TEST REPORT

Product	:	Smart Helmet
Trade mark	:	N/A
Model/Type reference	:	N901
Serial Number	:	N/A
Report Number	:	EED32M00160903
FCC ID	:	2AVZ7N901
Date of Issue	:	Jun. 23, 2020
Test Standards	:	47 CFR Part 15 Subpart C
Test result	:	PASS

Prepared for:

Shenzhen Kuang-Chi Space Technology Co., Ltd
301-B077, Building 2, No.1, Mawu Road,
Baoan Community, Longgang District,
Shenzhen, Guangdong, China

Prepared by:

Centre Testing International Group Co., Ltd.
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Tested By:	mark. chen.	Compiled by:	Sunlight Sun
	Mark Chen		Sunlight Sun
Reviewed by:	Ware Xin	Approved by:	Sam Chuang
	Ware Xin		Sam Chuang
Date:	Jun. 23, 2020		Check No.:3096347029

CENTRE TESTING INTERNATIONAL GROUP CO.,LTD. CTI Report Seal

2 Version

Version No.	Date	Description
00	Jun. 23, 2020	Original

3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203/15.247 (c)	ANSI C63.10-2013	PASS
AC Power Line Conducted Emission	47 CFR Part 15 Subpart C Section 15.207	ANSI C63.10-2013	PASS
Conducted Peak Output Power	47 CFR Part 15 Subpart C Section 15.247 (b)(3)	ANSI C63.10-2013	PASS
6dB Occupied Bandwidth	47 CFR Part 15 Subpart C Section 15.247 (a)(2)	ANSI C63.10-2013	PASS
Power Spectral Density	47 CFR Part 15 Subpart C Section 15.247 (e)	ANSI C63.10-2013	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
RF Conducted Spurious Emissions	47 CFR Part 15 Subpart C Section 15.247(d)	ANSI C63.10-2013	PASS
Radiated Spurious Emissions	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15 Subpart C Section 15.205/15.209	ANSI C63.10-2013	PASS

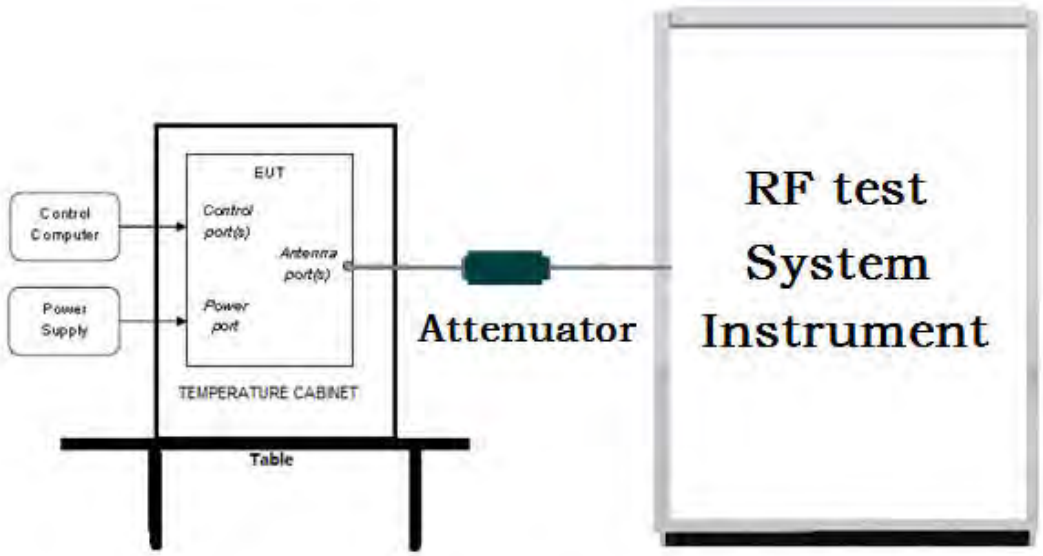
Remark:
Test according to ANSI C63.4-2014 & ANSI C63.10-2013.
The tested sample(s) and the sample information are provided by the client.

4 Content

5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

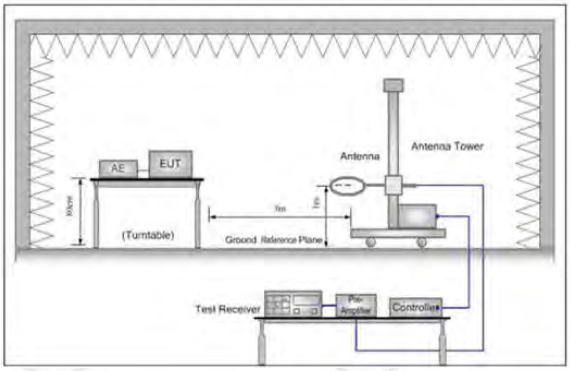


Figure 1. Below 30MHz

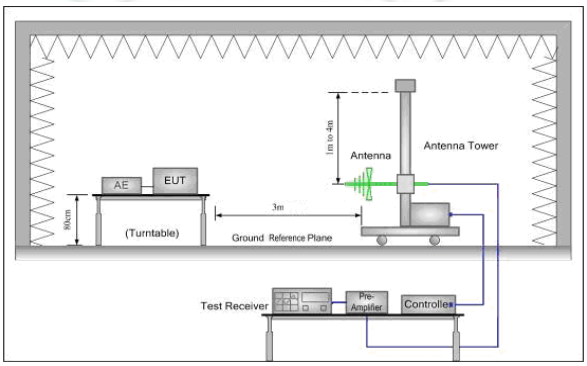


Figure 2. 30MHz to 1GHz

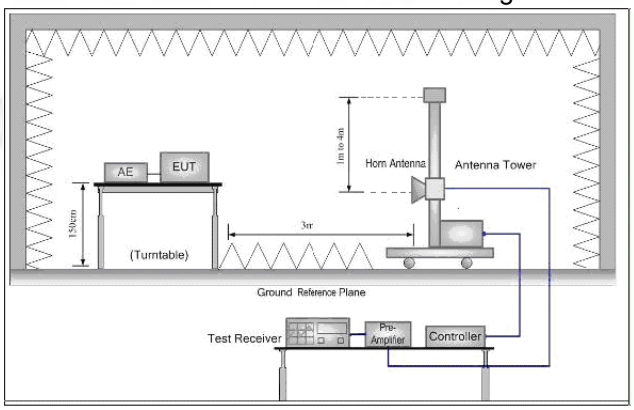
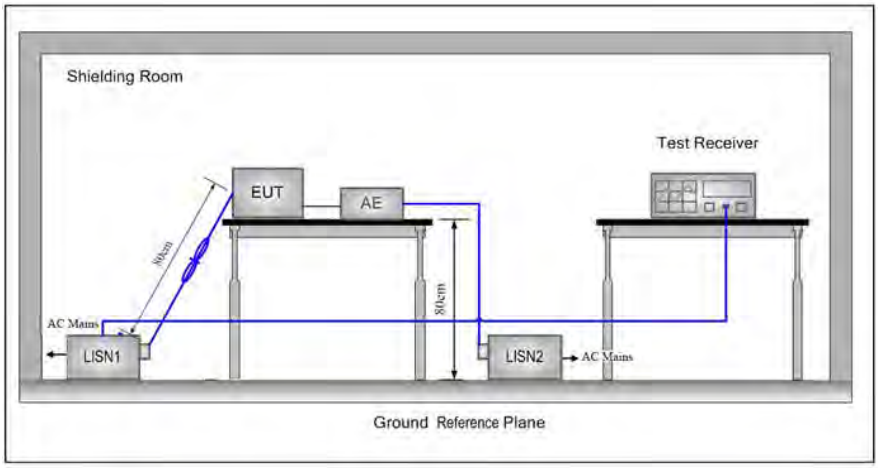


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment:	
Temperature:	24 °C
Humidity:	53 % RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(M)	High(H)
802.11b/g/n(HT20)	2412MHz ~2462 MHz	Channel 1	Channel 6	Channel 11
		2412MHz	2437MHz	2462MHz
802.11n(HT40)	2422MHz ~2452 MHz	Channel 3	Channel 6	Channel 9
		2422MHz	2437MHz	2452MHz
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.			

Test mode:

est mode:

Pre-scan under all rate at lowest channel 1

Mode	802.11b				
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps	
Power(dBm)	18.01	18.00	17.99	17.95	

Mode	802.11g							
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Power(dBm)	17.44	17.40	17.38	17.35	17.30	17.29	17.25	17.20

Mode	802.11n (HT20)							
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps
Power(dBm)	16.12	16.10	15.99	15.96	15.93	15.90	15.88	15.85
Mode	802.11n (HT40)							
Data Rate	13.5Mbps	27Mbps	40.5Mbps	54Mbps	81Mbps	108Mbps	121.5Mbps	135Mbps
Power(dBm)	15.23	15.20	15.18	15.15	15.12	15.10	15.08	15.05

Through Pre-scan, 1Mbps of rate is the worst case of 802.11b; 6Mbps of rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20); 13.5Mbps of rate is the worst case of802.11n(HT40).

6 General Information

6.1 Client Information

Applicant:	Shenzhen Kuang-Chi Space Technology Co., Ltd
Address of Applicant:	301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Kuang-Chi Space Technology Co., Ltd
Address of Manufacturer:	301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China
Factory:	Shenzhen Kuang-Chi Space Technology Co., Ltd
Address of Factory:	301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China

6.2 General Description of EUT

Product Name:	Smart Helmet	
Model No.(EUT):	N901	
Trade Mark:	N/A	
EUT Supports Radios application:	Wi-Fi IEEE 802.11 b/g/n(HT20)(HT40), 2412MHz to 2462MHz	
Power Supply:	LI-ION BATTERY	RATED CAPACITY 5000mAh（19Wh） TYPICAL CAPACITY5100mAh（19.38Wh） NOMINAL VOLTAGE:3.8V⎓ LIMITED CHARGE VOLTAGE:4.35⎓ MODEL:GQ-V496594P
Sample Received Date:	Jun. 08, 2020	
Sample tested Date:	Jun. 08, 2020 to Jun. 17, 2020	

6.3 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Channel Separation:	5MHz
Type of Modulation:	DSSS,OFDM
Test Power Grade:	Refence Table
Test Software of EUT:	Engineering Order *#*#9646633#*#*(manufacturer declare)
Antenna Type and Gain:	Type:monopole antenna Gain: 3 dBi
Test Voltage:	BATTERY 3.8V

Operation Frequency each of channel(802.11b/g/n HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Operation Frequency each of channel(802.11n HT40)					
Channel	Frequency	Channel	Frequency	Channel	Frequency
3	2422MHz	6	2437MHz	9	2452MHz
4	2427MHz	7	2442MHz		
5	2432MHz	8	2447MHz		

Table 1：

Mode	Channel	Frequency	Data Rate	Power Setting
b	1	2412	1 Mbps	25
	6	2437		20
	11	2462		20
g	1	2412	6 Mbps	14.5
	6	2437		13.5
	11	2462		14
n20	1	2412	MCS 0	13.5
	6	2437		12.5
	11	2462		13
n40	3	2422	MCS 0	11.5
	6	2437		11.5
	9	2452		11.5

6.4 Description of Support Units

The EUT has been tested with associated equipment below

Associated equipment name		Manufacture	model	S/N serial number	Supplied by	Certification
AE1	Notebook	DELL	DELL 3490	D245DX2	DELL	CE&FCC

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

6.6 Deviation from Standards

None.

6.7 Abnormalities from Standard Conditions

None.

6.8 Other Information Requested by the Customer

None.

6.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

7 Equipment List

Communication RF test system					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Spectrum Analyzer	Agilent	E4440A	MY46185649	11-05-2019	11-04-2020
Communication test set	R&S	CMW200	111935	02-17-2020	02-16-2021
Signal Generator	Keysight	E8257D	MY53401106	02-17-2020	02-16-2021
Communication test set	R&S	CMW500	152394	02-17-2020	02-16-2021
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	---	---
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	---	---
band rejection filter	Sinoscite	FL5CX01CA09C L12-0395-001	---	---	---
band rejection filter	Sinoscite	FL5CX01CA08C L12-0393-001	---	---	---
band rejection filter	Sinoscite	FL5CX02CA04C L12-0396-002	---	---	---
band rejection filter	Sinoscite	FL5CX02CA03C L12-0394-001	---	---	---
DC Power	Keysight	E3642A	MY55156236	02-17-2020	02-16-2021
DC Power	Keysight	E3642A	MY56376035	02-17-2020	02-16-2021
PC-2	Lenovo	R4960d	---	---	---
PC-3	Lenovo	R4960d	---	---	---
RF control unit	JS Tonscend	JS0806-1	158060004	02-17-2020	02-16-2021
DC power Box	JS Tonscend	JS0806-4	158060007	---	---
LTE Automatic test software	JS Tonscend	JS1120-1	---	---	---
WCDMA Automatic test software	JS Tonscend	JS1120-3	---	---	---
GSM Automatic test software	JS Tonscend	JS1120-3	---	---	---
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	07-26-2019	07-25-2020

Conducted disturbance Test					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
Receiver	R&S	ESCI	100435	04-28-2020	04-27-2021
Temperature/ Humidity Indicator	Defu	TH128	/	05-29-2020	05-28-2021
LISN	R&S	ENV216	100098	03-05-2020	03-04-2021
Barometer	changchun	DYM3	1188	06-20-2019	06-19-2020

3M full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	06-19-2019	06-18-2020
Receiver	Keysight	N9038A	MY57290136	03-05-2020	03-04-2021
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-05-2020	03-04-2021
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-05-2020	03-04-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-24-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-24-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-09-2021
Preamplifier	EMCI	EMC184055SE	980596	05-20-2020	05-19-2021
Preamplifier	EMCI	EMC001330	980563	04-22-2020	04-21-2021
Preamplifier	JS Tonscend	980380	EMC051845 SE	01-09-2020	01-08-2021
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	04-27-2020	04-26-2021
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-16-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-09-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	---	---
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	---	---
Cable line	Times	EMC104-NMNM-1000	SN160710	---	---
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	---	---
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	---	---
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	---	---
Cable line	Times	HF160-KMKM-3.00M	393493-0001	---	---

3M Semi/full-anechoic Chamber					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05-24-2019	05-23-2022
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-26-2019	07-25-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-24-2021
Receiver	R&S	ESCI7	100938-003	10-21-2019	10-20-2020
Multi device Controller	maturo	NCD/070/10711112	---	---	---
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	07-26-2019	07-25-2020
Communication test set	Agilent	E5515C	GB47050534	03-01-2019	02-28-2022
Cable line	Fulai(7M)	SF106	5219/6A	---	---
Cable line	Fulai(6M)	SF106	5220/6A	---	---
Cable line	Fulai(3M)	SF106	5216/6A	---	---
Cable line	Fulai(3M)	SF106	5217/6A	---	---
band rejection filter	Sinoscite	FL5CX01CA08CL12-0393-001	---	---	---

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part 15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicesed Wireless Devices

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part15C Section 15.247 (b)(3)	ANSI C63.10	Conducted Peak Output Power	PASS	Appendix A)
Part15C Section 15.247 (a)(2)	ANSI C63.10	6dB Occupied Bandwidth	PASS	Appendix B)
Part15C Section 15.247(d)	ANSI C63.10	Band-edge for RF Conducted Emissions	PASS	Appendix C)
Part15C Section 15.247(d)	ANSI C63.10	RF Conducted Spurious Emissions	PASS	Appendix D)
Part15C Section 15.247 (e)	ANSI C63.10	Power Spectral Density	PASS	Appendix E)
Part15C Section 15.203/15.247 (c)	ANSI C63.10	Antenna Requirement	PASS	Appendix F)
Part15C Section 15.207	ANSI C63.10	AC Power Line Conducted Emission	PASS	Appendix G)
Part15C Section 15.205/15.209	ANSI C63.10	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix H)
Part15C Section 15.205/15.209	ANSI C63.10	Radiated Spurious Emissions	PASS	Appendix I)

Appendix A): Conducted Peak Output Power

Test Limit

According to §15.247(b)(3),

Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz: 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：

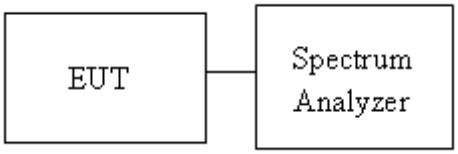
Average output power：For reporting purposes only.

Test Procedure

Test method Refer as KDB 558074 D01.

