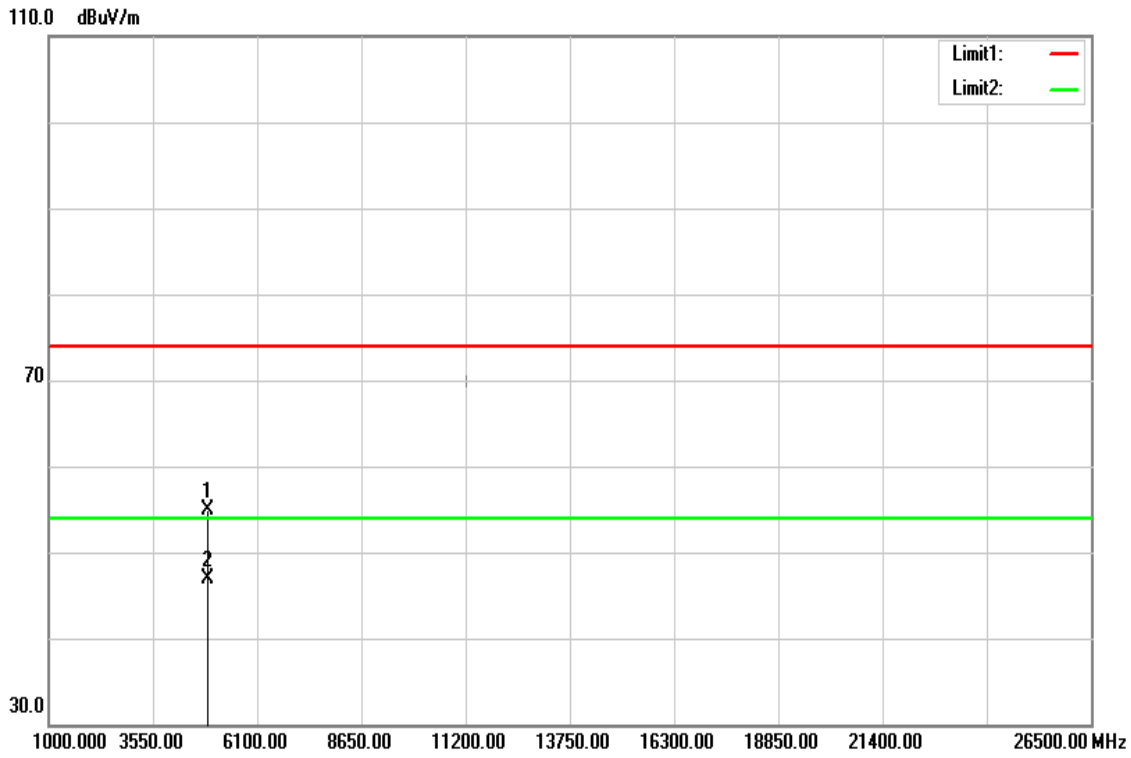


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	45.02	3.53	48.55	74.00	-25.45	peak

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

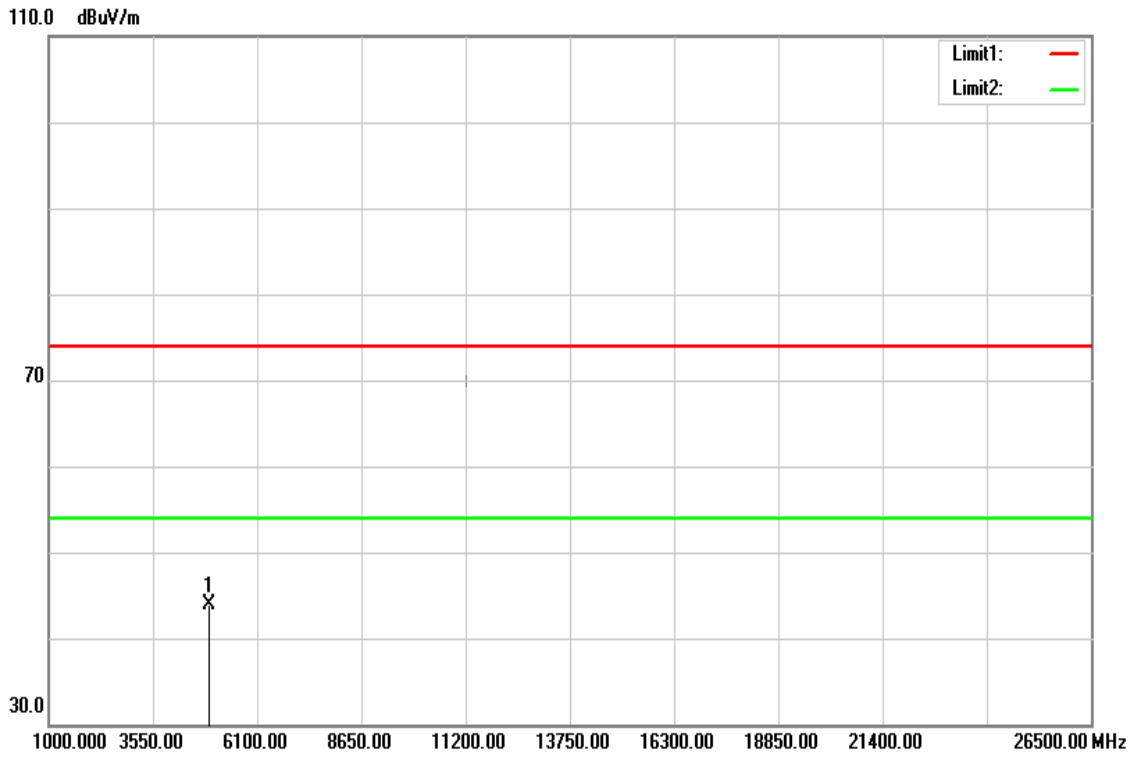


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	51.25	3.57	54.82	74.00	-19.18	peak
4876.000	43.32	3.57	46.89	54.00	-7.11	AVG
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

