RADIO TEST REPORT
FCC 47 CFR PART 15 SUBPART C

Test Standard	**FCC Part 15.247**
Brand name	IPEVO
Product name	**VZ-X Wireless/HDMI/USB Document Camera**
Model No.	**CDVH-02IP**
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	Effect Page	Revised By
00	June 22, 2018	Initial Issue	ALL	Allison Chen
01	July 23, 2018	1. Revised section 1.2. 2. Revised section 1.6. 3. Revised section 3.2.	5, 7, 8, 11	Allison Chen

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	IPEVO CORP. 3F., NO.53, BO-AI RD., JHONGJHENG DISTRICT, TAIPEI CITY, TAIWAN
Manufacturer	Appro Photoelectron Inc. 6F, No.23, Syuan Rd, Shinjuang District, New Taipei City, Taiwan
Equipment	VZ-X Wireless/HDMI/USB Document Camera
Model Name	CDVH-02IP
Model Discrepancy	N/A
Received Date	April 20, 2018
Date of Test	May 18 ~ June 15, 2018
Output Power(W)	IEEE 802.11n 40 MHz MHz mode: 0.6714
Power Supply	Power from Battery. (DC 3.7V, 8.7Ah) Brand / Model: IPEVO / VBP-10

1.2 EUT CHANNEL INFORMATION

Frequency Range	802.11n 40 MHz: 2422MHz ~ 2452MHz
Modulation Type	1. IEEE 802.11n 40 MHz MHz mode : OFDM
Channel Numbers	1. IEEE 802.11n 40 MHz MHz mode : 7 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 ☐ Chip
Antenna Gain	

	Brand	P/N	Type	Peak Gain
Ant 1	LYNwave	AAU100-052023	USB PIFA antenna	2dBi
Ant 2	LYNwave	AAU100-052023	USB PIFA antenna	2dBi

1. Power Directional Gain: 2dBi

Notes:
1. Power Directional Gain: 10LOG(((10^(Ant1/10)+10^(Ant2/10))/2))

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					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Power Meter	Anritsu	ML2495A	1012009	09/18/2017	09/17/2018
Power Sensor	Anritsu	MA2411B	917072	09/18/2017	09/17/2018
Spectrum Analyzer	R&S	FSV 40	101073	10/02/2017	10/01/2018
Directional Coupler	Agilent	87301D	MY44350252	07/25/2017	07/24/2018
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

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Bilog Antenna	Sunol Sciences	JB1	A052609	03/14/2018	03/13/2019
Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/25/2017	08/24/2018
Pre-Amplifier	EMEC	EM330	60609	07/31/2017	07/30/2018
Pre-Amplifier	HP	8449B	3008A00965	06/27/2017	06/26/2018
Spectrum Analyzer	Agilent	E4446A	US42510252	11/27/2017	11/26/2018
Loop Ant	COM-POWER	AL-130	121051	03/21/2018	03/20/2019
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
Filter	Micro Tronics	BRM 50702	120	05/14/2018	05/13/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	07/31/2017	07/30/2018
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	07/31/2017	07/30/2018

AC Conducted Emissions Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal 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	07/03/2017	07/02/2018

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(H)	Acer	Aspire 4320 series	R33142	QDS-BRCM1018

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 and KDB 662911.

2. TEST SUMMERY

FCC Standard Section	Report Section	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207(a)	5.1	AC Conducted Emission	Pass
15.247(a)(2)	5.2	6 dB Bandwidth	Pass
-	5.2	Occupied Bandwidth (99%)	Pass
15.247(b)	5.3	Output Power Measurement	Pass
15.247(e)	5.4	Power Spectral Density	Pass
15.247(d)	5.5	Conducted Band Edge	Pass
15.247(d)	5.5	Conducted Emission	Pass
15.247(d)	5.6	Radiation Band Edge	Pass
15.247(d)	5.6	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	IEEE 802.11n 40 MHz mode :MCS8
Test Channel Frequencies	**IEEE 802.11n 40 MHz mode :** 1. Lowest Channel : 2422MHz 2. Middle Channel : 2437MHz 3. Highest Channel : 2452MHz
Operation Transmitter	IEEE 802.11n 40 MHz mode : 2T2R

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

3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	**AC Power line conducted emission for line and neutral**
Power Supply Mode	**Mode 1:EUT power by Host system via USB cable Mode 2:EUT power by Battery**
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 Host system via USB cable Mode 2:EUT power by Battery**
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**

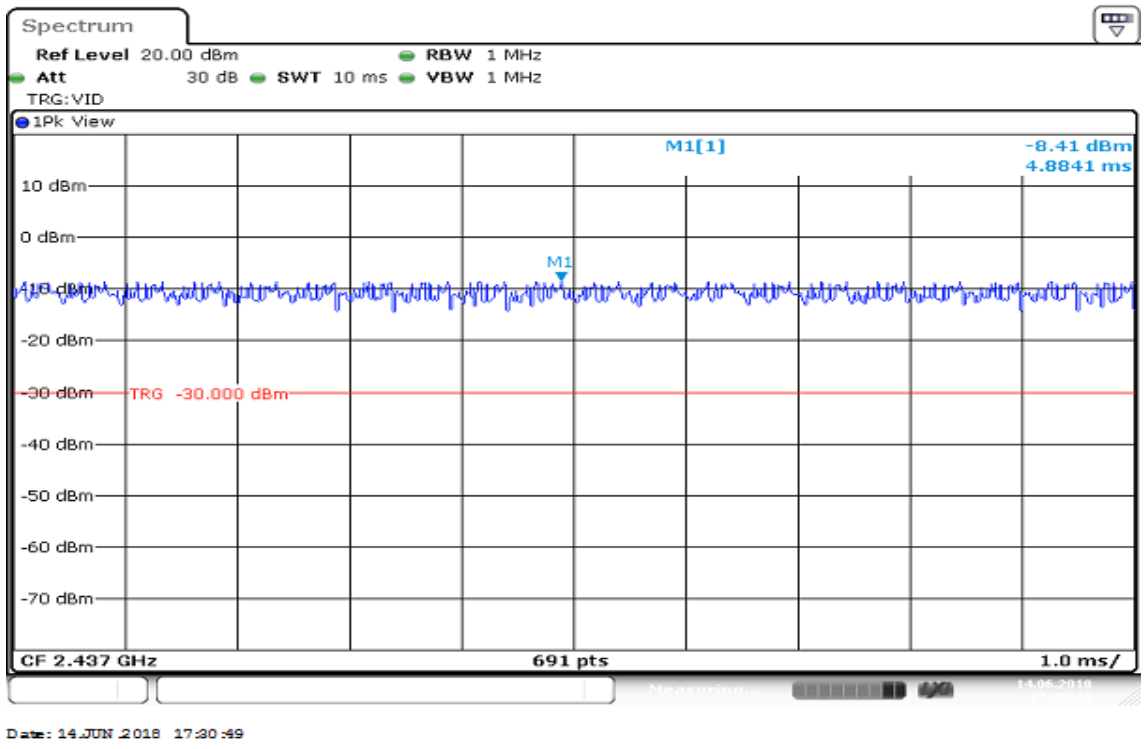
Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power Supply Mode	**Mode 1:EUT power by Host system via USB cable Mode 2:EUT power by Battery**
Worst Mode	**☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4**

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 1Gradiation 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 (%)	Duty Factor(dB)
802.11n 40 MHz	-	-	100.00%	0.00

802.11n 40 MHz



5. TEST RESULT

5.1 AC POWER LINE CONDUCTED EMISSION

5.1.1 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

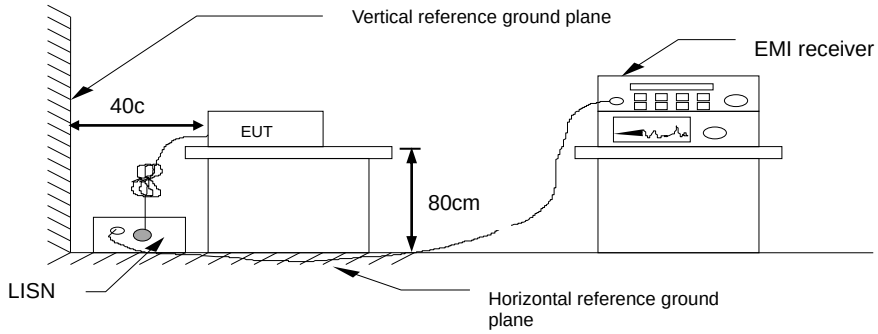
* Decreases with the logarithm of the frequency.

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



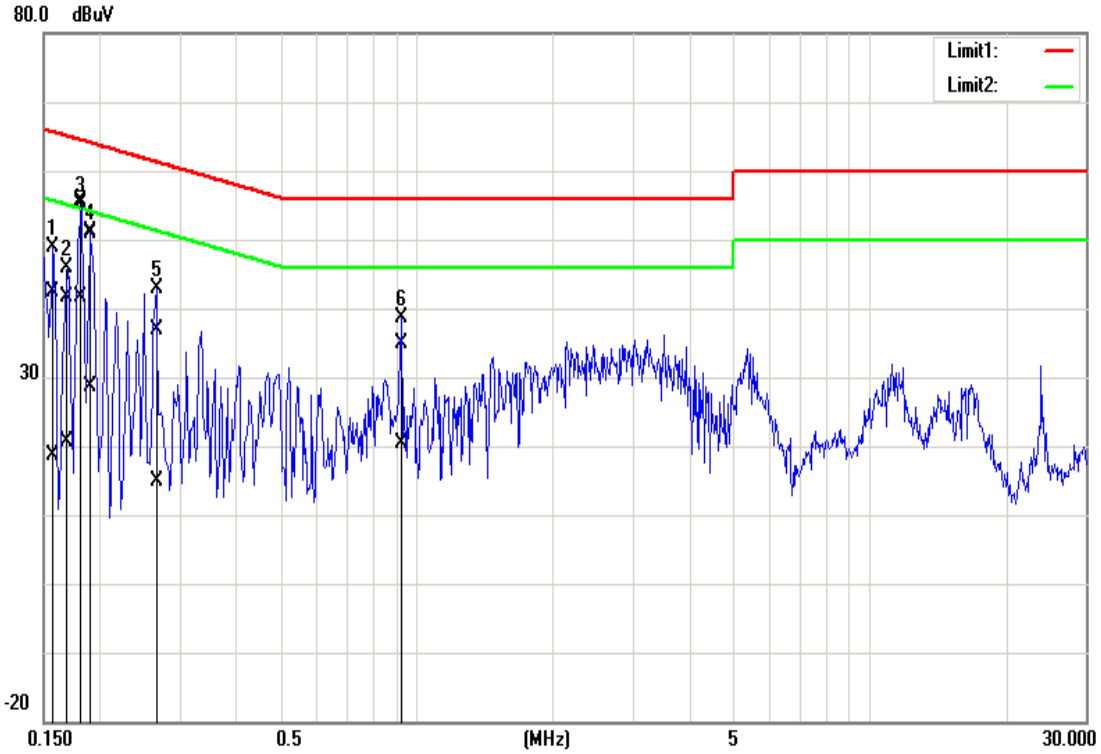
5.1.4 Test Result

Pass.