1. The EUT RF output connected to spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT.
3. Spectrum analyzer settings are as follows：
   a) Set the RBW = 1 MHz.
   b) Set the VBW ⩾ [3 × RBW].
   c) Set the span ⩾ [1.5 × DTS bandwidth].
   d) Detector = peak.
   e) Sweep time = auto couple.
   f) Trace mode = max hold.
   g) Allow trace to fully stabilize.
   h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges.
4. Measure and record the result in the test report.

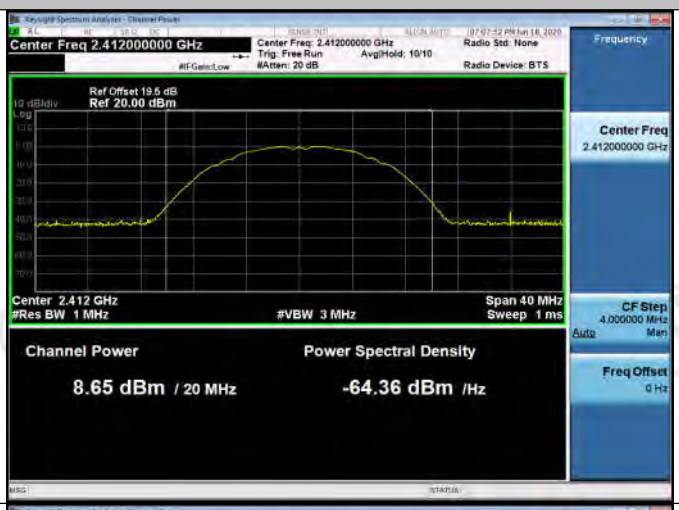
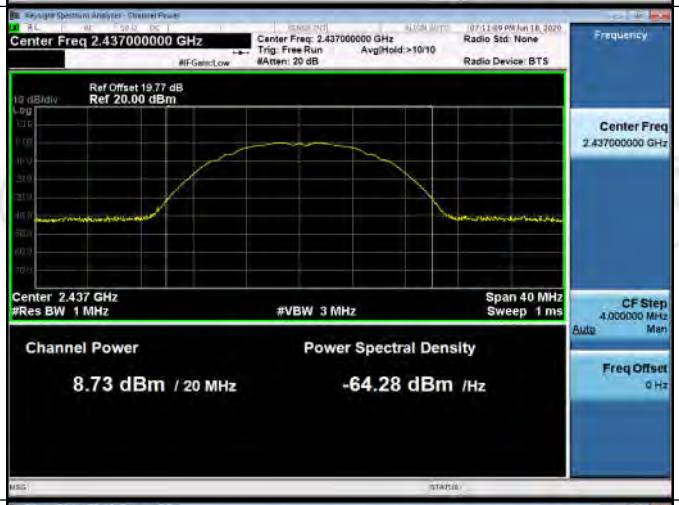
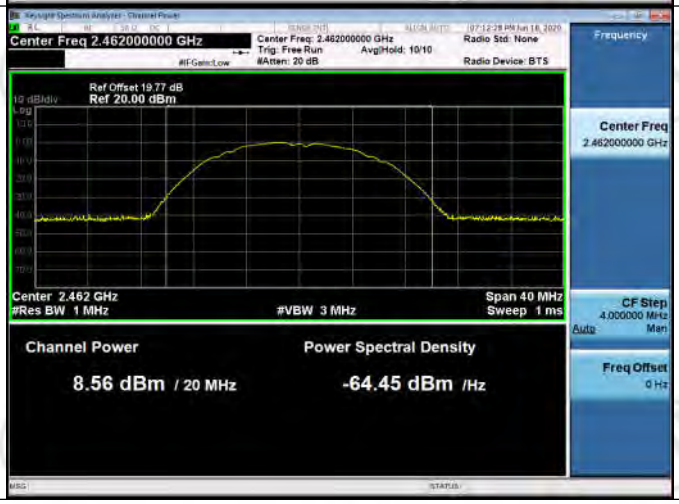
Test Setup

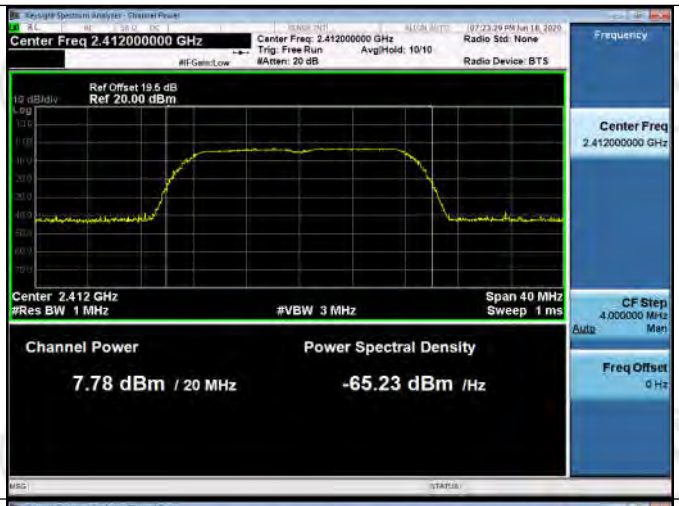
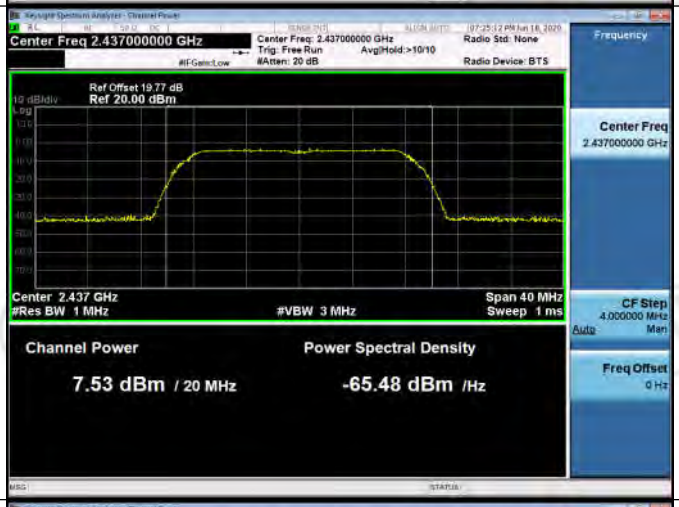
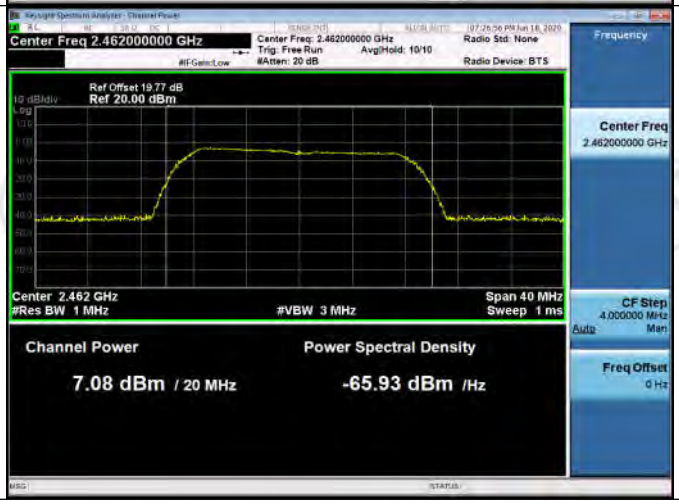


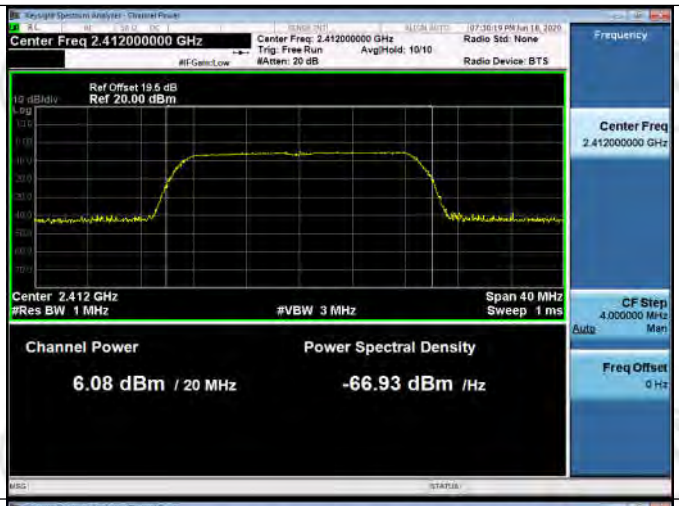
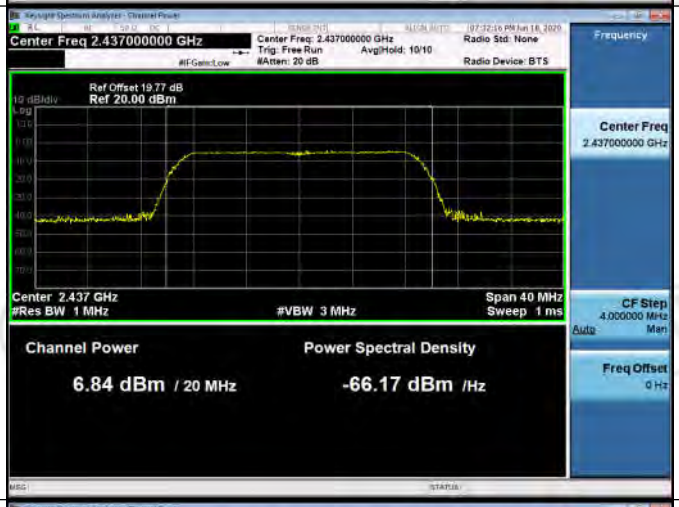
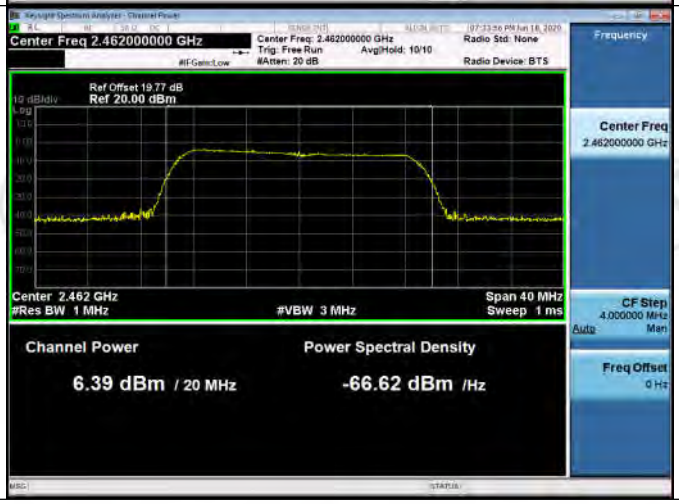
Result Table

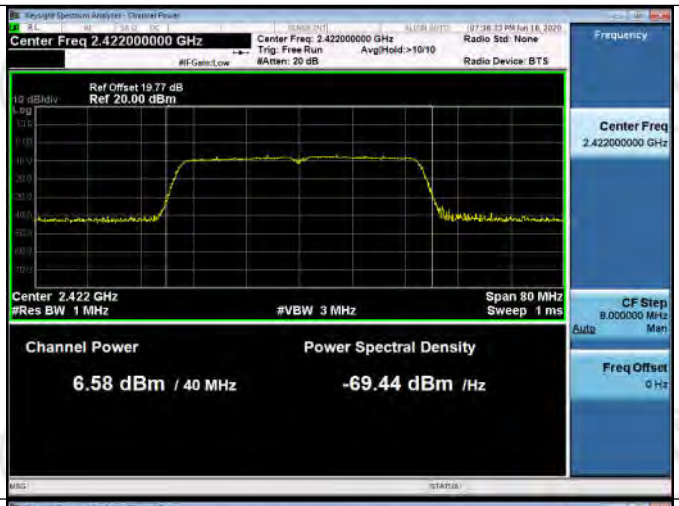
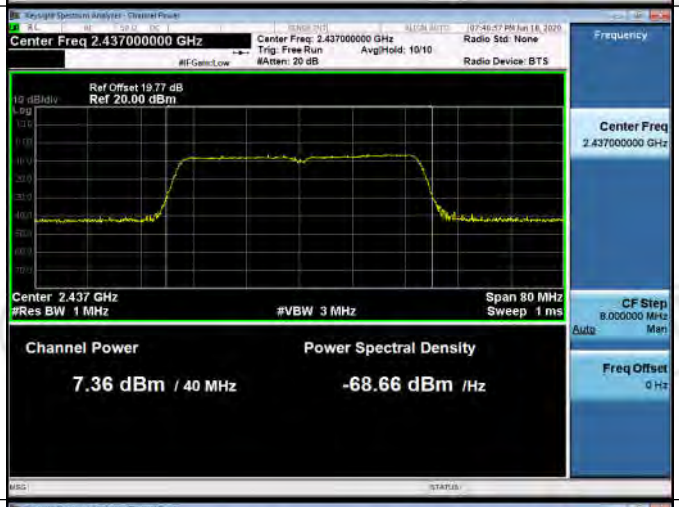
Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	8.65	PASS
11B	MCH	8.73	PASS
11B	HCH	8.56	PASS
11G	LCH	7.78	PASS
11G	MCH	7.53	PASS
11G	HCH	7.08	PASS
11N20SISO	LCH	6.08	PASS
11N20SISO	MCH	6.84	PASS
11N20SISO	HCH	6.39	PASS
11N40SISO	LCH	6.58	PASS
11N40SISO	MCH	7.36	PASS
11N40SISO	HCH	7.14	PASS

Test Graph

Graphs			
11B/LCH			
11B/MCH			
11B/HCH			

11G/LCH		
11G/MCH		
11G/HCH		

11N20SISO/LCH			
11N20SISO/MCH			
11N20SISO/HCH			

11N40SISO/LCH		
11N40SISO/MCH		
11N40SISO/HCH		

Appendix B): 6dB Occupied Bandwidth

Test Limit

According to §15.247(a)(2),

6 dB Bandwidth :

Limit	Shall be at least 500kHz

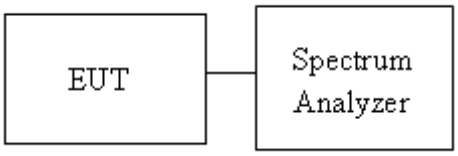
Occupied Bandwidth(99%) : For reporting purposes only.

Test Procedure

Test method Refer as KDB 558074 D01 and ANSI C63.10: 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.

