

FCC RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

Test Standard	FCC Part 15.247
FCC ID	P27DBC835
Brand name	ADT
Applicant	Sercomm Corporation
Product name	Wireless HD DoorBell Camera
Model No.	DBC835
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:

A handwritten signature in black ink, reading "Sam Chuang".

Sam Chuang
Manager

Tested by:

A handwritten signature in black ink, reading "Jerry Chuang".

Jerry Chuang
Engineer

Revision History

Rev.	Issue Date	Revisions	Revised By
00	December 1, 2017	Initial Issue	Allison Chen
01	December 14, 2017	1. Modify section 1.6 in P.7.	Angel Cheng
02	December 15, 2017	1. Modify section 1.6 in P.7. 2. Modify section 4.6.2 in P.42.	Angel Cheng

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APPENDIX 1 - PHOTOGRAPHS OF EUT		

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Sercomm Corporation 8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.		
Manufacturer	Sercomm Corporation 8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.		
Equipment	Wireless HD DoorBell Camera		
Model Name	DBC835		
Model Discrepancy	N/A		
Received Date	September 22, 2017		
Date of Test	November 10 ~ November 29, 2017		
Output Power(W)	Mode	Output Power (dBm)	Output Power (W)
	IEEE 802.11b mode	24.46	0.2793
	IEEE 802.11g mode	24.59	0.2877
	IEEE 802.11n HT 20 MHz mode	24.53	0.2838
Power Operation	1. VDC from Power Adapter Phihong / PSAA05A-050QL6 I/P: 100-240Vac, 50-60Hz, 0.2A, 11-15VA O/P: 5Vdc / 1A 2.Powered from host device via USB Cable		

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 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	0 dBi

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.

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	Ray Huang	-
Radiation	Jerry Chuang	-
RF Conducted	Eric Lee	-

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

1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Power Meter	Anritsu	ML2495A	1033009	04/11/2017	04/10/2018
Power Sensor	Anritsu	MA2411B	917072	07/03/2017	07/02/2018
Spectrum Analyzer	R&S	FSV 40	101073	10/02/2017	10/01/2018
Thermostatic/Hrgrosatic Chamber	GWINSTEK	GTC-288MH-CC	TH160402	05/23/2017	05/22/2018
SUCOFLEX Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Divider	Solvang Technology	2-18GHz 4Way	STI08-0015	07/26/2017	07/25/2018
Coupler	Agilent	87301d	MY44350252	07/25/2017	07/24/2018

Wugu 966 Chamber A					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Bilog Antenna	Sunol Sciences	JB3	A030105	06/20/2017	06/19/2018
EMI Test Receiver	R&S	ESCI	100064	05/17/2017	05/16/2018
Horn Antenna	ETS LINDGREN	3117	00055165	02/20/2017	02/19/2018
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	01/10/2017	01/09/2018
K Type Cable	Huber+Suhner	SUCOFLEX 102	22470/2	01/10/2017	01/09/2018
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	01/10/2017	01/09/2018
Pre-Amplifier	EMCI	EMC 012635	980151	08/01/2017	07/31/2018
Pre-Amplifier	EMEC	EM330	060609	07/31/2017	07/30/2018
Spectrum Analyzer	Agilent	E4446A	US42510252	11/27/2017	11/26/2018
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R

Conducted Emission Room # B					
Name of Equipment	Name of Equipment	Name of Equipment	Name of Equipment	Name of Equipment	Name of Equipment
LISN	R&S	ENV216	101054	05/18/2017	05/17/2018
LISN	SCHWARZBECK	NSLK 8127	8127-541	02/14/2017	02/13/2018
EMI Test Receiver	R&S	ESCI	100064	05/17/2017	05/16/2018

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	NB(G)	Lenovo	IBM 1951	N/A	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 v04.

2. TEST SUMMERY

FCC Standard Section	Report Section	Test Item	Result
15.203	1.2	Antenna Requirement	Pass
15.207(a)	4.1	AC Conducted Emission	Pass
15.247(a)(2)	4.2	6 dB Bandwidth	Pass
-	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)	4.3	Output Power Measurement	Pass
15.247(e)	4.4	Power Spectral Density	Pass
15.247(d)	4.5	Conducted Band Edge	Pass
15.247(d)	4.5	Conducted Emission	Pass
15.247(d)	4.6	Radiation Band Edge	Pass
15.247(d)	4.6	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	IEEE 802.11b mode :1Mbps IEEE 802.11g mode :6Mbps IEEE 802.11n HT20 mode :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.

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 AC adapter via power 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 AC adapter via power 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

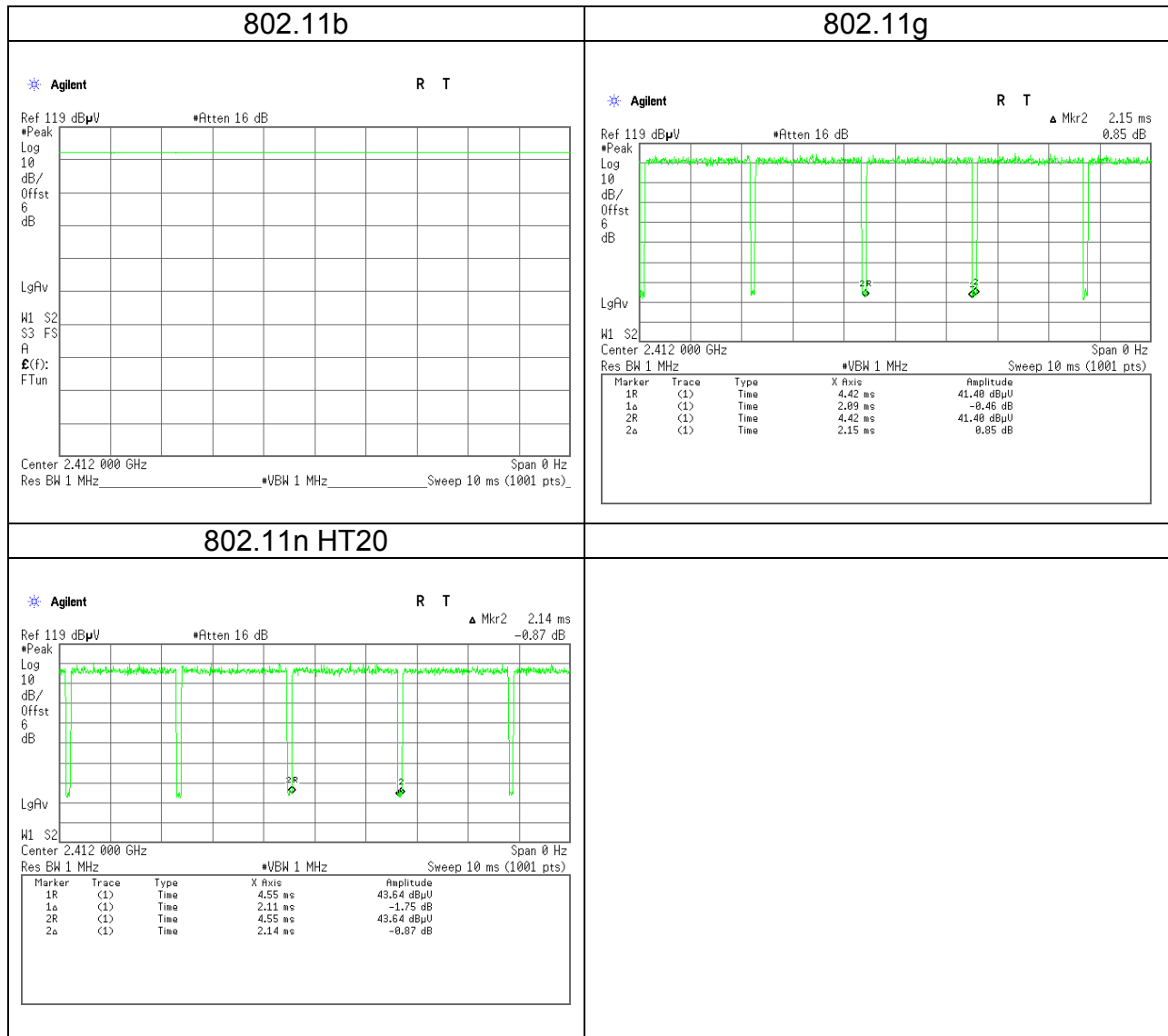
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Voltage/Hz	120V/60Hz
Test Mode	Mode 1:EUT power by AC adapter via power cable.
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

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. For below 1G, AC power line conducted emission and radiation emission were performed the EUT transmit at the highest output power channel as worse case.

3.3 EUT DUTY CYCLE

Duty Cycle				
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)
802.11b	--	--	100.00%	0.00
802.11g	2.09	2.15	97.21%	0.12
802.11n HT20	2.11	2.14	98.60%	0.06



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a)(2)

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

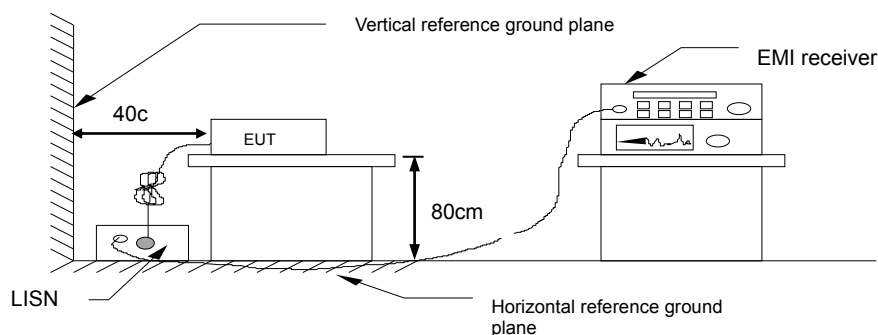
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI 63.10:2013 clause 6.2,

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

4.1.3 Test Setup

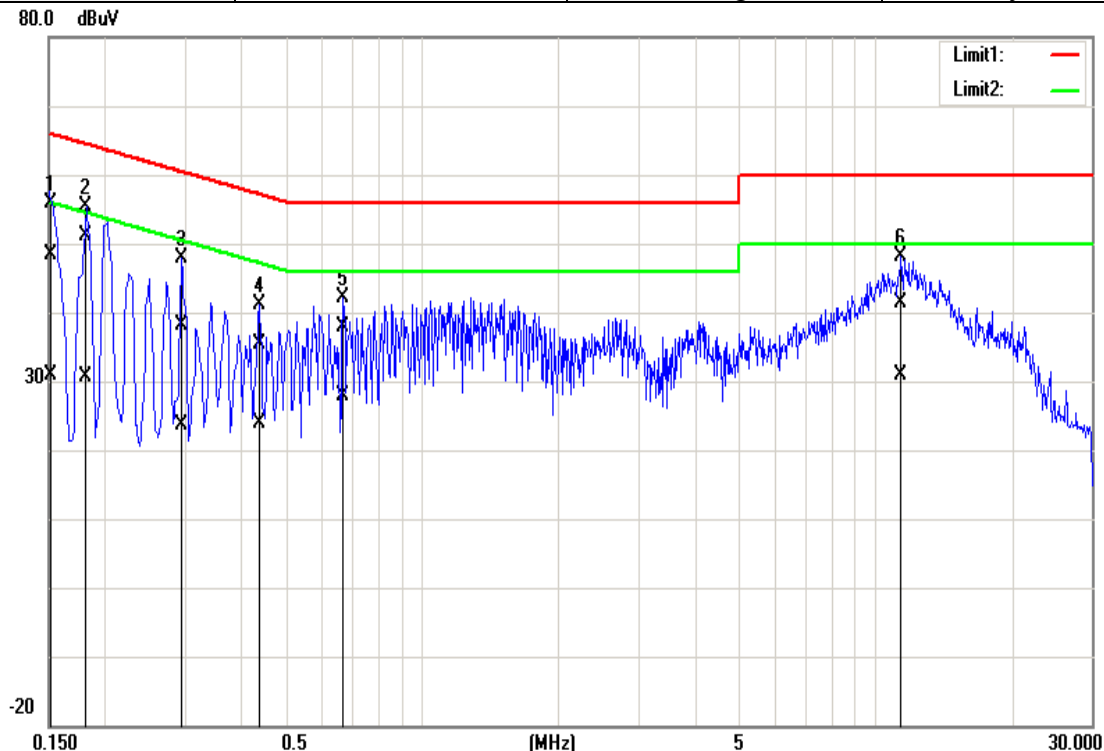


4.1.4 Test Result

Pass.

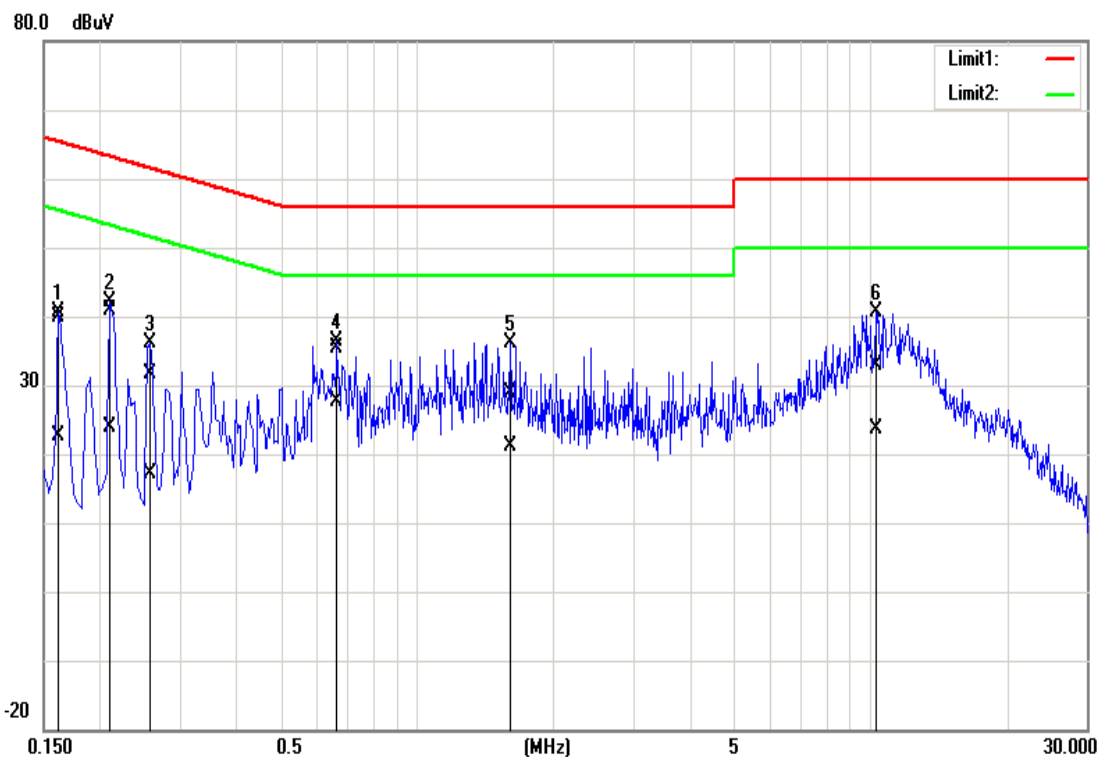
Test Data

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	November 13, 2017
Phase:	Line	Test Engineer	Ray Huang



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1540	48.45	30.72	0.05	48.50	30.77	65.78	55.78	-17.28	-25.01	Pass
0.1820	51.07	30.50	0.05	51.12	30.55	64.39	54.39	-13.27	-23.84	Pass
0.2940	38.12	23.59	0.05	38.17	23.64	60.41	50.41	-22.24	-26.77	Pass
0.4380	35.26	23.87	0.05	35.31	23.92	57.10	47.10	-21.79	-23.18	Pass
0.6700	37.82	27.87	0.06	37.88	27.93	56.00	46.00	-18.12	-18.07	Pass
11.4020	41.41	30.77	-0.01	41.40	30.76	60.00	50.00	-18.60	-19.24	Pass

Test Mode:	Mode 1	Temp/Hum	24(°C)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	November 13, 2017
Phase:	Line	Test Engineer	Ray Huang



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1620	39.76	22.44	0.12	39.88	22.56	65.36	55.36	-25.48	-32.80	Pass
0.2100	40.88	23.88	0.12	41.00	24.00	63.21	53.21	-22.21	-29.21	Pass
0.2580	31.56	16.93	0.12	31.68	17.05	61.50	51.50	-29.82	-34.45	Pass
0.6660	35.24	27.37	0.14	35.38	27.51	56.00	46.00	-20.62	-18.49	Pass
1.6020	28.61	20.95	0.16	28.77	21.11	56.00	46.00	-27.23	-24.89	Pass
10.3420	32.52	23.36	0.35	32.87	23.71	60.00	50.00	-27.13	-26.29	Pass

4.2 6DB BANDWIDTH AND OCCUPIED BANDWIDTH(99%)

4.2.1 Test Limit

According to §15.247(a)(2)

6 dB Bandwidth :

Limit	Shall be at least 500kHz
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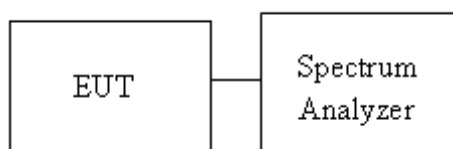
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, Section 8.1 and ANSI 63.10:2013 clause 6.9.2,

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

4.2.3 Test Setup



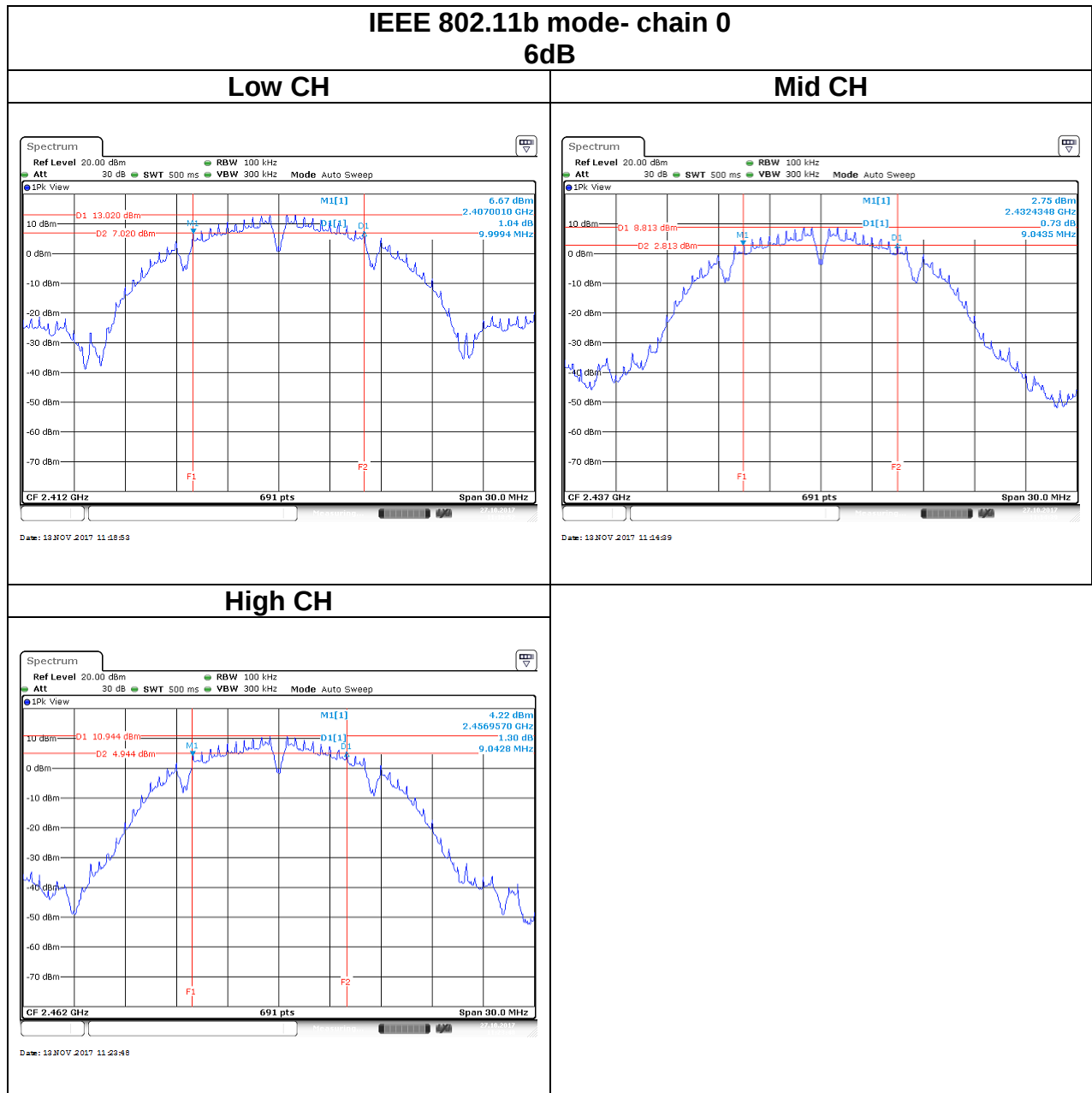
4.2.4 Test Result

Test mode: IEEE 802.11b mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2412	14.7612	-	9.9994	-	≥500
Mid	2437	14.0231	-	9.0435	-	
High	2462	13.9363	-	9.0428	-	

Test mode: IEEE 802.11g mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2412	16.3675	-	15.3437	-	≥500
Mid	2437	16.7149	-	15.1304	-	
High	2462	16.2373	-	15.1304	-	