Report No.: T180420W01-RP

Test Data

Test Mode:	Mode 1	Temp/Hum	24(℃)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	2018/06/14
Phase:	Line	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	0.1580	42.19	18.45	0.11	42.30	18.56	65.57	55.57	-23.27	-37.01	Pass
2	0.1700	41.47	20.50	0.11	41.58	20.61	64.96	54.96	-23.38	-34.35	Pass
3*	0.1820	55.40	41.46	0.11	55.51	41.57	64.39	54.39	-8.88	-12.82	Pass
4	0.1900	50.87	28.54	0.11	50.98	28.65	64.04	54.04	-13.06	-25.39	Pass
5	0.2672	36.72	14.74	0.11	36.83	14.85	61.20	51.20	-24.37	-36.35	Pass
6	0.9260	34.82	20.28	0.13	34.95	20.41	56.00	46.00	-21.05	-25.59	Pass

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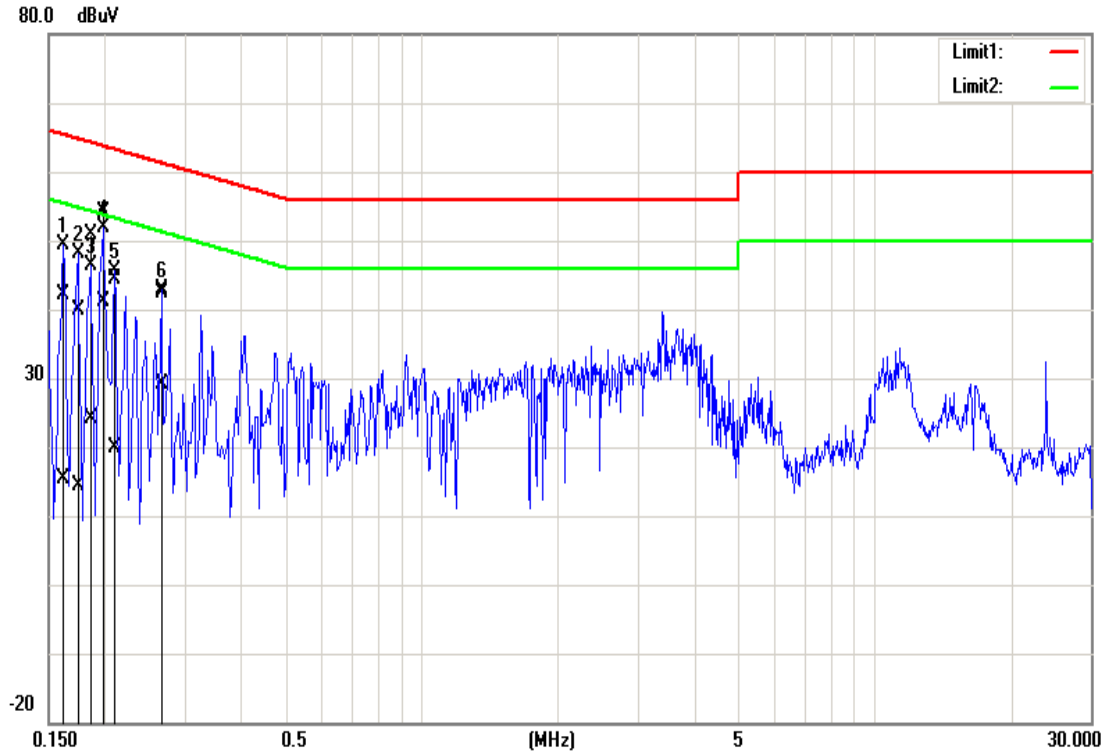
Test Mode:	Mode 1	Temp/Hum	24(℃)/ 50%RH
Test Voltage:	120Vac / 60Hz	Test Date	2018/06/14
Phase:	Neutral	Test Engineer	Dally Hong



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	0.1620	41.92	15.35	0.14	42.06	15.49	65.36	55.36	-23.30	-39.87	Pass
2	0.1740	39.75	14.23	0.14	39.89	14.37	64.77	54.77	-24.88	-40.40	Pass
3	0.1860	50.81	24.01	0.13	50.94	24.14	64.21	54.21	-13.27	-30.07	Pass
4*	0.1980	53.97	40.95	0.13	54.10	41.08	63.69	53.69	-9.59	-12.61	Pass
5	0.2100	44.13	19.65	0.13	44.26	19.78	63.21	53.21	-18.95	-33.43	Pass
6	0.2660	42.35	29.07	0.13	42.48	29.20	61.24	51.24	-18.76	-22.04	Pass

5.2 6DB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

5.2.1 Test Limit

According to §15.247(a)(2)

6 dB Bandwidth ：

Limit	Shall be at least 500kHz

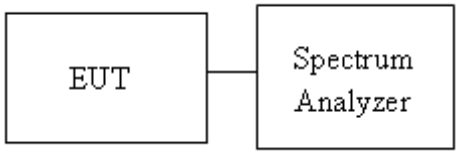
Occupied Bandwidth(99%) ： For reporting purposes only.

5.2.2 Test Procedure

Test method Refer as KDB 558074 D01 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 6dB 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



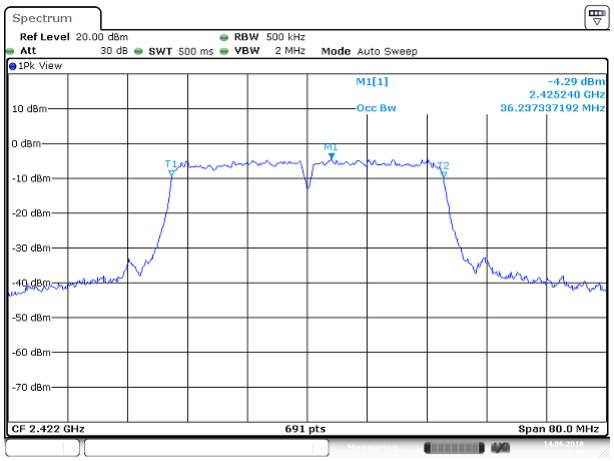
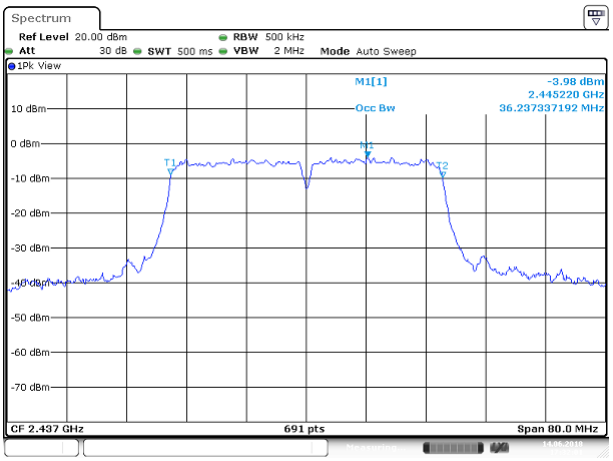
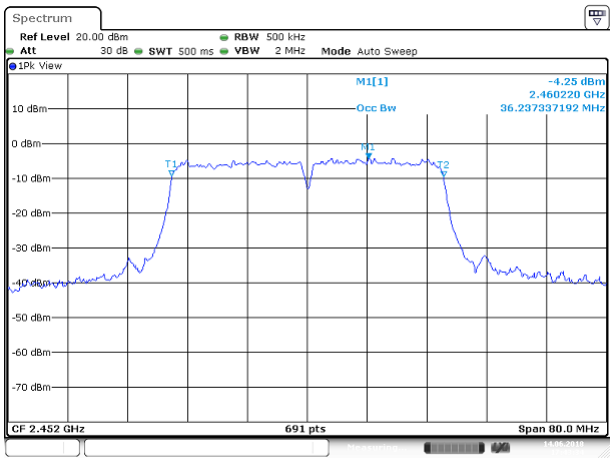
5.2.4 Test Result

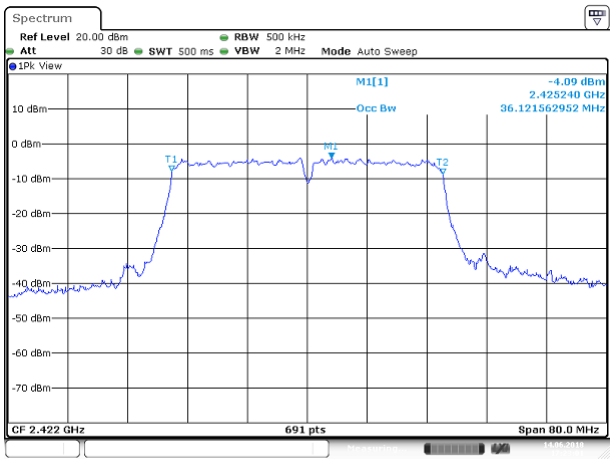
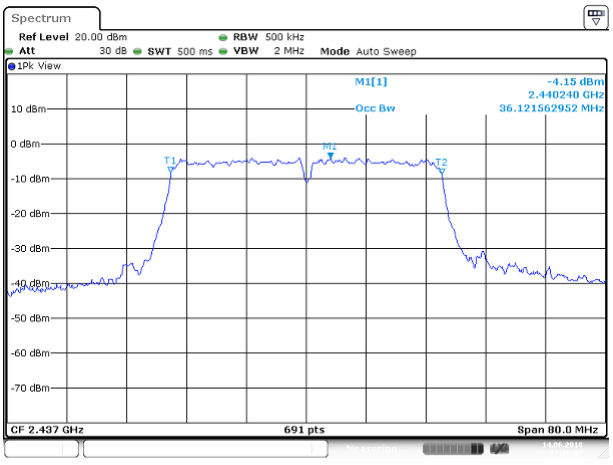
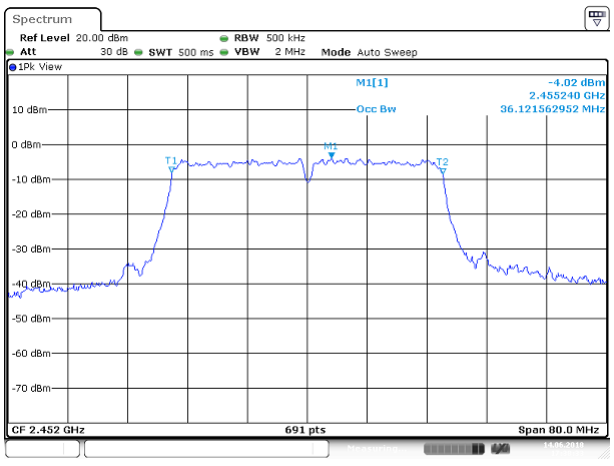
Test mode: IEEE 802.11n 40 MHz MHz mode / 2422-2452 MHz						
Channel	**Frequency (MHz)**	**Chain 0 OBW(99%) (MHz)**	**Chain 1 OBW(99%) (MHz)**	**Chain 0 6dB BW (MHz)**	**Chain 1 6dB BW (MHz)**	**6dB limit (kHz)**
Low	2422	36.2373	36.1215	36.406	36.406	>500
Mid	2437	36.2373	36.1215	36.406	36.406	
High	2452	36.2373	36.1215	36.406	36.406	

Report No.: T180420W01-RP

Test Data

(99%OBW)

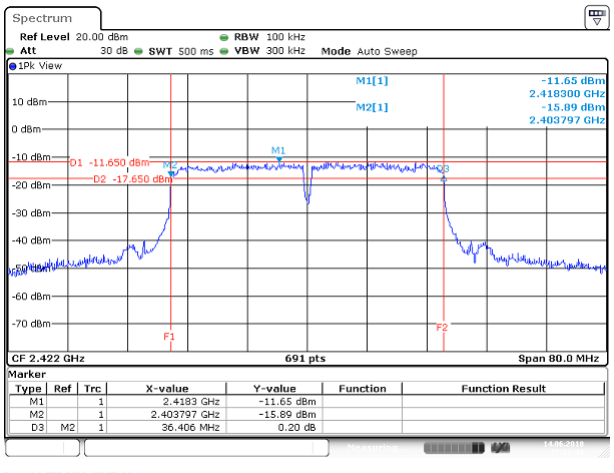
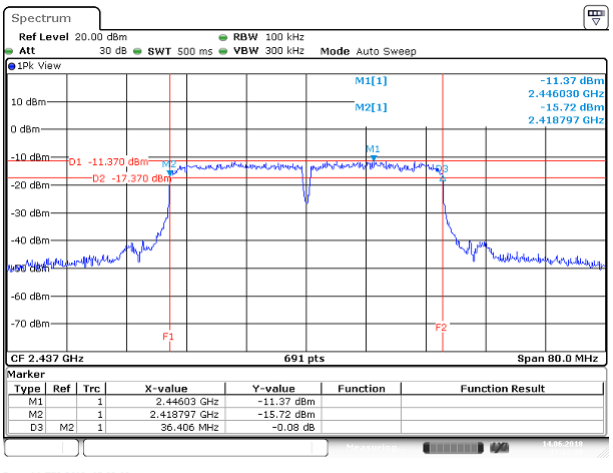
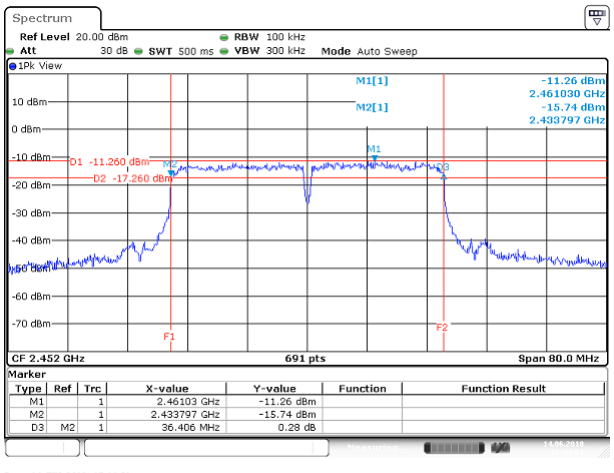
IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