Test Setup



Result Table

6dB OBW

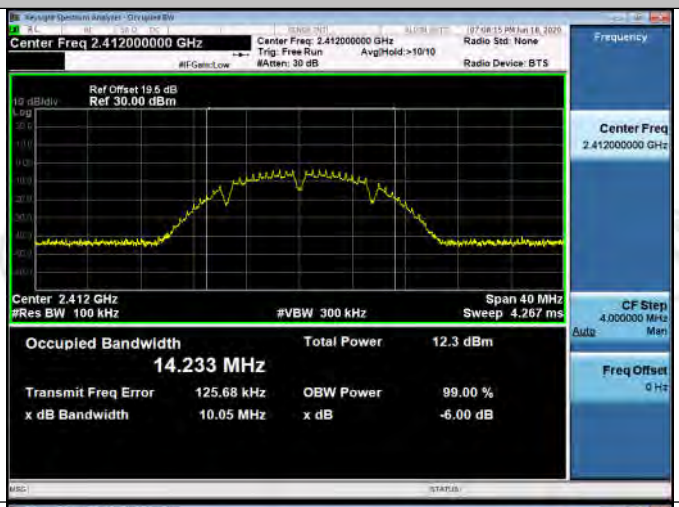
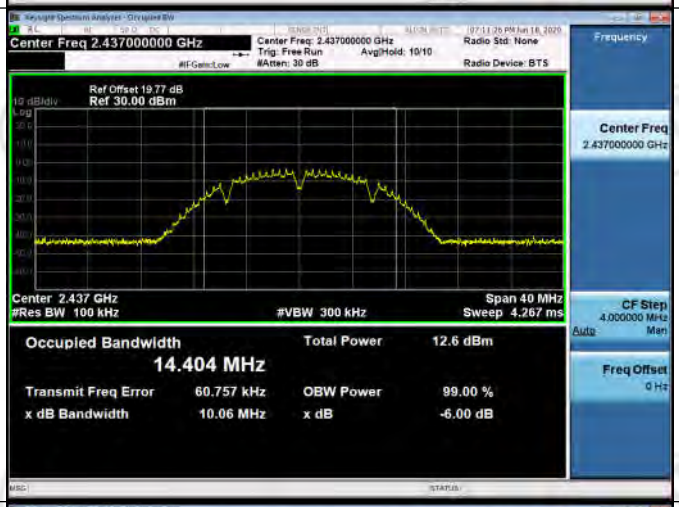
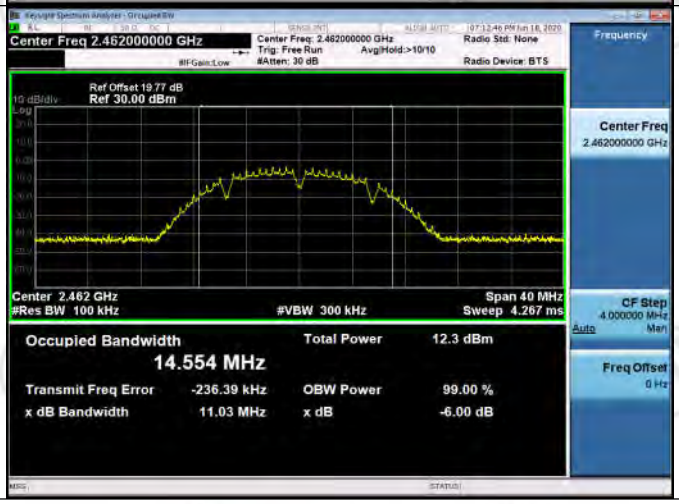
Mode	Channel	6dB Bandwidth [MHz]	Verdict
11B	LCH	10.05	PASS
11B	MCH	10.06	PASS
11B	HCH	11.03	PASS
11G	LCH	16.07	PASS
11G	MCH	16.38	PASS
11G	HCH	15.79	PASS
11N20SISO	LCH	17.42	PASS
11N20SISO	MCH	17.62	PASS
11N20SISO	HCH	15.32	PASS
11N40SISO	LCH	35.43	PASS
11N40SISO	MCH	35.47	PASS
11N40SISO	HCH	35.12	PASS

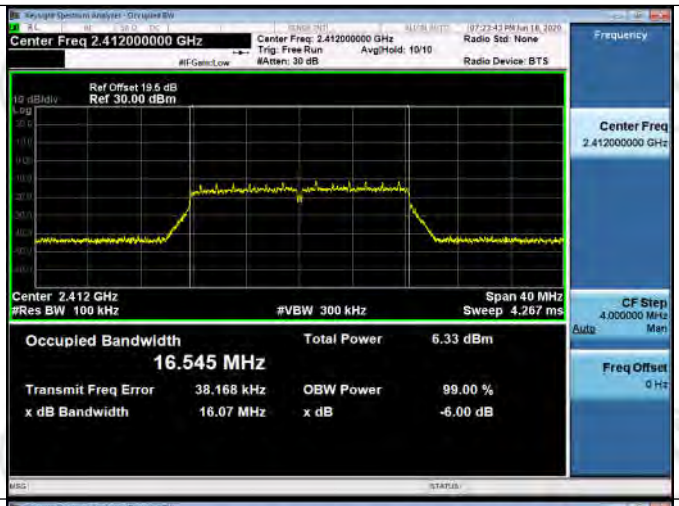
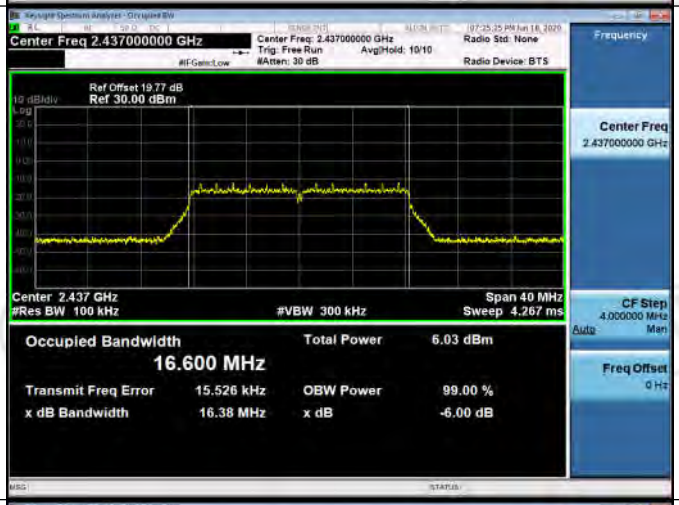
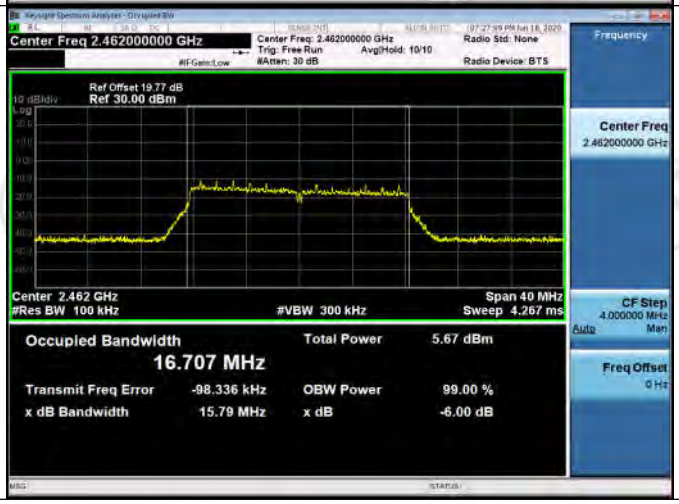
99% OBW

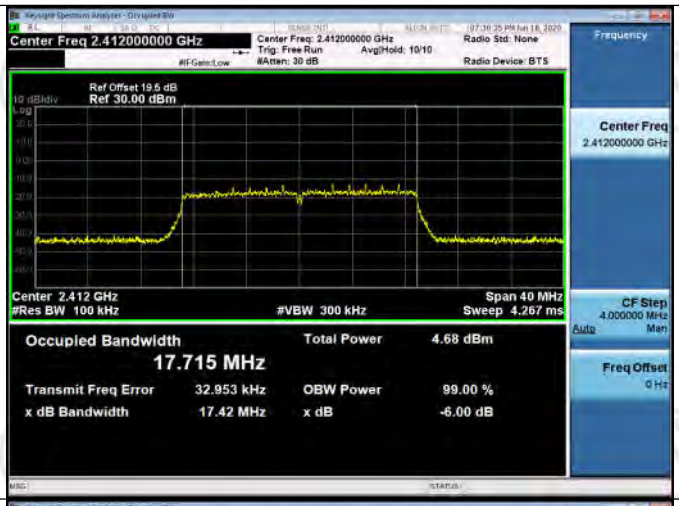
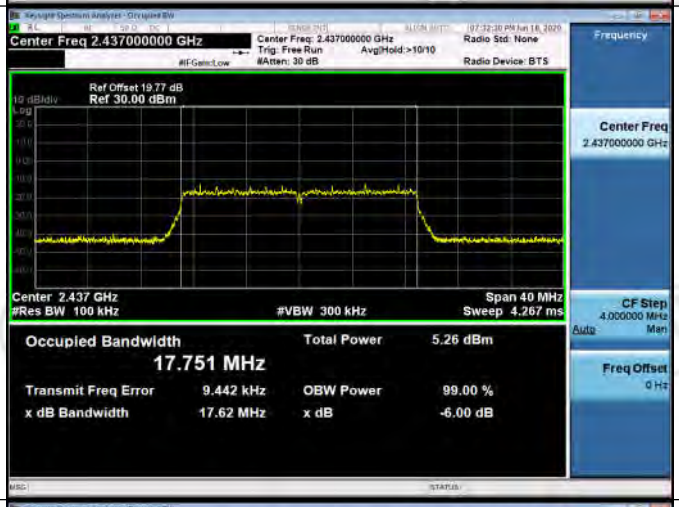
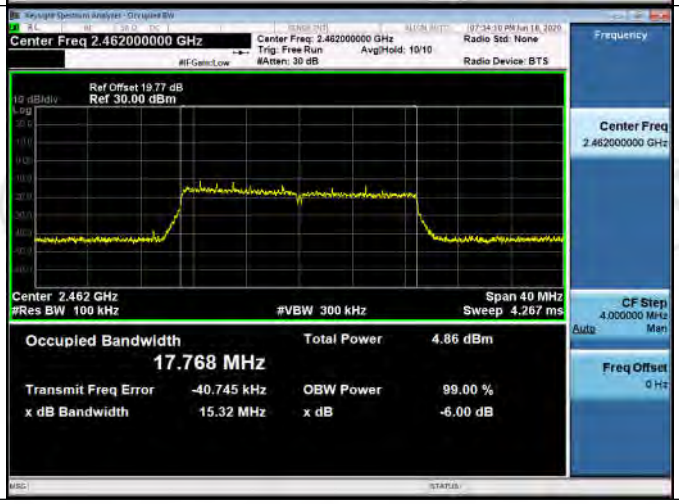
Mode	Channel	99% OBW [MHz]	Verdict
11B	LCH	14.412	PASS
11B	MCH	14.685	PASS
11B	HCH	14.746	PASS
11G	LCH	16.752	PASS
11G	MCH	16.754	PASS
11G	HCH	16.895	PASS
11N20SISO	LCH	17.827	PASS
11N20SISO	MCH	17.880	PASS
11N20SISO	HCH	17.903	PASS
11N40SISO	LCH	36.513	PASS
11N40SISO	MCH	36.540	PASS
11N40SISO	HCH	36.382	PASS

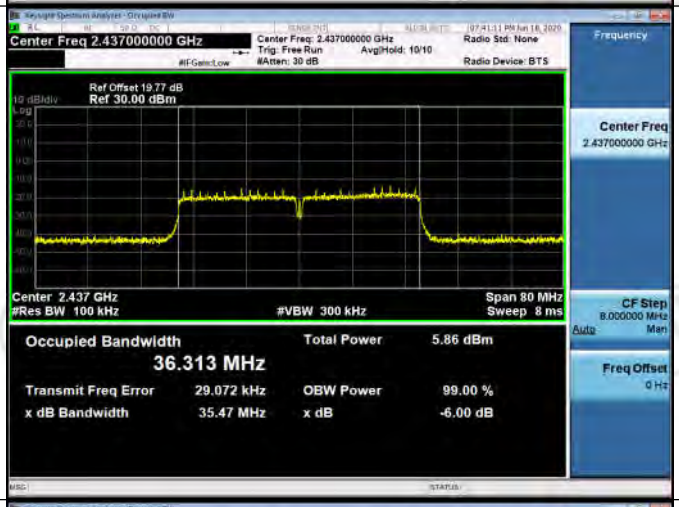
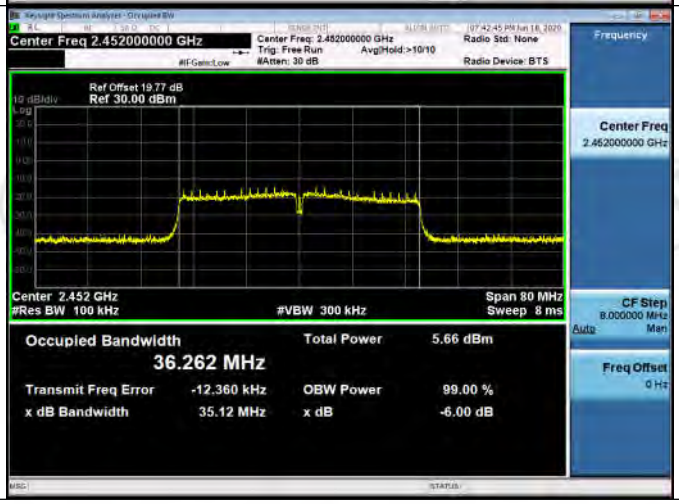
6dB OBW

Test Graph

Graphs			
11B/LCH			
11B/MCH			
11B/HCH			

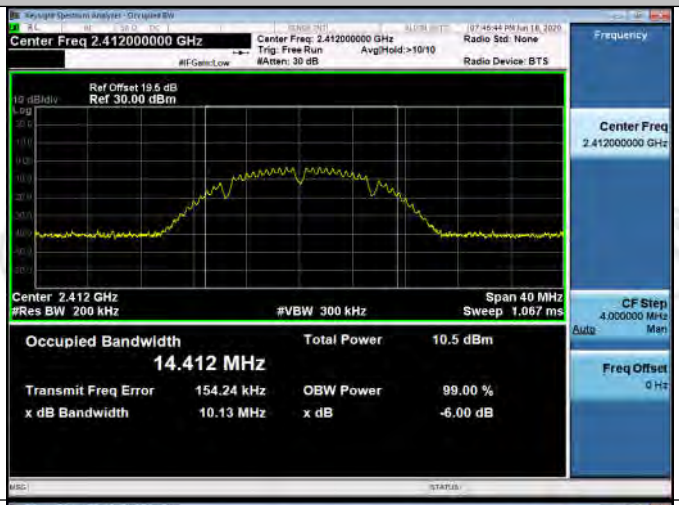
11G/LCH		
11G/MCH		
11G/HCH		

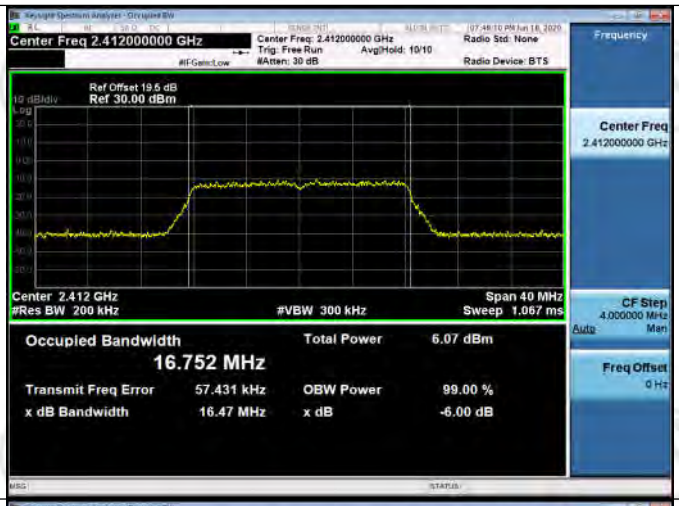
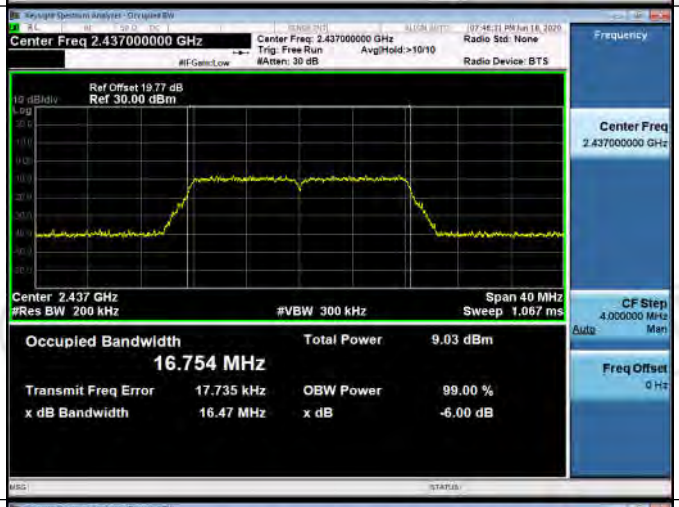
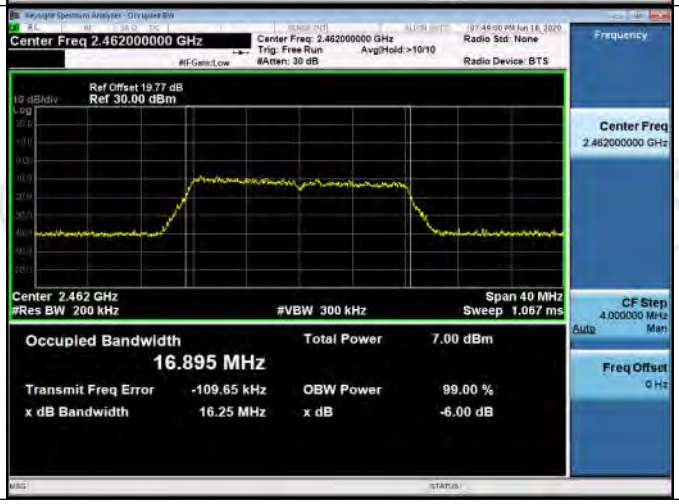
11N20SISO/LCH		
11N20SISO/MCH		
11N20SISO/HCH		