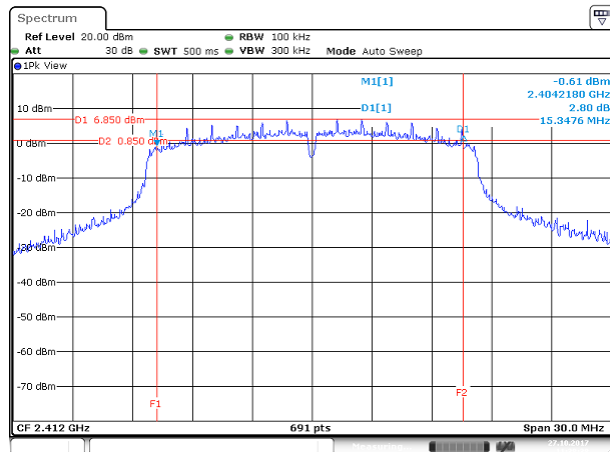
Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz						
Channel	Frequency (MHz)	Chain 0 OBW(99%) (MHz)	Chain 1 OBW(99%) (MHz)	Chain 0 6dB BW (MHz)	Chain 1 6dB BW (MHz)	6dB limit (kHz)
Low	2412	17.4529	-	15.1739	-	≥500
Mid	2437	17.7568	-	15.1739	-	
High	2462	17.3227	-	15.1304	-	

Test Data

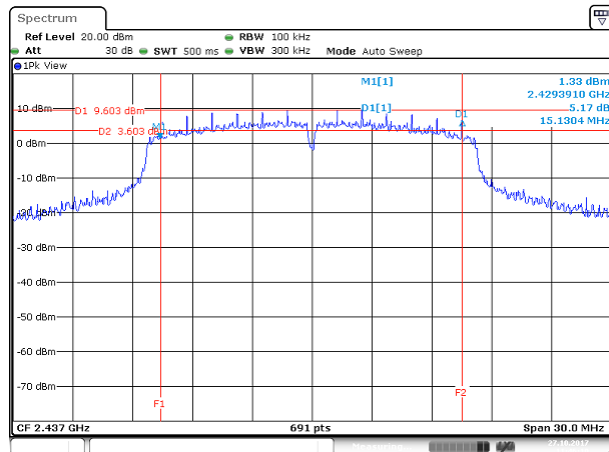


IEEE 802.11g mode- chain 0
6dB

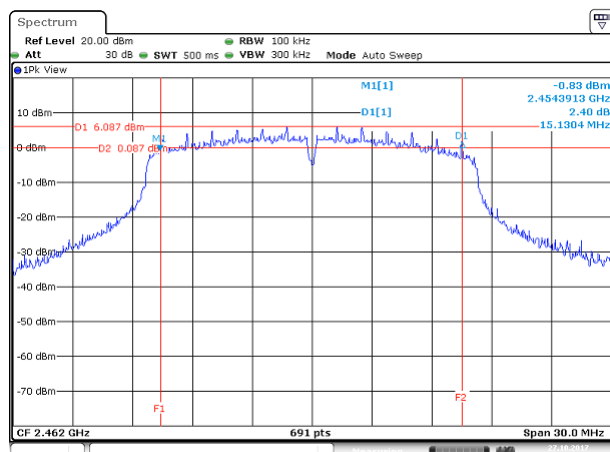
Low CH



Mid CH

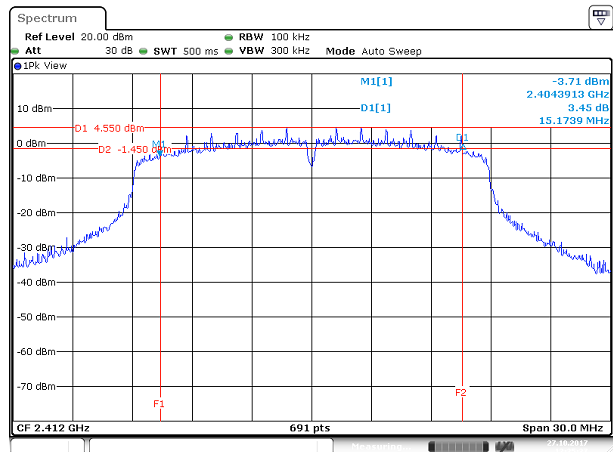


High CH

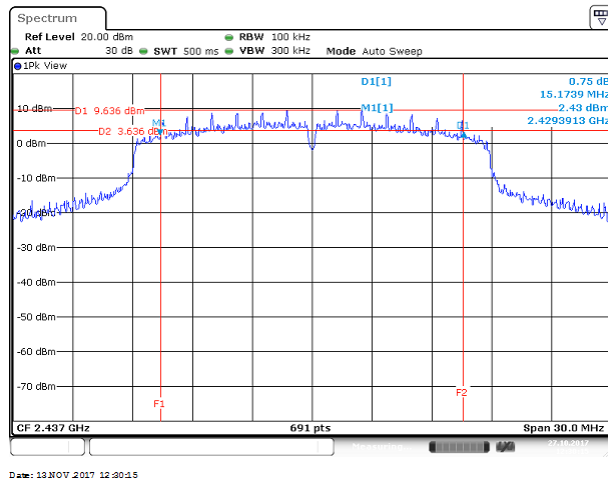


IEEE 802.11n HT20 mode- chain 0
6dB

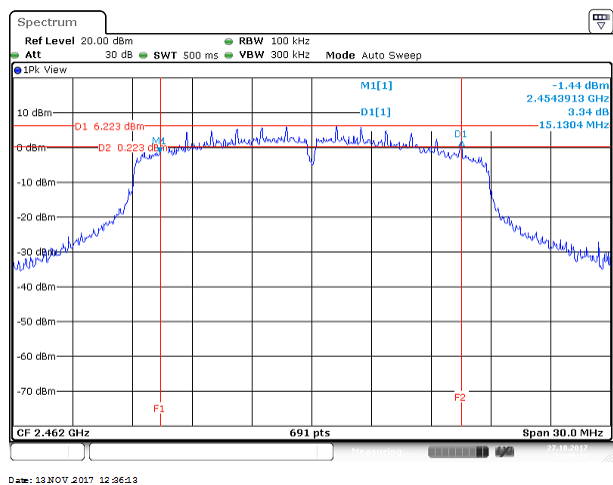
Low CH



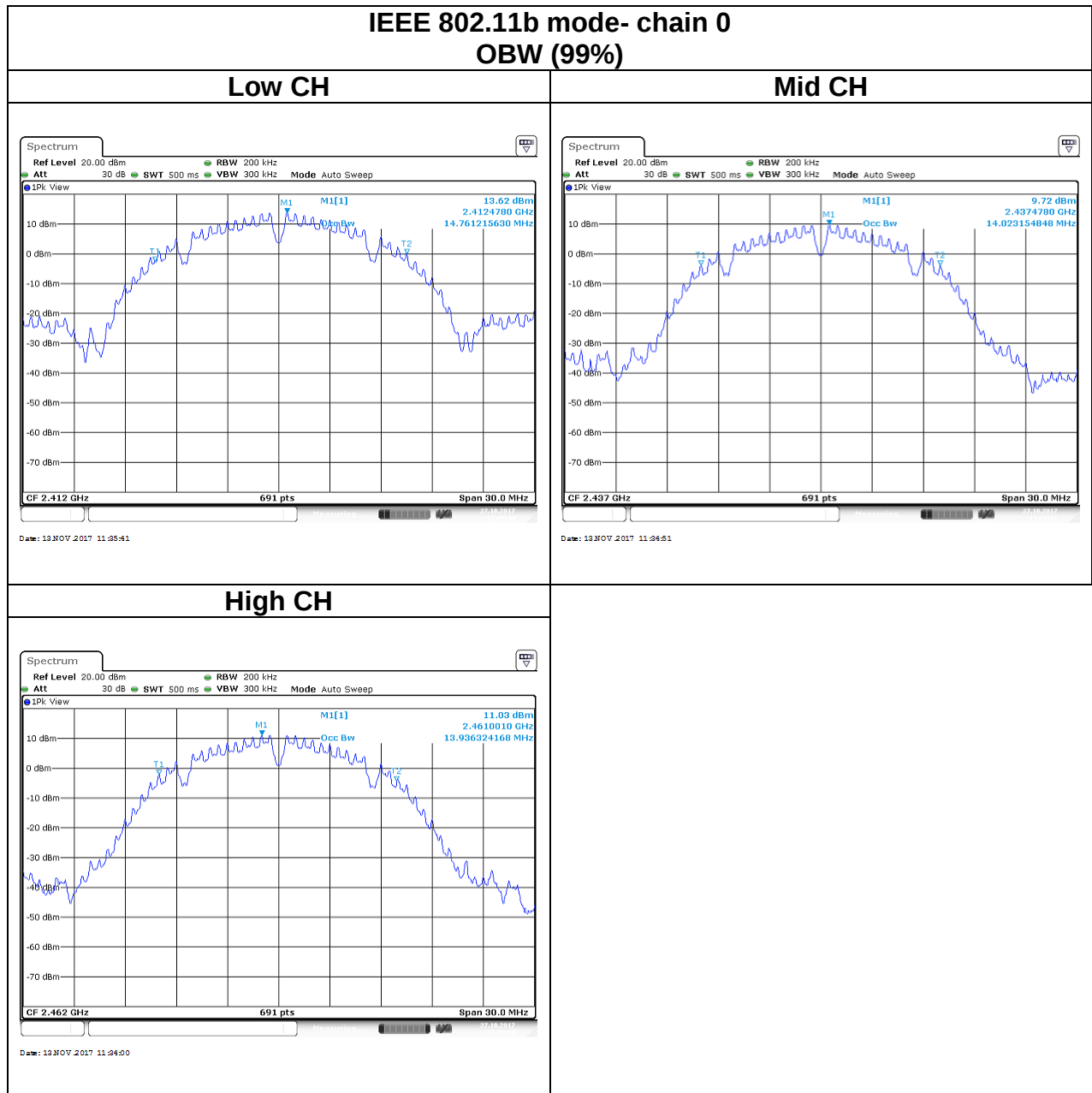
Mid CH



High CH

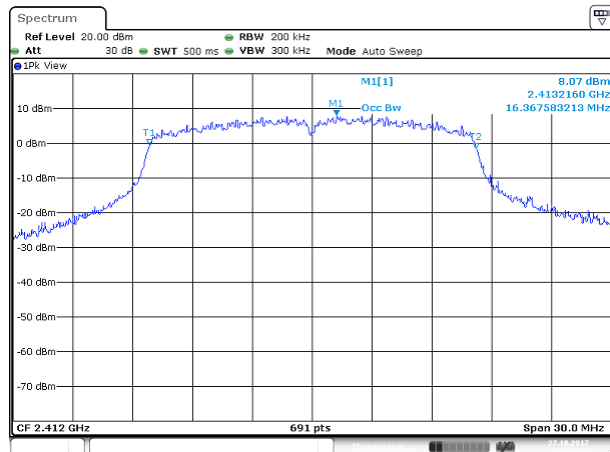


Test Data

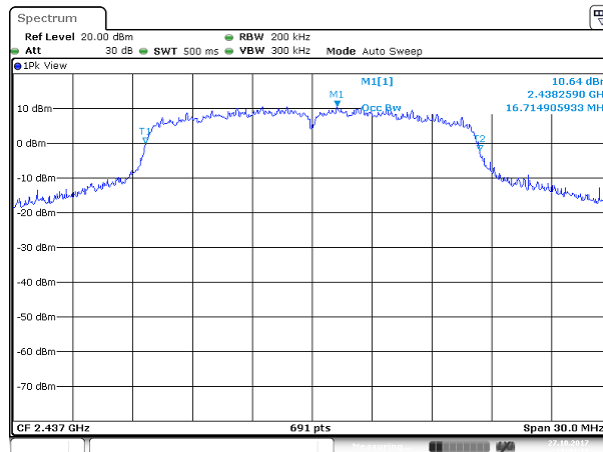


IEEE 802.11g mode- chain 0
OBW (99%)

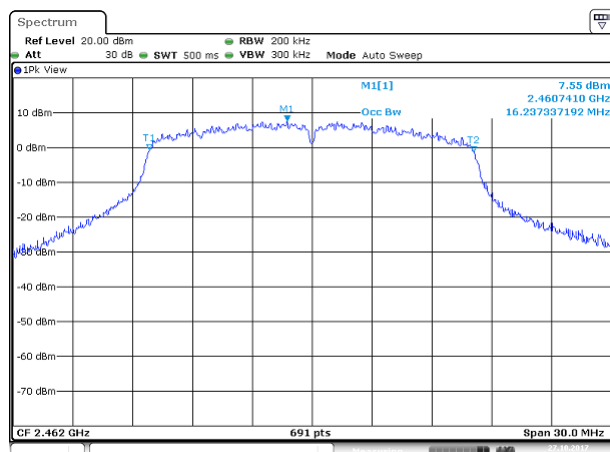
Low CH



Mid CH

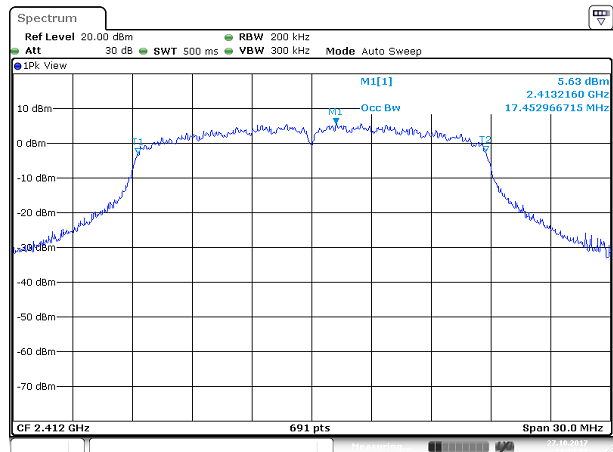


High CH

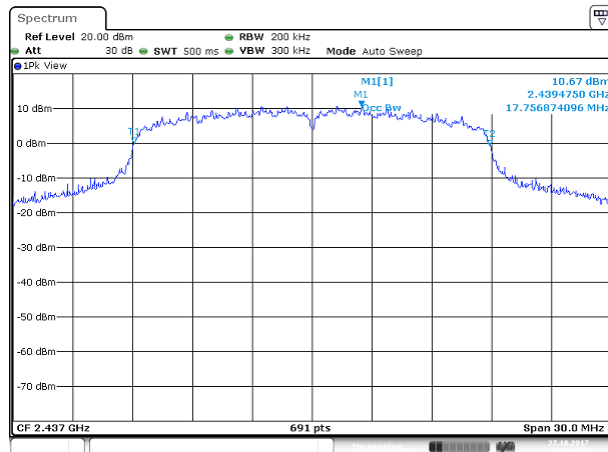


IEEE 802.11n HT20 mode- chain 0
OBW (99%)

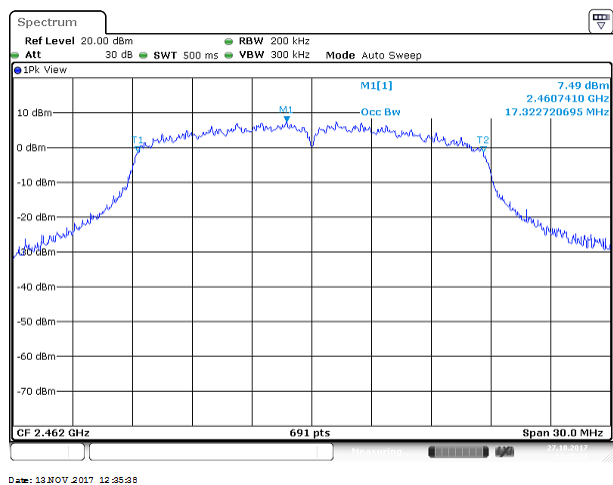
Low CH



Mid CH



High CH



4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b)

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 :
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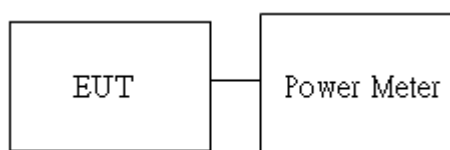
Average output power : For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, Section 9.1.2.

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

4.3.3 Test Setup



4.3.4 Test Result

Peak output power :

Wifi 2.4G													
Config	CH	Freq. (MHz)	power set		PK Power(dBm)		PK Total Power (dBm)	PK Total Power (W)	ERP PK Total Power (dBm)	ERP PK Total Power (W)	DG (dBi)	Limit (dBm)	ERP Limit (dBm)
			chain0	chain1	chain0	chain1							
IEEE 802.11b Data rate: 1Mbps	Low	2412	18	-	21.10	-	21.10	0.1288	21.10	0.1288	0	30	36
	Mid	2437	20	-	24.46	-	24.46	0.2793	24.46	0.2793			
	High	2462	18	-	21.11	-	21.11	0.1291	21.11	0.1291			
IEEE 802.11g Data rate: 6Mbps	Low	2412	16	-	24.02	-	24.02	0.2523	24.02	0.2523			
	Mid	2437	18	-	24.59	-	24.59	0.2877	24.59	0.2877			
	High	2462	16	-	24.21	-	24.21	0.2636	24.21	0.2636			
IEEE 802.11n HT20 Data rate: MCS8	Low	2412	15	-	24.07	-	24.07	0.2553	24.07	0.2553			
	Mid	2437	18	-	24.53	-	24.53	0.2838	24.53	0.2838			
	High	2462	16	-	24.13	-	24.13	0.2588	24.13	0.2588			

Average output power :

Wifi 2.4G					
Config	CH	Freq. (MHz)	AV Power(dBm)		AV Total Power (dBm)
			chain0	chain1	
IEEE 802.11b Data rate: 1Mbps	Low	2412	19.02	-	19.02
	Mid	2437	23.03	-	23.03
	High	2462	18.94	-	18.94
IEEE 802.11g Data rate: 6Mbps	Low	2412	16.41	-	16.41
	Mid	2437	19.29	-	19.29
	High	2462	16.19	-	16.19
IEEE 802.11n HT20 Data rate: MCS0	Low	2412	15.45	-	15.45
	Mid	2437	19.18	-	19.18
	High	2462	16.21	-	16.21

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e)

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.

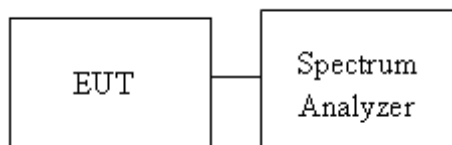
Limit	☒ Antenna not exceed 6 dBi : 8dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 8 – (DG – 6)] ☐ Point-to-point operation :
-------	---

4.4.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, Section 10.2

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

4.4.3 Test Setup



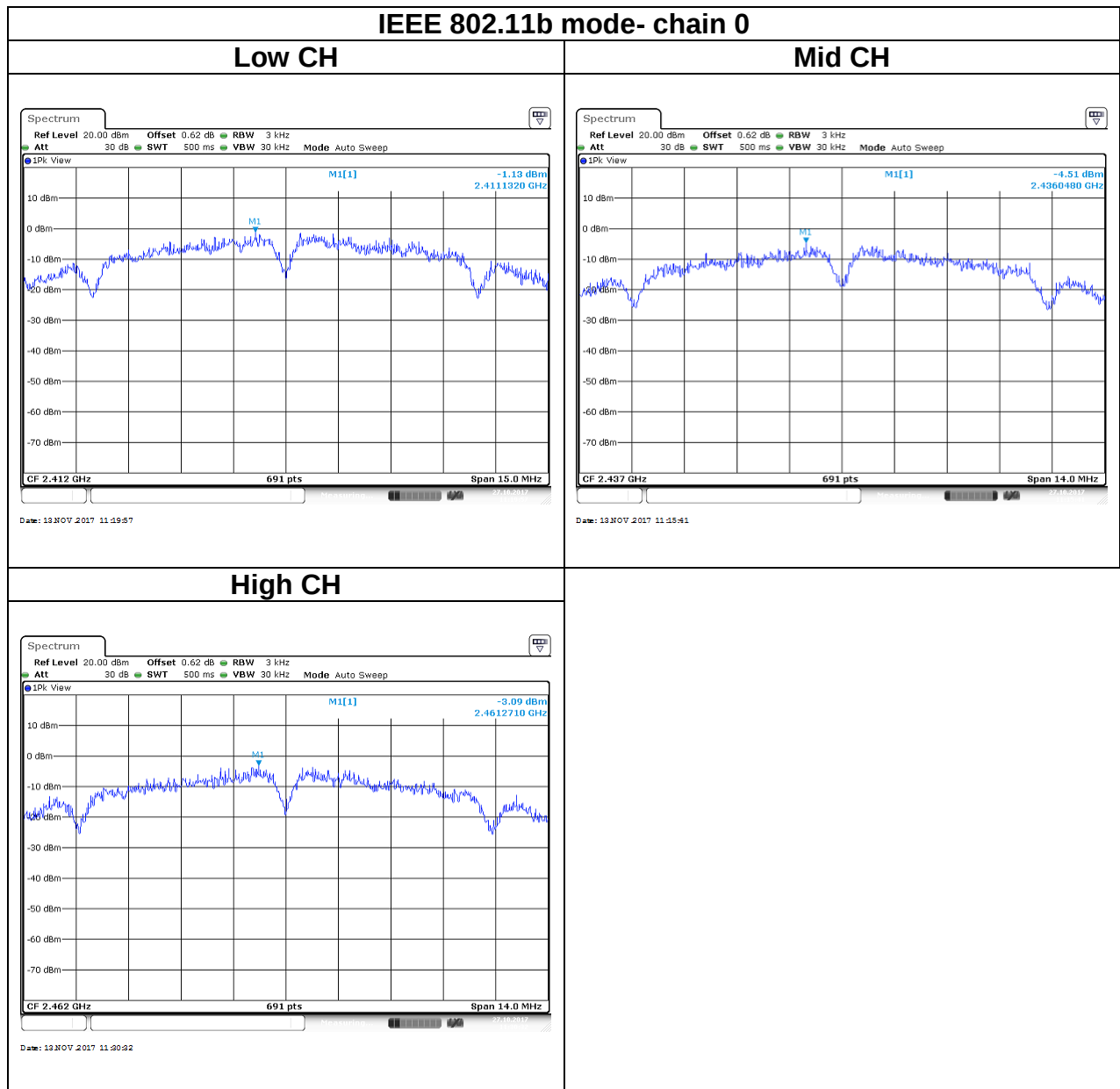
4.4.4 Test Result

Test mode: IEEE 802.11b mode / 2412-2462 MHz					
Channel	Frequency (MHz)	Chain 0 PPSSD (dBm)	Chain 1 PPSSD (dBm)	Total PPSSD (dBm)	Limit (dBm)
Low	2412	-1.13	-	-1.13	8
Mid	2437	-4.51	-	-4.51	
High	2462	-3.09	-	-3.09	