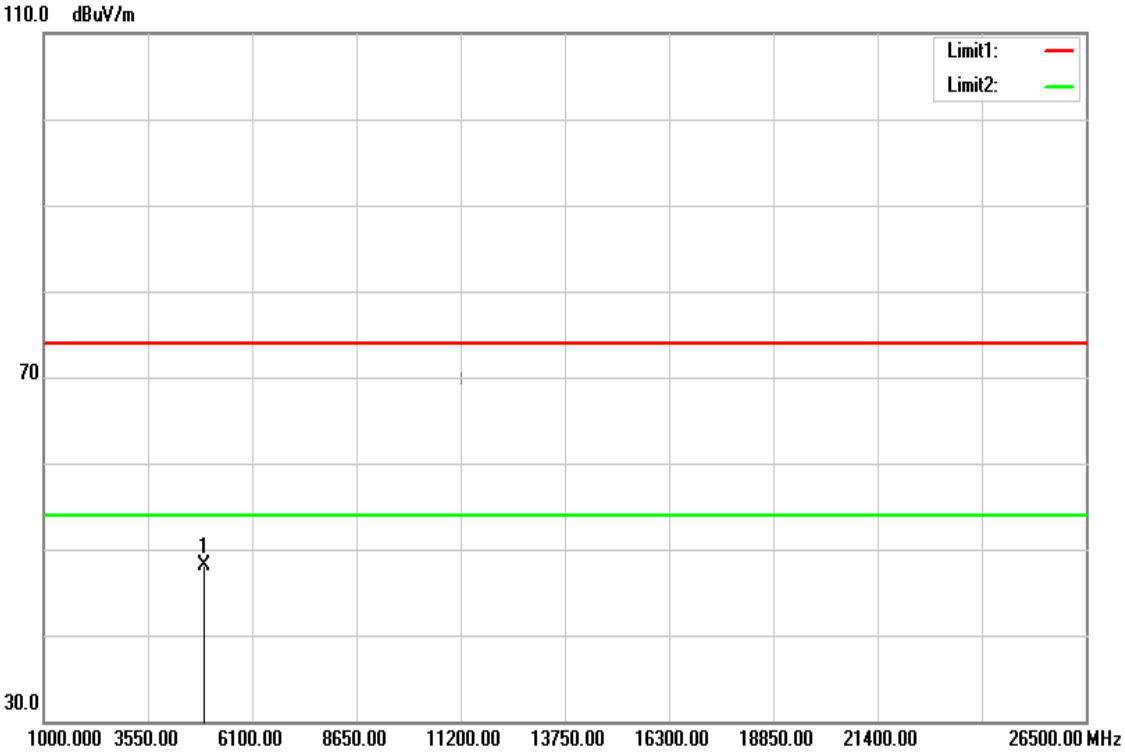


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	40.02	3.90	43.92	74.00	-30.08	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

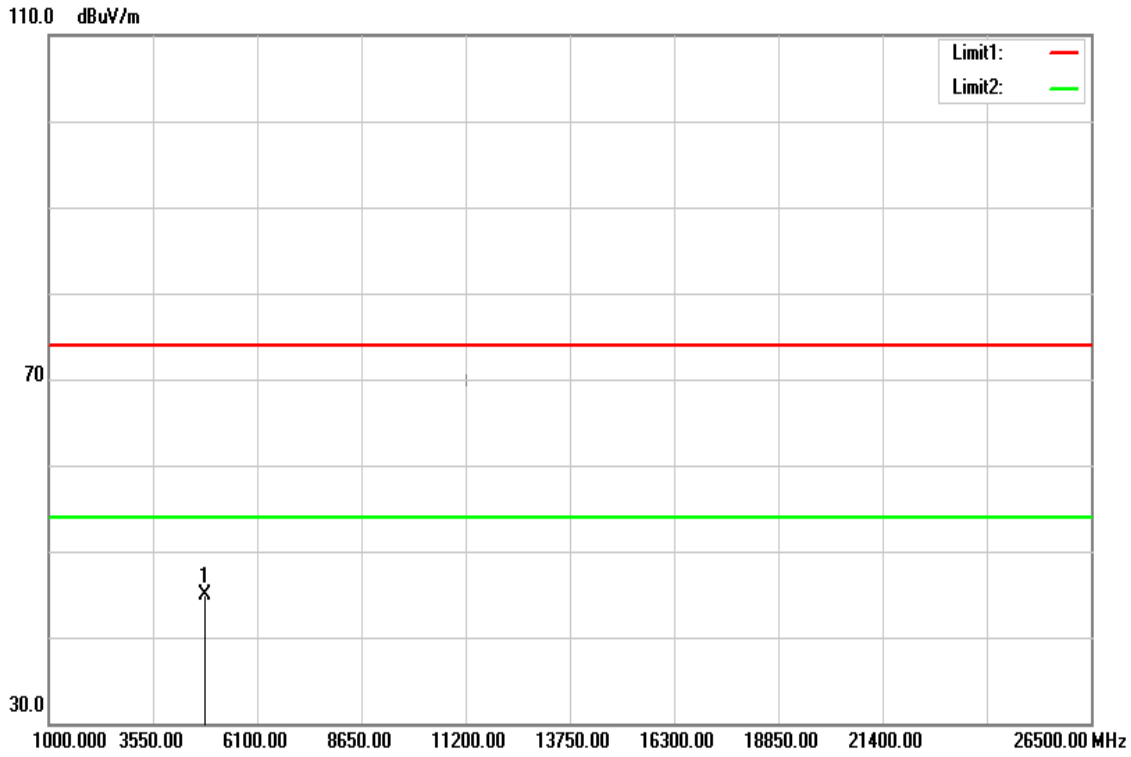


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4932.000	44.16	3.95	48.11	74.00	-25.89	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