IEEE 802.11n 40 MHz mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

Report No.: T180420W01-RP

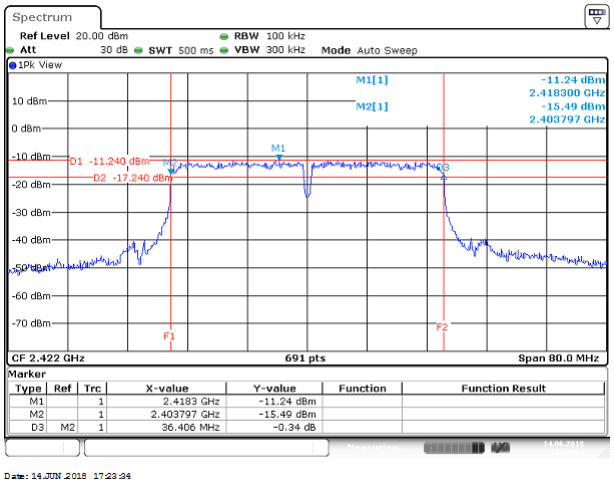
Test Data

(6dB)

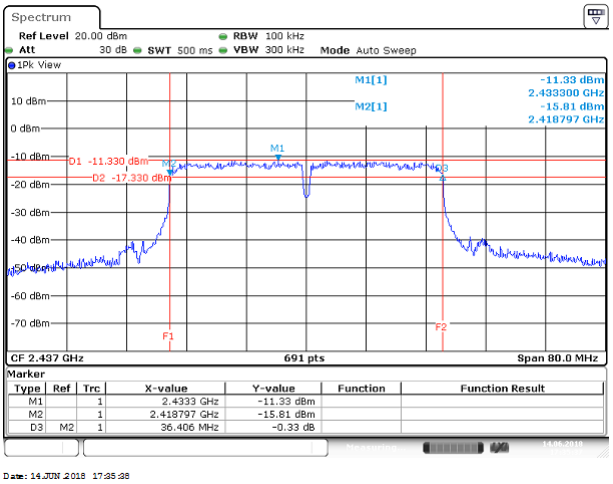
IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

IEEE 802.11n 40 MHz mode- chain 1

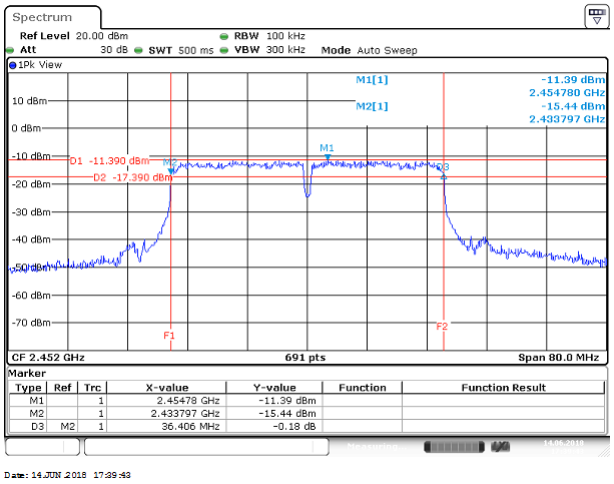
Low CH



Mid CH



High CH



5.3 OUTPUT POWER MEASUREMENT

5.3.1 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), 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：

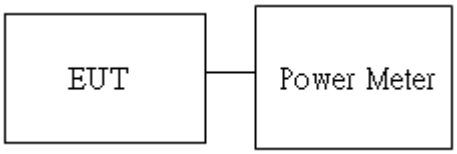
Average output power：For reporting purposes only.

5.3.2 Test Procedure

Test method Refer as KDB 558074 D01 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.

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 (dBm)	PK Total Power (W)	Limit (dBm)
			chain0	chain1	chain0	chain1			
IEEE 802.11n HT40 Data rate: MCS8	Low	2422	63	63	24.92	25.58	28.27	0.6714	30
	Mid	2437	63	63	24.63	25.47	28.08	0.6427	
	High	2452	63	63	24.75	25.43	28.11	0.6471	

Average output power：

Wifi 2.4G					
Config	CH	Freq. (MHz)	AV Power(dBm)		AV Total Power (dBm)
			chain0	chain1	
IEEE 802.11n HT40 Data rate: MCS8	Low	2422	17.28	17.77	20.54
	Mid	2437	16.85	17.61	20.26
	High	2452	17.16	17.58	20.39

5.4 POWER SPECTRAL DENSITY

5.4.1 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.

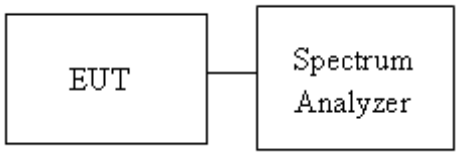
Limit	☒ Antenna not exceed 6 dBi：8dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 8 – (DG – 6)] ☐ Point-to-point operation：

5.4.2 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.

5.4.3 Test Setup



5.4.4 Test Result

Test mode: IEEE 802.11n 40 MHz MHz mode / 2422-2452 MHz					
Channel	**Frequency (MHz)**	**Chain 0 PPSD (dBm)**	**Chain 1 PPSD (dBm)**	**Total PPSD (dBm)**	**Limit (dBm)**
Low	2422	-12.17	-11.20	-8.65	8
Mid	2437	-11.84	-10.91	-8.34	
High	2452	-11.89	-11.39	-8.62	

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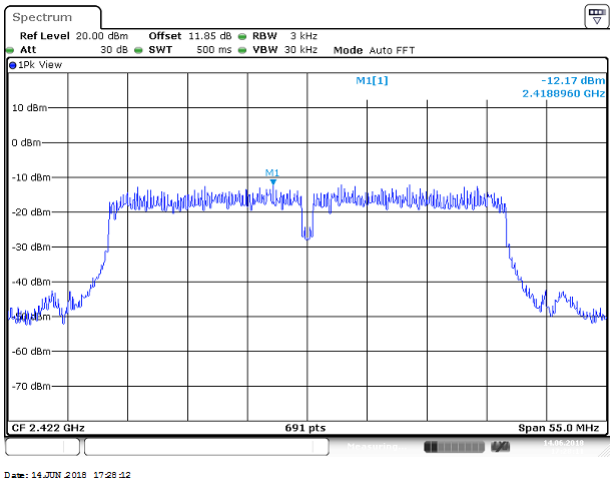
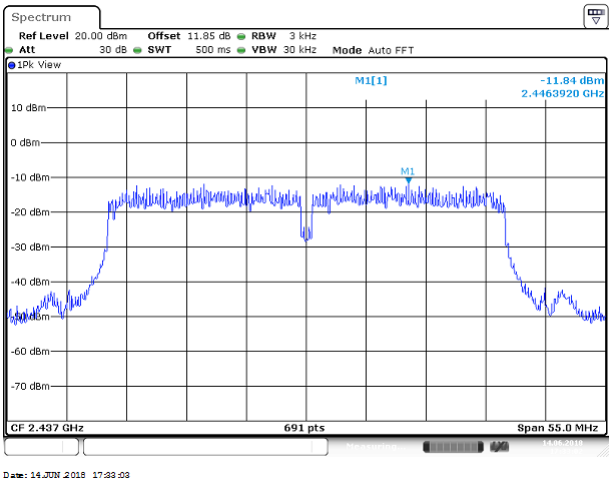
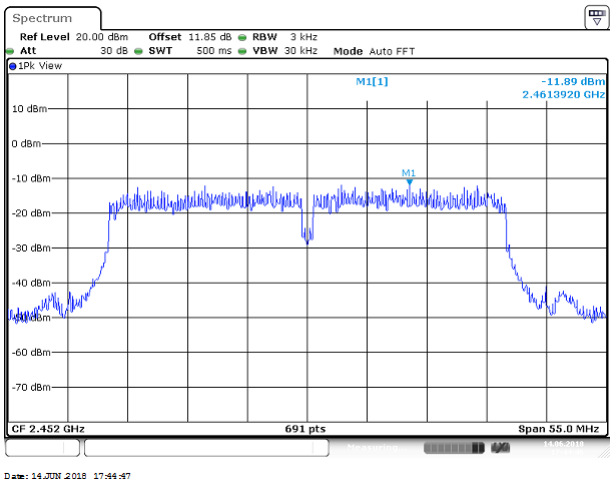
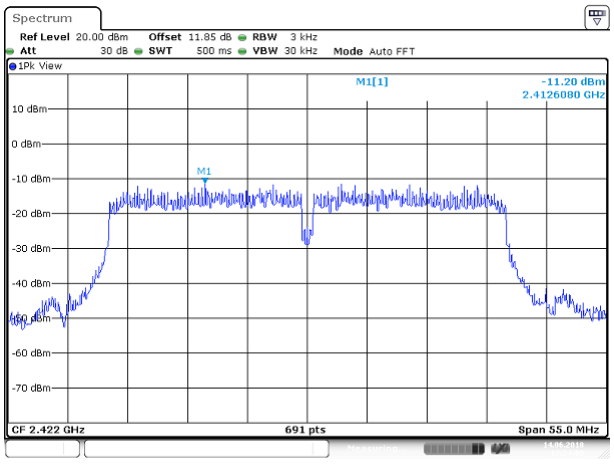
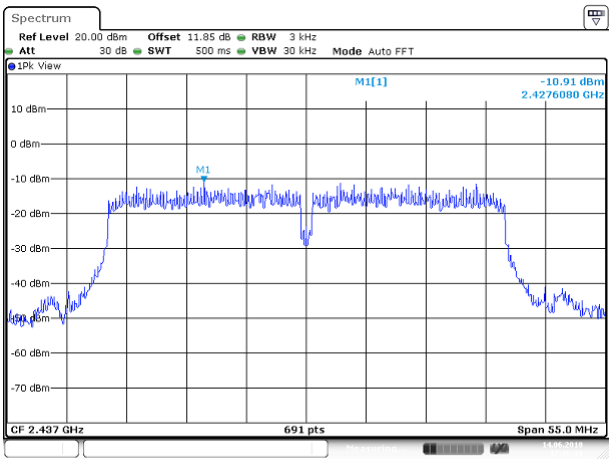
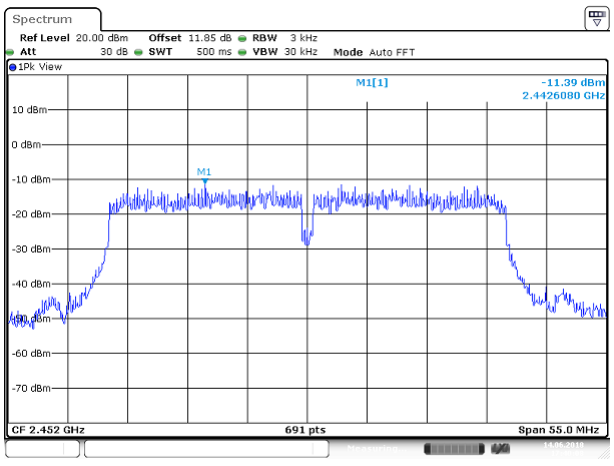
Test Data

IEEE 802.11n 40 MHz mode- chain 0	
Low CH	**Mid CH**
	
High CH	
	

IEEE 802.11n 40 MHz mode- chain 1	
Low CH	**Mid CH**
	
High CH	
	

5.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

5.5.1 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).