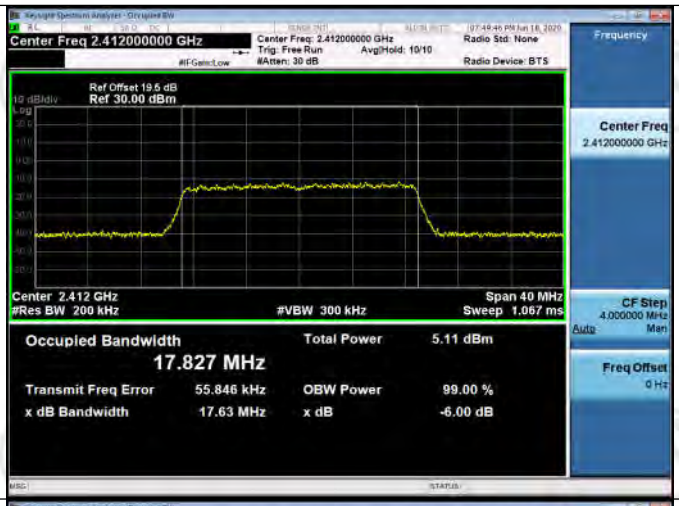
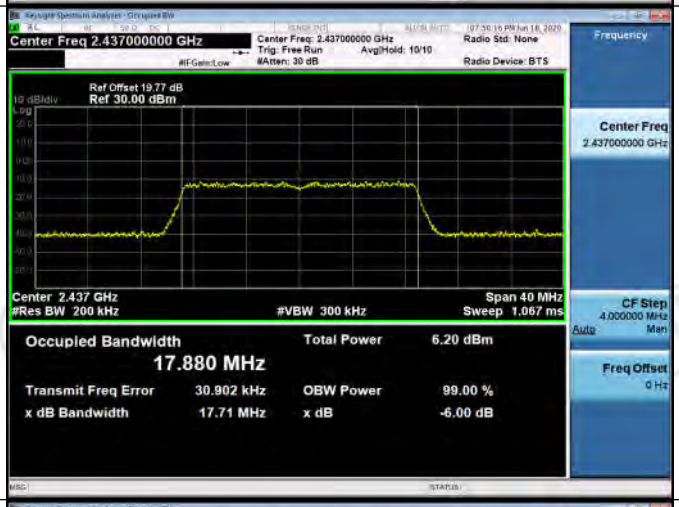
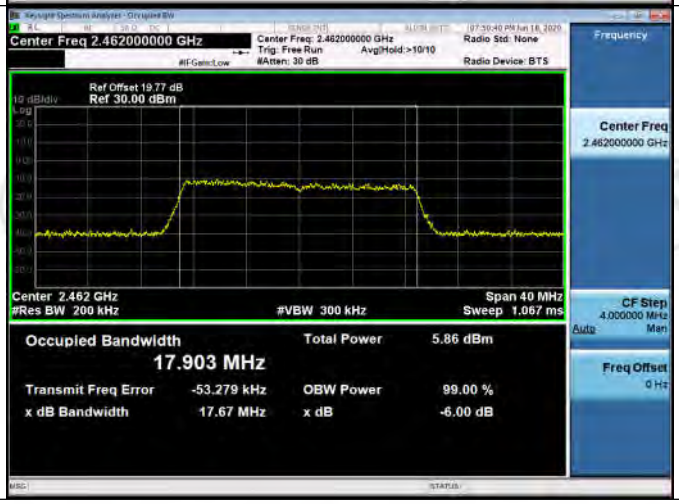
11N40SISO/LCH			
11N40SISO/MCH			
11N40SISO/HCH			

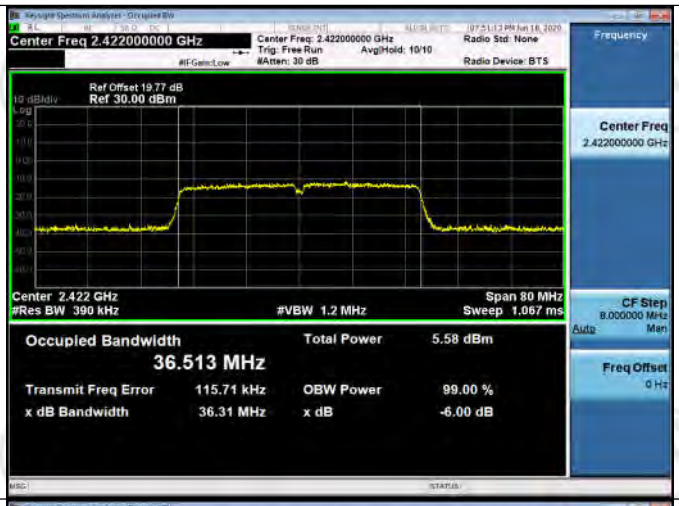
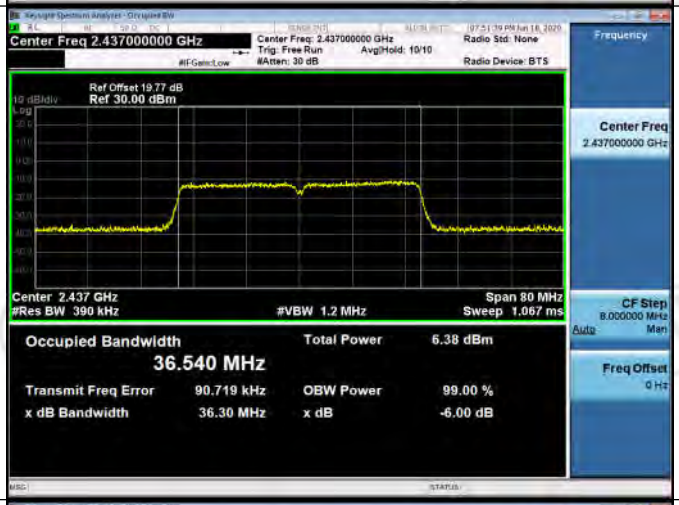
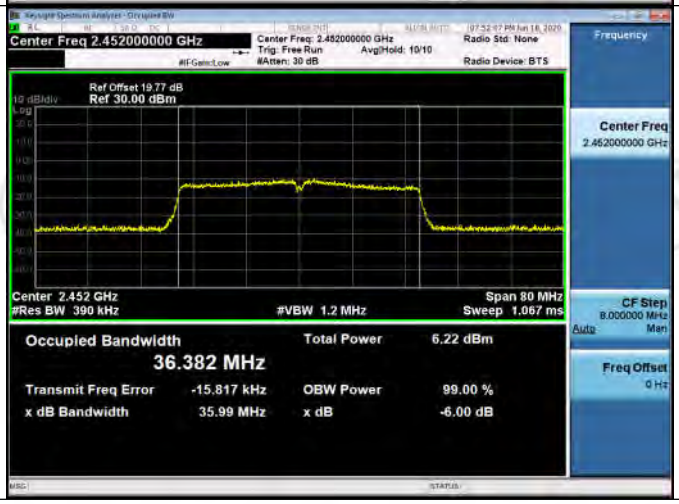
99% OBW

Test Graph

Graphs			
11B/LCH			
11B/MCH			
11B/HCH			

11G/LCH		
11G/MCH		
11G/HCH		

11N20SISO/LCH		
11N20SISO/MCH		
11N20SISO/HCH		

11N40SISO/LCH			
11N40SISO/MCH			
11N40SISO/HCH			

Appendix C): Band-edge for RF Conducted Emissions

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).

Test Procedure

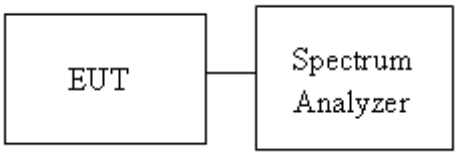
Test method Refer as KDB 558074 D01.

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.

Test Setup

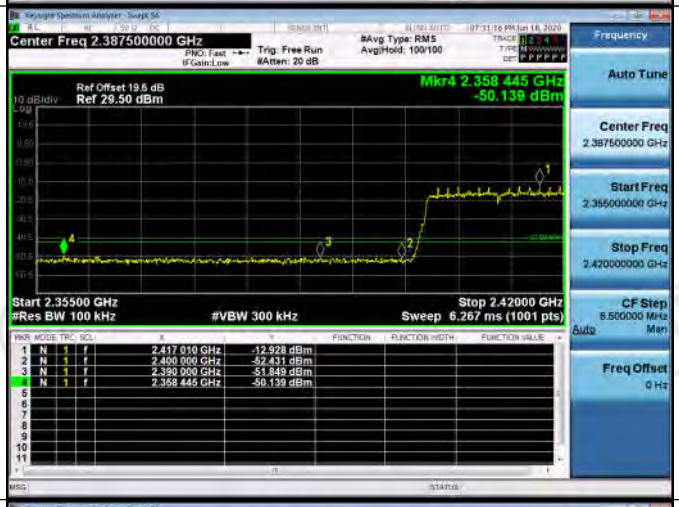


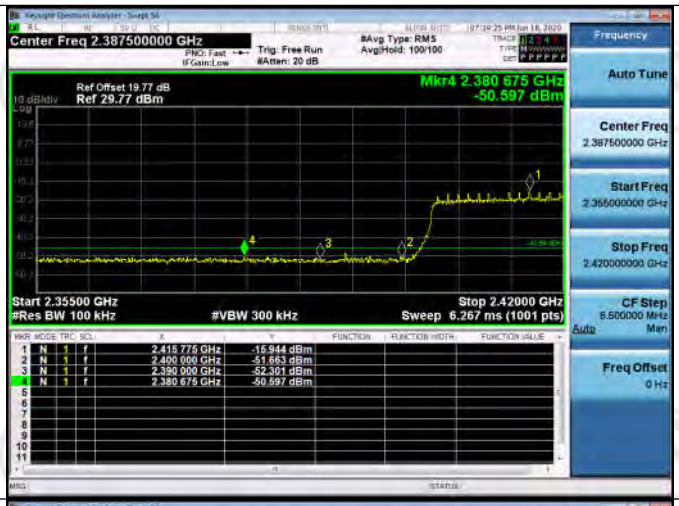
Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-3.389	-50.602	-33.39	PASS
11B	HCH	-3.617	-50.152	-33.62	PASS
11G	LCH	-10.935	-50.654	-40.94	PASS
11G	HCH	-10.698	-49.166	-40.7	PASS
11N20SISO	LCH	-12.928	-50.139	-42.93	PASS
11N20SISO	HCH	-11.923	-49.075	-41.92	PASS
11N40SISO	LCH	-15.944	-50.597	-45.94	PASS
11N40SISO	HCH	-14.039	-48.748	-44.04	PASS

Test Graph

Graphs			
11B/LCH			
11B/HCH			
11G/LCH			

11G/HCH		
11N20SISO/LCH		
11N20SISO/HCH		

11N40SISO/LCH			
11N40SISO/HCH			

Appendix D): RF Conducted Spurious Emissions

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).

Test Procedure

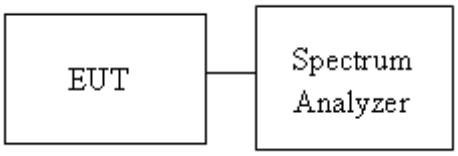
Test method Refer as KDB 558074 D01.

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.

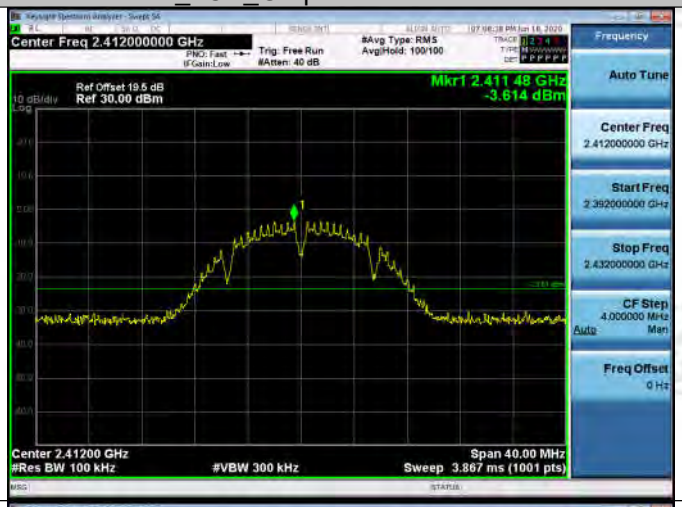
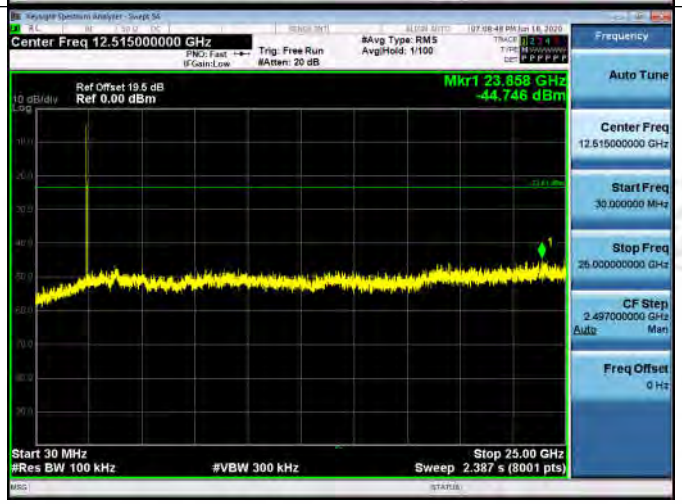
Test Setup

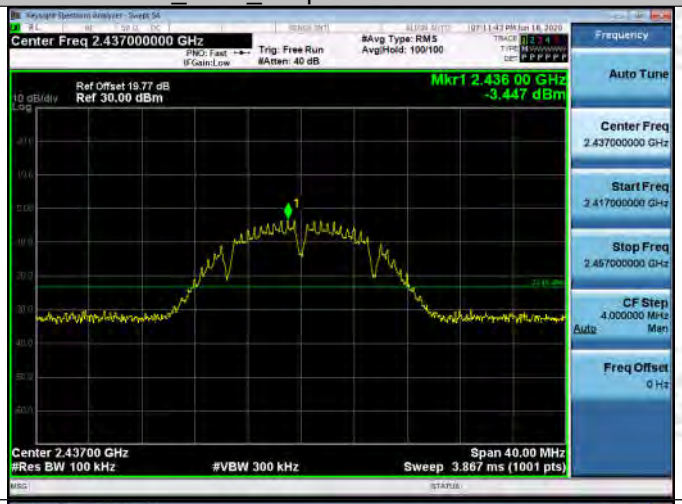


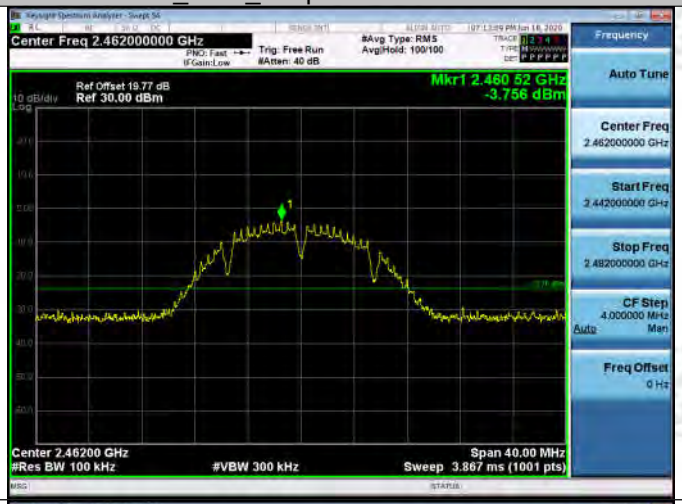
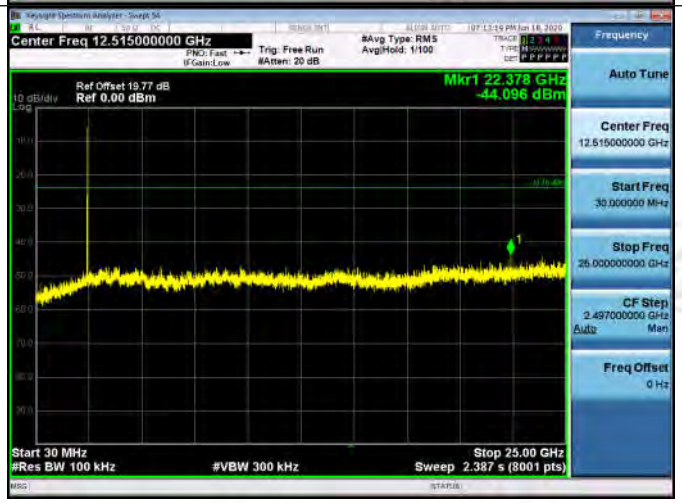
Result Table