Test mode: IEEE 802.11g mode / 2412-2462 MHz					
Channel	Frequency (MHz)	Chain 0 PPSSD (dBm)	Chain 1 PPSSD (dBm)	Total PPSSD (dBm)	Limit (dBm)
Low	2412	-7.72	-	-7.72	8
Mid	2437	-4.89	-	-4.89	
High	2462	-7.01	-	-7.01	

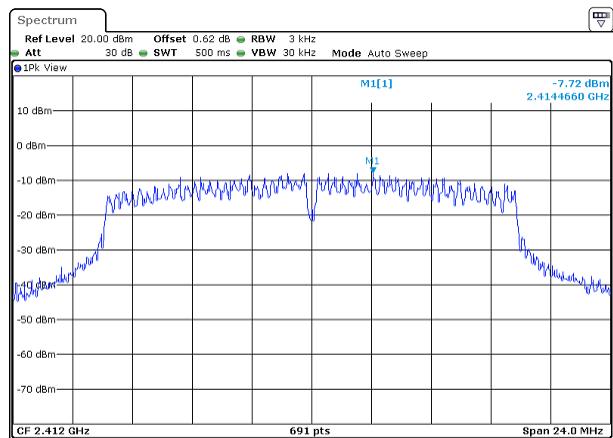
Test mode: IEEE 802.11n HT 20 MHz mode / 2412-2462 MHz					
Channel	Frequency (MHz)	Chain 0 PPSSD (dBm)	Chain 1 PPSSD (dBm)	Total PPSSD (dBm)	Limit (dBm)
Low	2412	-10.05	-	-10.05	8
Mid	2437	-4.68	-	-4.68	
High	2462	-7.88	-	-7.88	

Test Data

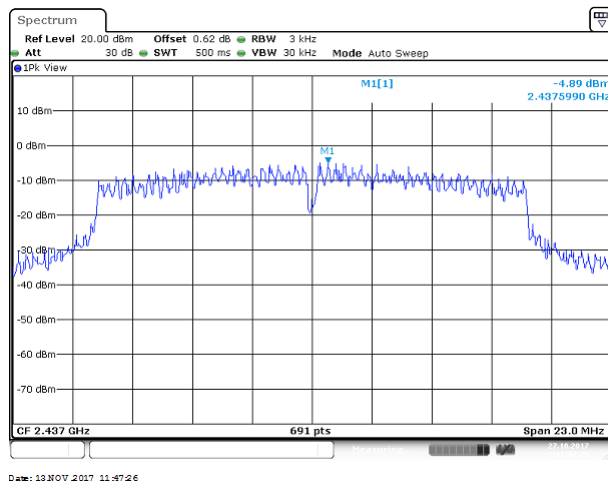


IEEE 802.11g mode- chain 0

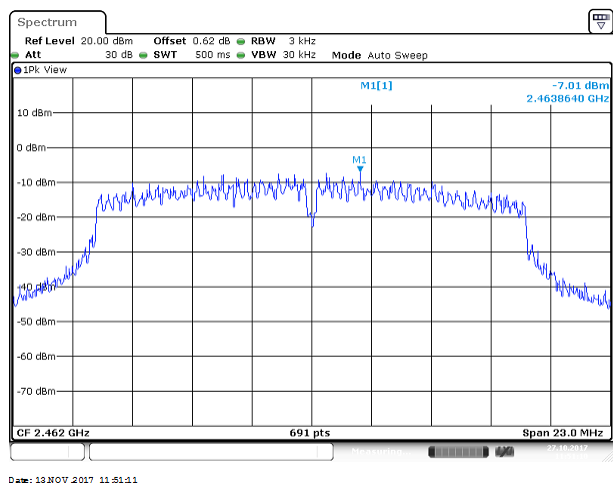
Low CH



Mid CH

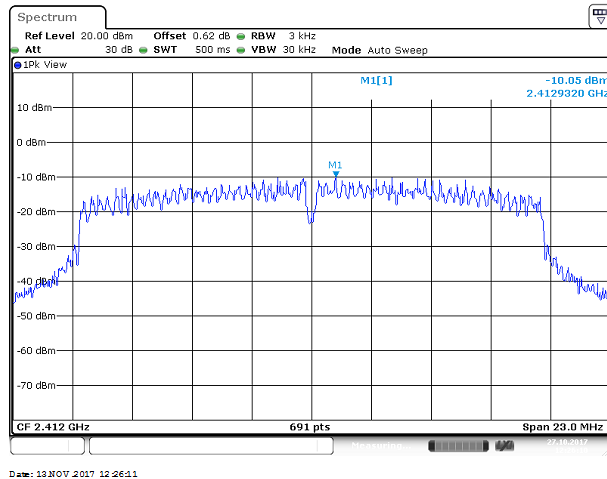


High CH

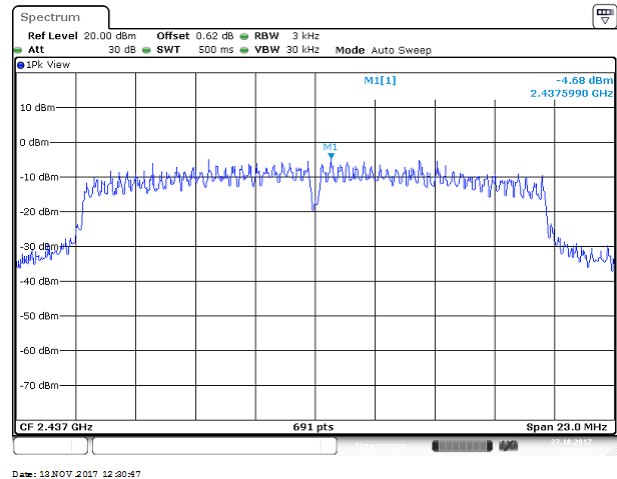


IEEE 802.11n HT20 mode- chain 0

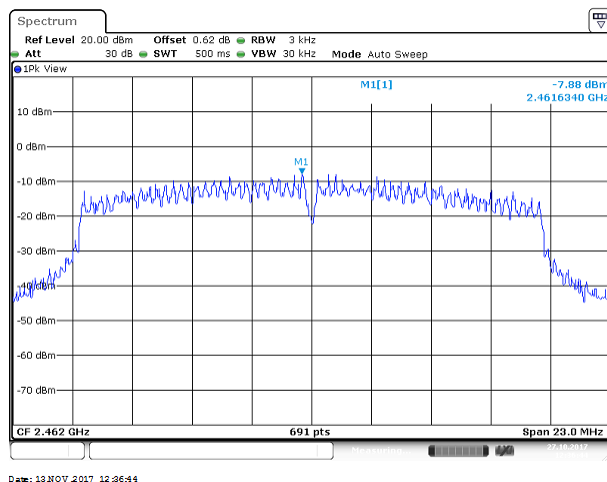
Low CH



Mid CH



High CH



4.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d)

In any 100 kHz bandwidth outside the authorized frequency band,

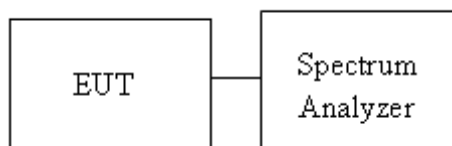
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 Test Procedure

Test method Refer as KDB 558074 D01 v04, Section 11.

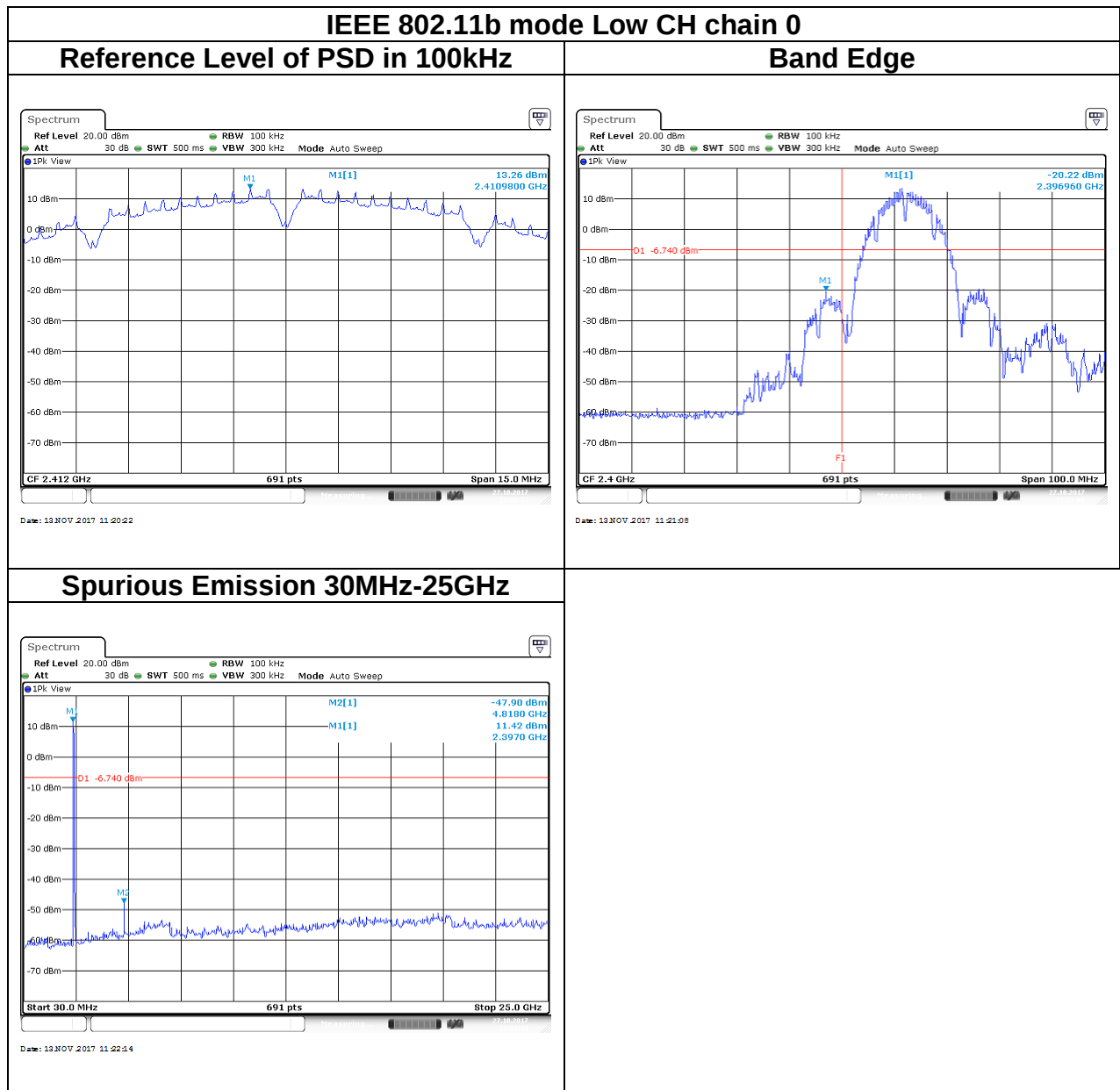
1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to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