5.5.2 Test Procedure

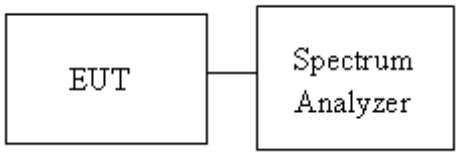
Test method Refer as KDB 558074 D01 V04, Section 11.

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. 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.

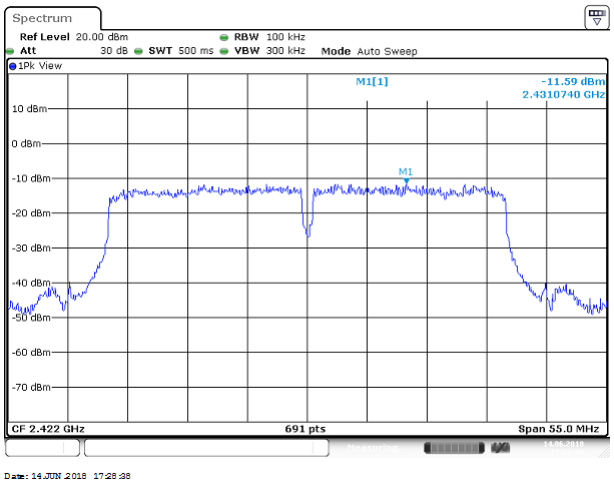
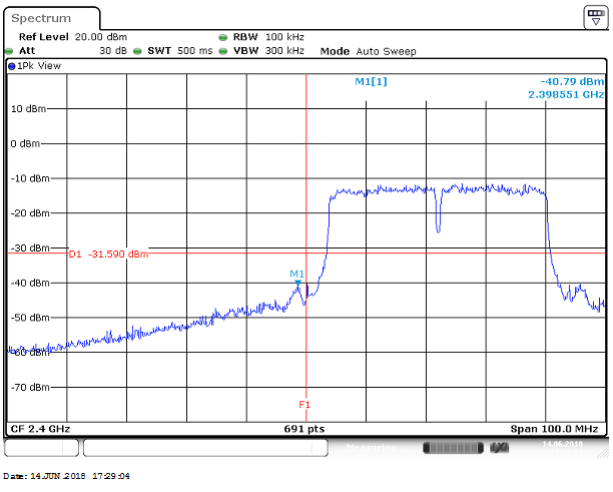
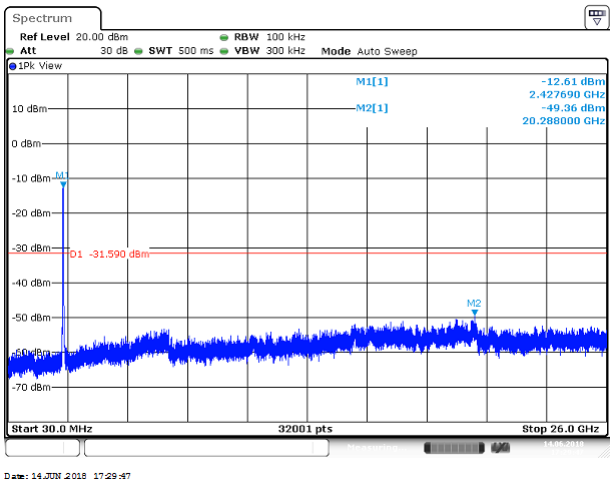
5.5.3 Test Setup

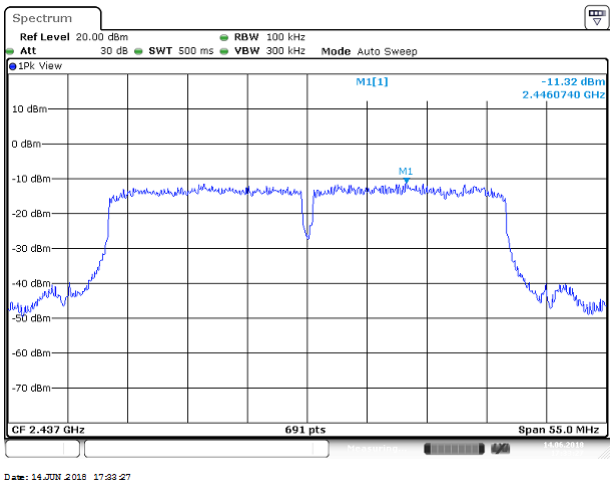
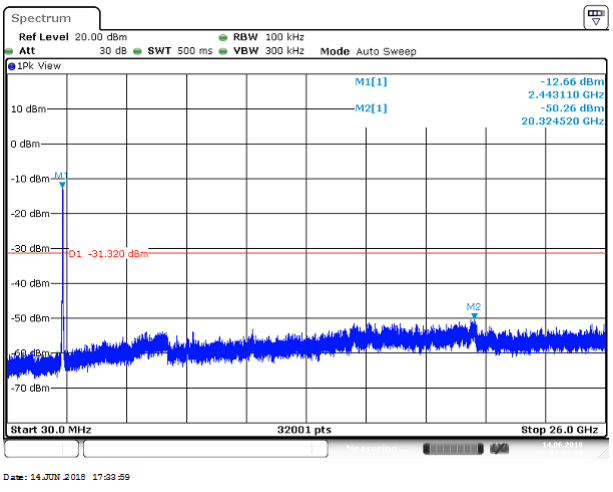


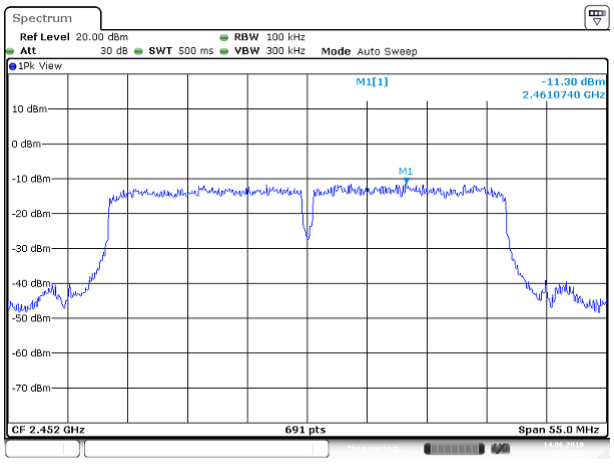
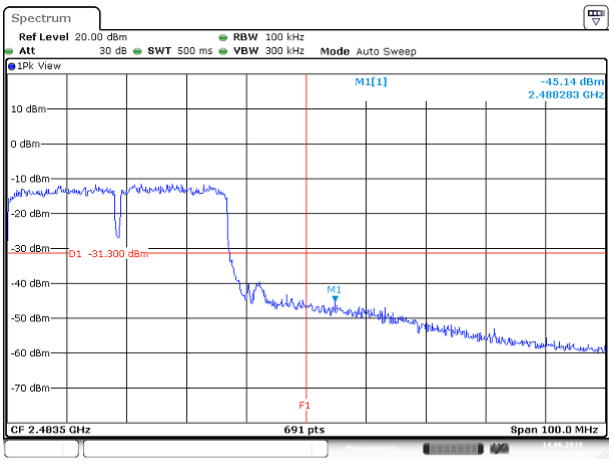
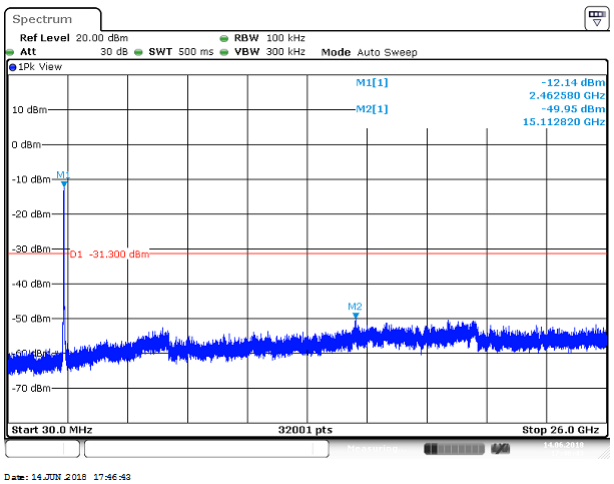
Report No.: T180420W01-RP

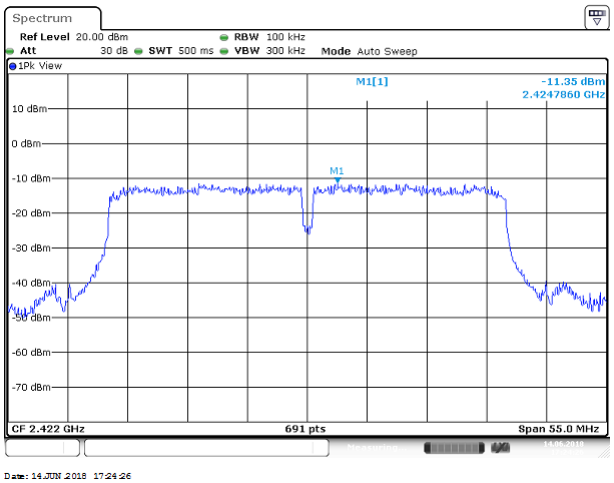
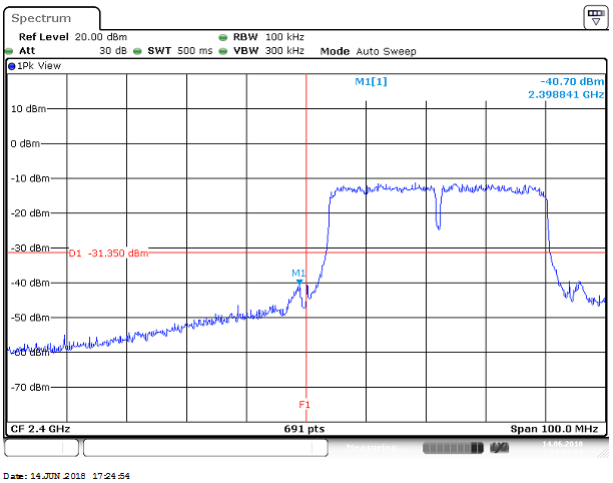
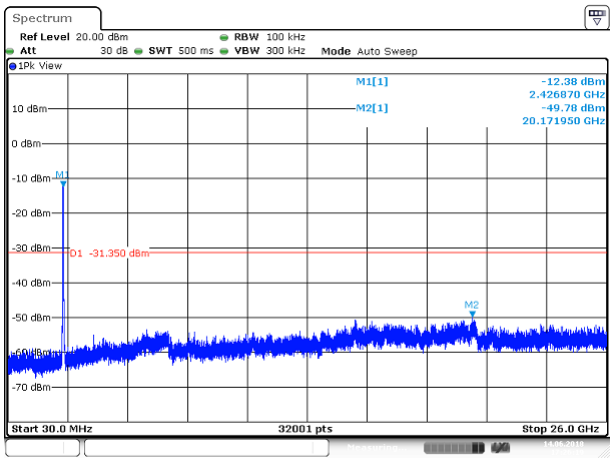
5.5.4 Test Result