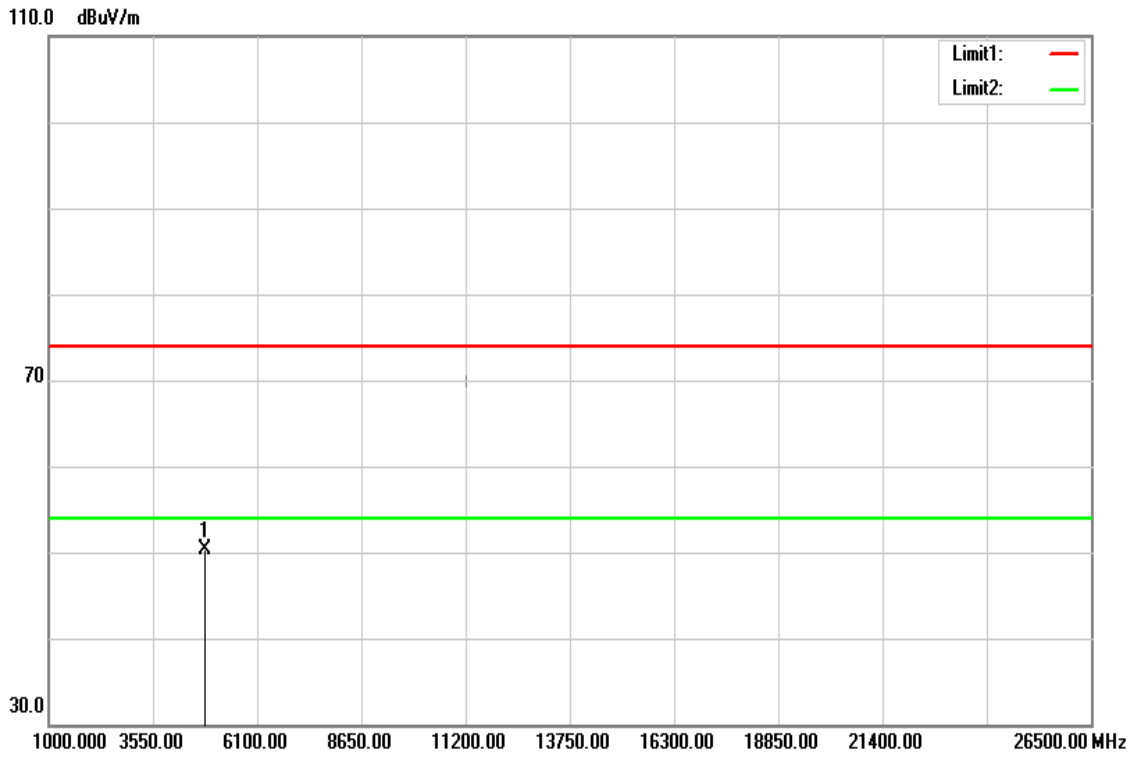


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	41.60	3.25	44.85	74.00	-29.15	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