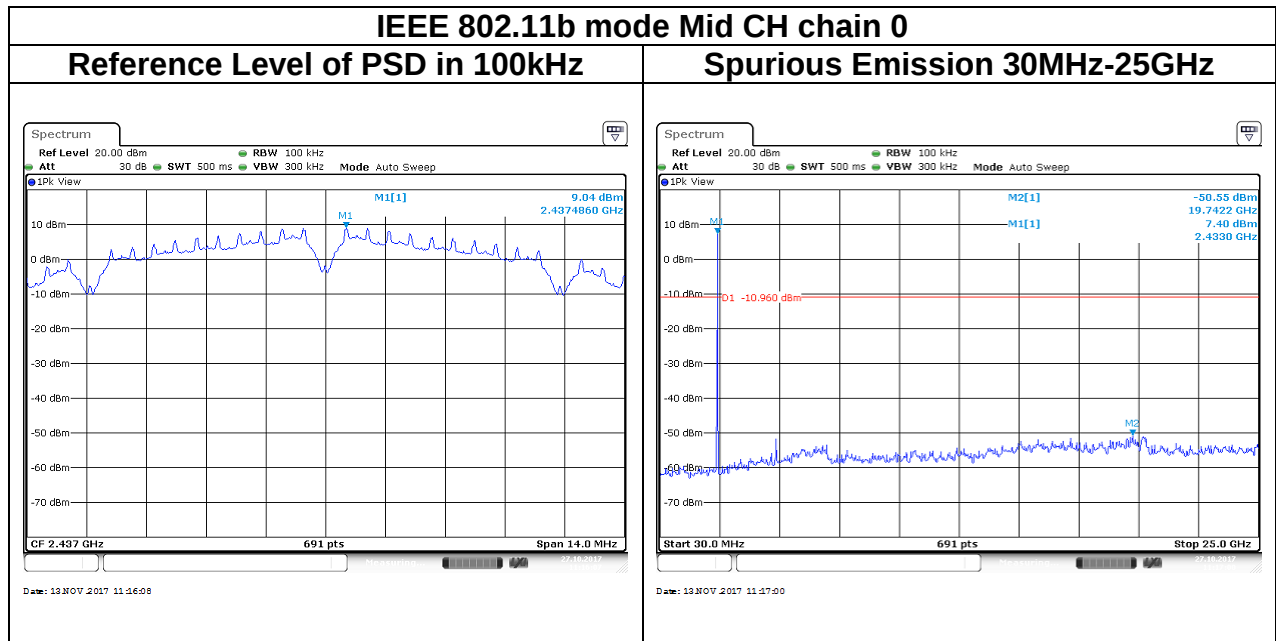
4.5.3 Test Setup



4.5.4 Test Result

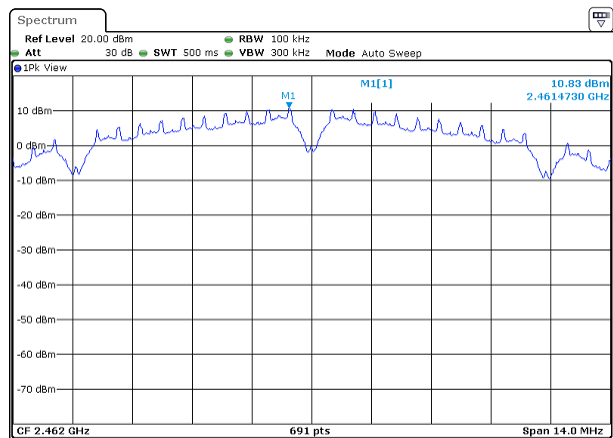
Test Data





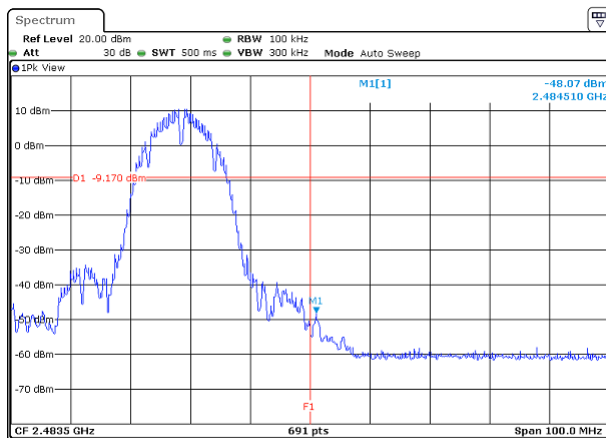
IEEE 802.11b mode High CH chain 0

Reference Level of PSD in 100kHz



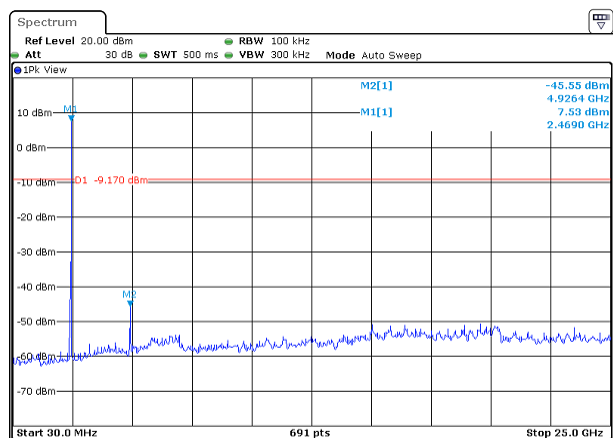
Date: 13 NOV 2017 11:21:10

Band Edge



Date: 13 NOV 2017 11:22:21

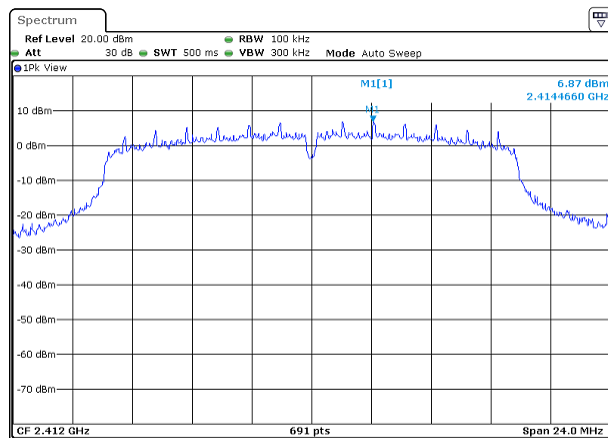
Spurious Emission 30MHz-25GHz



Date: 13 NOV 2017 11:22:53

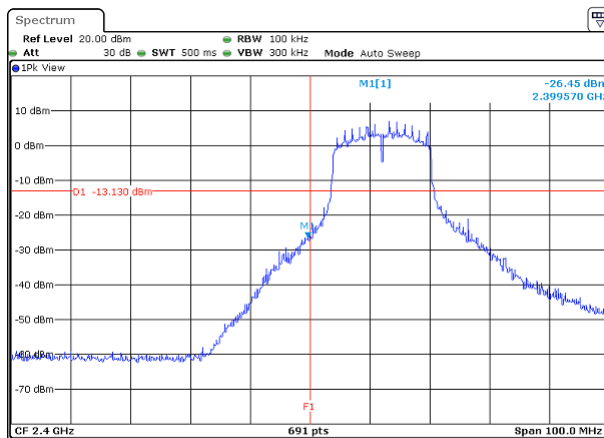
IEEE 802.11g mode Low CH chain 0

Reference Level of PSD in 100kHz



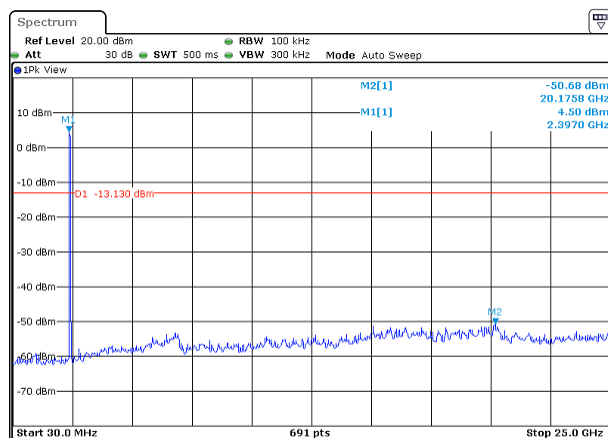
Date: 13 NOV 2017 11:40:08

Band Edge

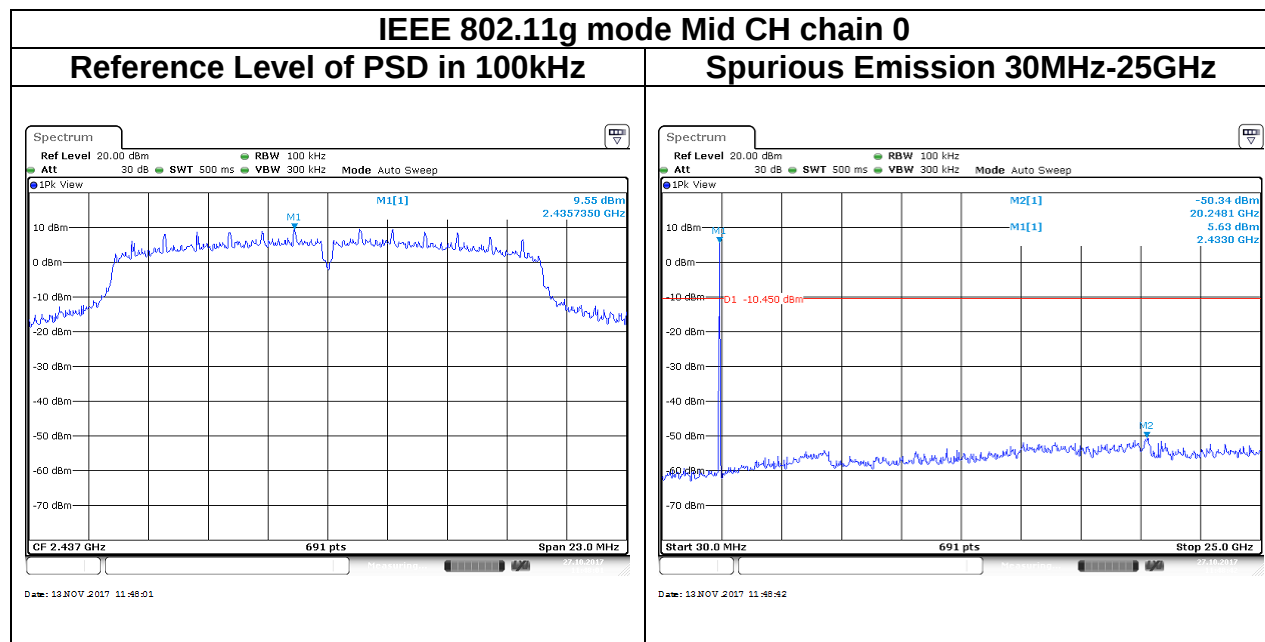


Date: 13 NOV 2017 11:41:07

Spurious Emission 30MHz-25GHz

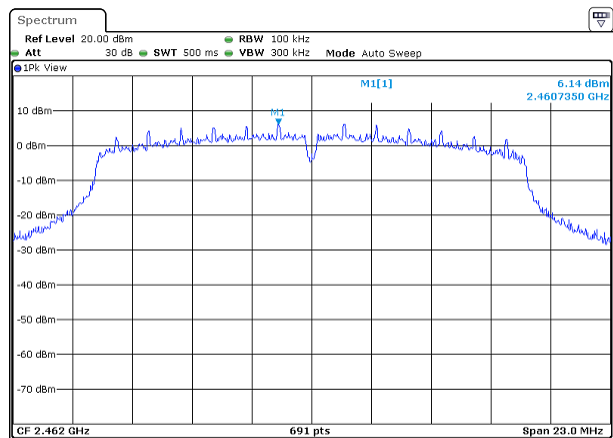


Date: 13 NOV 2017 11:41:29

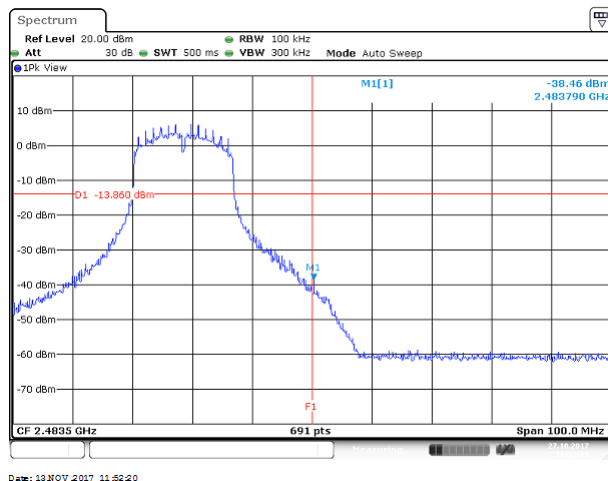


IEEE 802.11g mode High CH chain 0

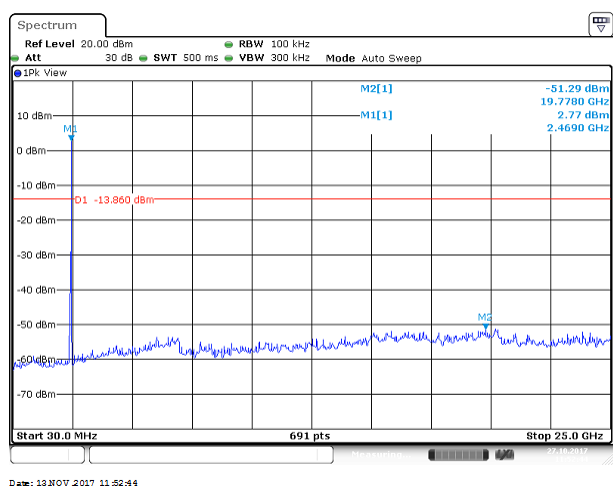
Reference Level of PSD in 100kHz



Band Edge

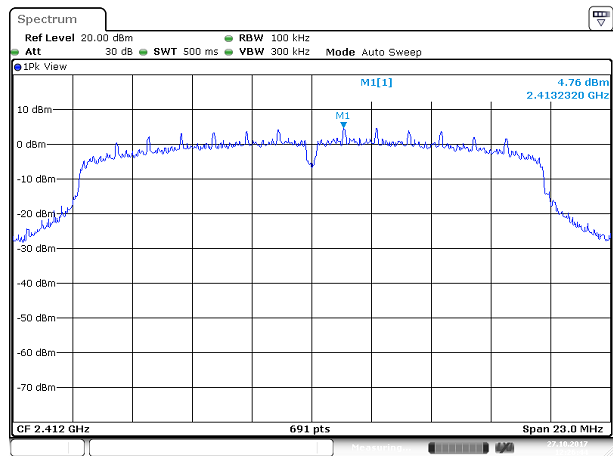


Spurious Emission 30MHz-25GHz

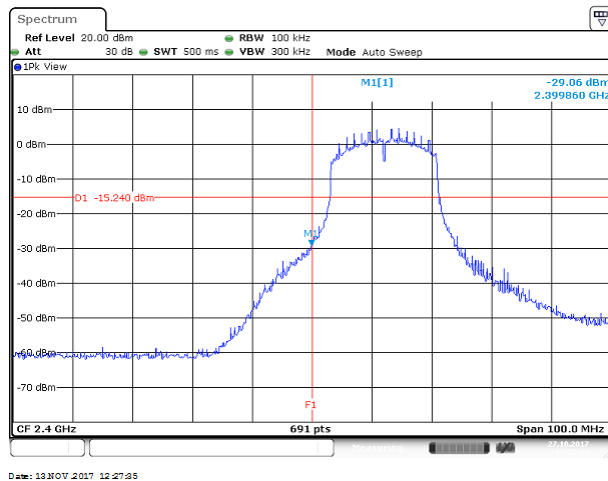


IEEE 802.11 n HT20 mode Low CH chain 0

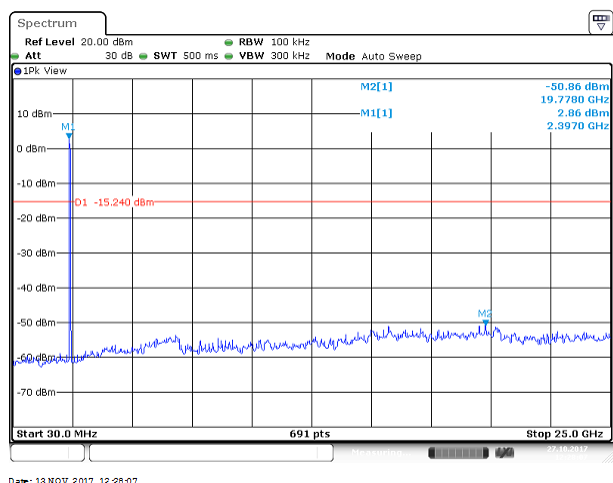
Reference Level of PSD in 100kHz

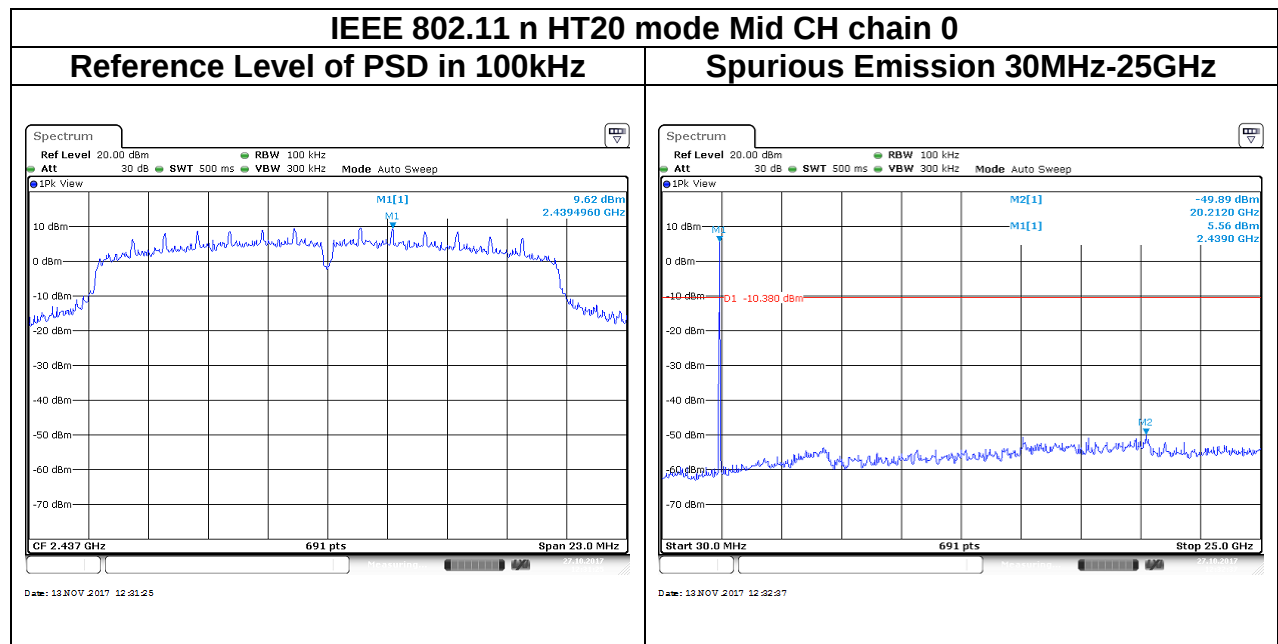


Band Edge



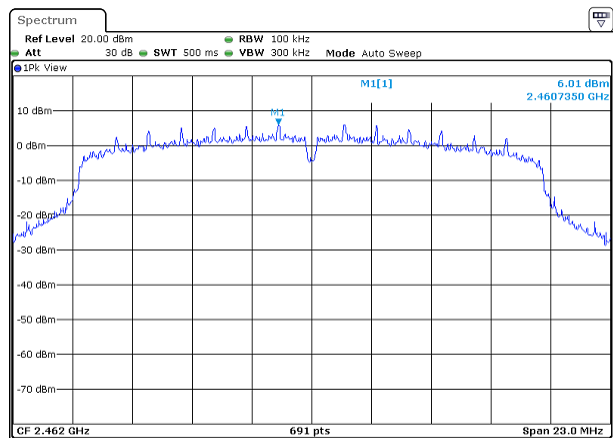
Spurious Emission 30MHz-25GHz



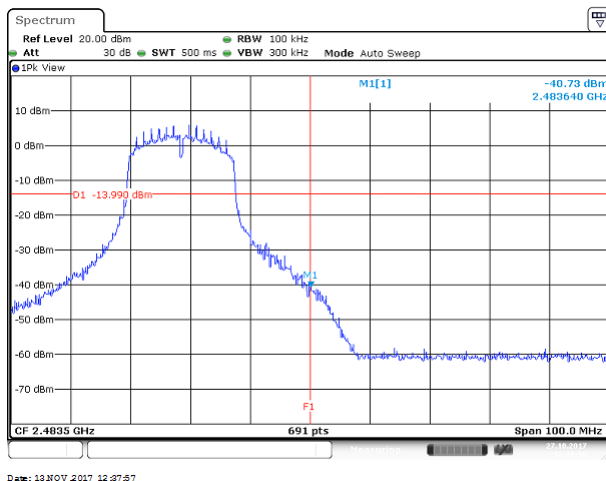


IEEE 802.11n HT20 mode High CH chain 0

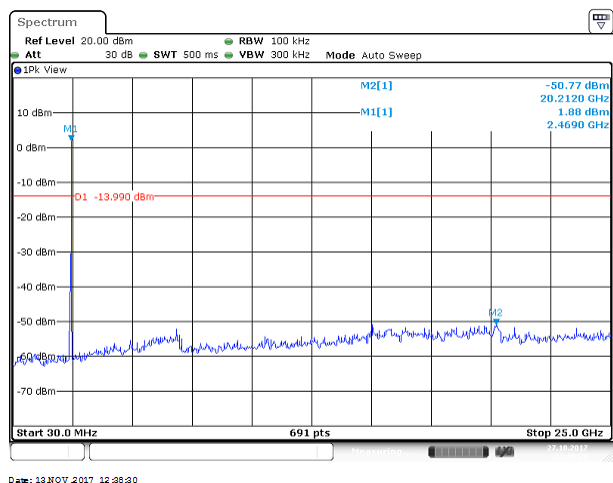
Reference Level of PSD in 100kHz



Band Edge



Spurious Emission 30MHz-25GHz



4.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.6.1 Test Limit

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

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 area 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.

4.6.2 Test Procedure

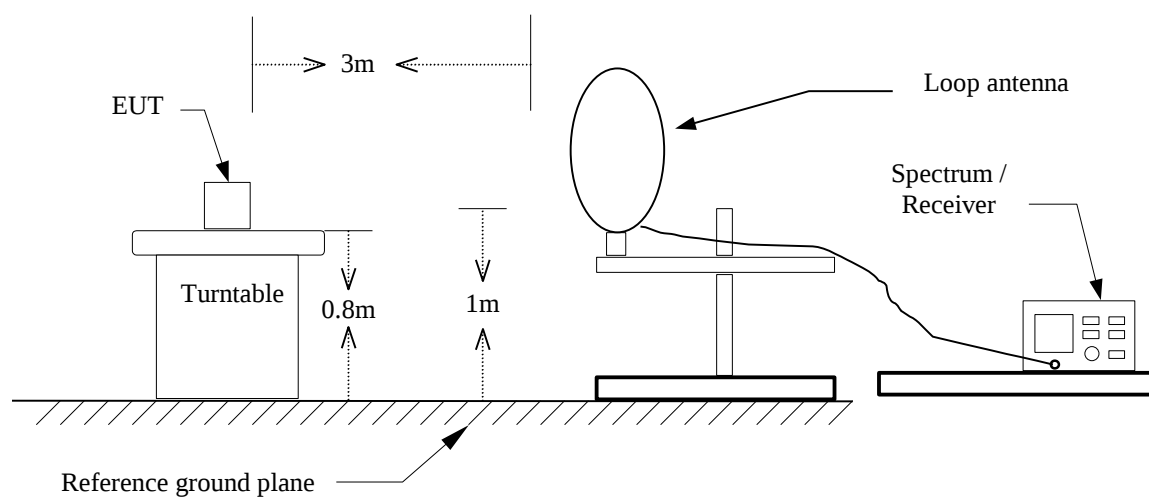
Test method Refer as KDB 558074 D01 v04, Section 12.1.

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 $\geq$ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
 - (2) Above 1G :
 - (2.1) For Peak measurement : RBW = 1MHz, VBW $\geq$ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
 - (2.2) For Average measurement : RBW = 1MHz, VBW
· If Duty Cycle $\geq$ 98%, VBW=10Hz.
· If Duty Cycle < 98%, VBW=1/T.

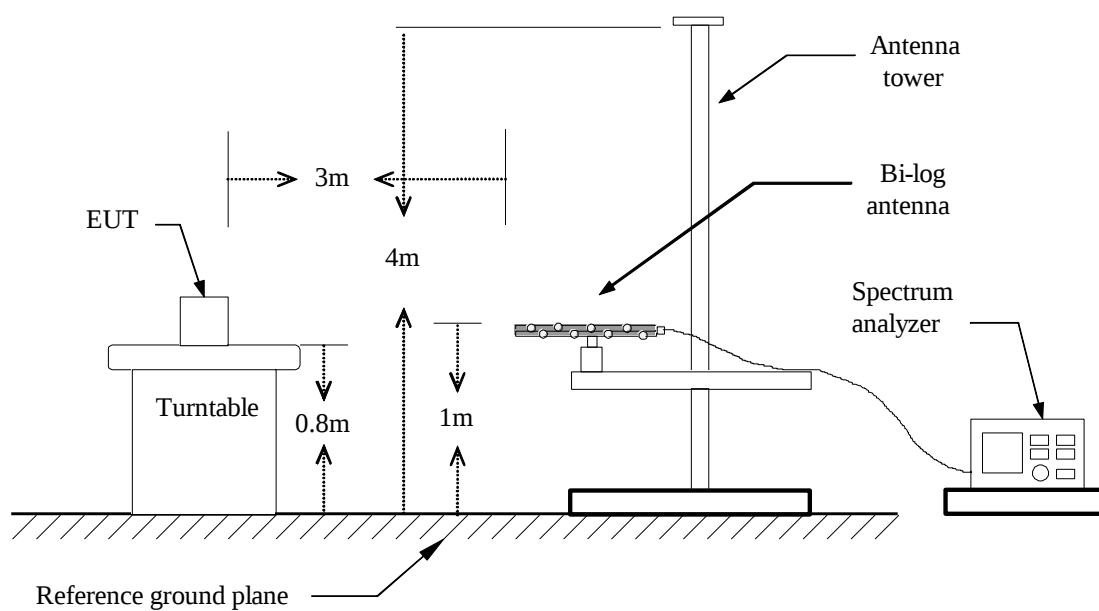
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
802.11b	100%	--	--	10Hz
802.11g	97%	2.0900	0.478	470Hz
802.11n HT20	99%	2.1100	0.474	10Hz