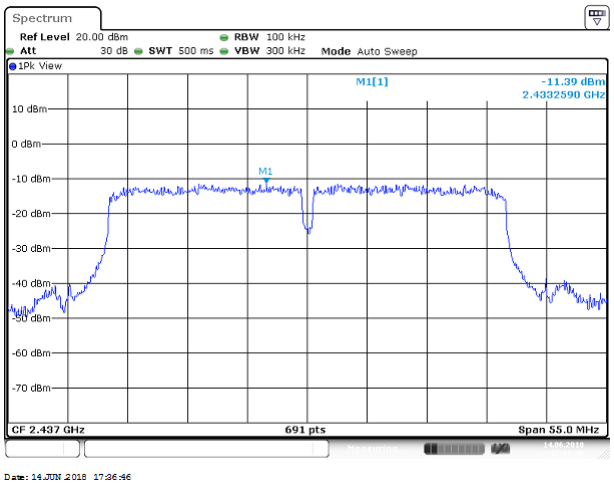
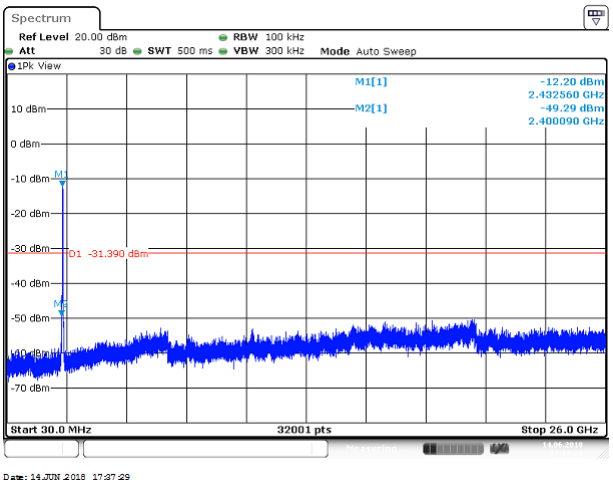
Test Data

IEEE 802.11n 40 MHz mode Low CH chain 0	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

IEEE 802.11n 40 MHz mode Mid CH chain 0	
Reference Level of PSD in 100kHz	**Spurious Emission 30MHz-25GHz**
	

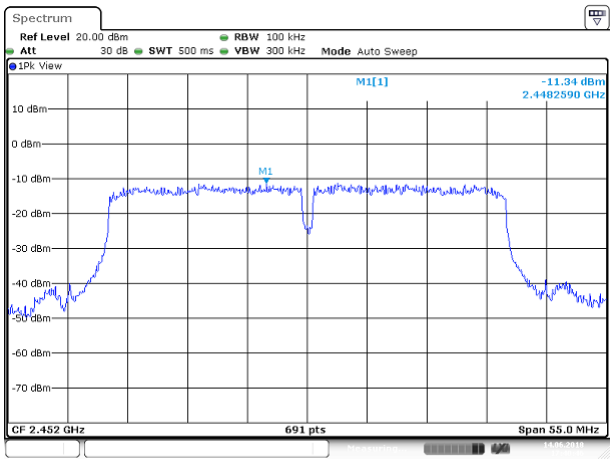
IEEE 802.11n 40 MHz mode High CH chain 0	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

IEEE 802.11n 40 MHz mode Low CH chain 1	
Reference Level of PSD in 100kHz	**Band Edge**
	
Spurious Emission 30MHz-25GHz	
	

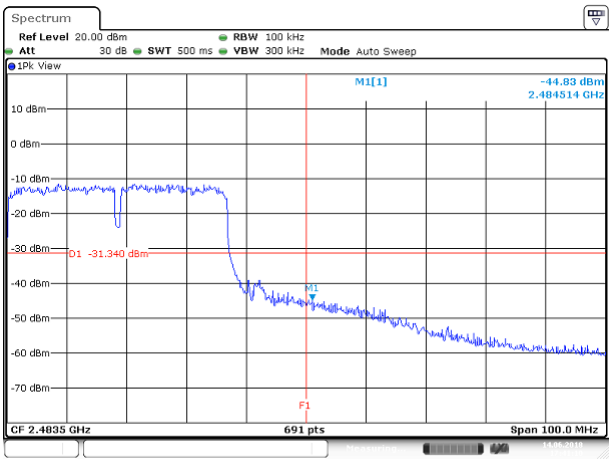
IEEE 802.11n 40 MHz mode Mid CH chain 1	
Reference Level of PSD in 100kHz	**Spurious Emission 30MHz-25GHz**
	

IEEE 802.11n 40 MHz mode High CH chain 1

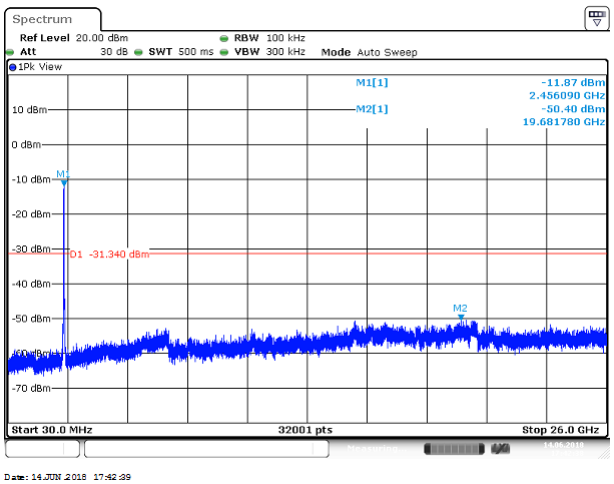
Reference Level of PSD in 100kHz



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,

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 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 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

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

Remark:

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

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

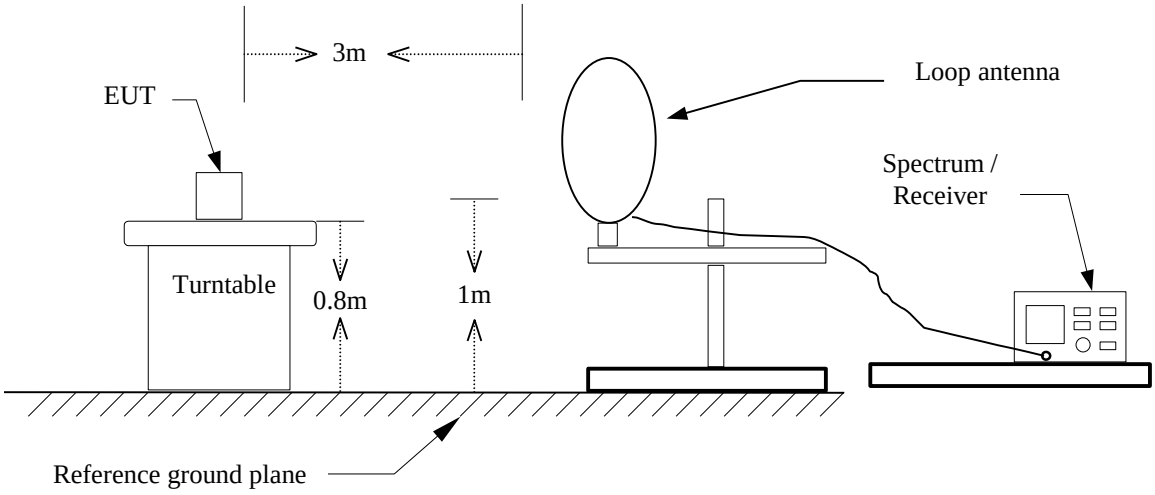
- If Duty Cycle ≥ 98%, VBW=10Hz.
- If Duty Cycle < 98%, VBW=1/T.

For 1TX

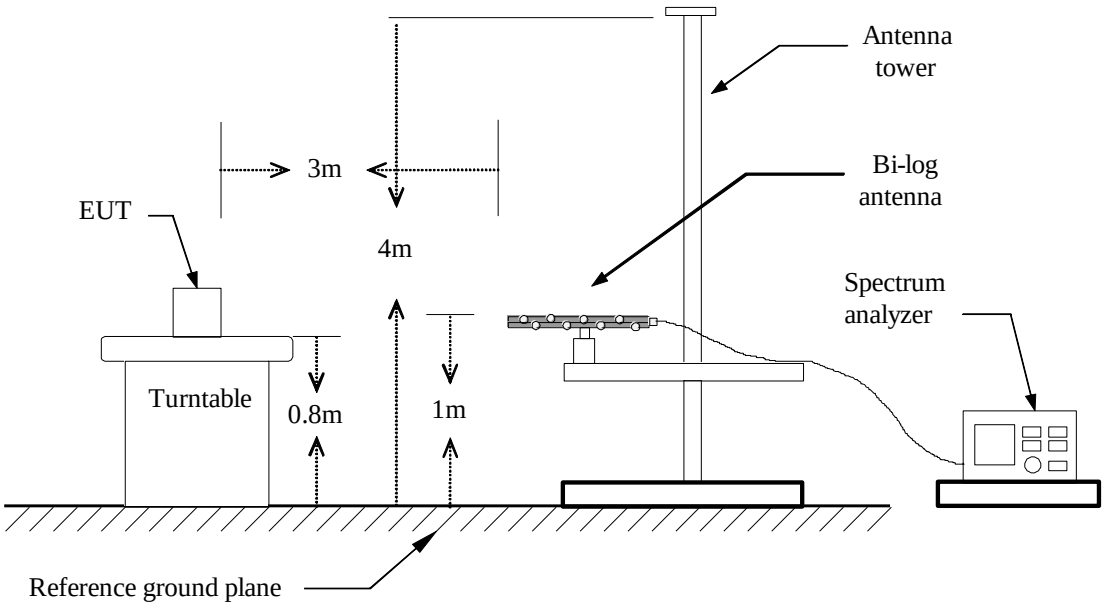
Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW Setting
802.11n 40 MHz	100%	-	-	10Hz

5.6.3 Test Setup

9kHz ~ 30MHz



30MHz ~ 1GHz



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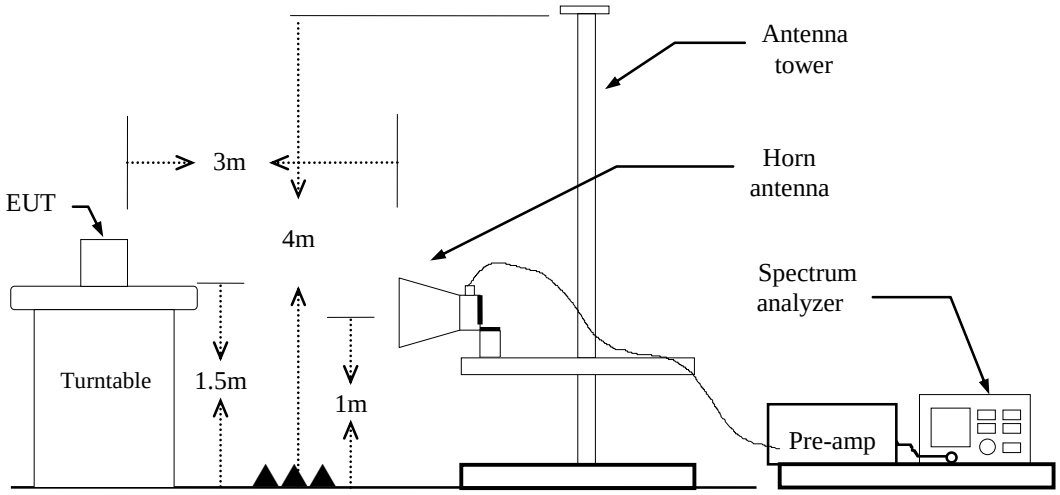
Above 1 GHz