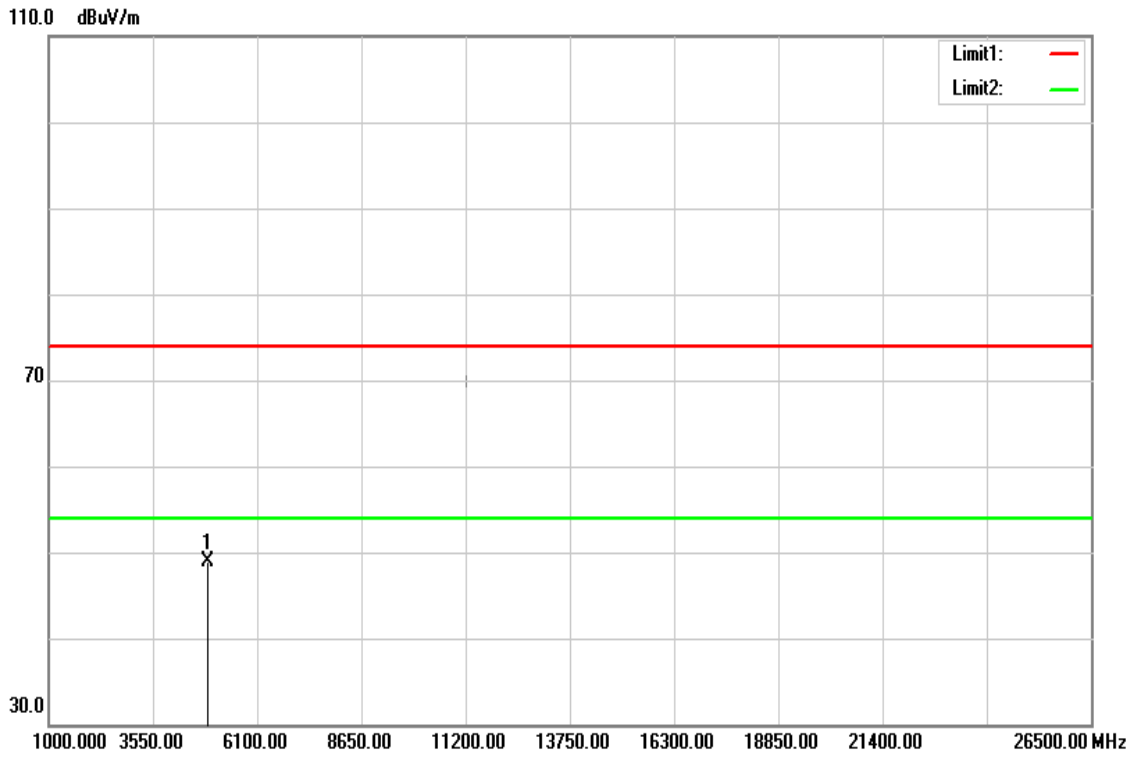


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	46.97	3.25	50.22	74.00	-23.78	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

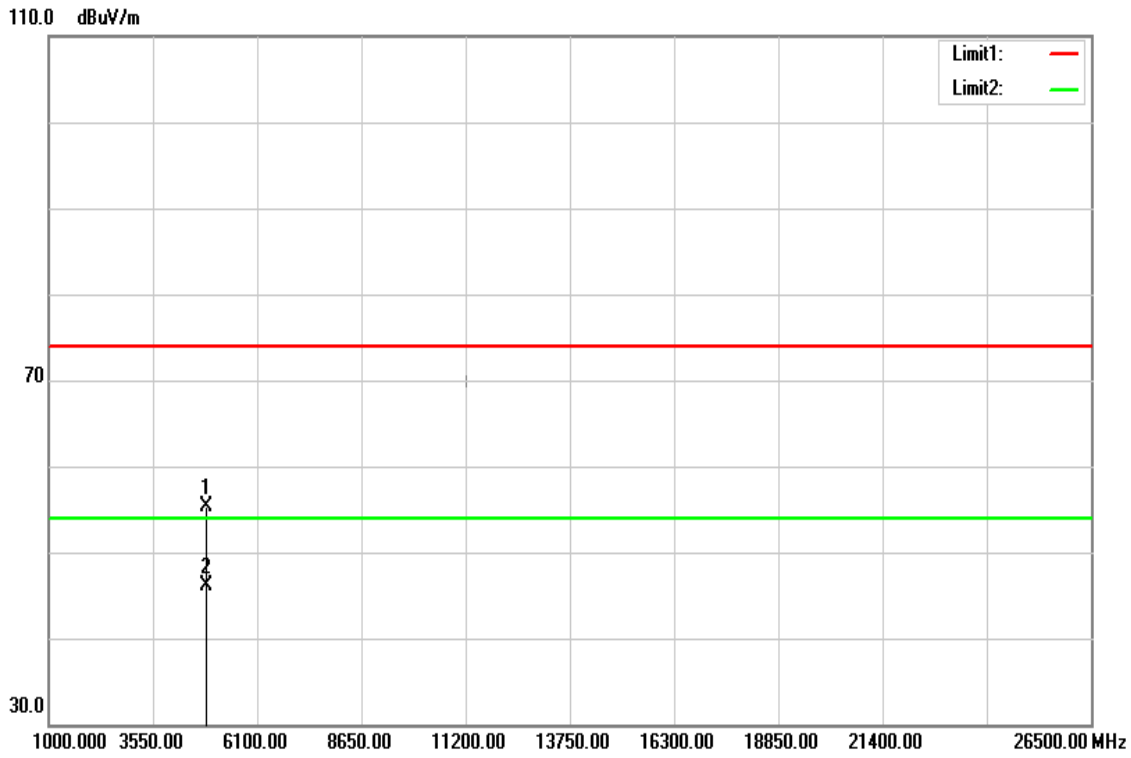


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	45.24	3.57	48.81	74.00	-25.19	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