4.6.3 Test Setup

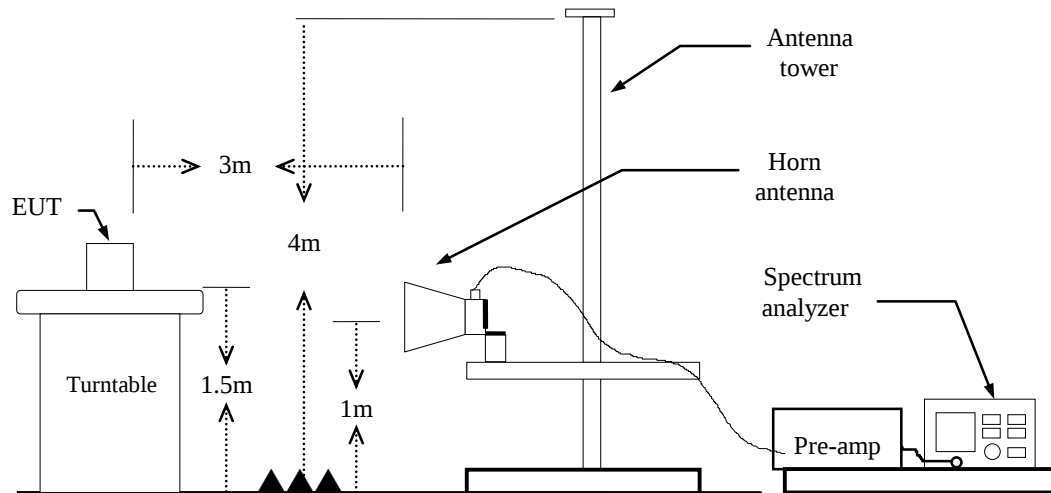
9kHz ~ 30MHz



30MHz ~ 1GHz



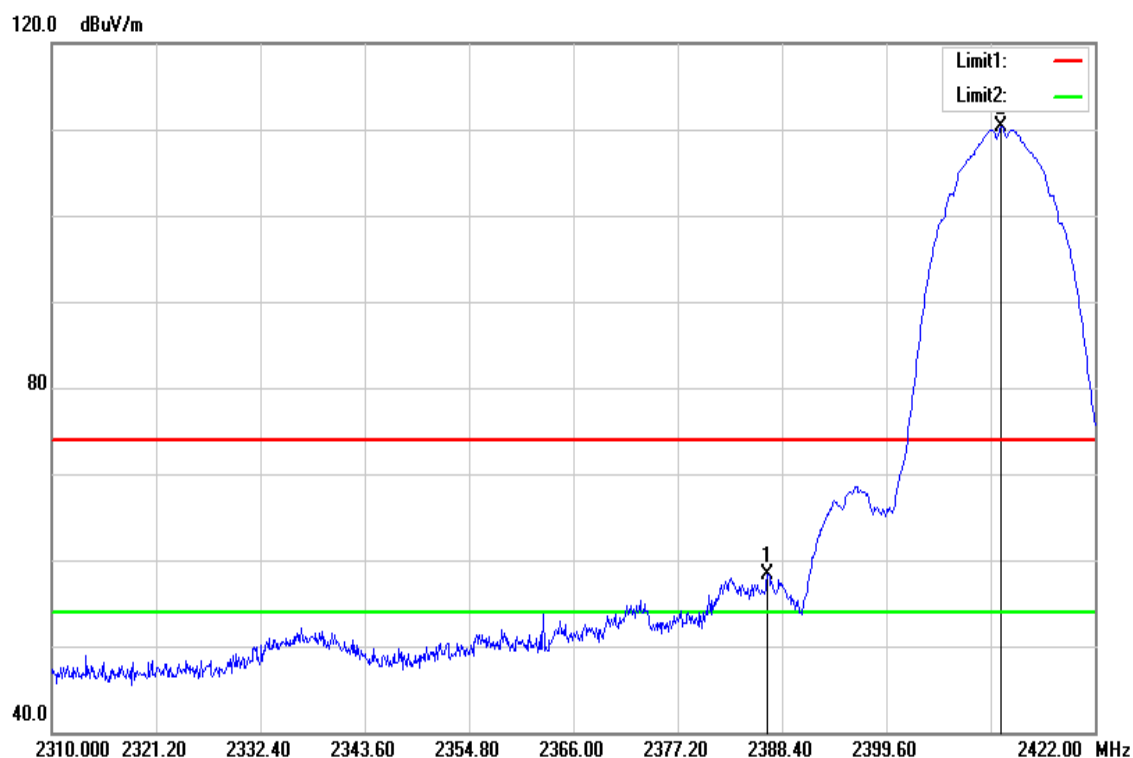
Above 1 GHz



4.6.4 Test Result

Band Edge Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz



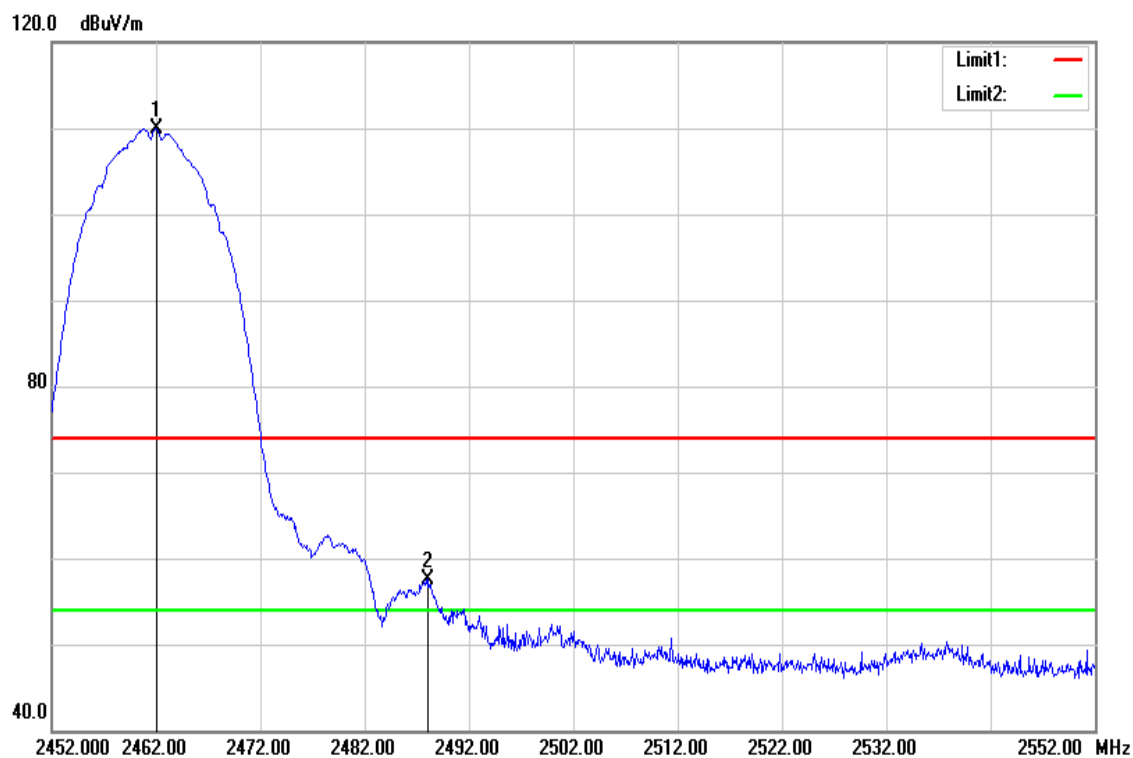
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2386.832	61.30	-2.99	58.31	74.00	-15.69	peak
2411.920	113.20	-2.92	110.28	-	-	peak

Test Mode	IEEE 802.11b Low CH	Temperature:	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2382.688	54.04	-3.00	51.04	54.00	-2.96	AVG
2411.248	109.75	-2.92	106.83	-	-	AVG

Test Mode	IEEE 802.11b High CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz



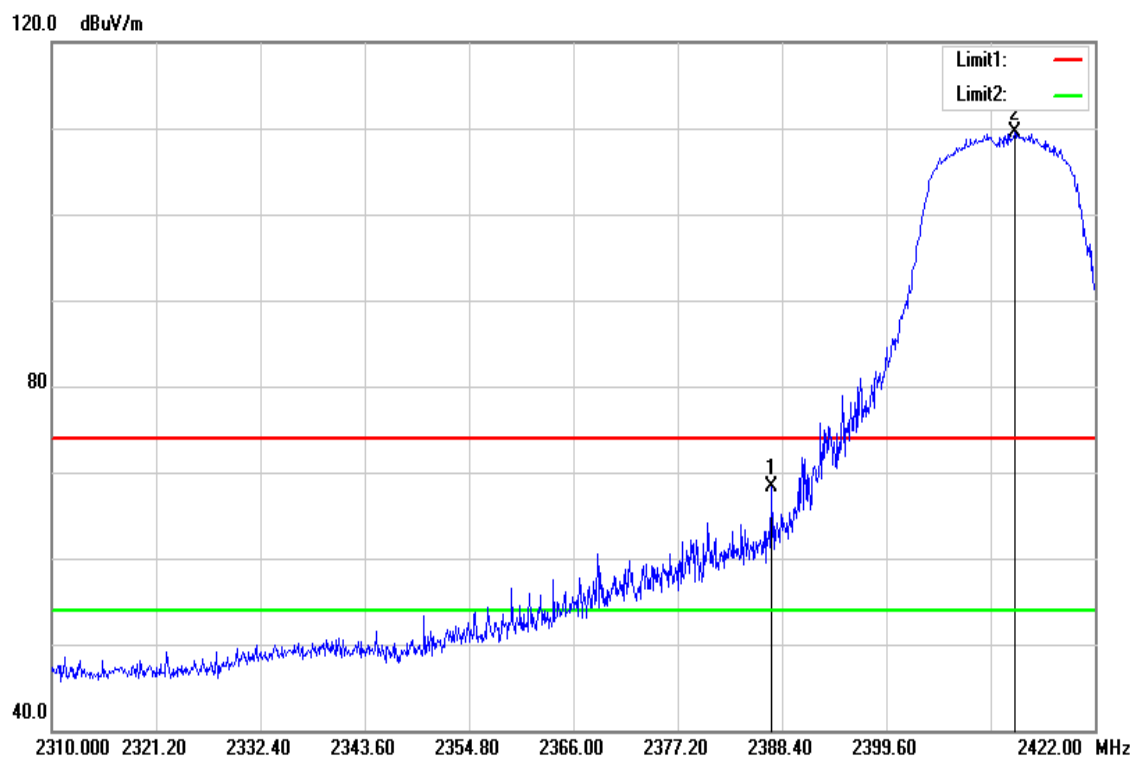
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.000	112.72	-2.76	109.96	-	-	peak
2488.100	60.25	-2.67	57.58	74.00	-16.42	peak

Test Mode	IEEE 802.11b High CH	Temperature:	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	120Vac / 60Hz



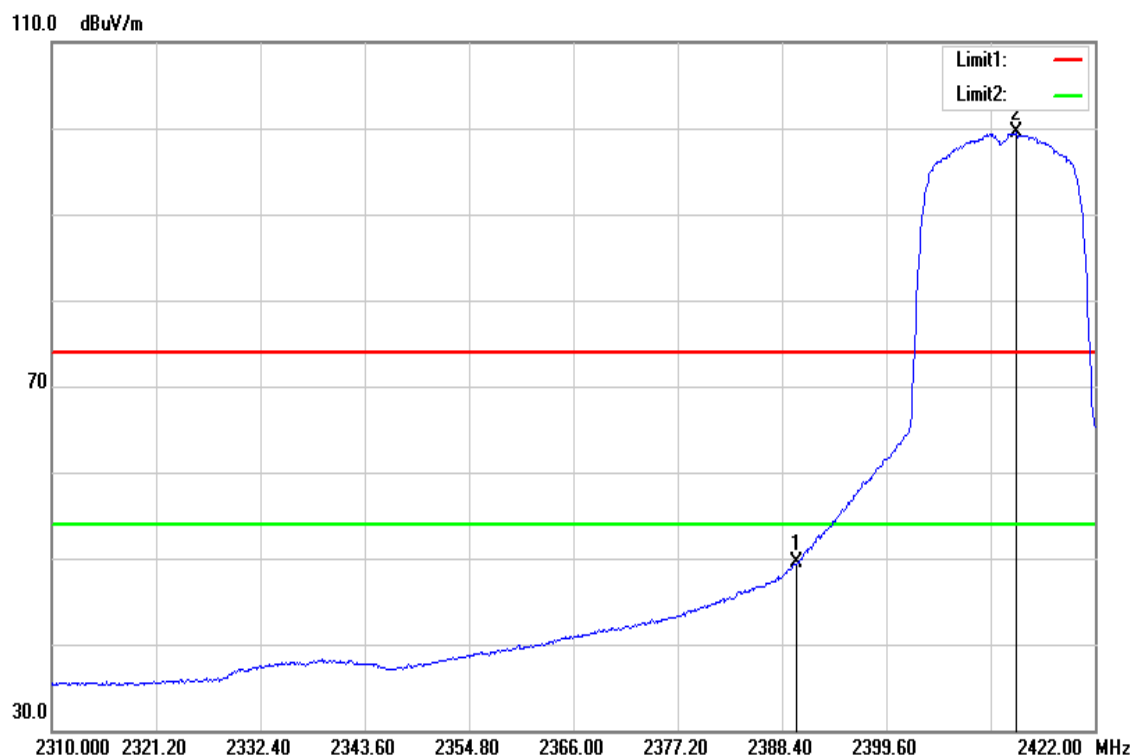
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2461.200	109.61	-2.76	106.85	-	-	AVG
2487.700	52.74	-2.67	50.07	54.00	-3.93	AVG

Test Mode	IEEE 802.11g Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz



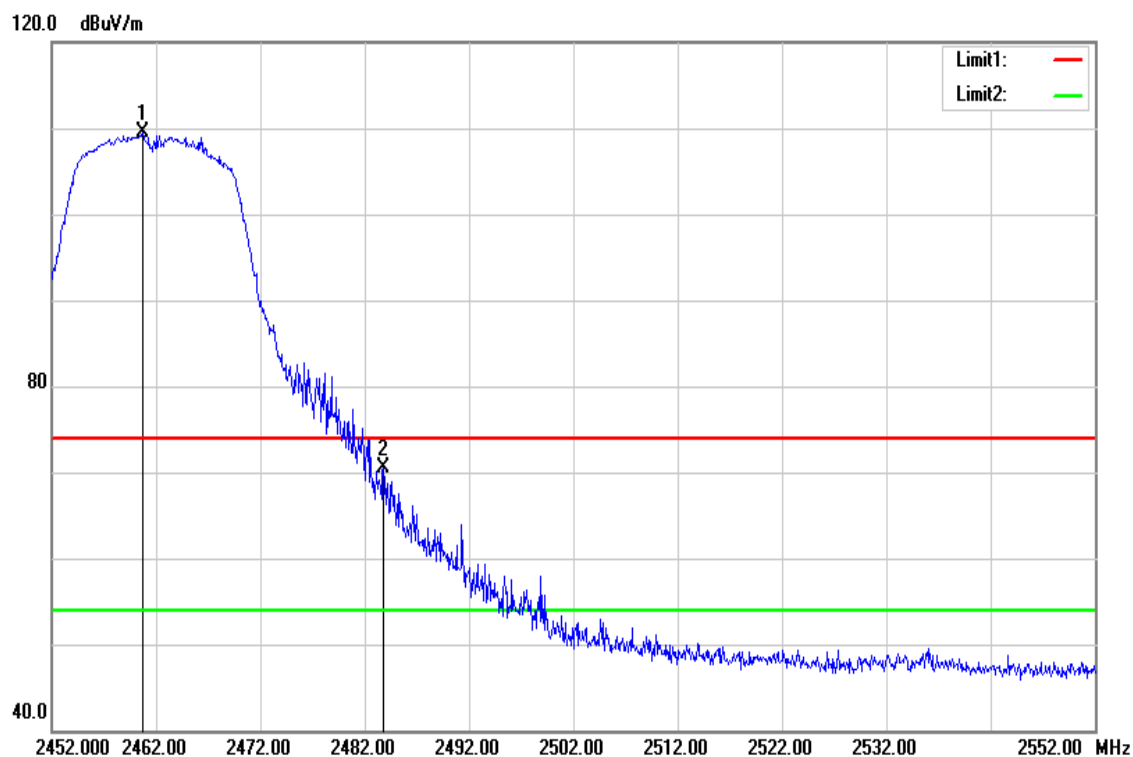
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2387.280	71.36	-2.99	68.37	74.00	-5.63	peak
2413.376	112.44	-2.90	109.54	-	-	peak

Test Mode	IEEE 802.11g Low CH	Temperature:	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	120Vac / 60Hz



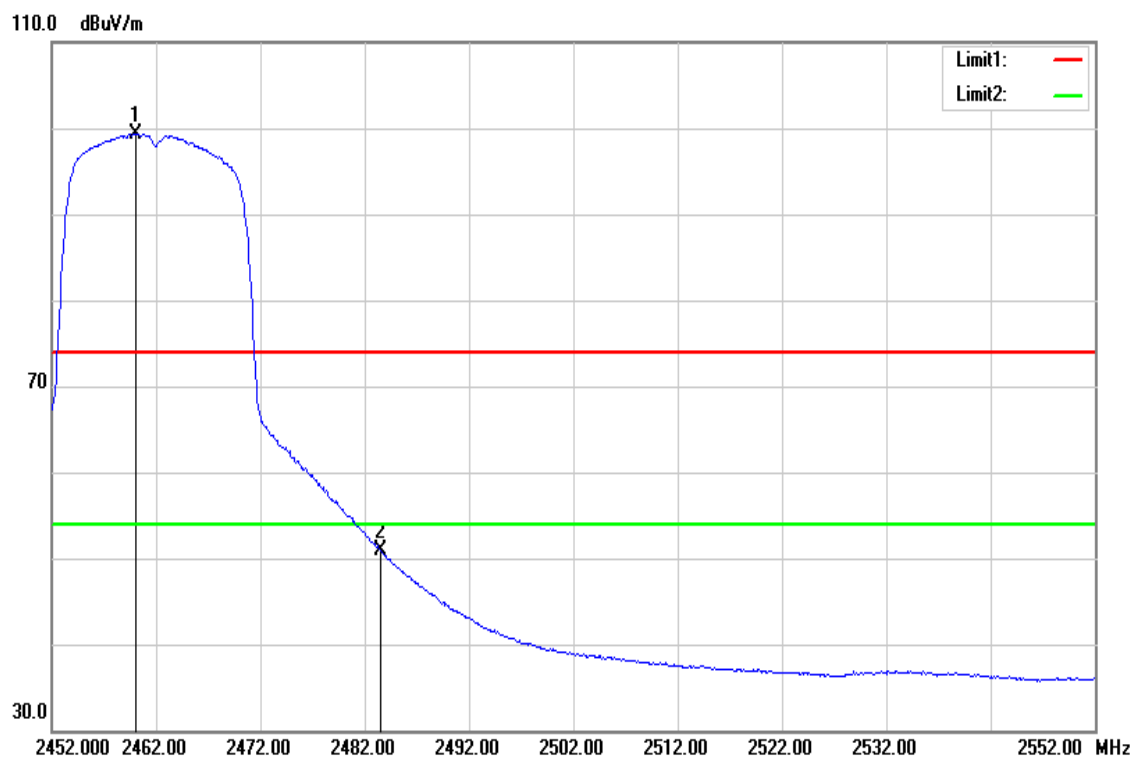
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	52.52	-2.98	49.54	54.00	-4.46	AVG
2413.600	102.48	-2.90	99.58	-	-	AVG

Test Mode	IEEE 802.11g High CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz



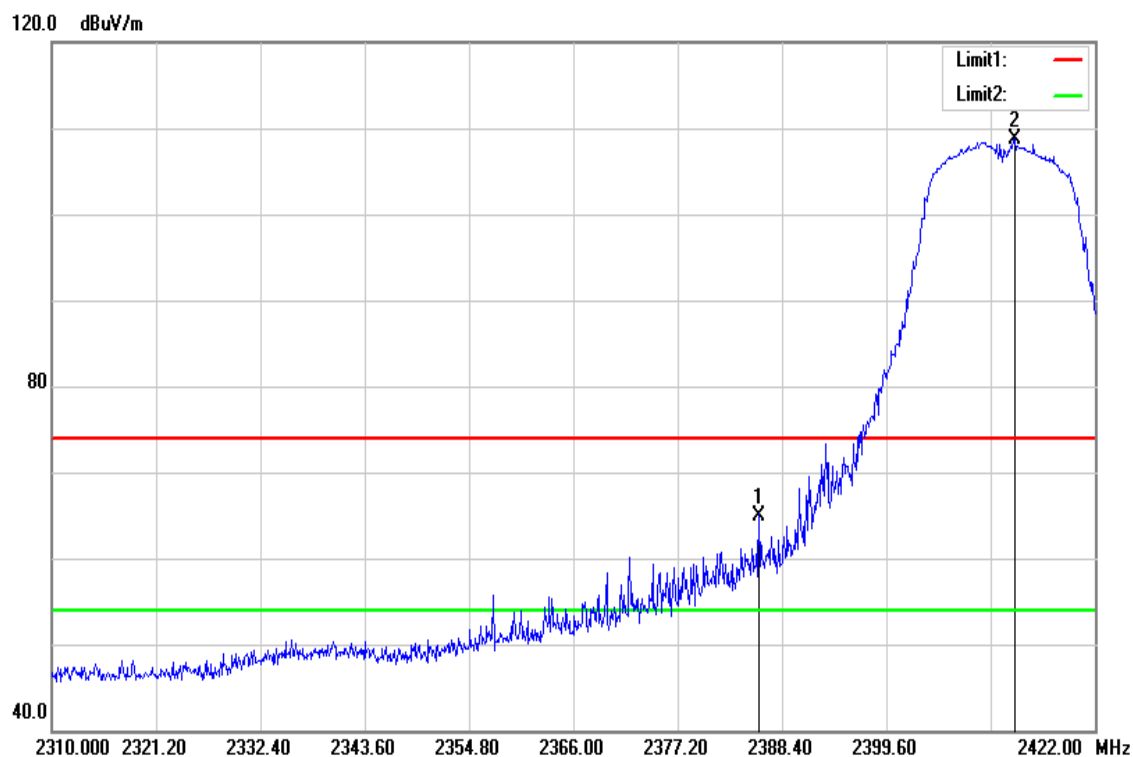
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2460.700	112.26	-2.76	109.50	-	-	peak
2483.800	73.23	-2.69	70.54	74.00	-3.46	peak

Test Mode	IEEE 802.11g High CH	Temperature:	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	120Vac / 60Hz



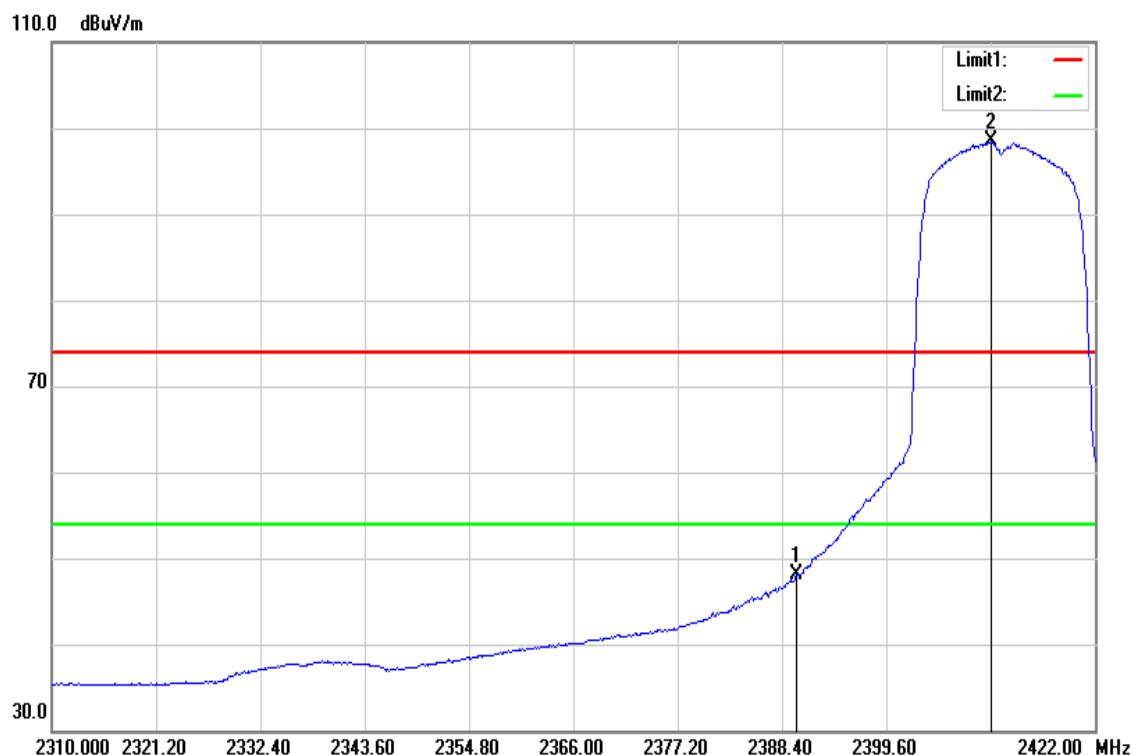
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2460.000	102.11	-2.76	99.35	-	-	AVG
2483.500	53.56	-2.69	50.87	54.00	-3.13	AVG

Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz



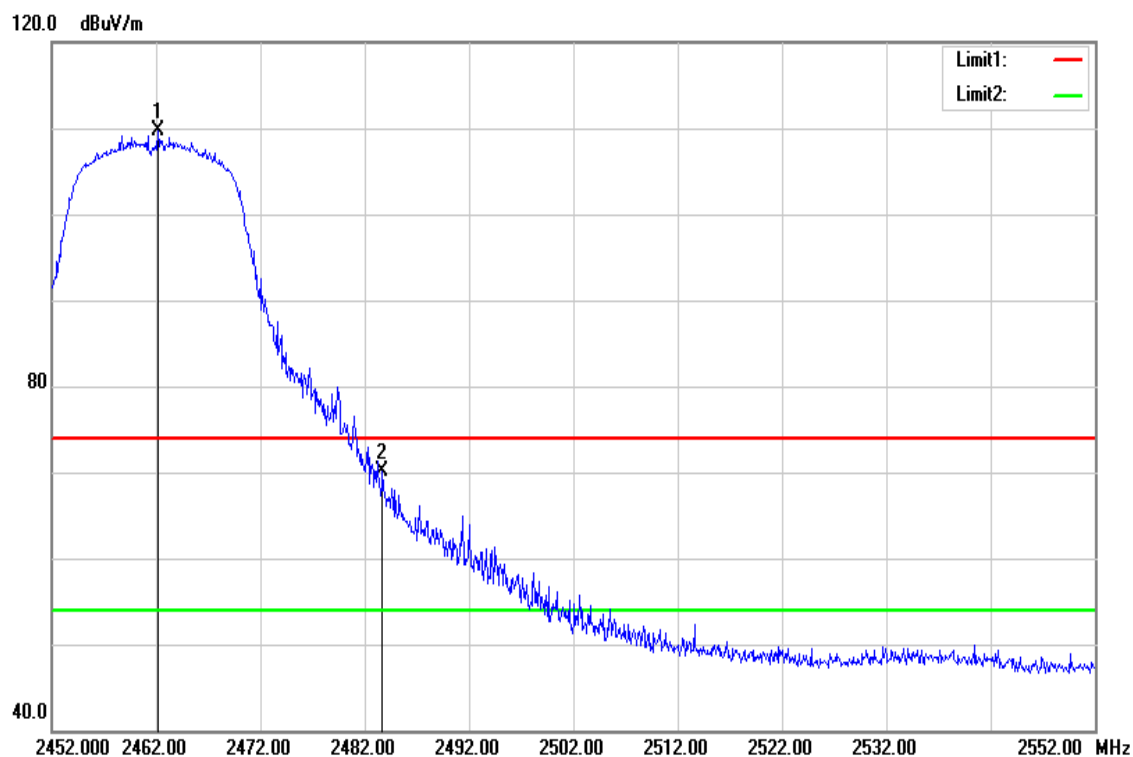
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2385.936	67.99	-2.99	65.00	74.00	-9.00	peak
2413.376	111.68	-2.90	108.78	-	-	peak

Test Mode	IEEE 802.11n HT20 Low CH	Temperature:	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	120Vac / 60Hz



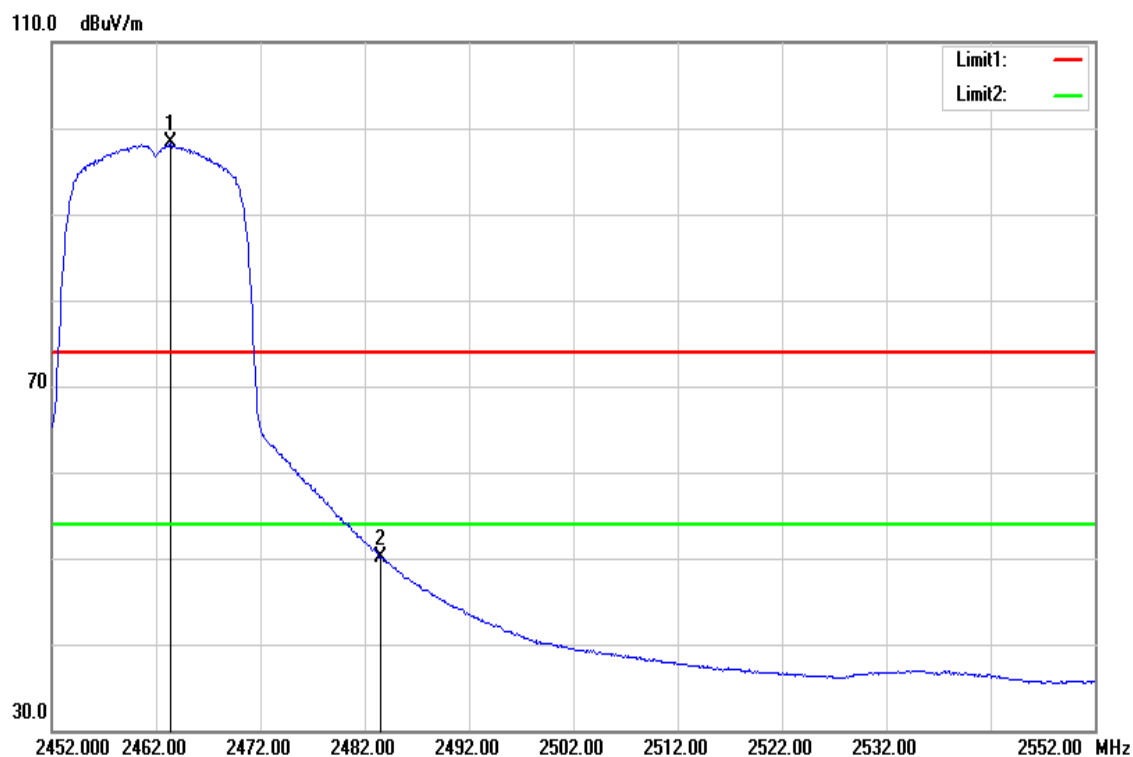
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	51.09	-2.98	48.11	54.00	-5.89	AVG
2410.912	101.37	-2.92	98.45	-	-	AVG

Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2462.200	112.54	-2.76	109.78	-	-	peak
2483.700	72.83	-2.69	70.14	74.00	-3.86	peak

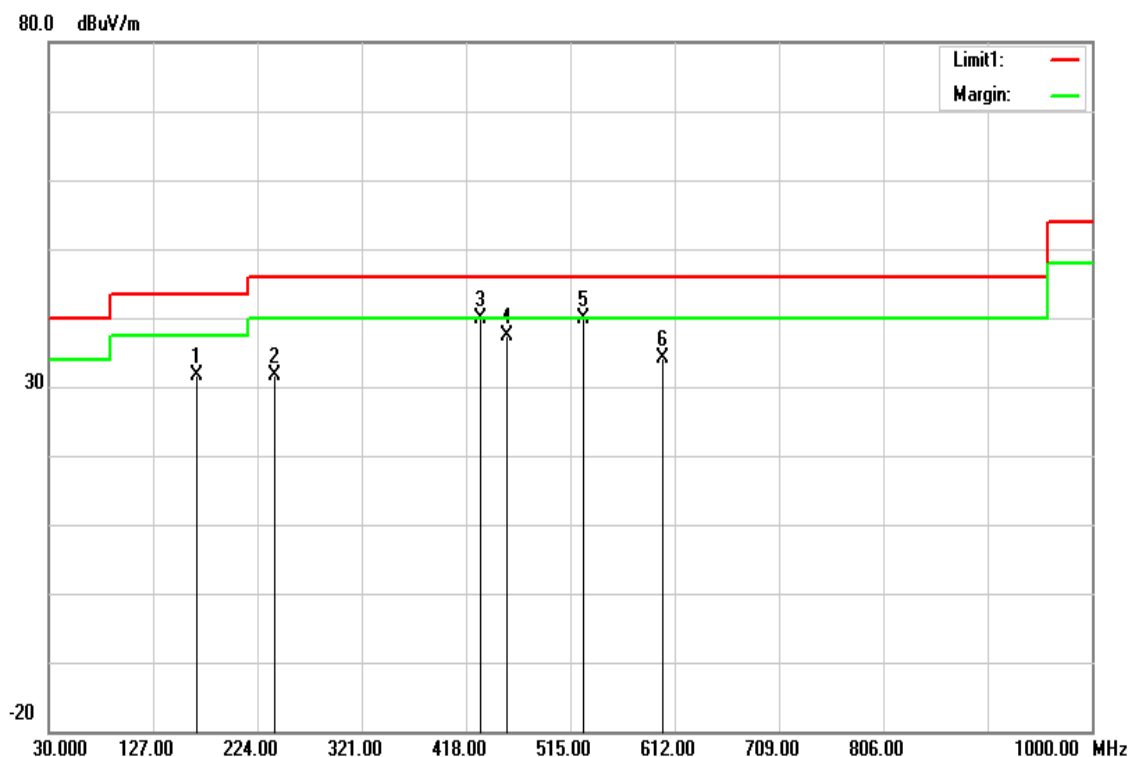
Test Mode	IEEE 802.11n HT20 High CH	Temperature:	24(°C)/ 33%RH
Test Item	Band Edge	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2463.400	100.98	-2.75	98.23	-	-	AVG
2483.500	52.82	-2.69	50.13	54.00	-3.87	AVG

Below 1G Test Data

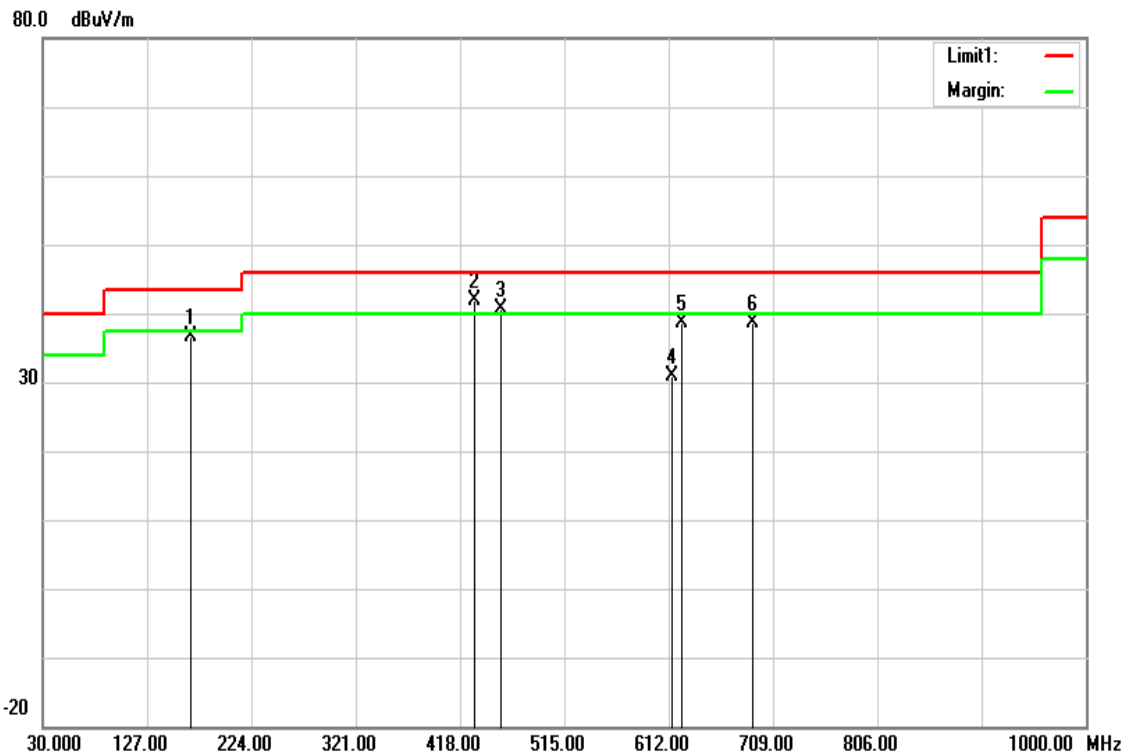
Test Mode	Mode 1	Temp/Hum	24(°C)/ 33%RH
Test Item	30MHz-1GHz	Test Date	November 10, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
167.7400	48.06	-16.41	31.65	43.50	-11.85	peak
240.4900	47.83	-16.12	31.71	46.00	-14.29	peak
431.5800	50.07	-10.25	39.82	46.00	-6.18	peak
455.8300	46.86	-9.48	37.38	46.00	-8.62	peak
527.6100	47.77	-7.97	39.80	46.00	-6.20	peak
600.3600	41.06	-6.92	34.14	46.00	-11.86	peak

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

Test Mode	Mode 1	Temp/Hum	24(°C)/ 33%RH
Test Item	30MHz-1GHz	Test Date	November 10, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak	Test Voltage	120Vac / 60Hz

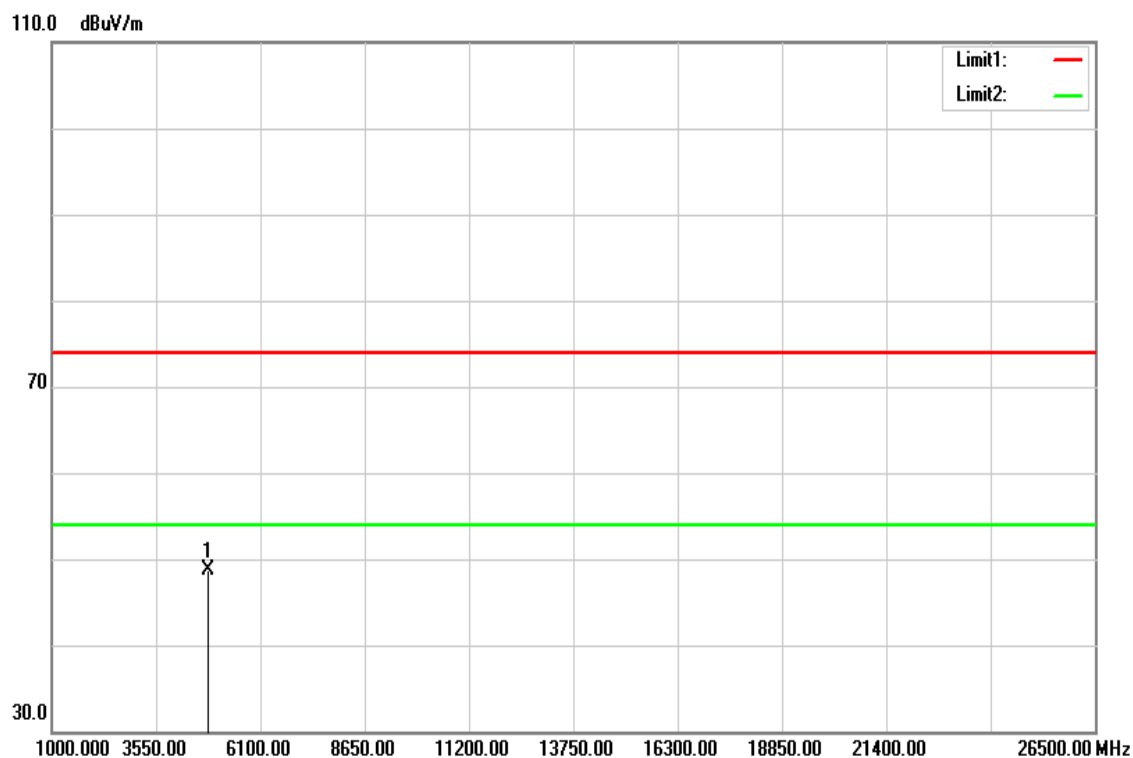


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
167.7400	53.07	-16.41	36.66	43.50	-6.84	QP
431.5800	52.17	-10.25	41.92	46.00	-4.08	QP
455.8300	50.17	-9.48	40.69	46.00	-5.31	QP
614.9100	37.52	-6.52	31.00	46.00	-15.00	peak
623.6400	44.90	-6.27	38.63	46.00	-7.37	peak
689.6000	43.68	-5.02	38.66	46.00	-7.34	peak

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

Above 1G Test Data

Test Mode	IEEE 802.11b Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

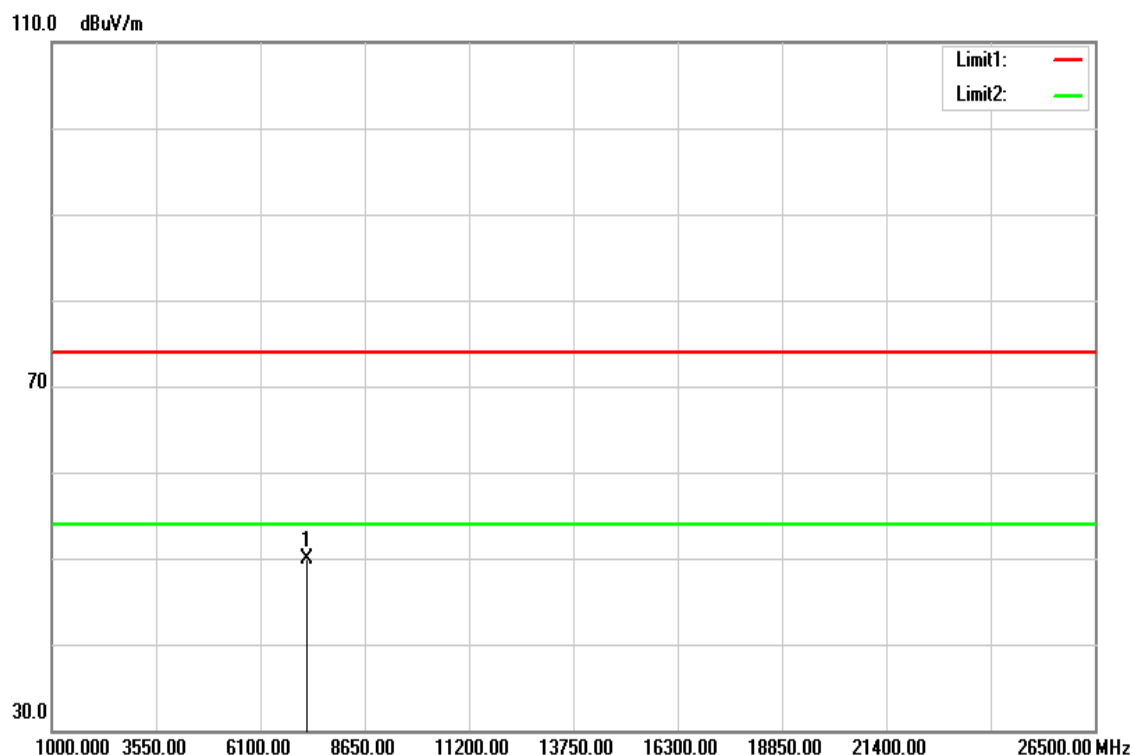


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	44.25	4.38	48.63	74.00	-25.37	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

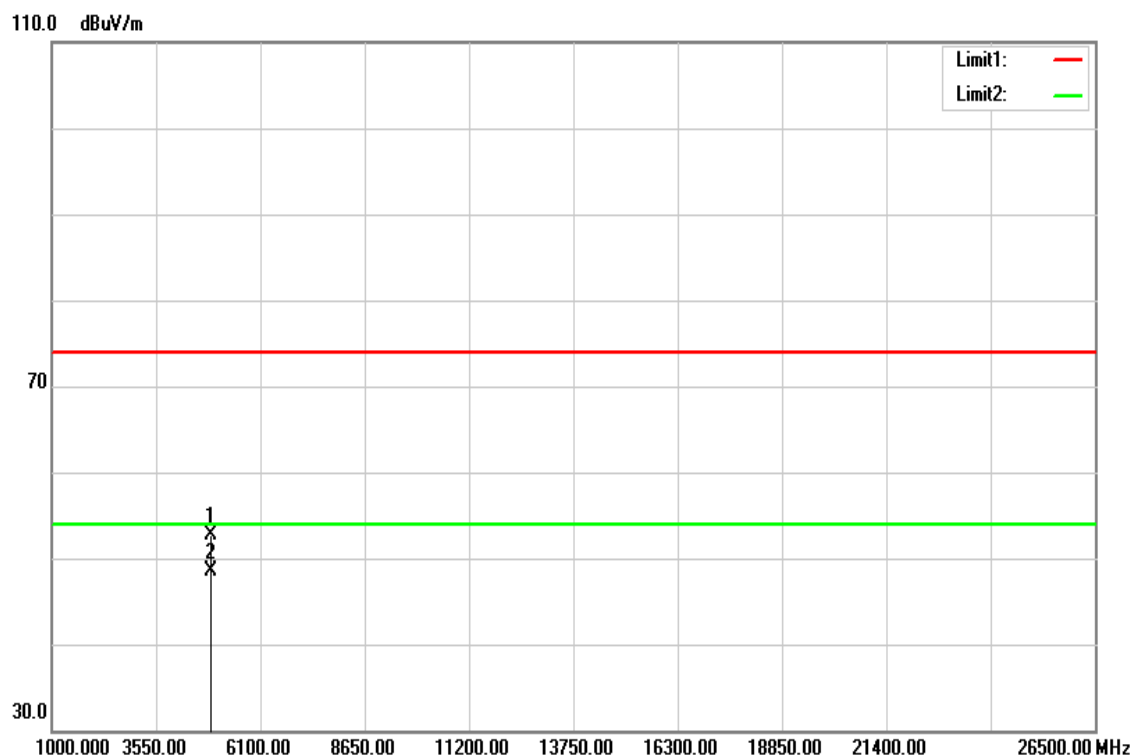


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7235.000	39.47	10.40	49.87	74.00	-24.13	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