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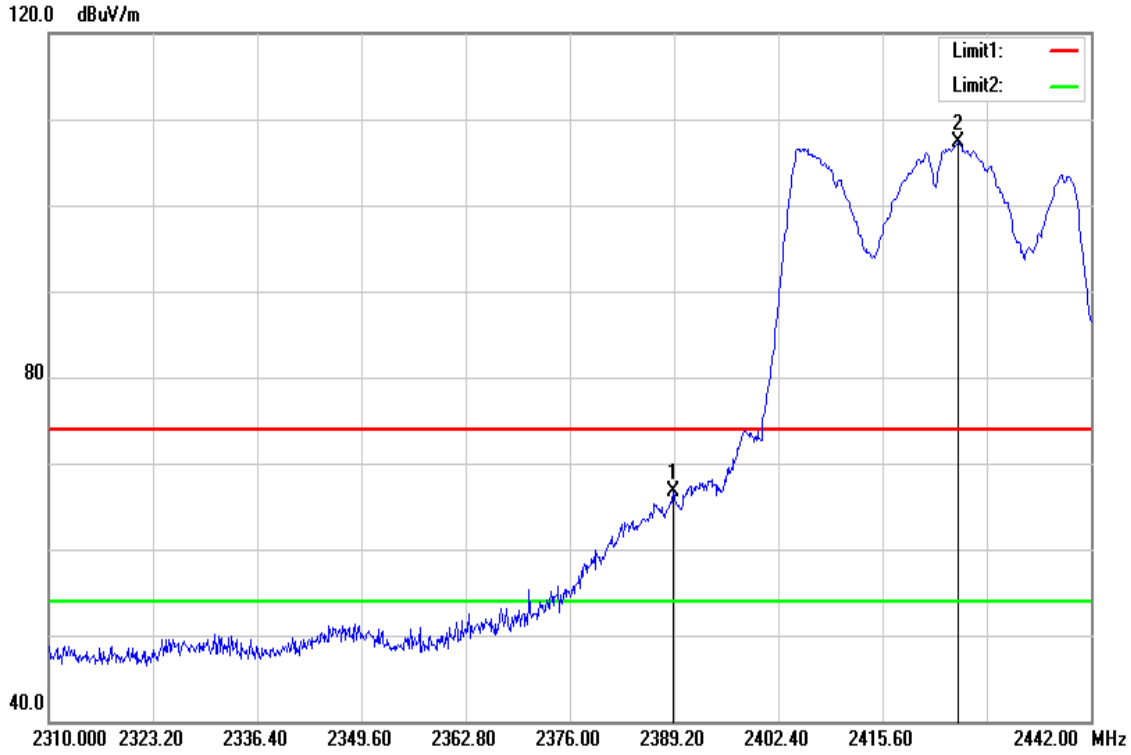
5.6.4 Test Result

Band Edge Test Data

Test Mode	IEEE 802.11n 40 MHz Low CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	June 15, 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
2389.068	69.69	-2.98	66.71	74.00	-7.29	peak
2425.236	110.20	-2.87	107.33	-	-	peak

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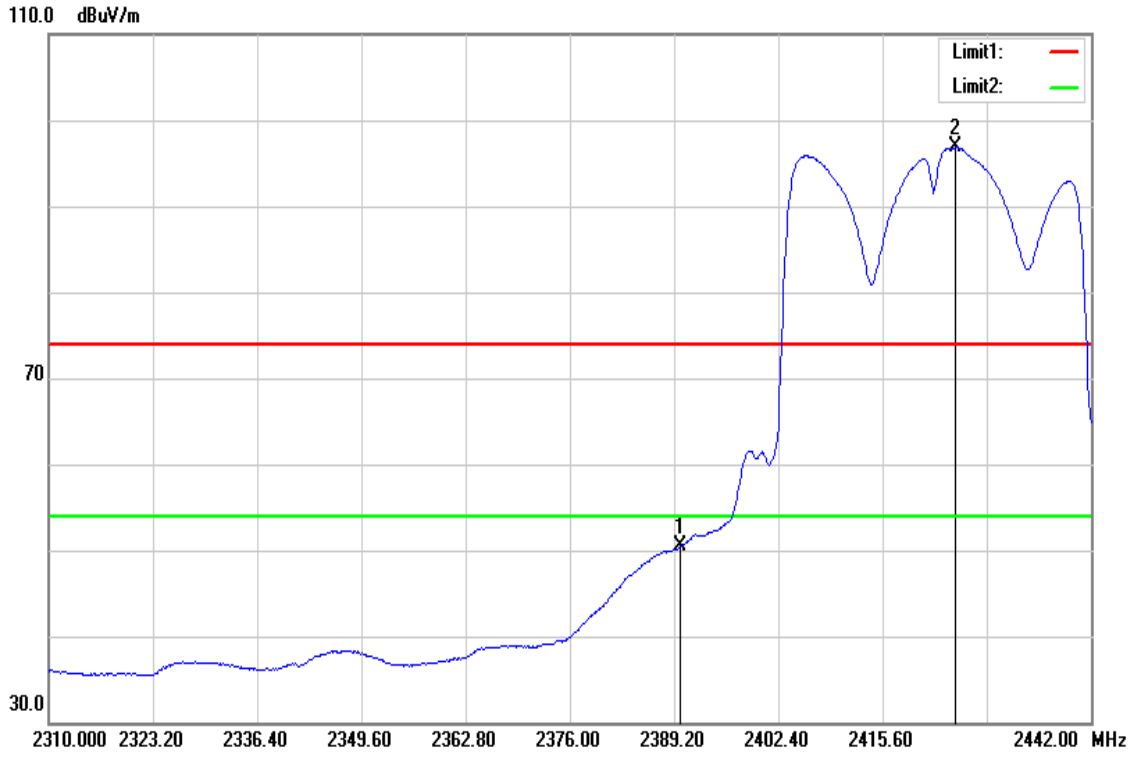
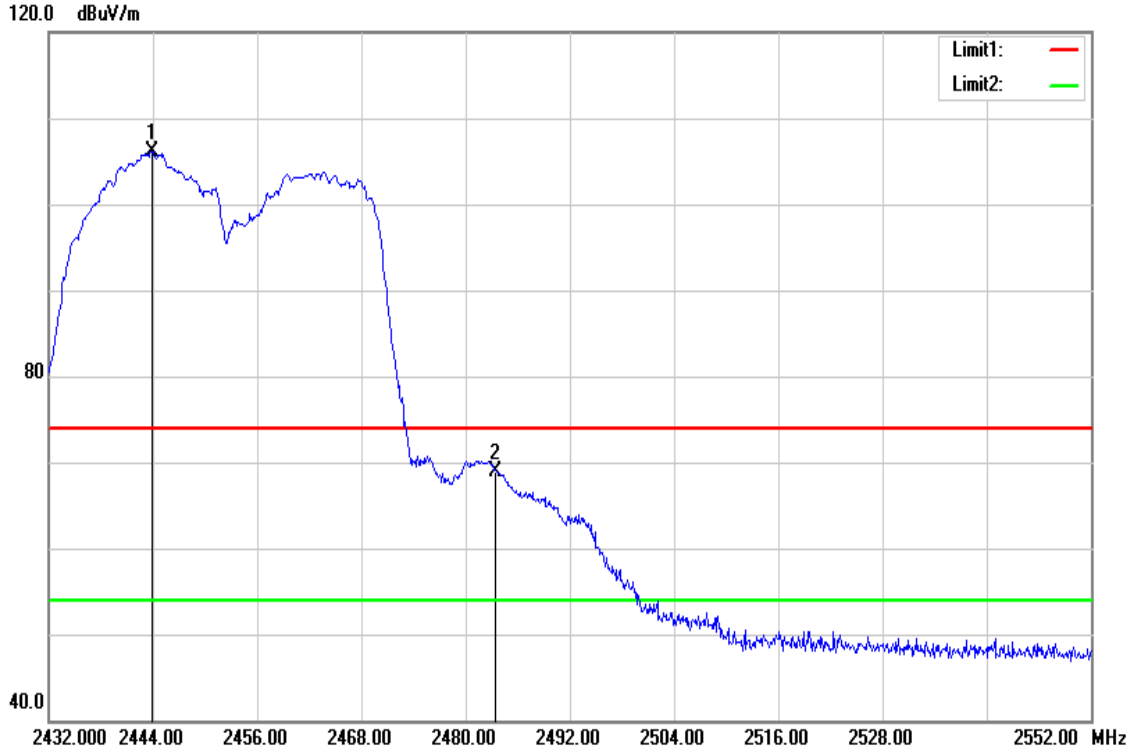
Test Mode	IEEE 802.11n 40 MHz Low CH	Temperature:	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	June 15, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.000	53.51	-2.98	50.53	54.00	-3.47	AVG
2424.840	99.68	-2.87	96.81	-	-	AVG

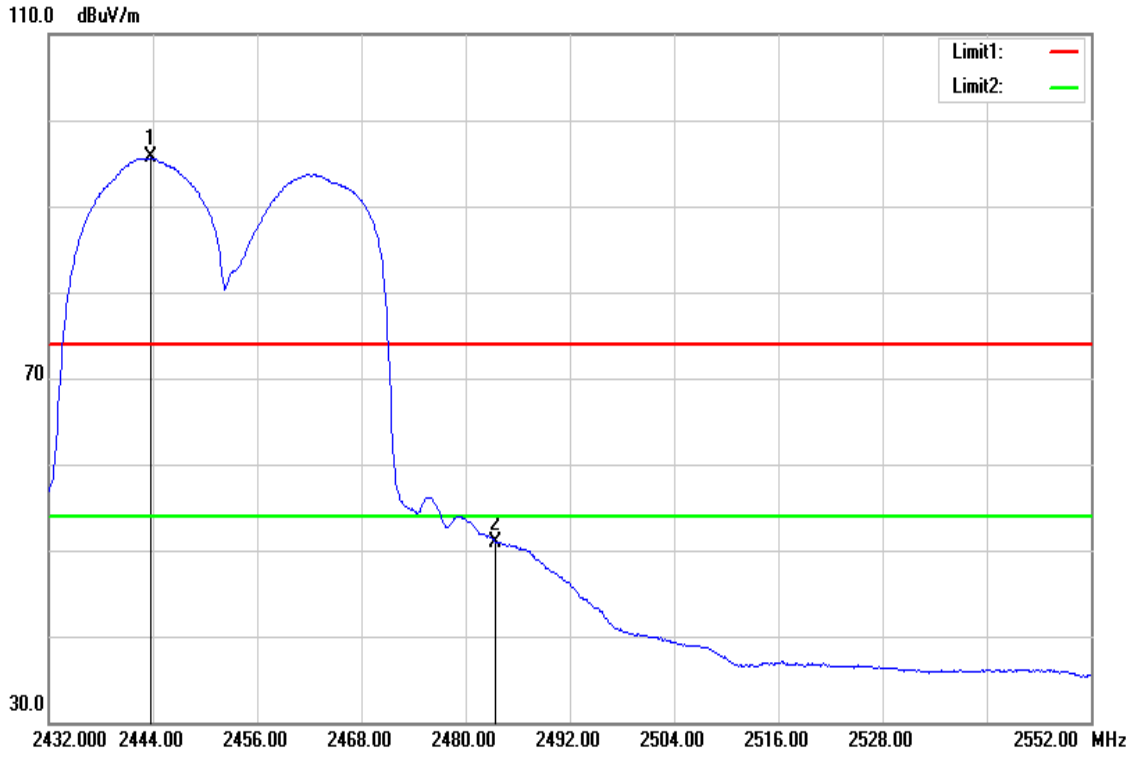
Test Mode	IEEE 802.11n 40 MHz High CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	June 15, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2443.880	108.89	-2.81	106.08	-	-	peak
2483.500	71.64	-2.69	68.95	74.00	-5.05	peak

Report No.: T180420W01-RP

Test Mode	IEEE 802.11n 40 MHz High CH	Temperature:	22(℃)/ 34%RH
Test Item	Band Edge	Test Date	June 15, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2443.760	98.44	-2.81	95.63	-	-	AVG
2483.500	53.66	-2.69	50.97	54.00	-3.03	AVG