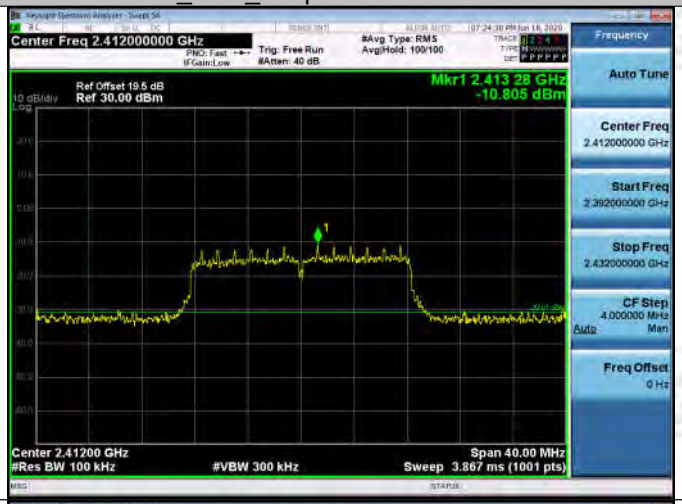
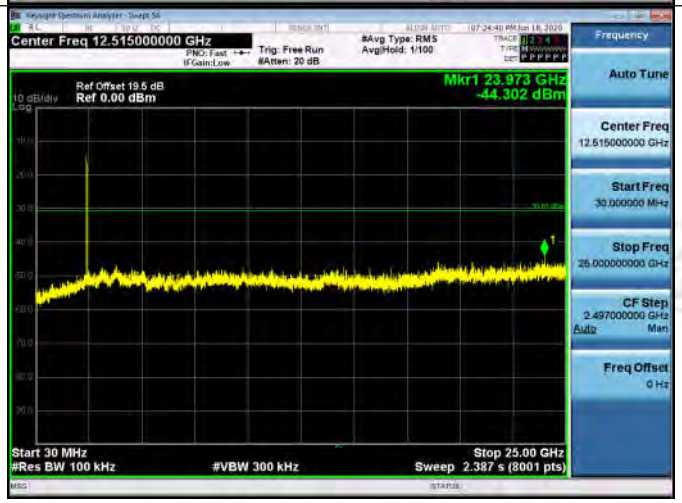
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	-3.614	<Limit	PASS
11B	MCH	-3.447	<Limit	PASS
11B	HCH	-3.756	<Limit	PASS
11G	LCH	-10.805	<Limit	PASS
11G	MCH	-11.507	<Limit	PASS
11G	HCH	-11.34	<Limit	PASS
11N20SISO	LCH	-12.321	<Limit	PASS
11N20SISO	MCH	-12.186	<Limit	PASS
11N20SISO	HCH	-11.301	<Limit	PASS
11N40SISO	LCH	-15.066	<Limit	PASS
11N40SISO	MCH	-13.803	<Limit	PASS
11N40SISO	HCH	-13.628	<Limit	PASS

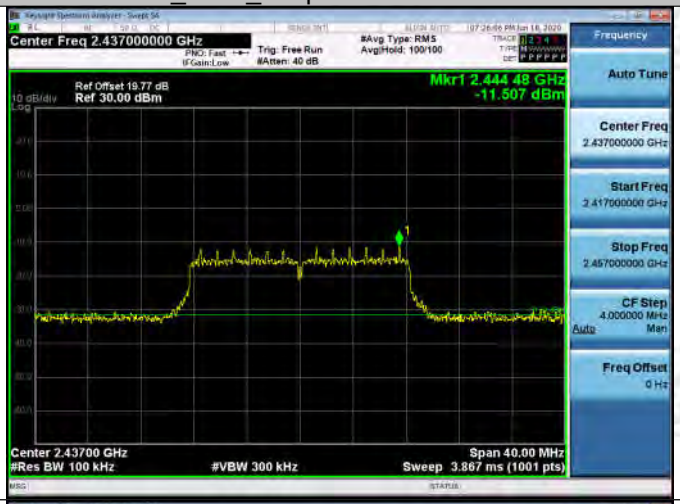
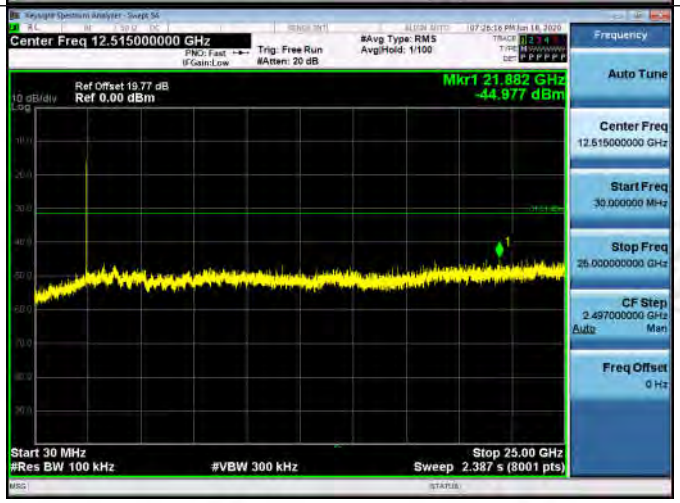
Test Graph

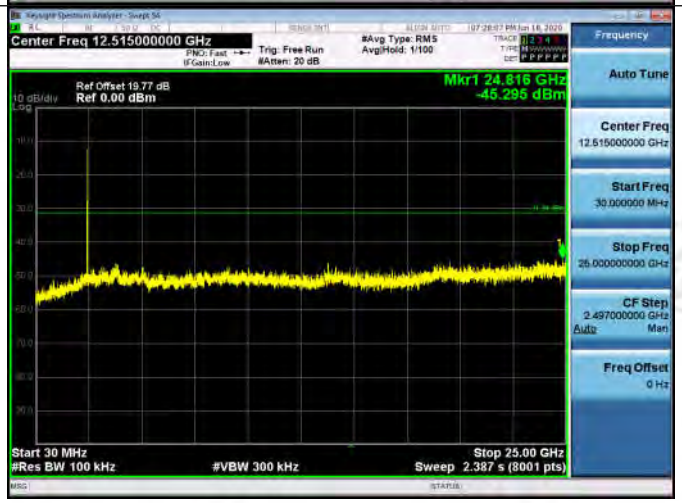
11B_LCH_Graphs	
Pref/11B/LCH	
Puw/11B/LCH	

11B_MCH_Graphs		
Pref/11B/MCH		
Puw/11B/MCH		

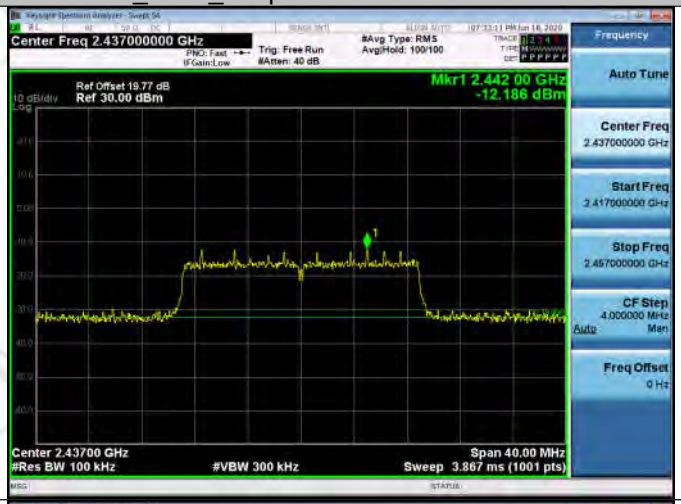
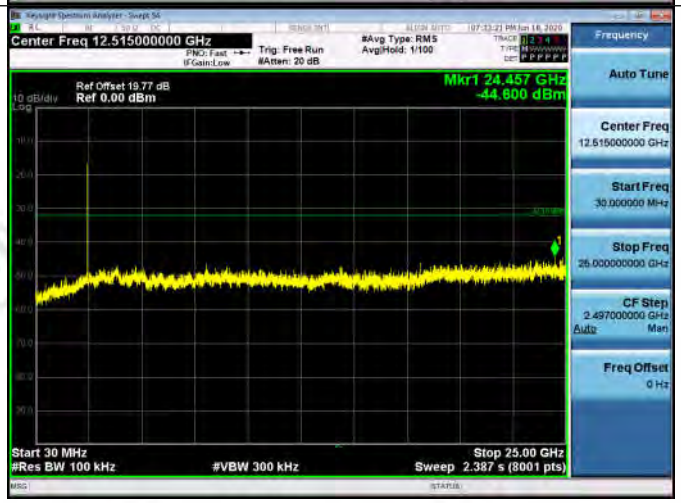
11B_HCH_Graphs		
Pref/11B/HCH		
Puw/11B/HCH		

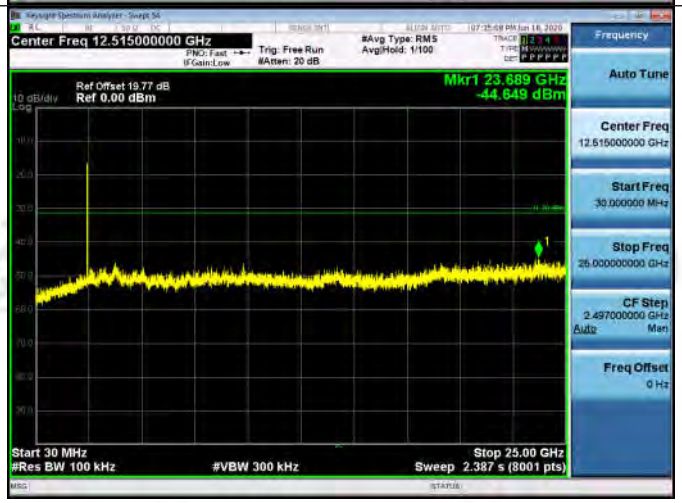
11G_LCH_Graphs		
Pref/11G/LCH		
Puw/11G/LCH		

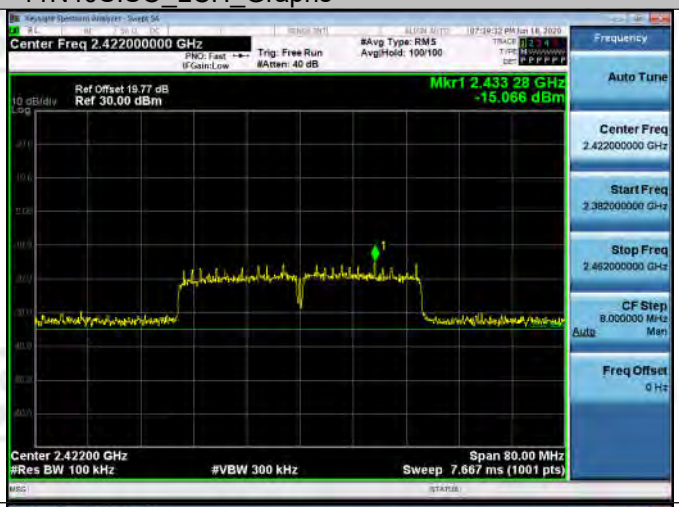
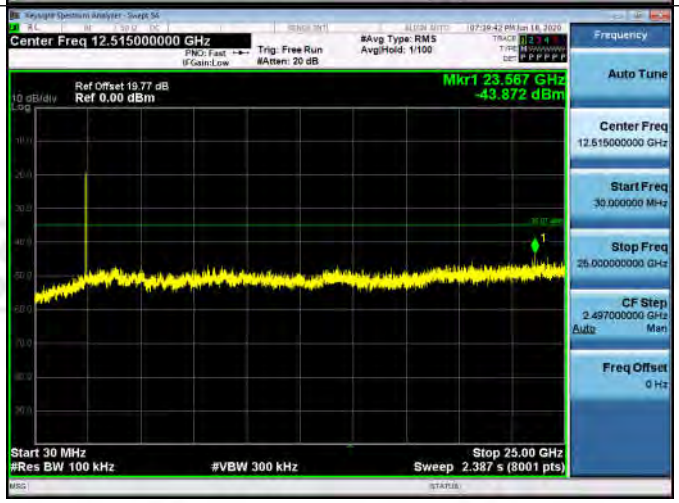
11G_MCH_Graphs		
Pref/11G/MCH		
Puw/11G/MCH		

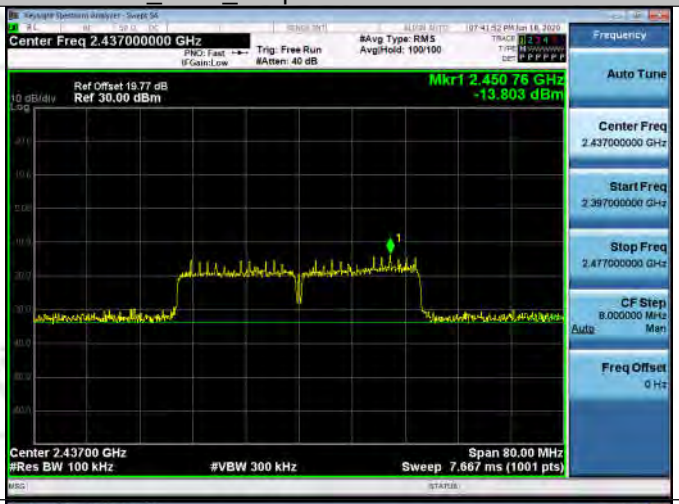
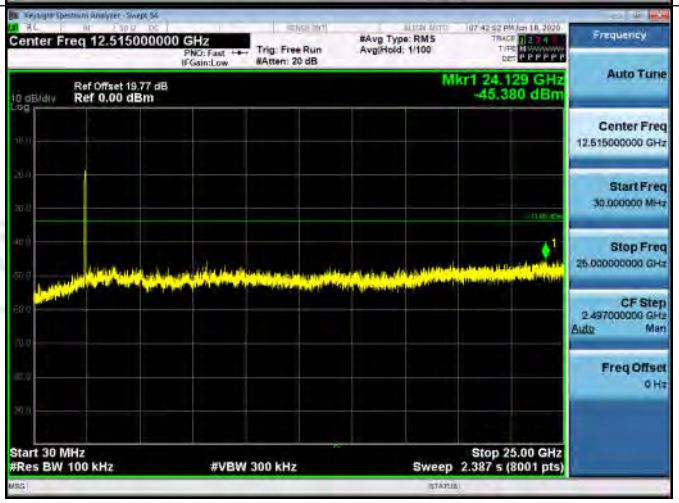
11G_HCH_Graphs		
Pref/11G/HCH		
Puw/11G/HCH		

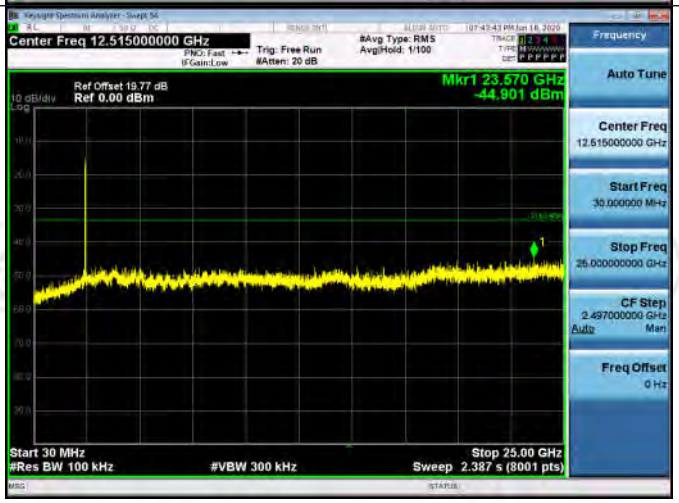
11N20SISO_LCH_Graphs		
Pref/11N20SISO/LCH		
/11N20SISO/LCH		

11N20SISO_MCH_Graphs	
Pref/11N20SISO/MCH	
Puw/11N20SISO/MCH	

11N20SISO_HCH_Graphs	
Pref/11N20SISO/HCH	
Puw/11N20SISO/HCH	

11N40SISO_LCH_Graphs		
Pref/11N40SISO/LCH		
Puw/11N40SISO/LCH		

11N40SISO_MCH_Graphs	
Pref/11N40SISO/MCH	
Puw/11N40SISO/MCH	

11N40SISO_HCH_Graphs	
Pref/11N40SISO/HCH	
Puw/11N40SISO/HCH	

Appendix E): Power Spectral Density

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.

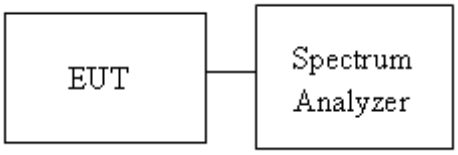
Limit	☒ Antenna not exceed 6 dBi：8dBm ☐ Antenna with DG greater than 6 dBi： [Limit = 8 – (DG – 6)] ☐ Point-to-point operation：

Test Procedure

Test method Refer as KDB 558074 D01.