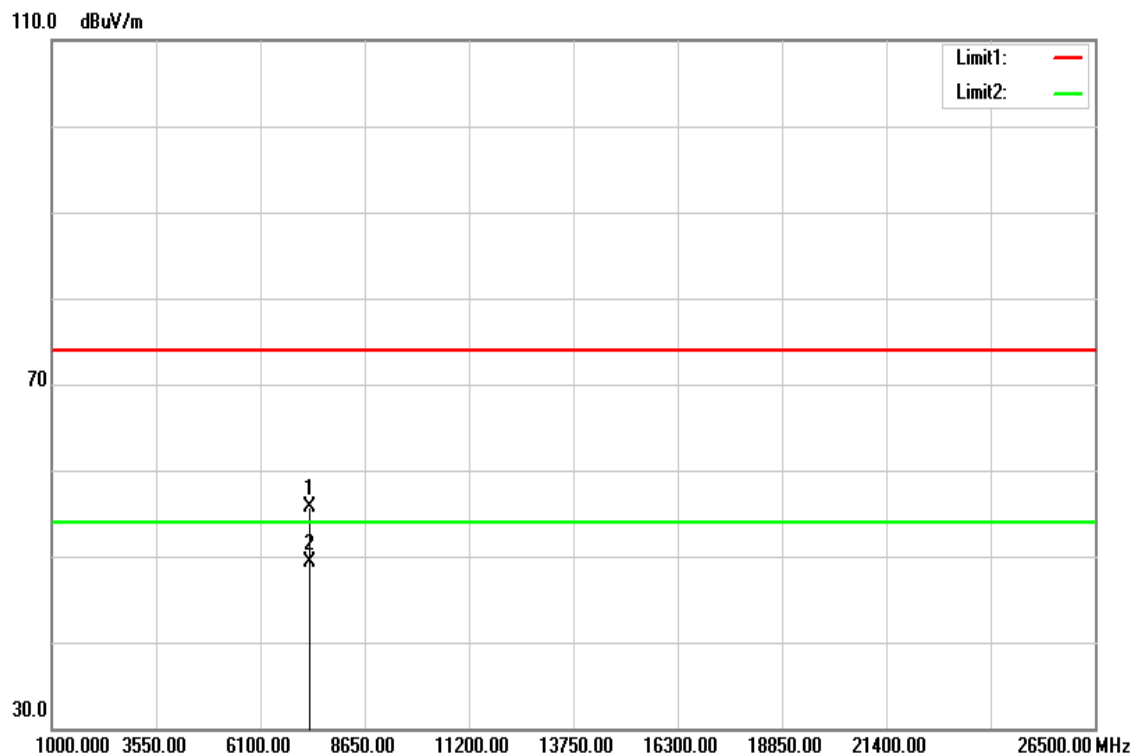


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	48.17	4.47	52.64	74.00	-21.36	peak
4876.000	44.06	4.47	48.53	54.00	-5.47	AVG
N/A						

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 802.11b Mid CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

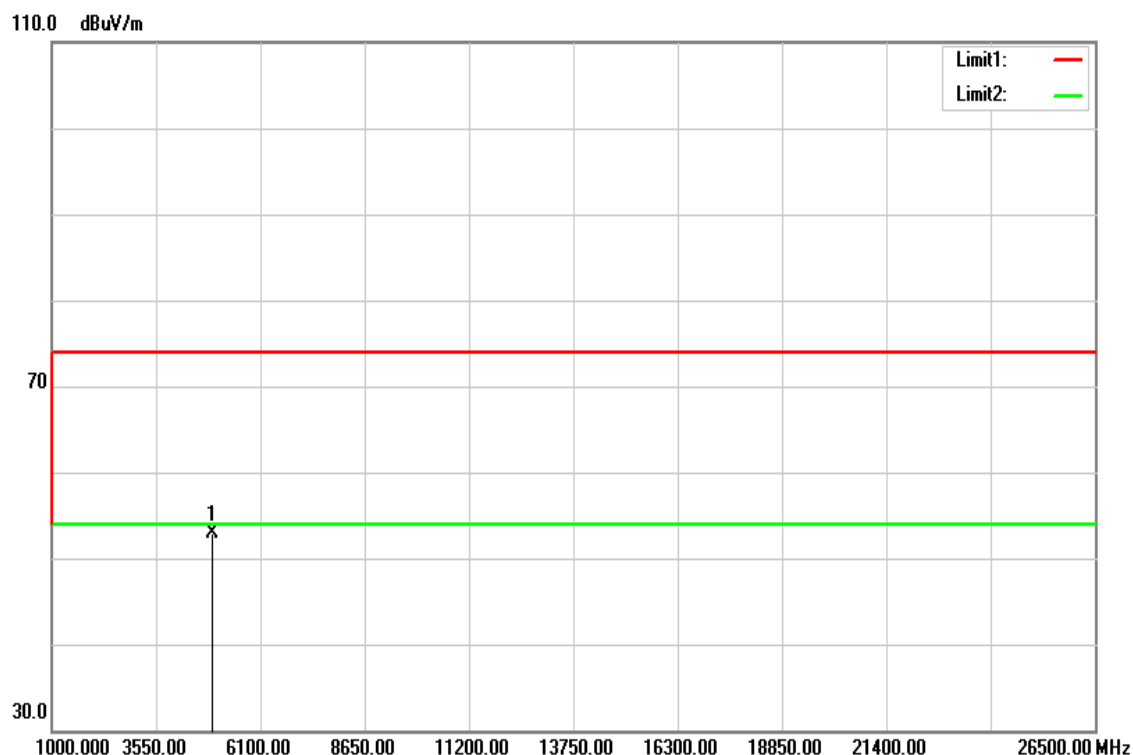


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7305.000	45.22	10.44	55.66	74.00	-18.34	peak
7305.000	38.91	10.44	49.35	54.00	-4.65	AVG
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

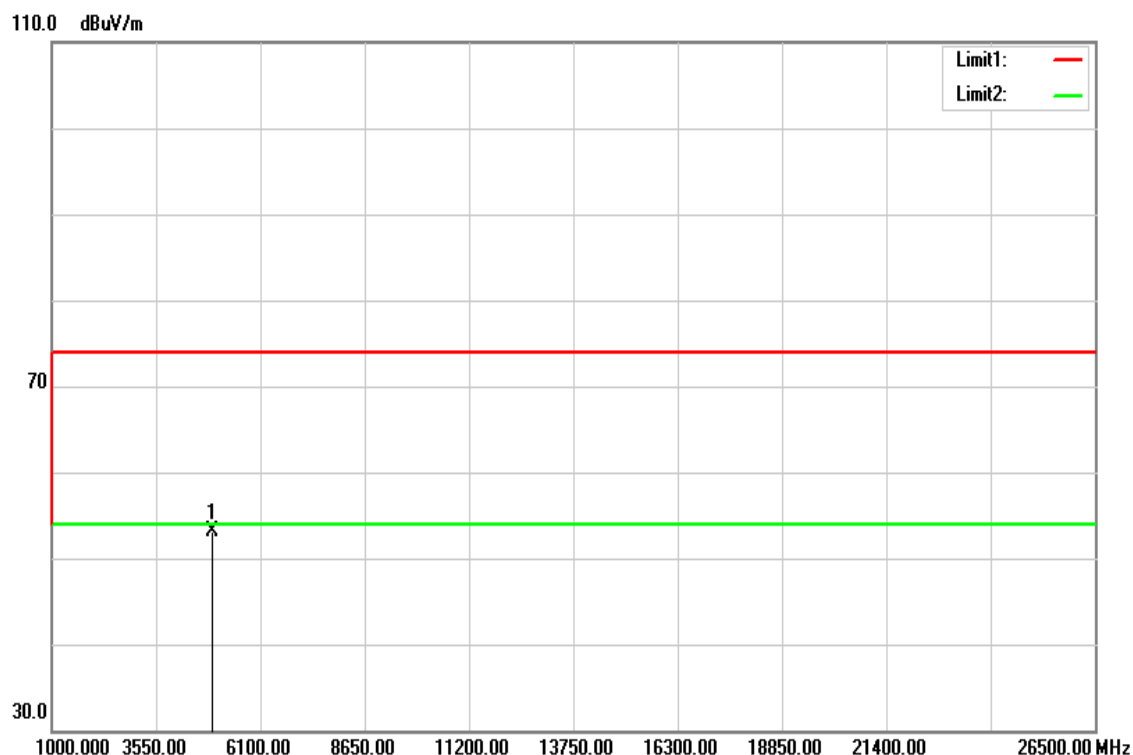


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	45.84	7.09	52.93	74.00	-21.07	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

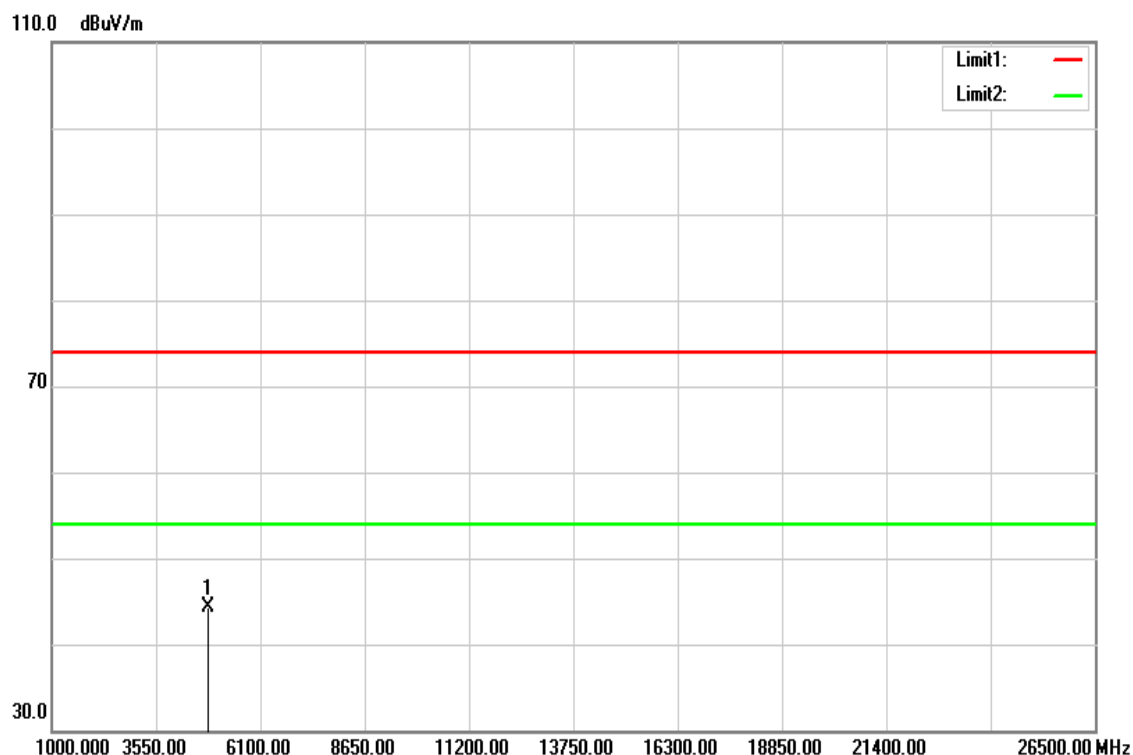


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	46.02	7.09	53.11	74.00	-20.89	peak
N/A						

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 802.11g Low CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

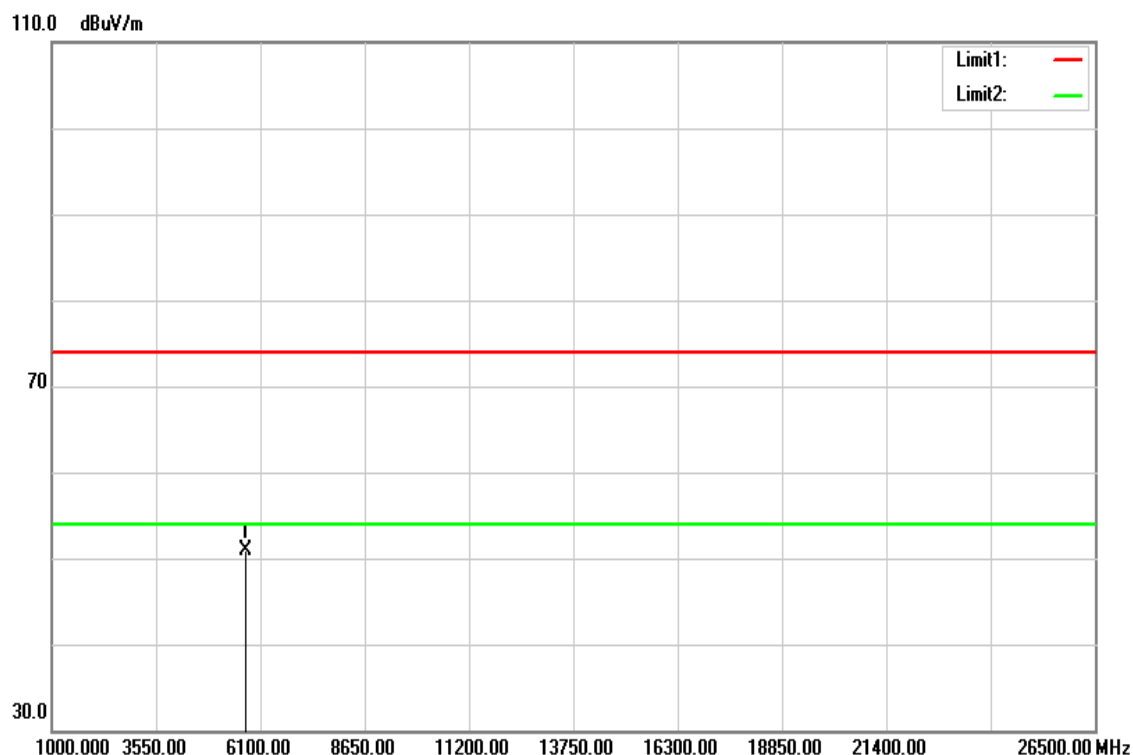


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4827.000	39.99	4.38	44.37	74.00	-29.63	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

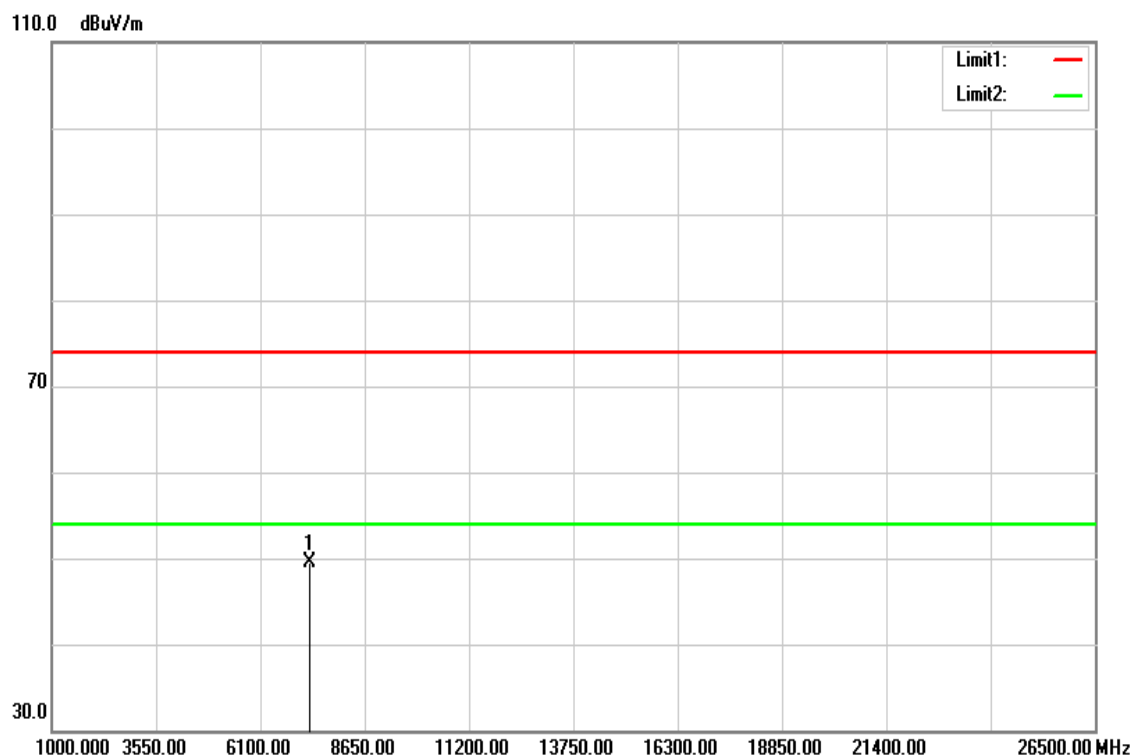


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5751.000	44.32	6.58	50.90	74.00	-23.10	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

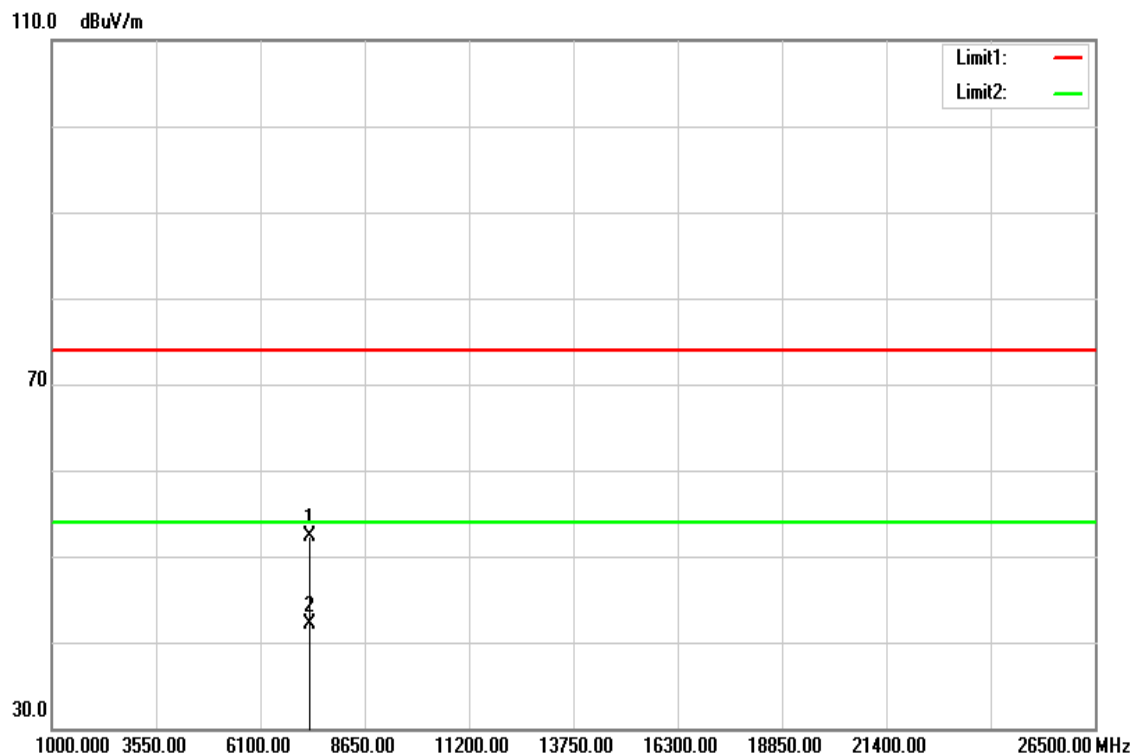


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7312.000	39.00	10.44	49.44	74.00	-24.56	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