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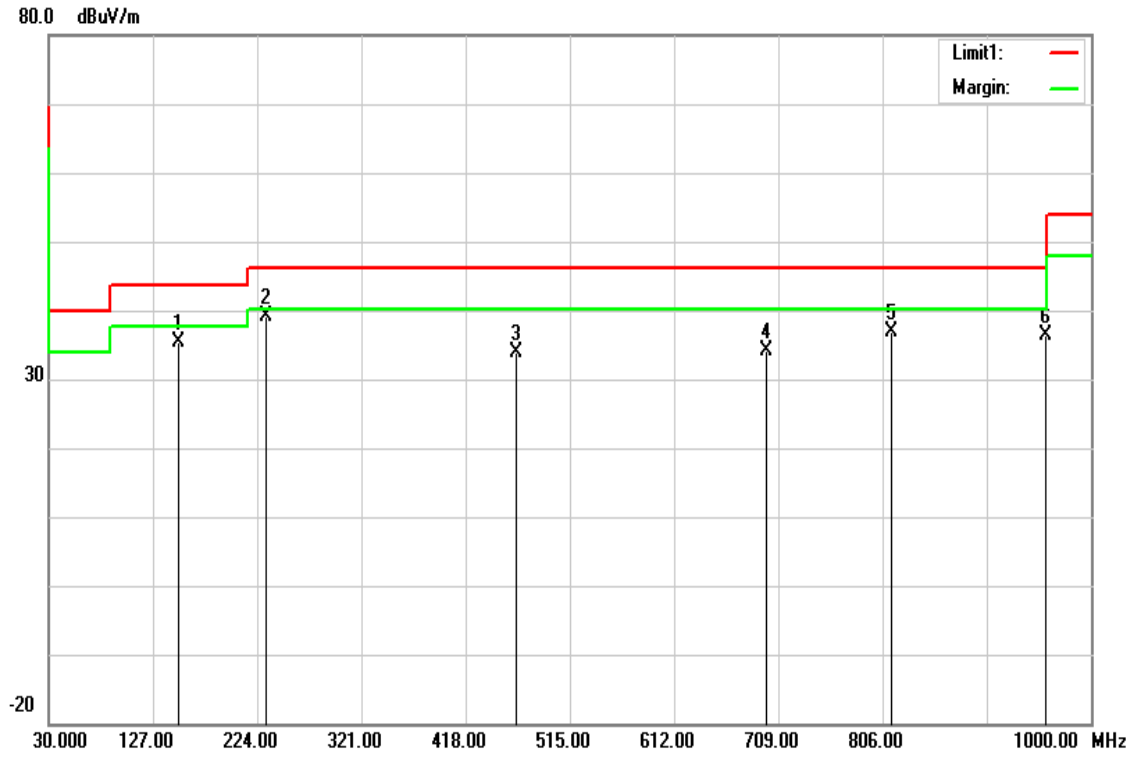
Below 1G Test Data

Test Mode	Mode 1	Temp/Hum	22(℃)/ 34%RH
Test Item	30MHz-1GHz	Test Date	May 18, 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
151.2500	51.04	-15.78	35.26	43.52	-8.26	QP
232.7300	55.63	-16.57	39.06	46.02	-6.96	peak
464.5600	43.23	-9.28	33.95	46.02	-12.07	peak
697.3600	39.04	-4.93	34.11	46.02	-11.91	peak
813.7600	40.18	-3.24	36.94	46.02	-9.08	peak
958.2900	37.50	-1.10	36.40	46.02	-9.62	peak

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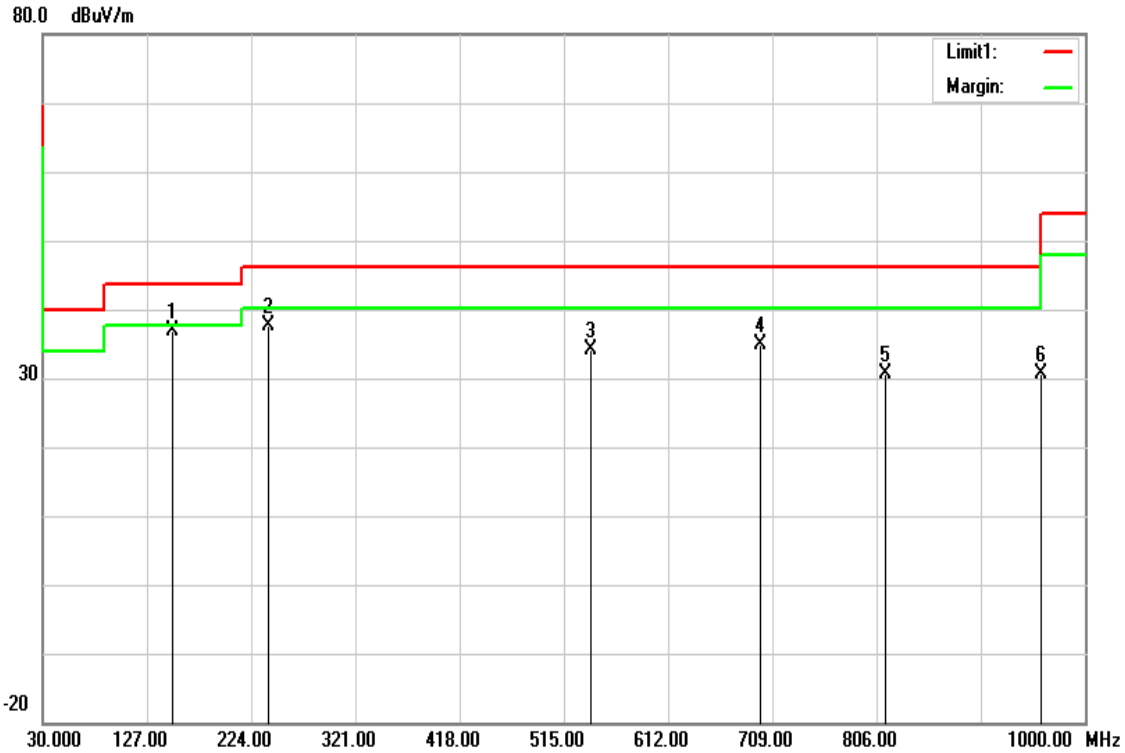
Test Mode	Mode 1	Temp/Hum	22(℃)/ 34%RH
Test Item	30MHz-1GHz	Test Date	May 18, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB	Remark
151.2500	52.71	-15.78	36.93	43.52	-6.59	QP
239.5200	53.78	-16.16	37.62	46.02	-8.40	peak
540.2200	41.83	-7.74	34.09	46.02	-11.93	peak
697.3600	39.92	-4.93	34.99	46.02	-11.03	peak
813.7600	33.84	-3.24	30.60	46.02	-15.42	peak
959.2600	31.65	-1.08	30.57	46.02	-15.45	peak

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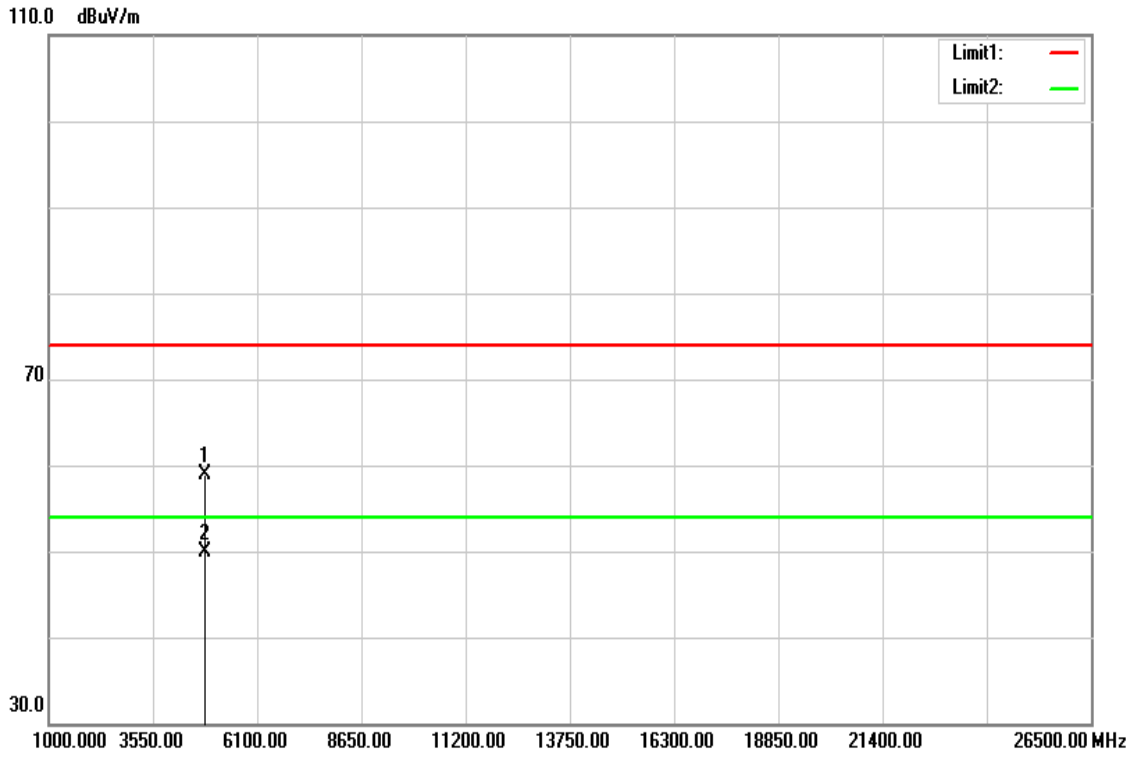
Above 1G Test Data

Test Mode	IEEE 802.11n 40 MHz Low CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	June 15, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		

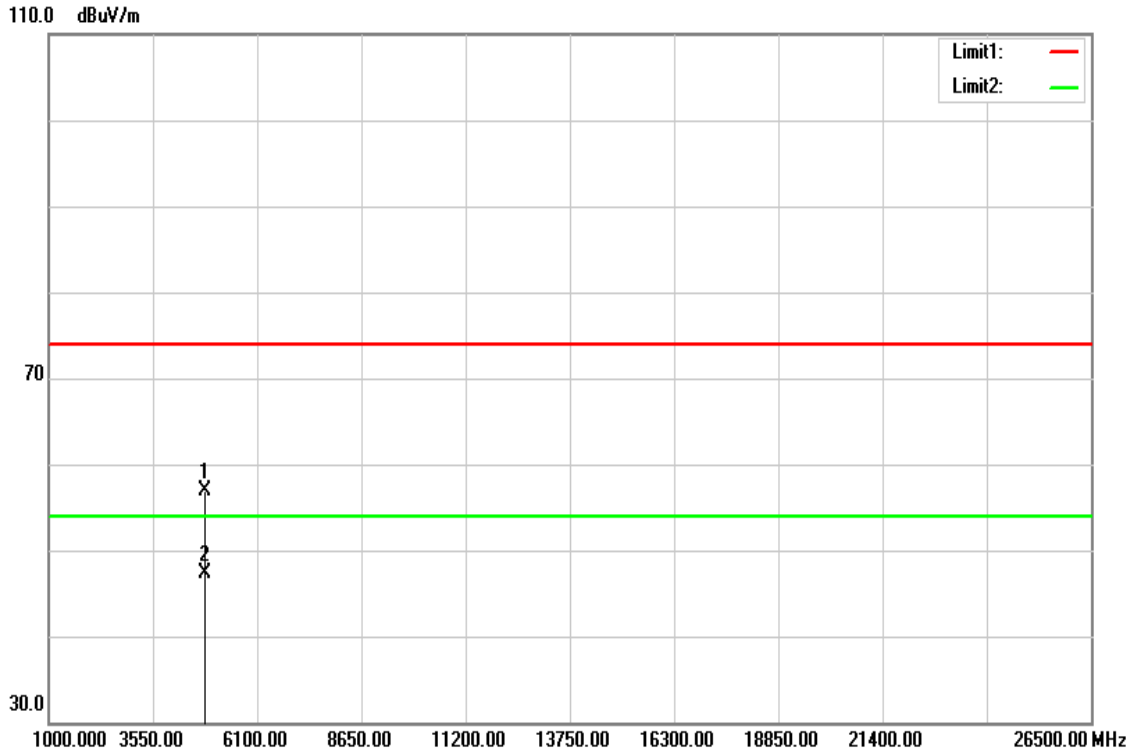


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4834.000	54.50	4.39	58.89	74.00	-15.11	peak
4834.000	45.43	4.39	49.82	54.00	-4.18	AVG
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

Test Mode	IEEE 802.11n 40 MHz Low CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	June 15, 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
4841.000	52.41	4.41	56.82	74.00	-17.18	peak
4841.000	42.87	4.41	47.28	54.00	-6.72	AVG
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