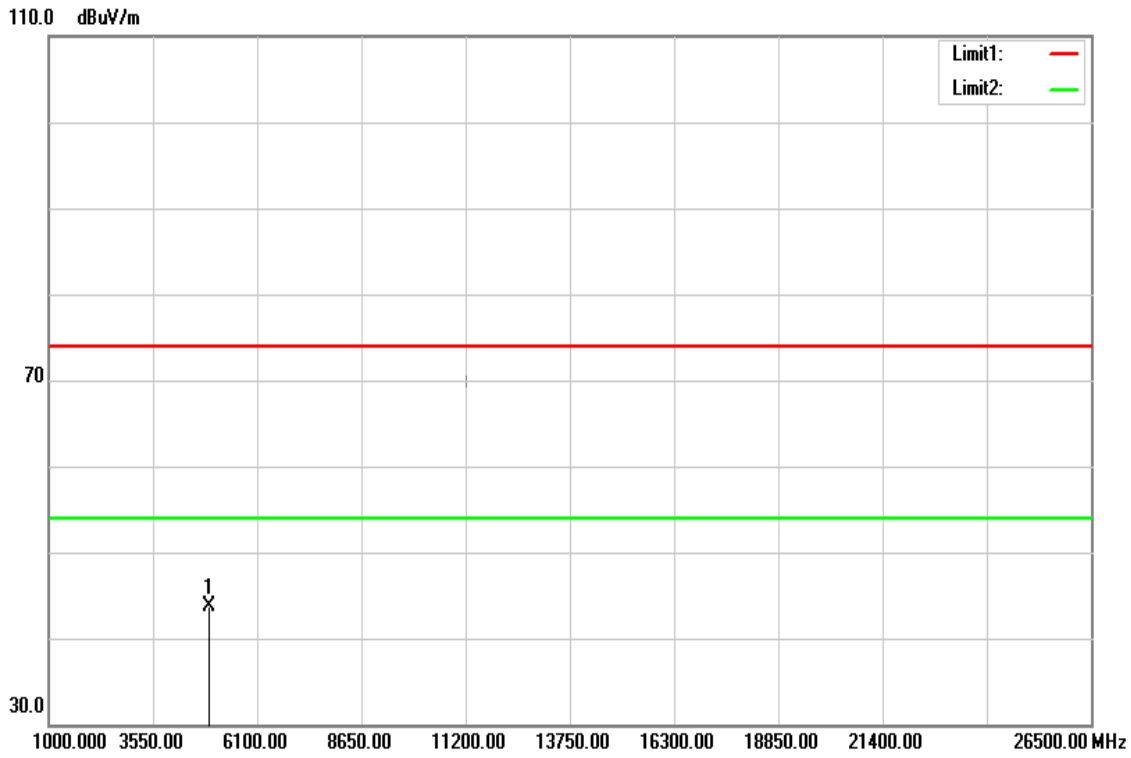


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	51.69	3.53	55.22	74.00	-18.78	peak
4869.000	42.59	3.53	46.12	54.00	-7.88	AVG
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

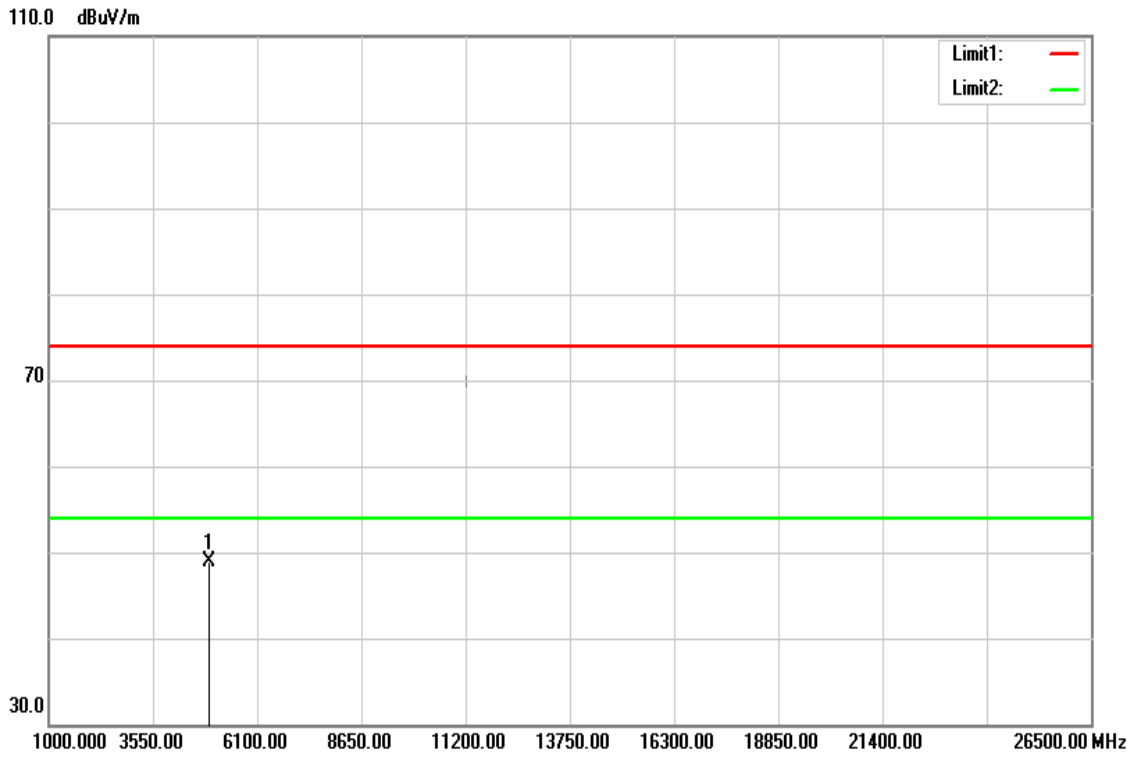


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	39.88	3.90	43.78	74.00	-30.22	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