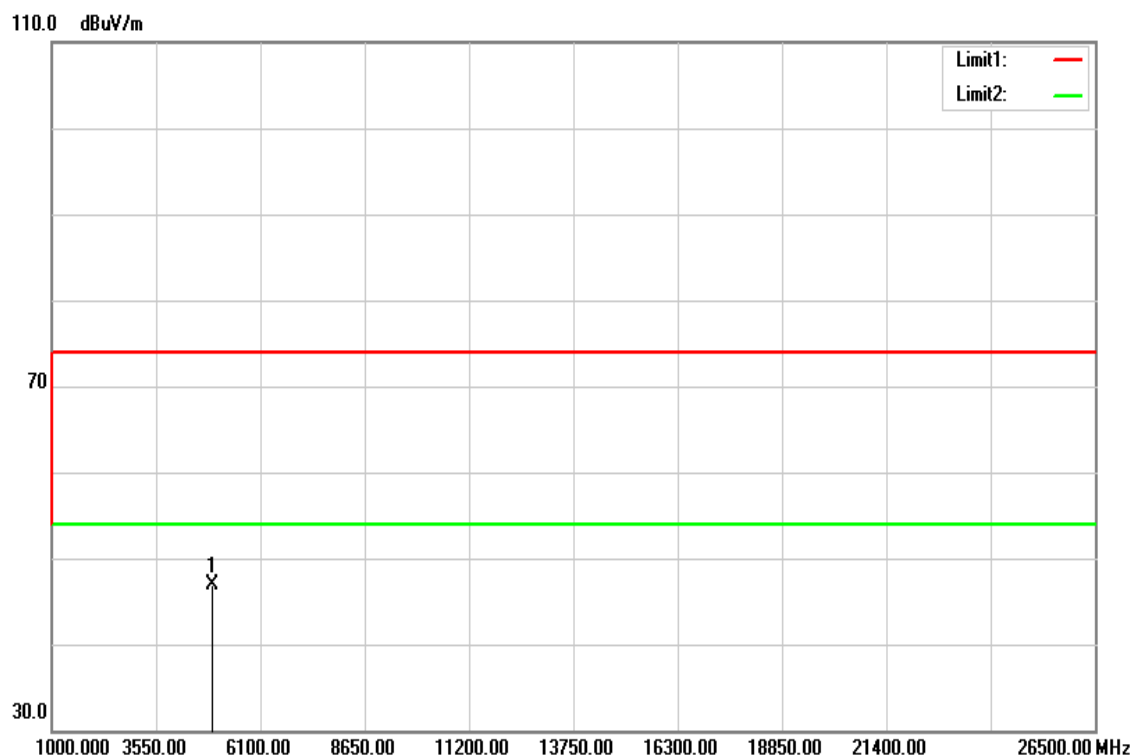


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (B)	Remark
7305.000	41.81	10.44	52.25	74.00	-21.75	peak
7305.000	31.68	10.44	42.12	54.00	-11.88	AVG
N/A						

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 802.11g High CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

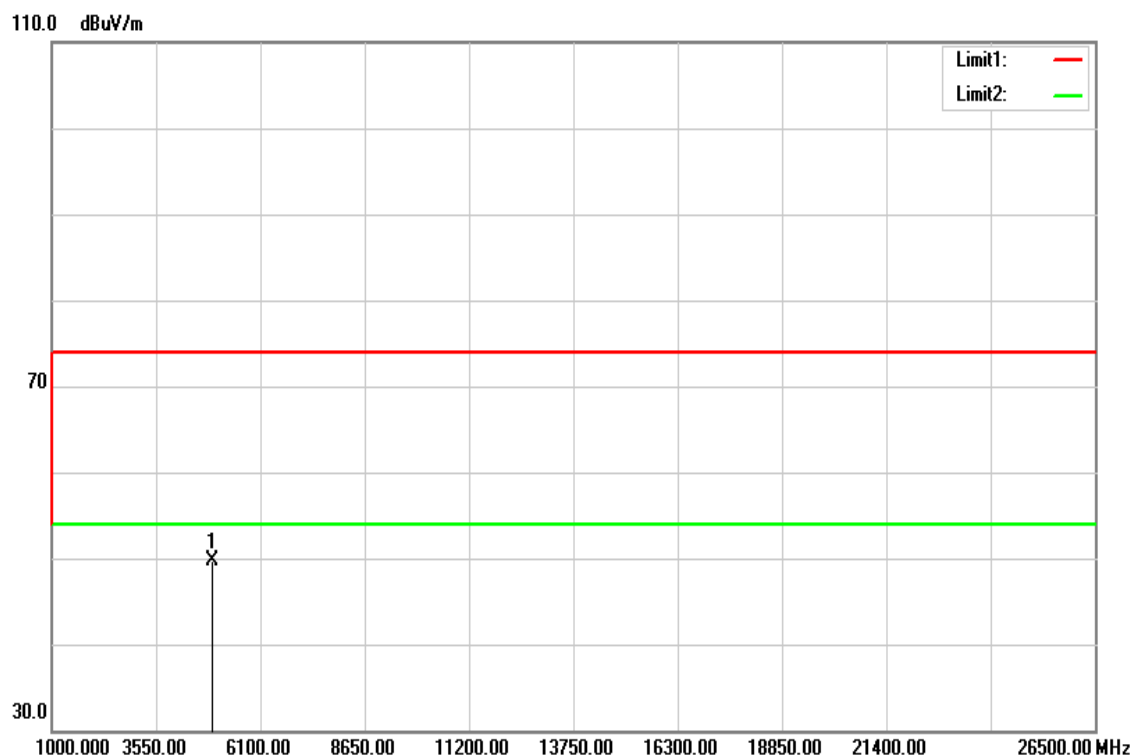


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	39.82	7.09	46.91	74.00	-27.09	peak
N/A						

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 802.11g High CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

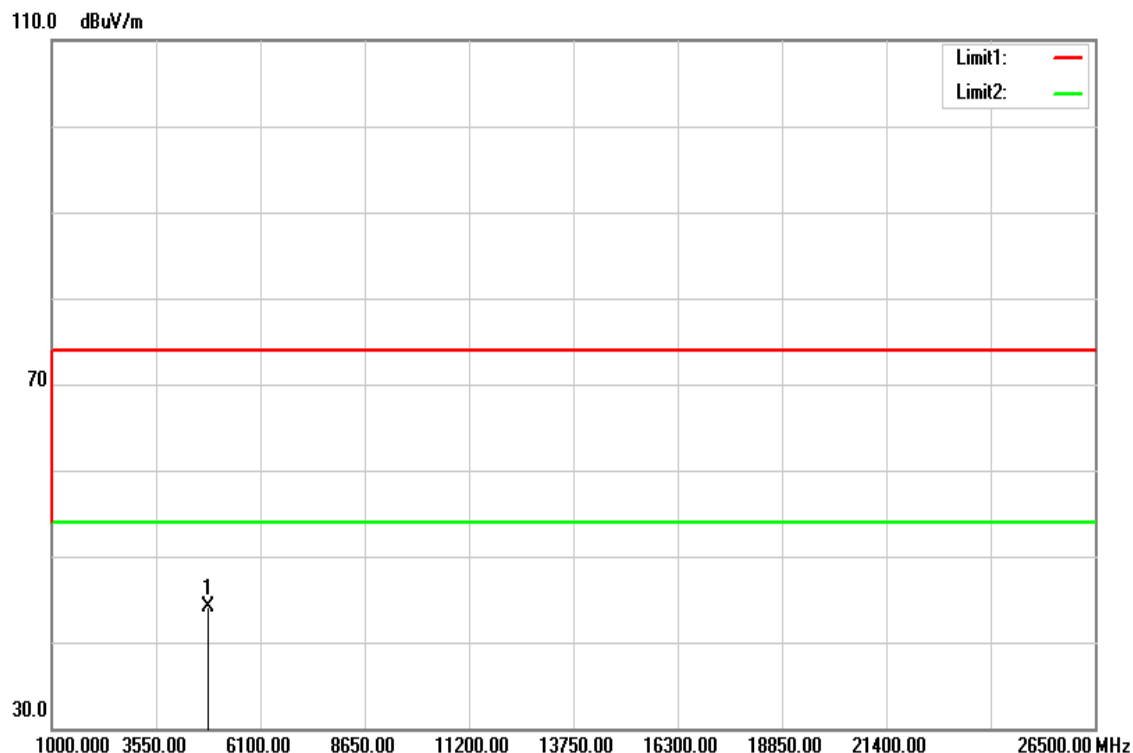


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4925.000	42.57	7.09	49.66	74.00	-24.34	peak
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

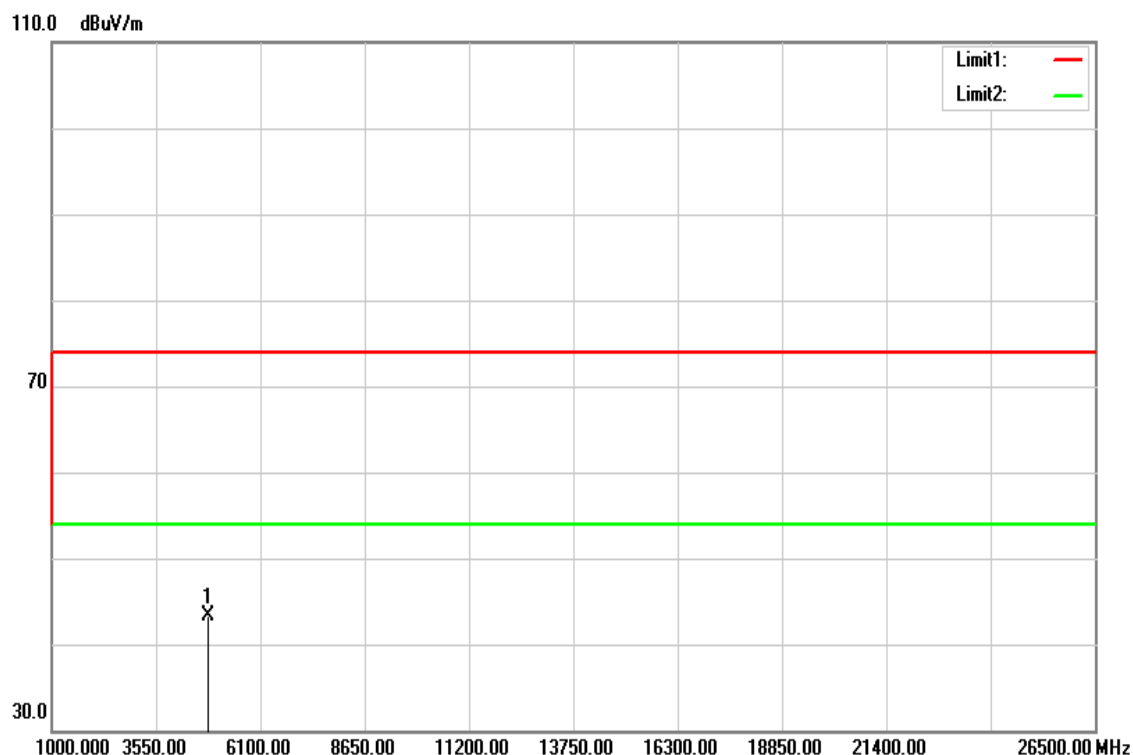


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	R mark
4827.000	37.27	6.84	44.11	74.00	-29.89	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

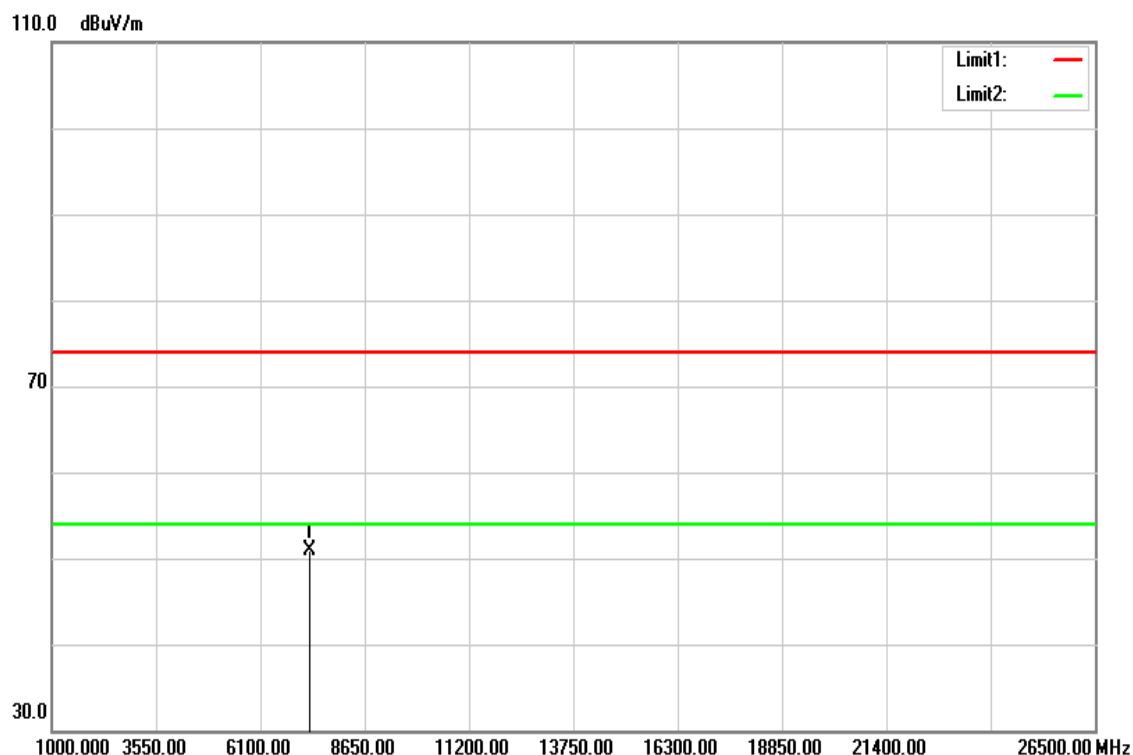


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4820.000	36.40	6.82	43.22	74.00	-30.78	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

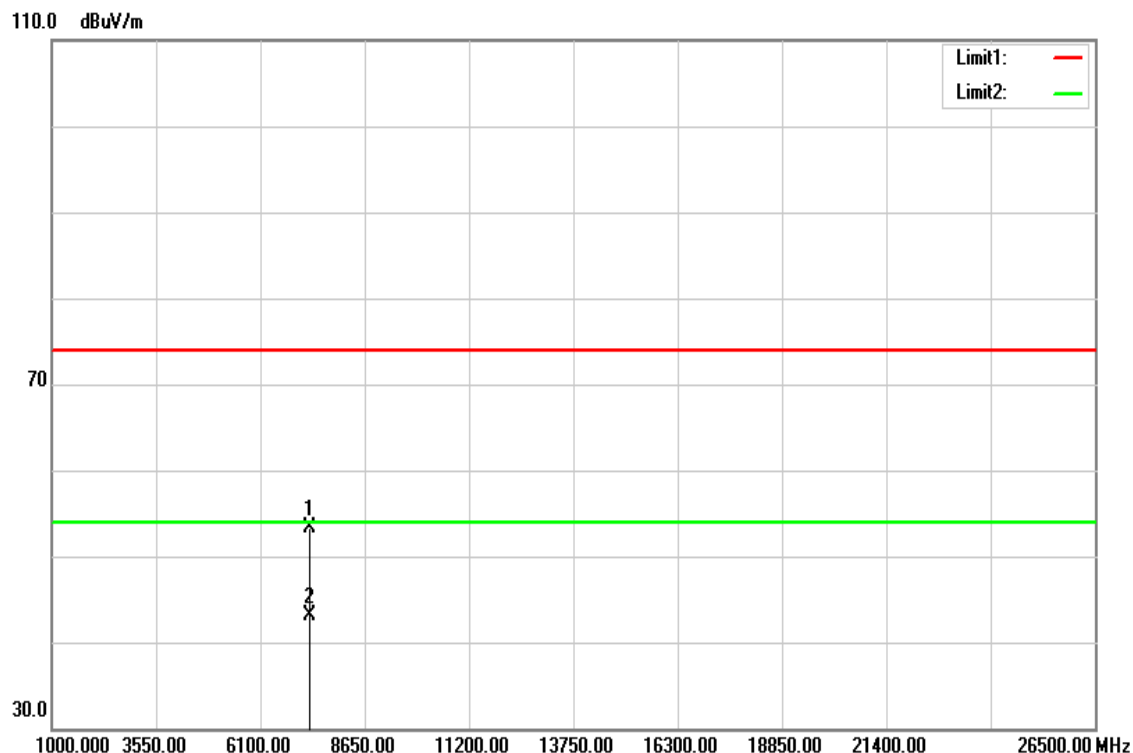


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	R mark
7312.000	40.49	10.44	50.93	74.00	-23.07	peak
N/A						

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 802.11n HT20 Mid CH	Temp/Hum	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 29, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

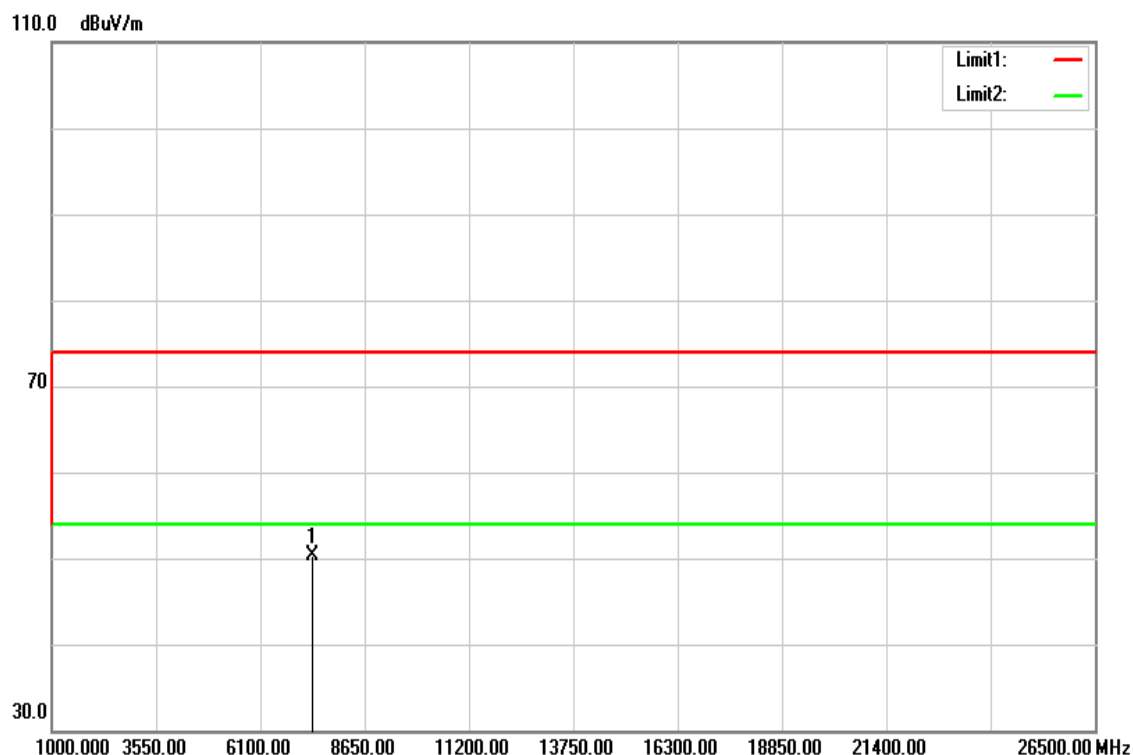


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7312.000	42.77	10.44	53.21	74.00	-20.79	peak
7312.000	32.62	10.44	43.06	54.00	-10.94	AVG
N/A						

Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average	Test Voltage	120Vac / 60Hz

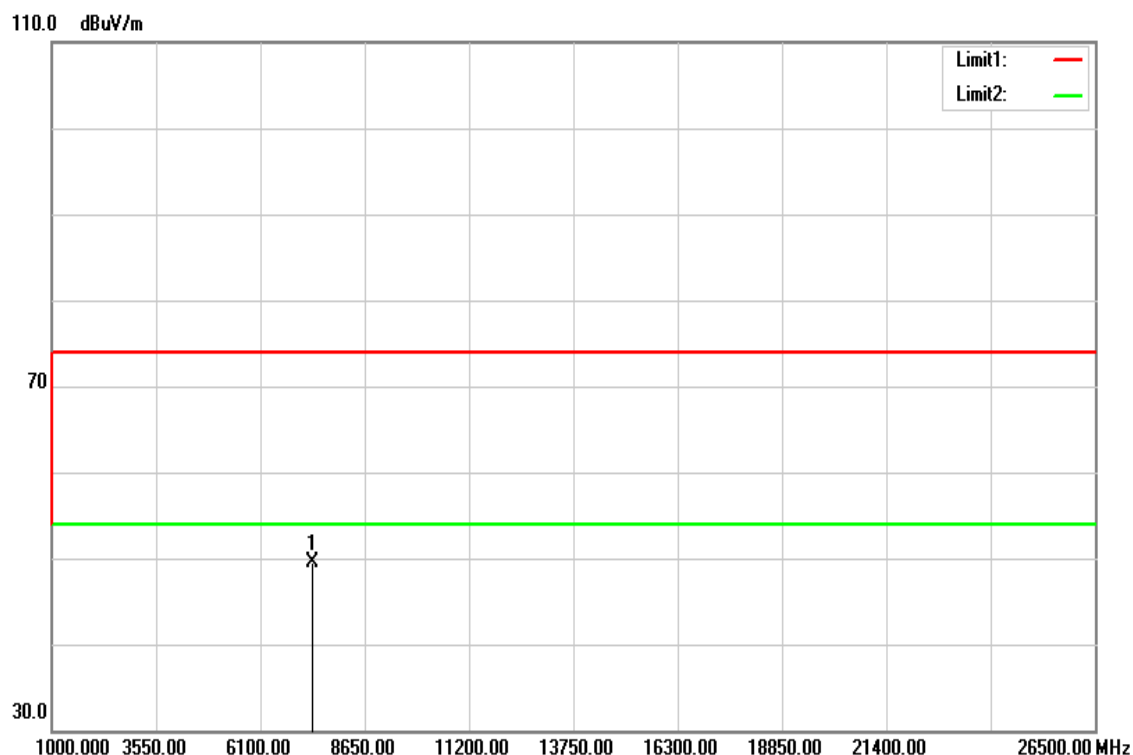


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7386.000	36.39	13.90	50.29	74.00	-23.71	peak
N/A						

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	24(°C)/ 33%RH
Test Item	Harmonic	Test Date	November 10, 2017
Polarize	Horizontal	Test Engineer	Jerry Chuang
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
7386.000	35.67	13.90	49.57	74.00	-24.43	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