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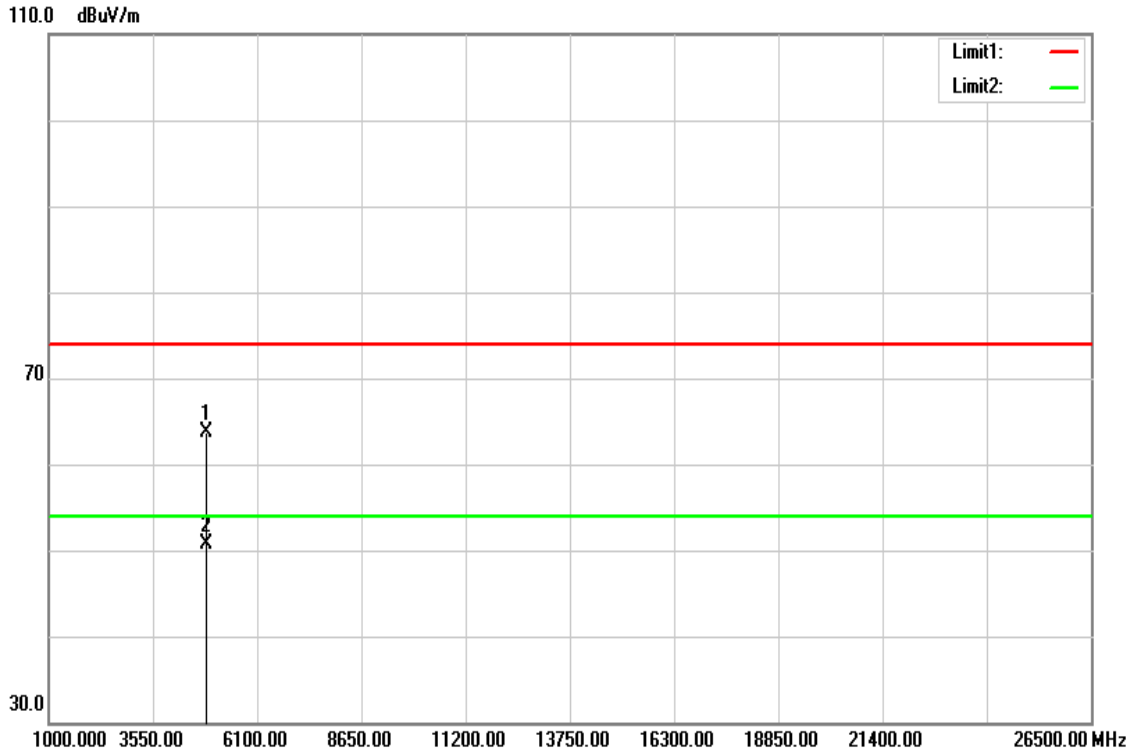
Test Mode	IEEE 802.11n 40 MHz Mid CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	June 15, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		



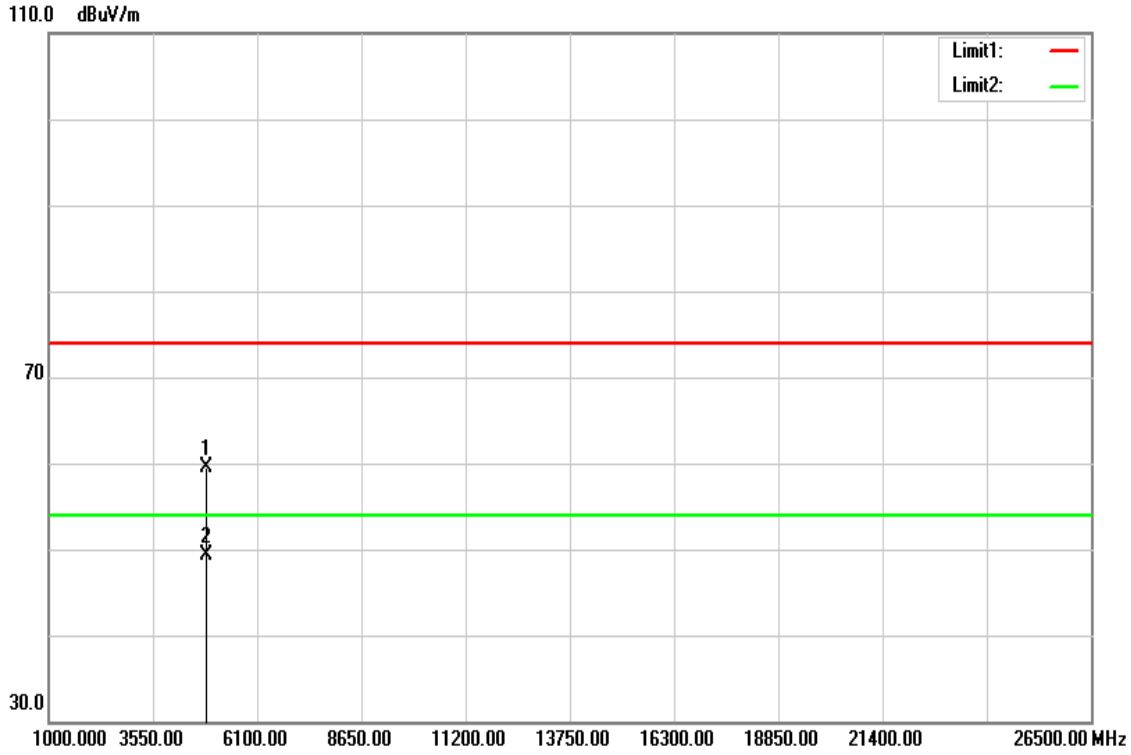
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	59.29	4.45	63.74	74.00	-10.26	peak
4869.000	46.23	4.45	50.68	54.00	-3.32	AVG
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

Report No.: T180420W01-RP

Test Mode	IEEE 802.11n 40 MHz Mid CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	June 15, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		



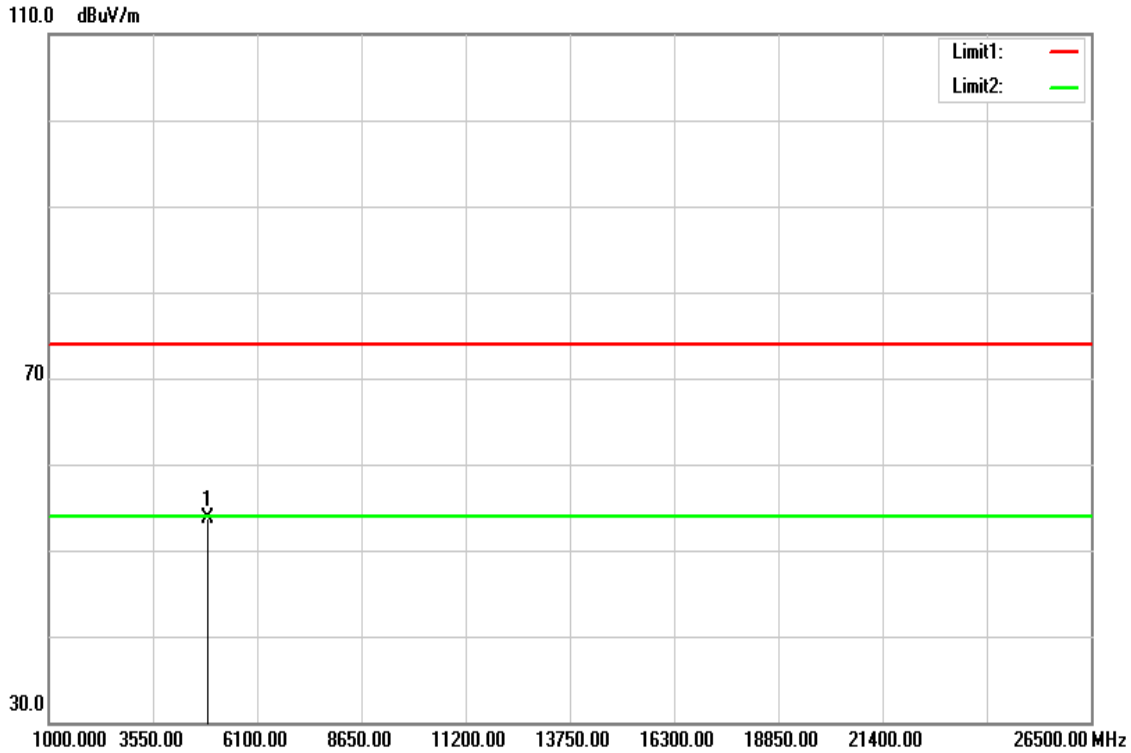
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4869.000	55.13	4.45	59.58	74.00	-14.42	peak
4869.000	44.80	4.45	49.25	54.00	-4.75	AVG
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*

Report No.: T180420W01-RP

Test Mode	IEEE 802.11n 40 MHz High CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	June 15, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak and Average		



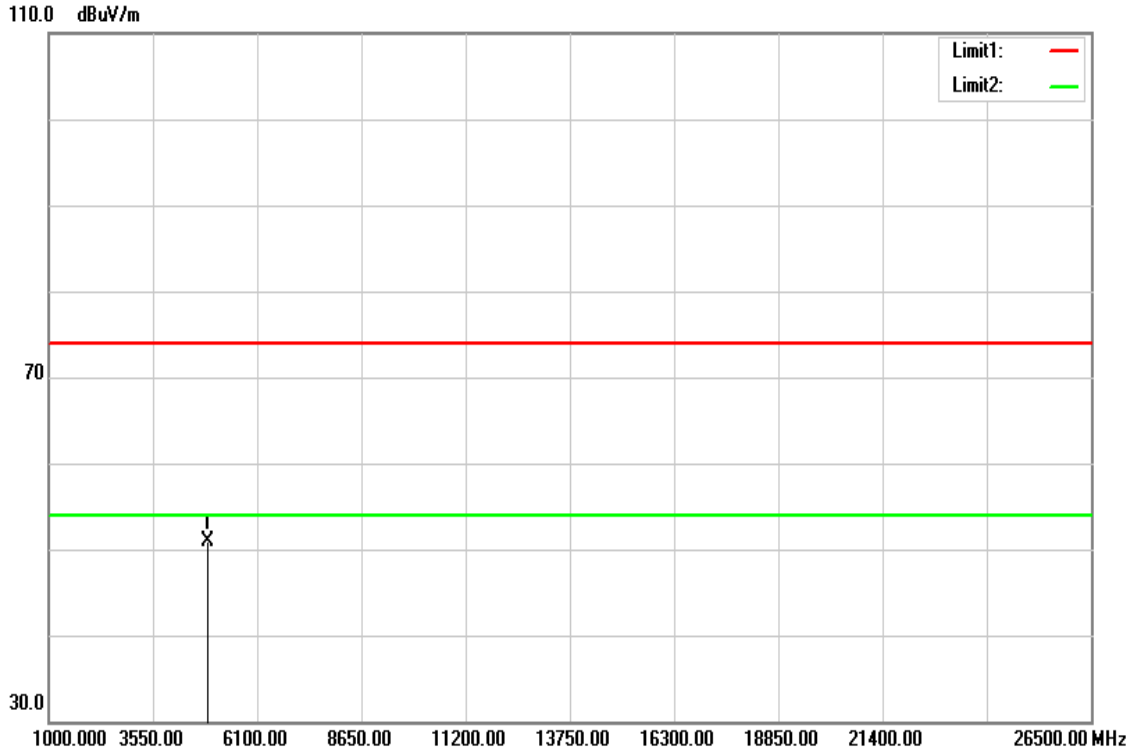
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4897.000	49.22	4.51	53.73	74.00	-20.27	peak
N/A						

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*

Report No.: T180420W01-RP

Test Mode	IEEE 802.11n 40 MHz High CH	Temp/Hum	22(℃)/ 34%RH
Test Item	Harmonic	Test Date	June 15, 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	46.49	4.51	51.00	74.00	-23.00	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 Test Report -