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 = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss was 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.

Test Setup

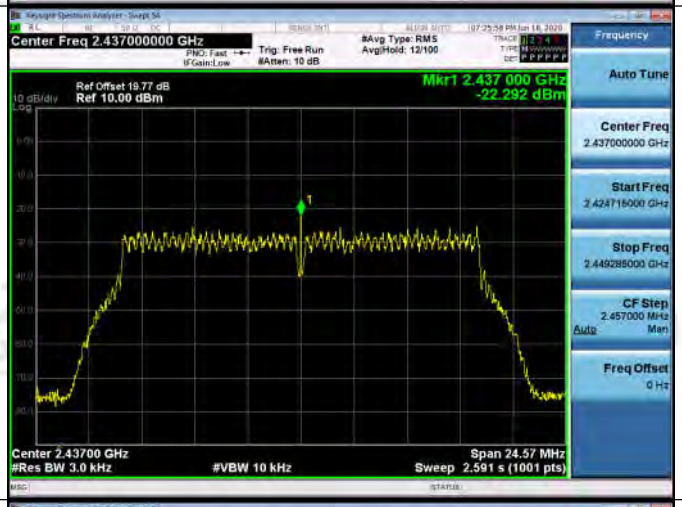
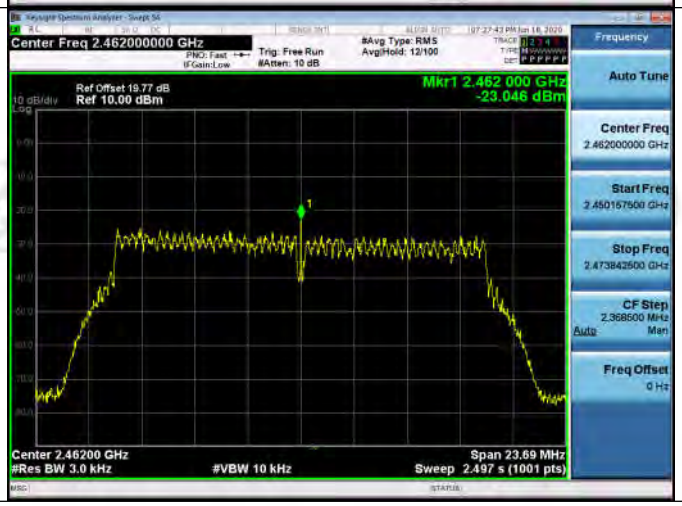


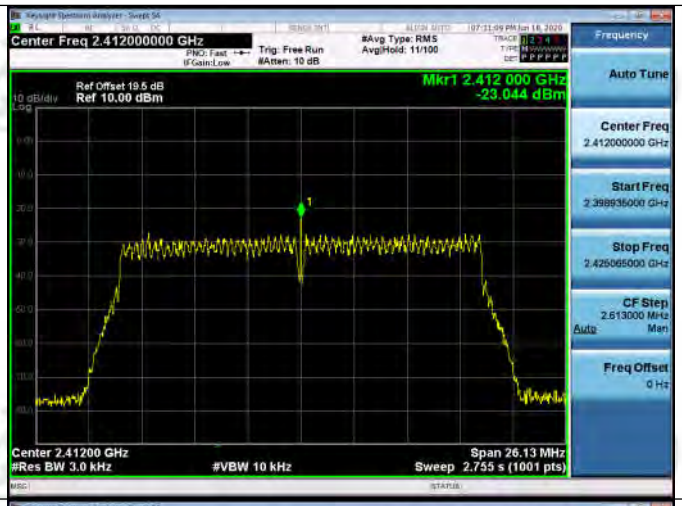
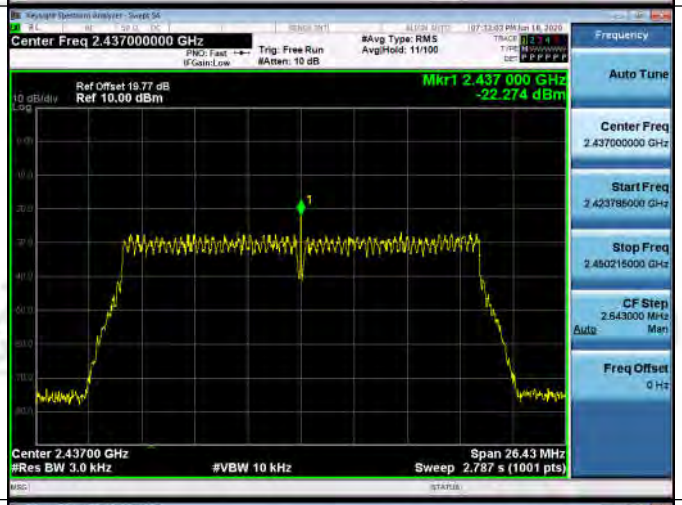
Result Table

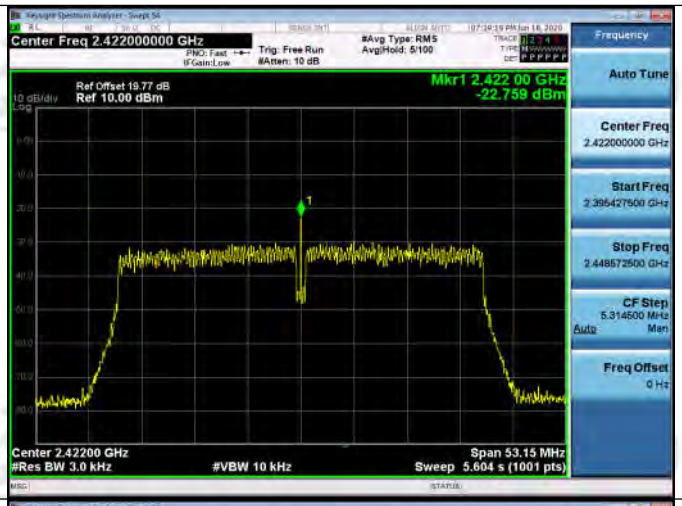
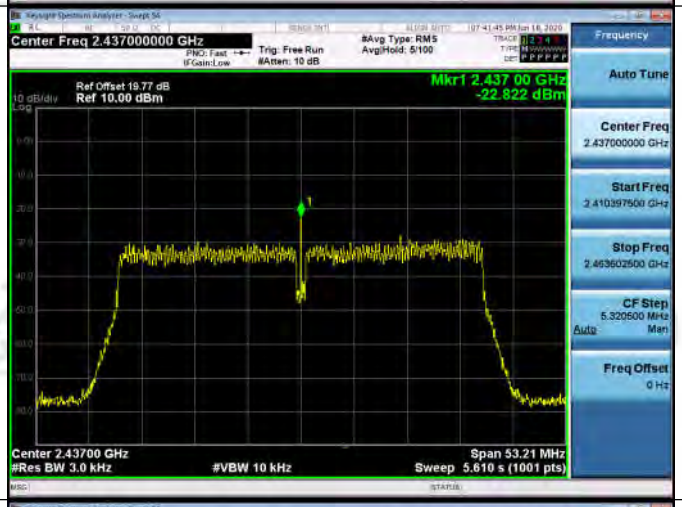
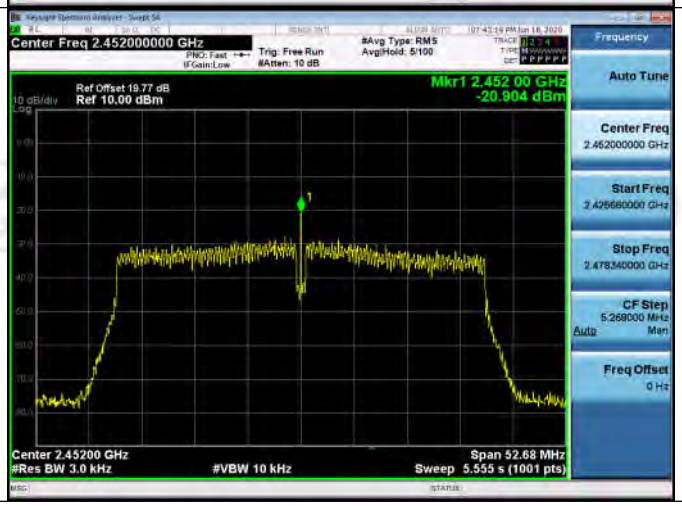
Mode	Channel	Power Spectral Density [dBm]	Verdict
11B	LCH	-16.586	PASS
11B	MCH	-18.487	PASS
11B	HCH	-18.796	PASS
11G	LCH	-24.596	PASS
11G	MCH	-22.292	PASS
11G	HCH	-23.046	PASS
11N20SISO	LCH	-23.044	PASS
11N20SISO	MCH	-22.274	PASS
11N20SISO	HCH	-23.166	PASS
11N40SISO	LCH	-22.759	PASS
11N40SISO	MCH	-22.822	PASS
11N40SISO	HCH	-20.904	PASS

Test Graph

Graphs			
11B/LCH			
11B/MCH			
11B/HCH			

11G/LCH			
11G/MCH			
11G/HCH			

11N20SISO/LCH			
11N20SISO/MCH			
11N20SISO/HCH			

11N40SISO/LCH			
11N40SISO/MCH			
11N40SISO/HCH			

Appendix F): Antenna Requirement

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 3 dBi

Appendix G): AC Power Line Conducted Emission

<table>
<tr><td>Test Procedure:</td><td>Test frequency range :150KHz-30MHz
1)The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3)The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBμV)</th></tr>
<tr><th>Quasi-peak</th><th>Average</th></tr>
<tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr>
<tr><td>0.5-5</td><td>56</td><td>46</td></tr>
<tr><td>5-30</td><td>60</td><td>50</td></tr>
</table>
* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.
NOTE : The lower limit is applicable at the transition frequency</td></tr>
</table>

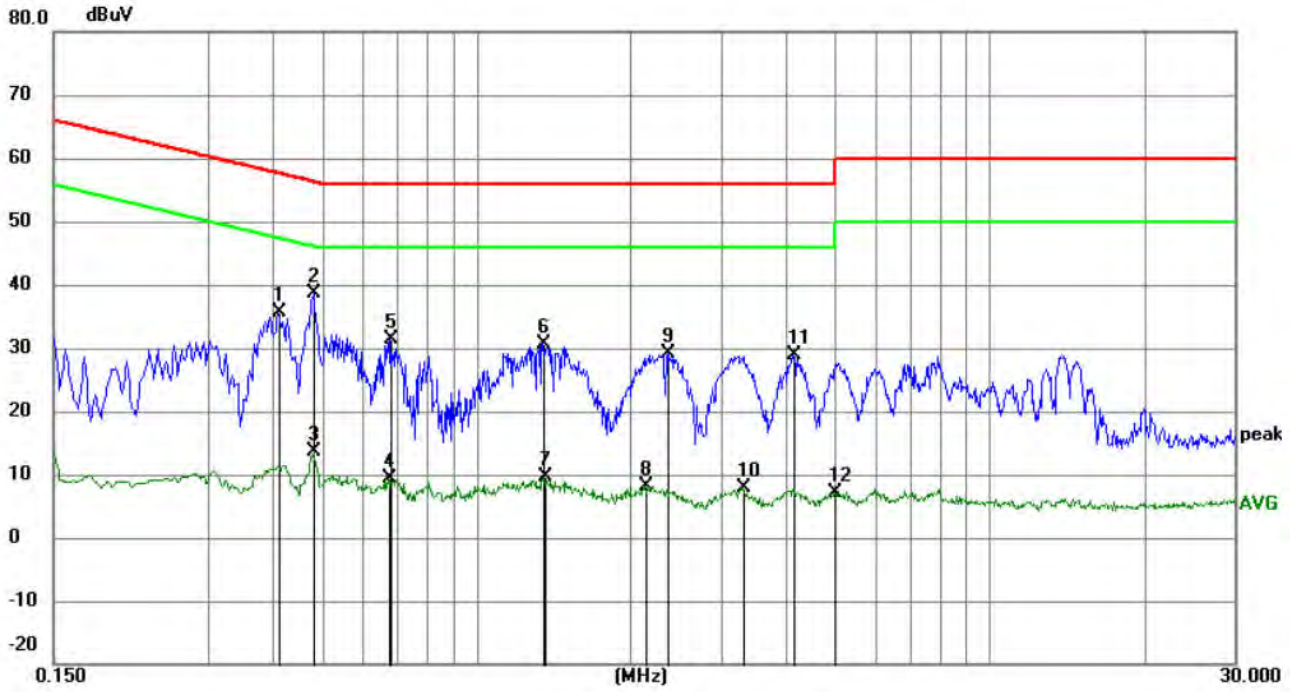
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

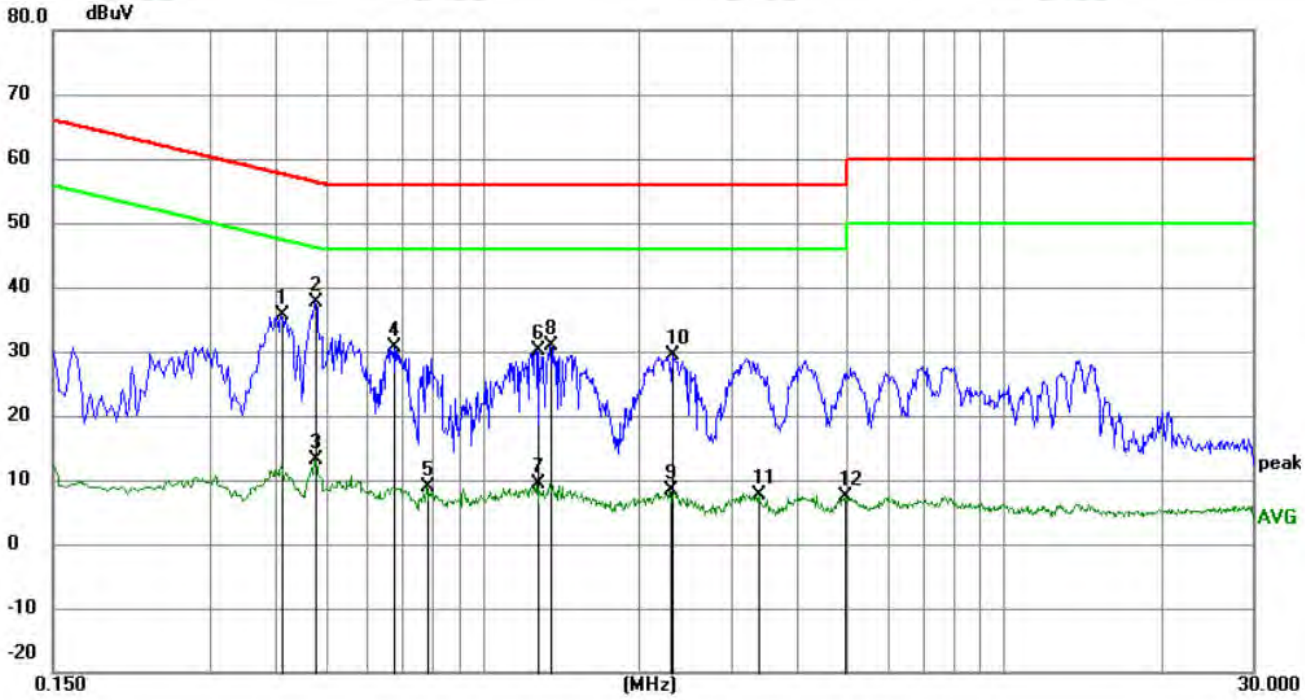
Product	:	Smart Helmet	**Model/Type reference**	:	KC-N901
Temperature	:	23℃	**Humidity**	:	54%

Live line:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4110	25.69	10.00	35.69	57.63	-21.94	QP	
2	*	0.4830	28.72	10.00	38.72	56.29	-17.57	QP	
3		0.4830	3.52	10.00	13.52	46.29	-32.77	AVG	
4		0.6720	-0.50	9.77	9.27	46.00	-36.73	AVG	
5		0.6809	21.58	9.73	31.31	56.00	-24.69	QP	
6		1.3515	20.76	9.88	30.64	56.00	-25.36	QP	
7		1.3560	-0.31	9.88	9.57	46.00	-36.43	AVG	
8		2.1390	-1.64	9.83	8.19	46.00	-37.81	AVG	
9		2.3640	19.32	9.83	29.15	56.00	-26.85	QP	
10		3.2955	-1.87	9.83	7.96	46.00	-38.04	AVG	
11		4.1415	19.13	9.83	28.96	56.00	-27.04	QP	
12		4.9785	-2.75	9.83	7.08	46.00	-38.92	AVG	

Neutral line:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4110	25.71	10.00	35.71	57.63	-21.92	QP	
2	*	0.4785	27.55	10.00	37.55	56.37	-18.82	QP	
3		0.4785	3.22	10.00	13.22	46.37	-33.15	AVG	
4		0.6765	20.79	9.75	30.54	56.00	-25.46	QP	
5		0.7799	-0.88	9.86	8.98	46.00	-37.02	AVG	
6		1.2750	20.34	9.89	30.23	56.00	-25.77	QP	
7		1.2750	-0.50	9.89	9.39	46.00	-36.61	AVG	
8		1.3515	21.11	9.88	30.99	56.00	-25.01	QP	
9		2.2920	-1.54	9.83	8.29	46.00	-37.71	AVG	
10		2.3190	19.46	9.83	29.29	56.00	-26.71	QP	
11		3.3855	-2.08	9.83	7.75	46.00	-38.25	AVG	
12		4.9740	-2.40	9.83	7.43	46.00	-38.57	AVG	

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

Appendix H): Restricted bands around fundamental frequency (Radiated)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
h. Test the EUT in the lowest channel , the Highest channel
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
j. Repeat above procedures until all frequencies measured was complete.