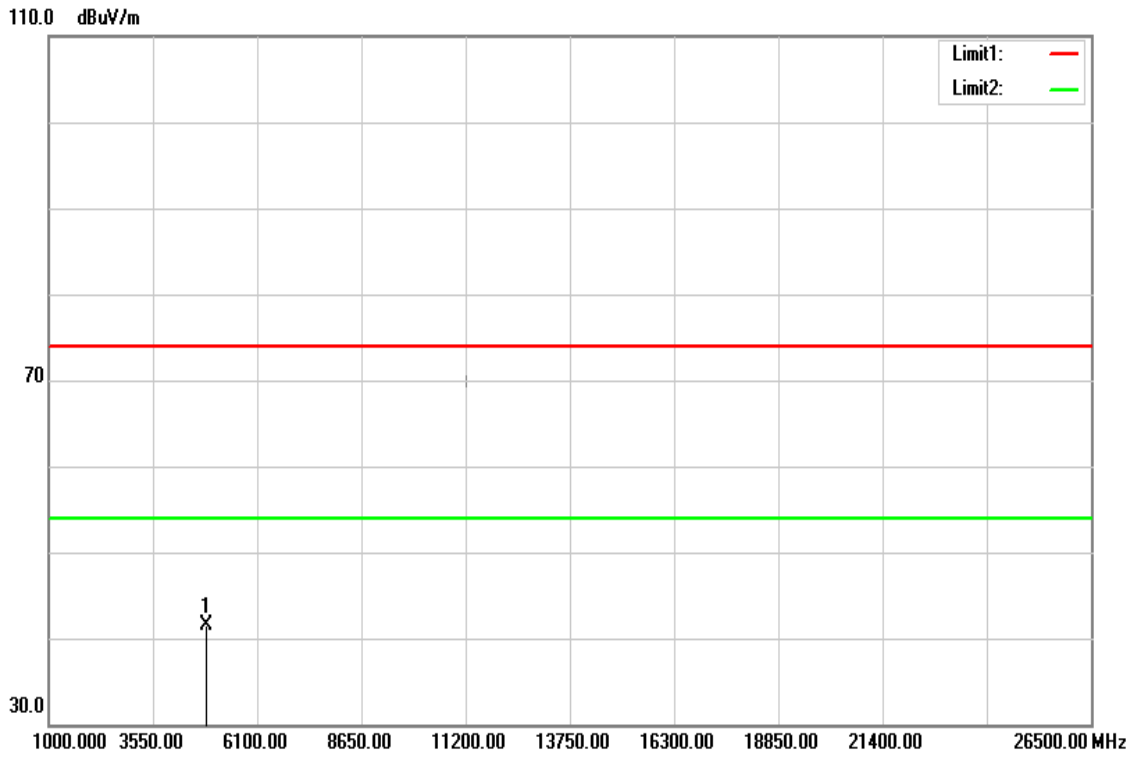


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4918.000	44.98	3.86	48.84	74.00	-25.16	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

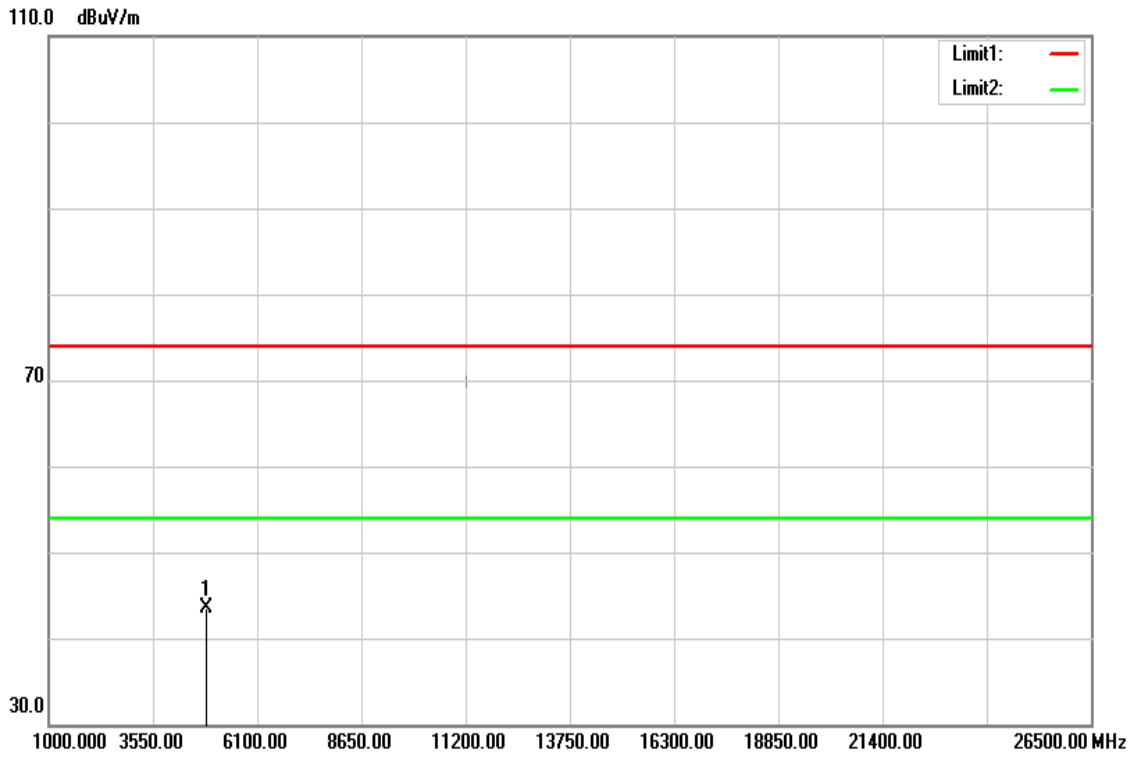


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4844.000	38.13	3.36	41.49	74.00	-32.51	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