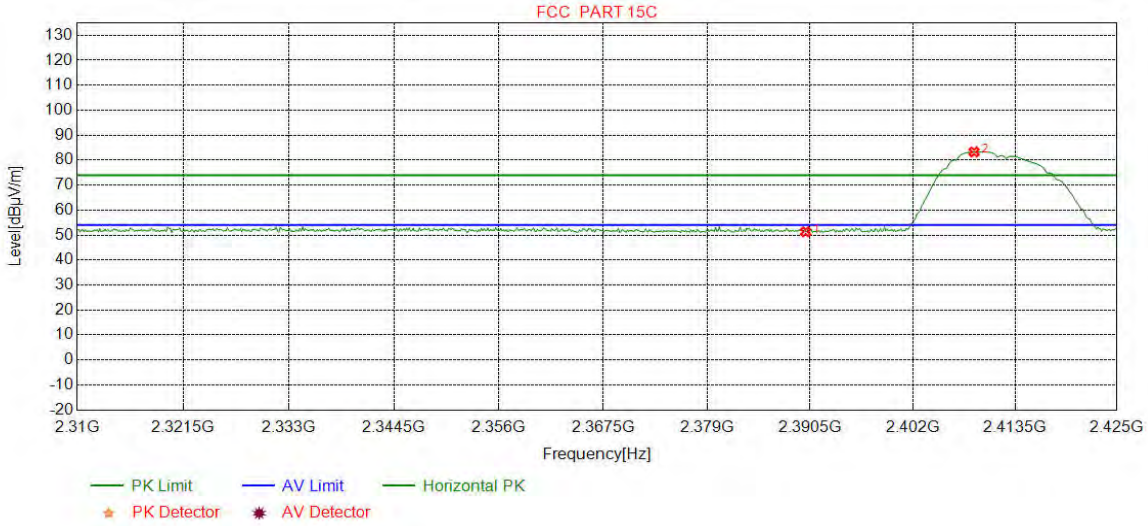
Limit:

Frequency	Limit (dBμV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test plot as follows:

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2412
Remark:	PK		

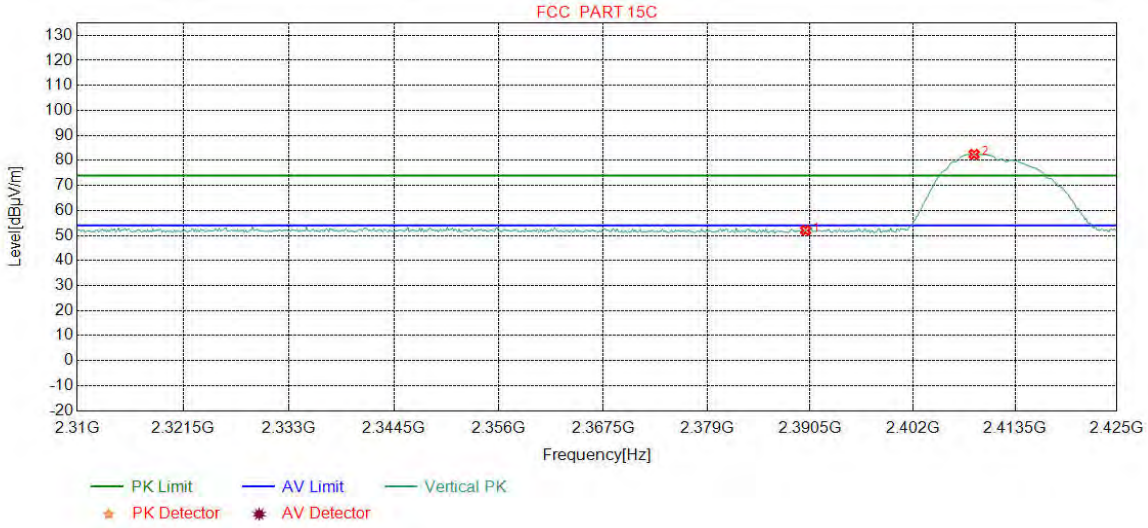
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	48.81	51.31	74.00	22.69	Pass	Horizontal
2	2408.8799	32.27	13.34	-43.11	80.79	83.29	74.00	-9.29	Pass	Horizontal

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2412
Remark:	PK		

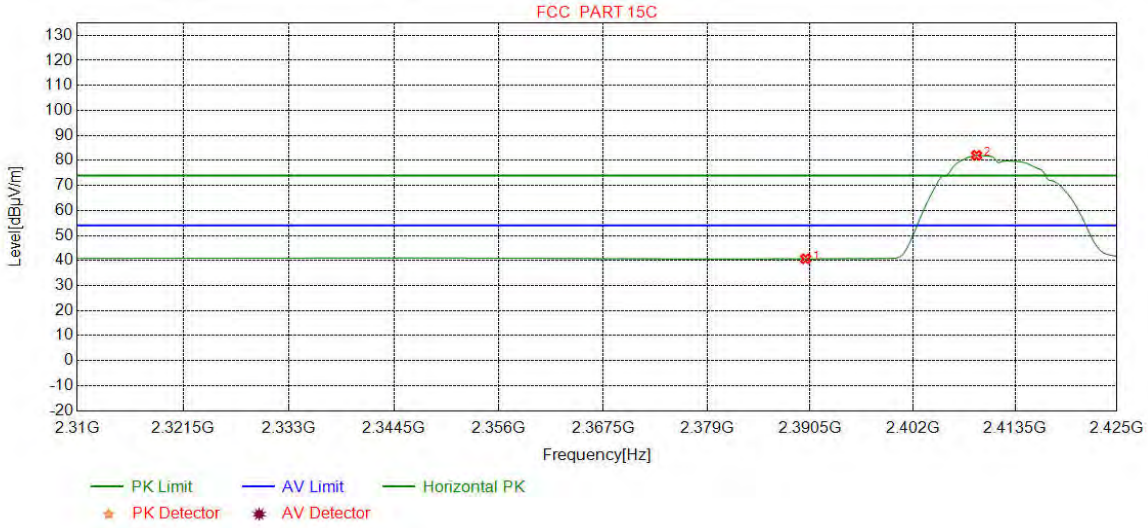
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	49.58	52.08	74.00	21.92	Pass	Vertical
2	2408.8799	32.27	13.34	-43.11	79.95	82.45	74.00	-8.45	Pass	Vertical

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2412
Remark:	AV		

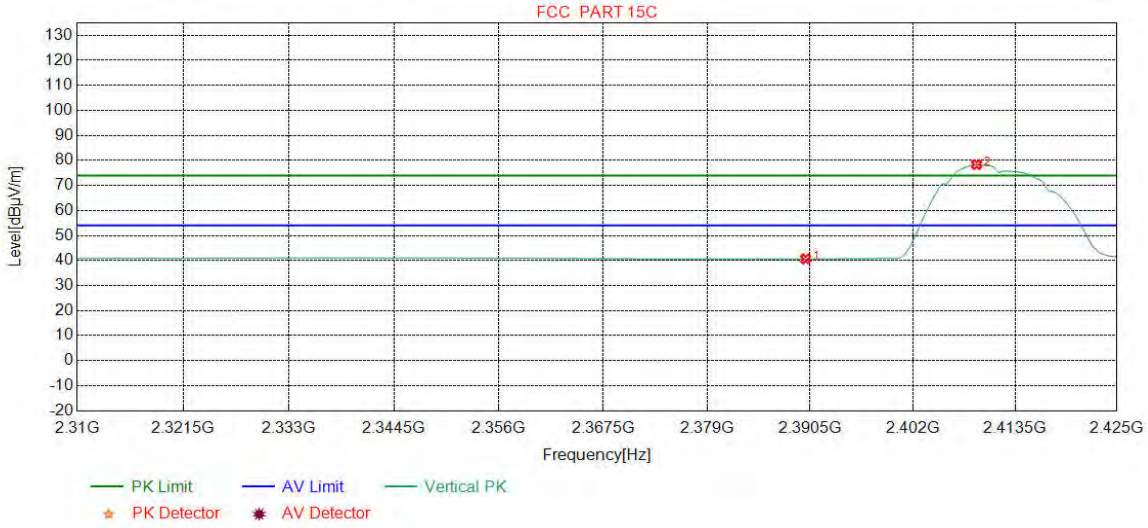
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.18	40.68	54.00	13.32	Pass	Horizontal
2	2409.1677	32.27	13.34	-43.11	79.53	82.03	54.00	-28.03	Pass	Horizontal

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2412
Remark:	AV		

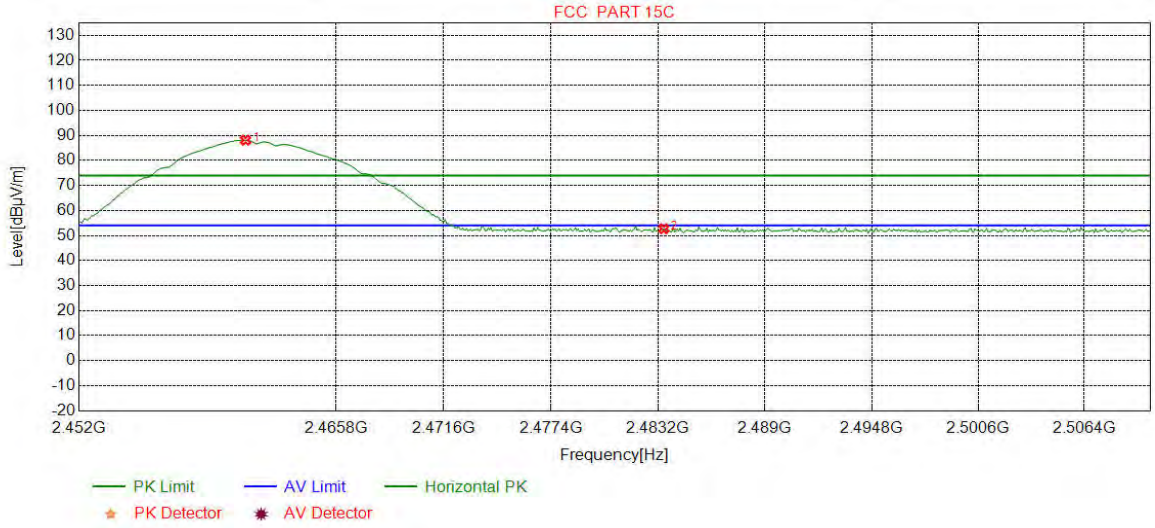
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.14	40.64	54.00	13.36	Pass	Vertical
2	2409.1677	32.27	13.34	-43.11	75.84	78.34	54.00	-24.34	Pass	Vertical

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2462
Remark:	PK		

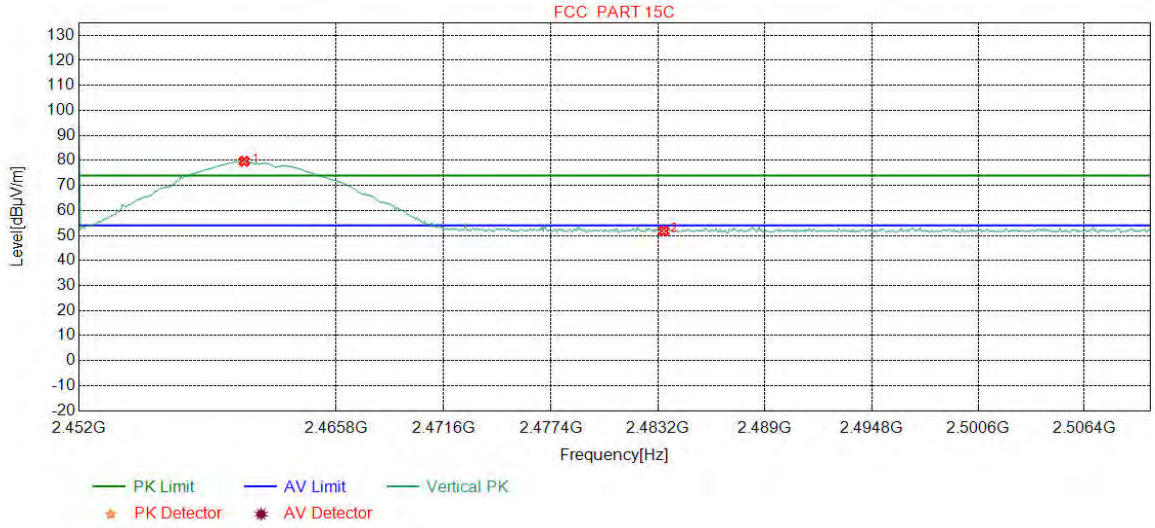
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2460.9287	32.35	13.48	-43.11	85.38	88.10	74.00	-14.10	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	50.05	52.70	74.00	21.30	Pass	Horizontal

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2462
Remark:	PK		

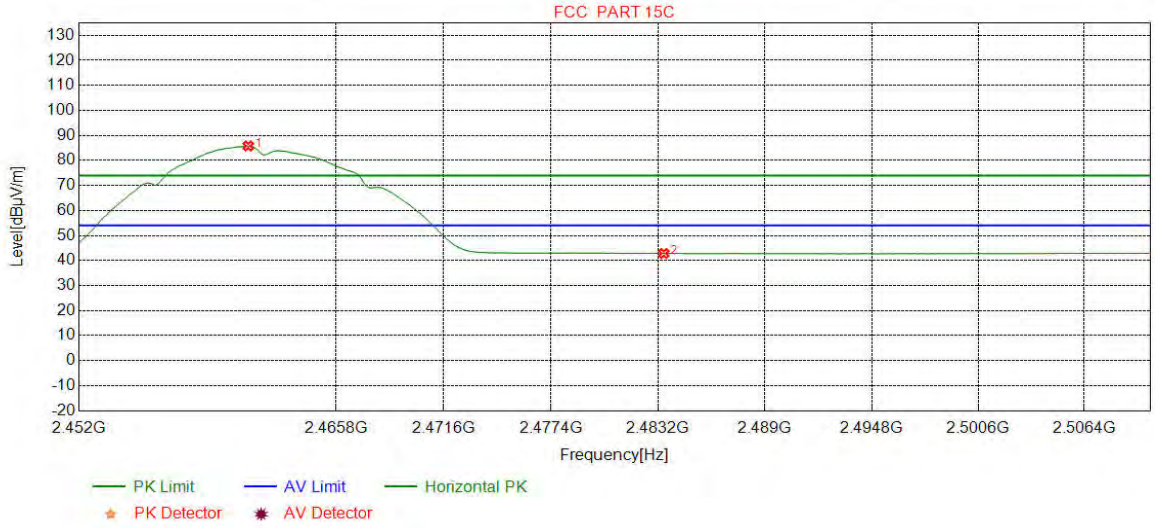
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2460.8561	32.35	13.48	-43.11	76.91	79.63	74.00	-5.63	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	49.15	51.80	74.00	22.20	Pass	Vertical