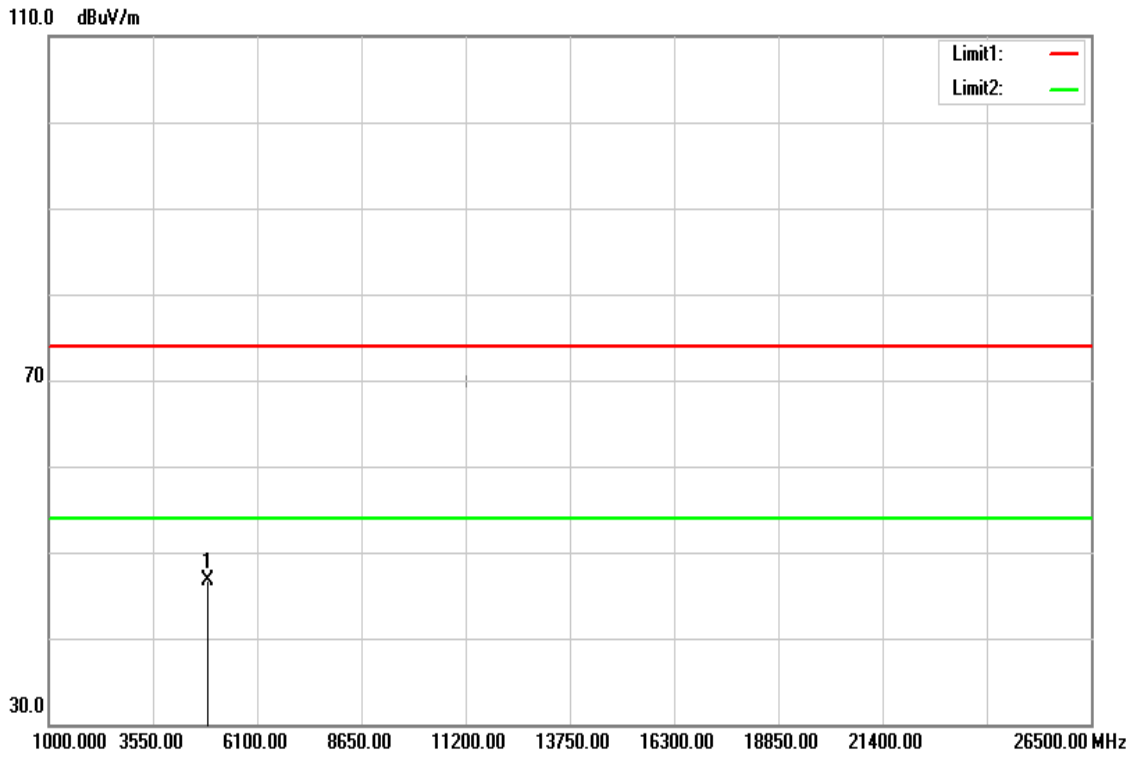


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4862.000	40.12	3.48	43.60	74.00	-30.40	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

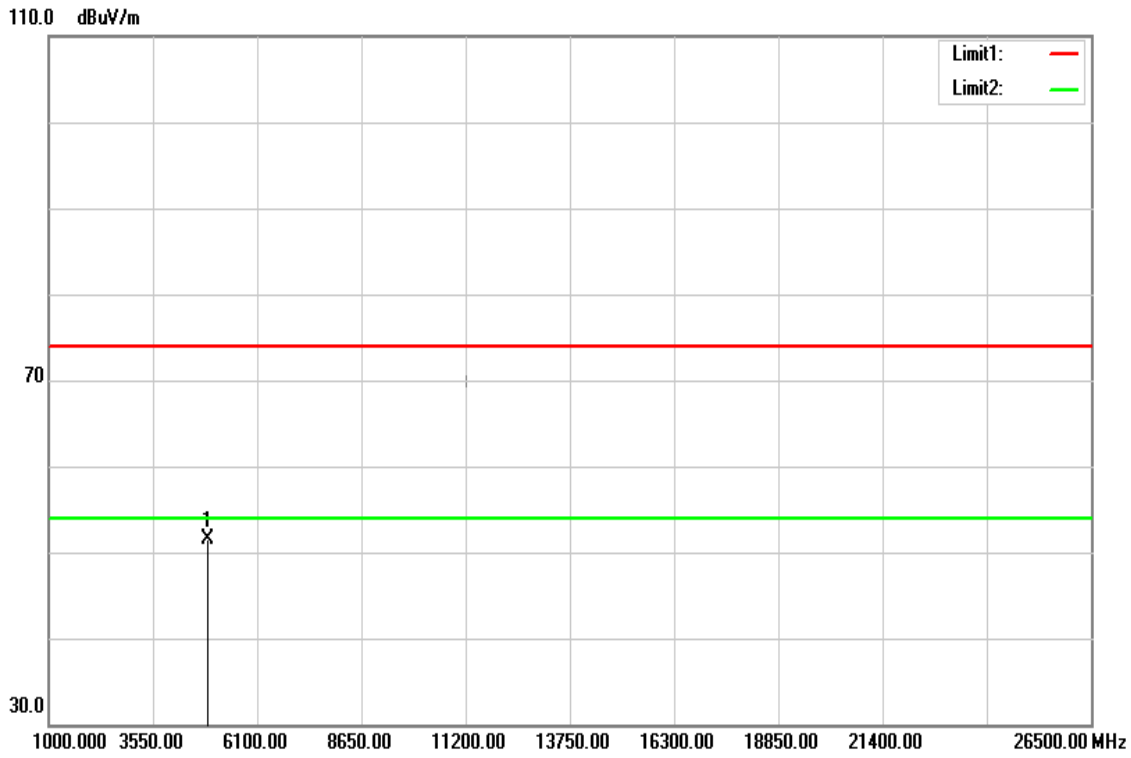


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4883.000	43.17	3.62	46.79	74.00	-27.21	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		

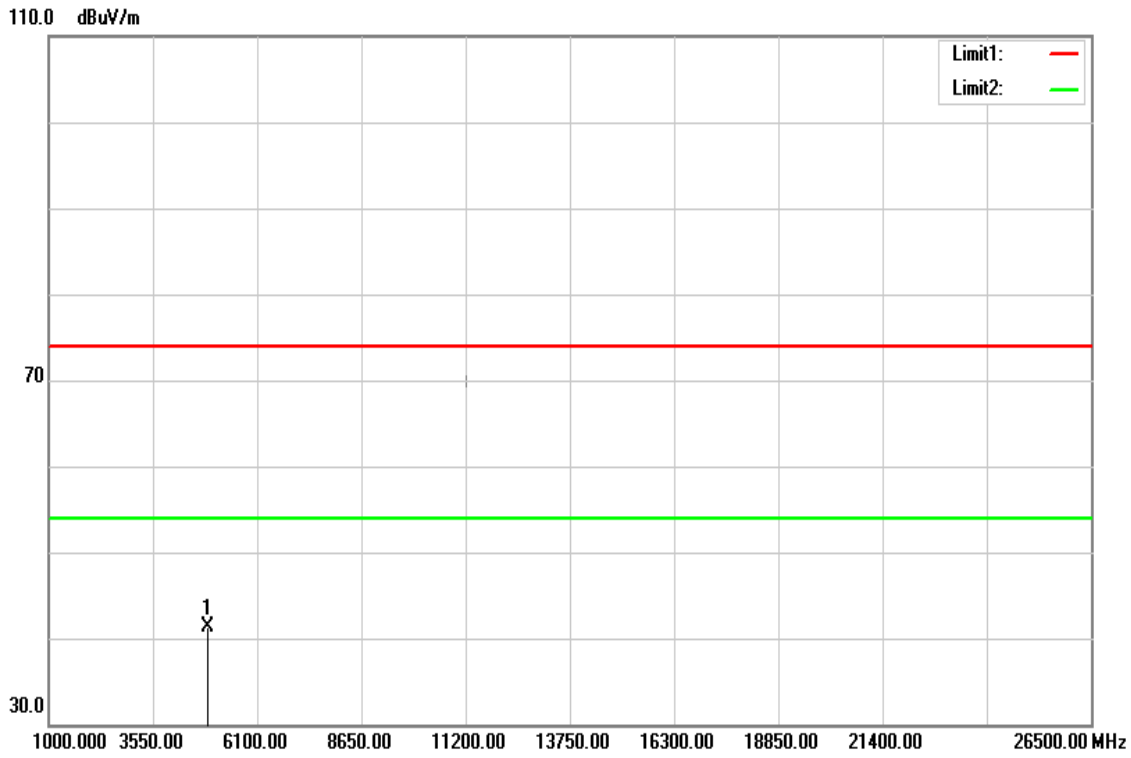


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4883.000	47.83	3.62	51.45	74.00	-22.55	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

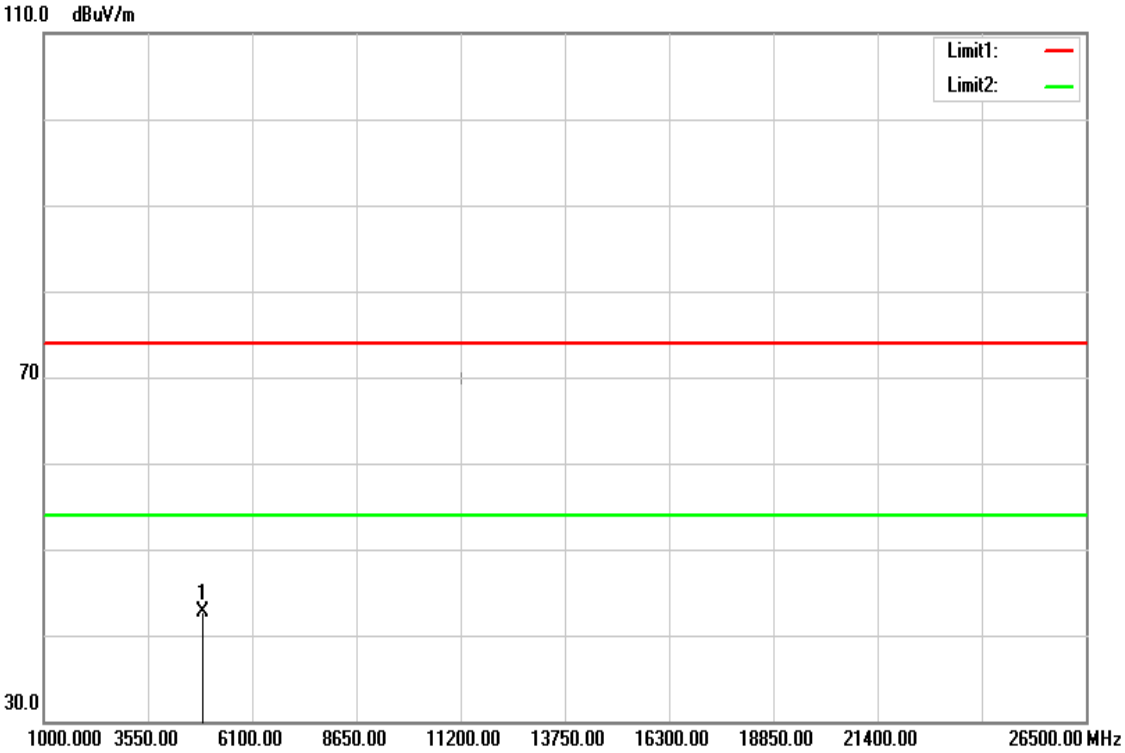


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4904.000	37.57	3.75	41.32	74.00	-32.68	peak
N/A						

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	22.3(℃)/ 41%RH
Test Item	Harmonic	Test Date	September 13, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4904.000	38.85	3.75	42.60	74.00	-31.40	peak
N/A						

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*

--End of Report--