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2462
Remark:	AV		

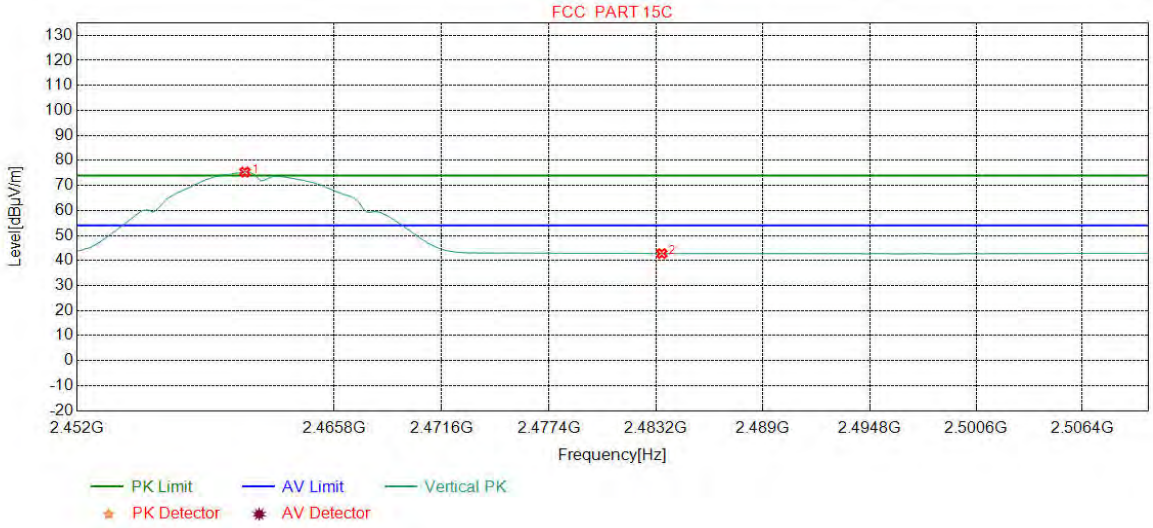
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2461.0738	32.35	13.48	-43.11	83.07	85.79	54.00	-31.79	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	40.16	42.81	54.00	11.19	Pass	Horizontal

Mode:	802.11 b(1Mbps) Transmitting	Channel:	2462
Remark:	AV		

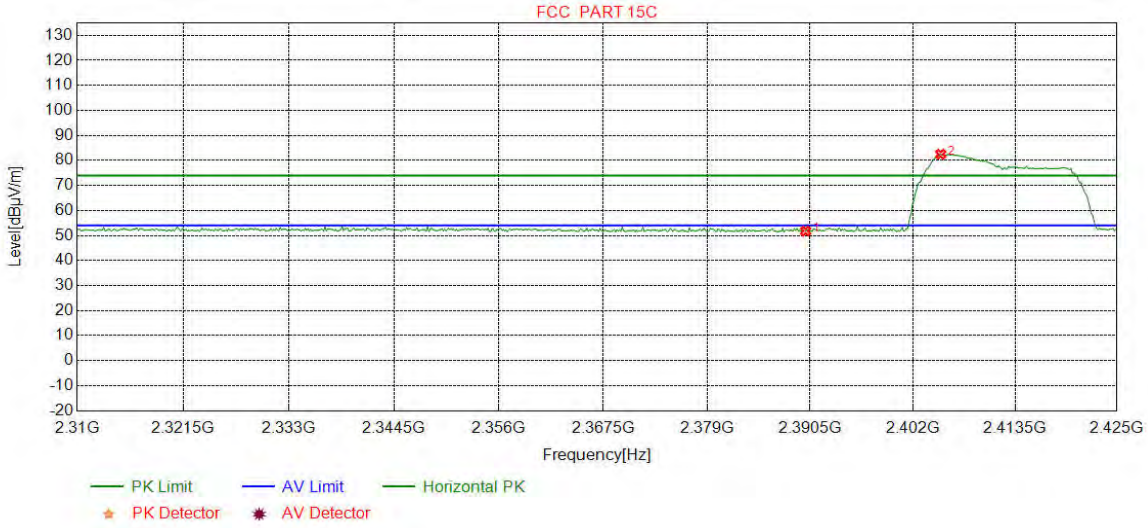
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2461.0013	32.35	13.48	-43.11	72.65	75.37	54.00	-21.37	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	40.14	42.79	54.00	11.21	Pass	Vertical

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2412
Remark:	PK		

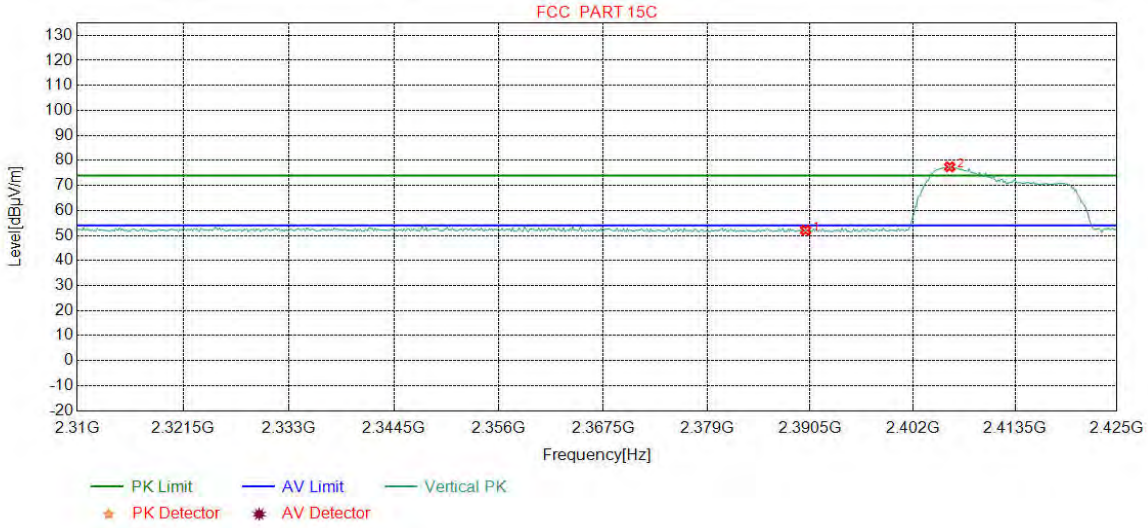
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	49.29	51.79	74.00	22.21	Pass	Horizontal
2	2405.1377	32.27	13.32	-43.12	80.01	82.48	74.00	-8.48	Pass	Horizontal

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2412
Remark:	PK		

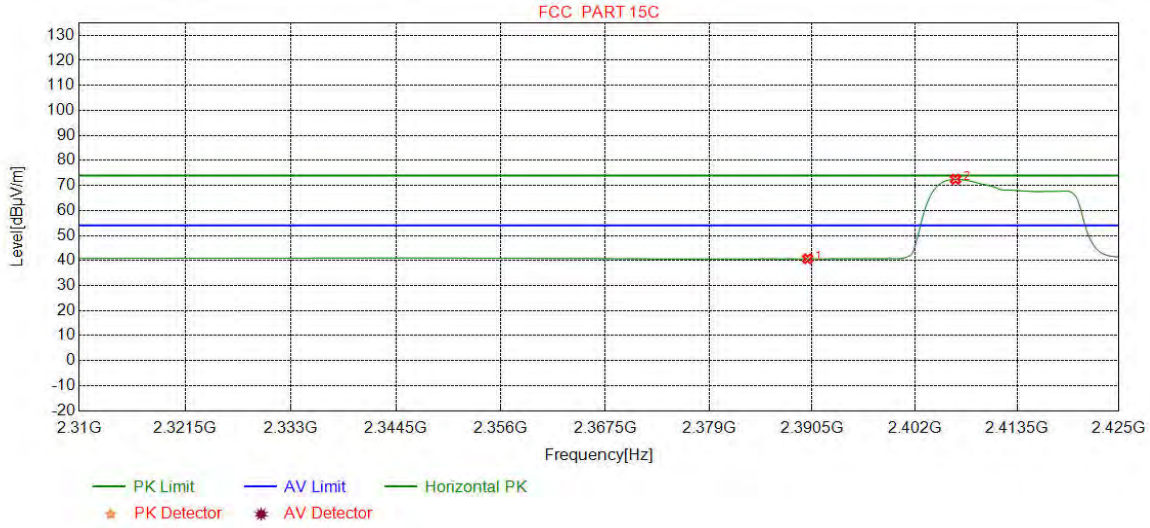
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	49.60	52.10	74.00	21.90	Pass	Vertical
2	2406.1452	32.27	13.33	-43.12	74.95	77.43	74.00	-3.43	Pass	Vertical

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2412
Remark:	AV		

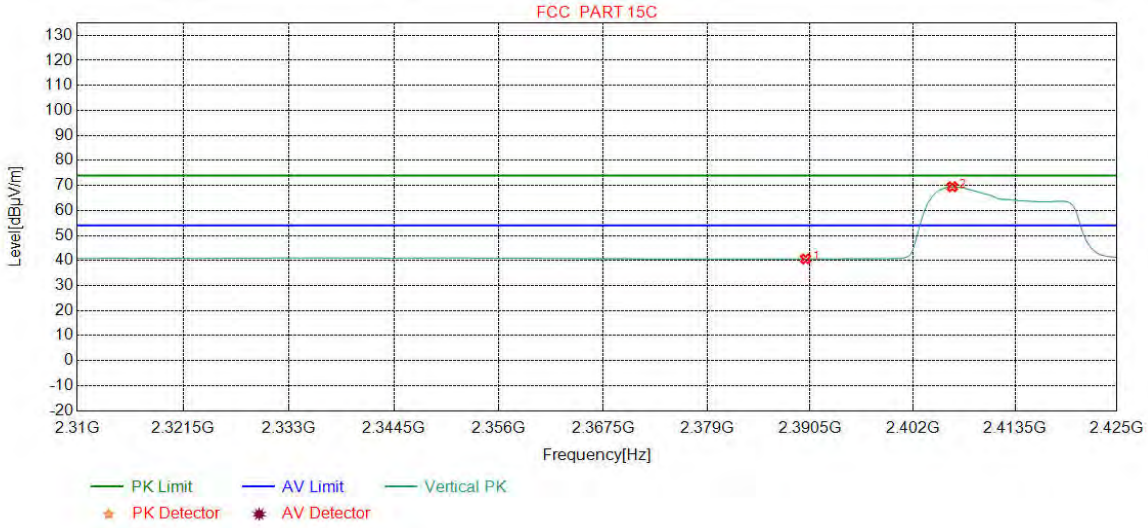
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.19	40.69	54.00	13.31	Pass	Horizontal
2	2406.5770	32.27	13.33	-43.12	70.02	72.50	54.00	-18.50	Pass	Horizontal

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2412
Remark:	AV		

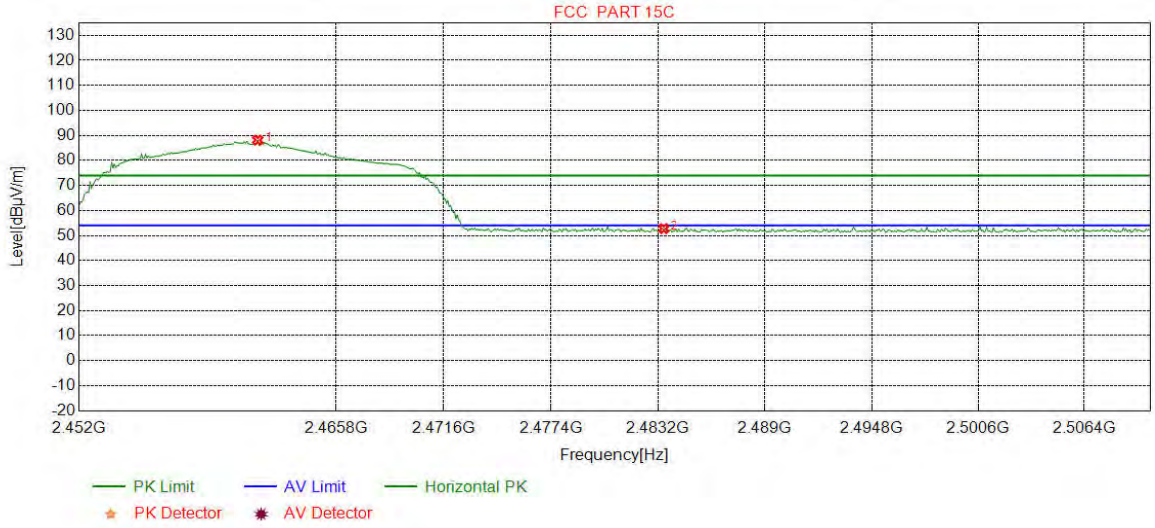
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.13	40.63	54.00	13.37	Pass	Vertical
2	2406.4330	32.27	13.33	-43.12	66.99	69.47	54.00	-15.47	Pass	Vertical

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2462
Remark:	PK		

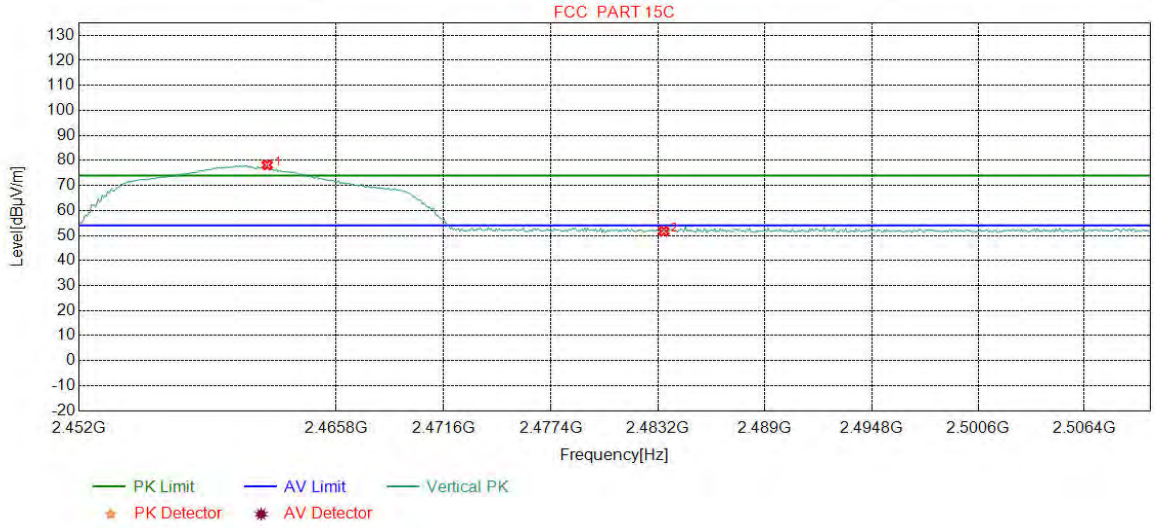
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2461.5820	32.35	13.48	-43.11	85.42	88.14	74.00	-14.14	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	50.10	52.75	74.00	21.25	Pass	Horizontal

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2462
Remark:	PK		

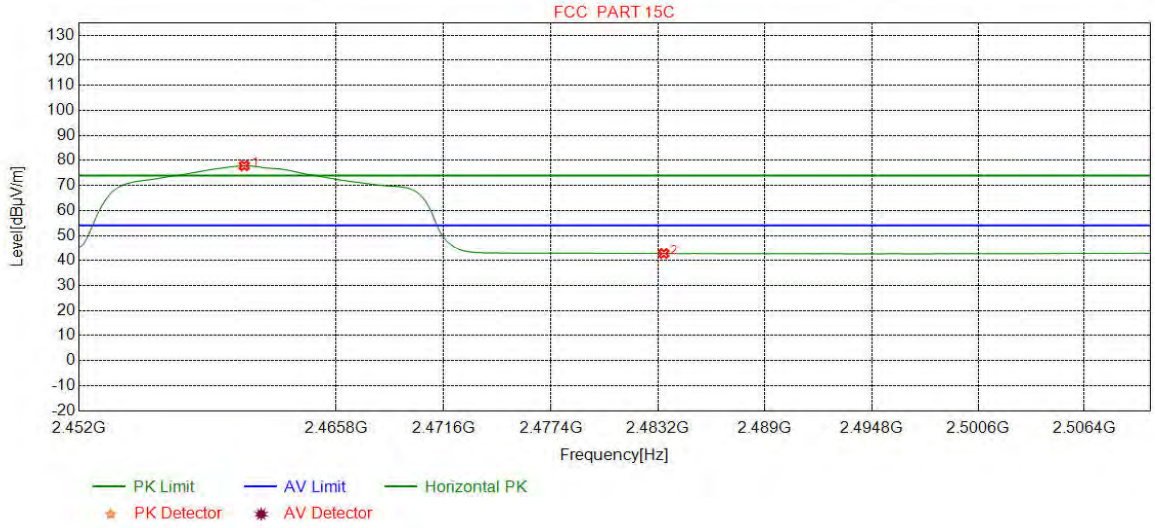
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2462.0901	32.35	13.47	-43.11	75.48	78.19	74.00	-4.19	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	49.06	51.71	74.00	22.29	Pass	Vertical

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2462
Remark:	AV		

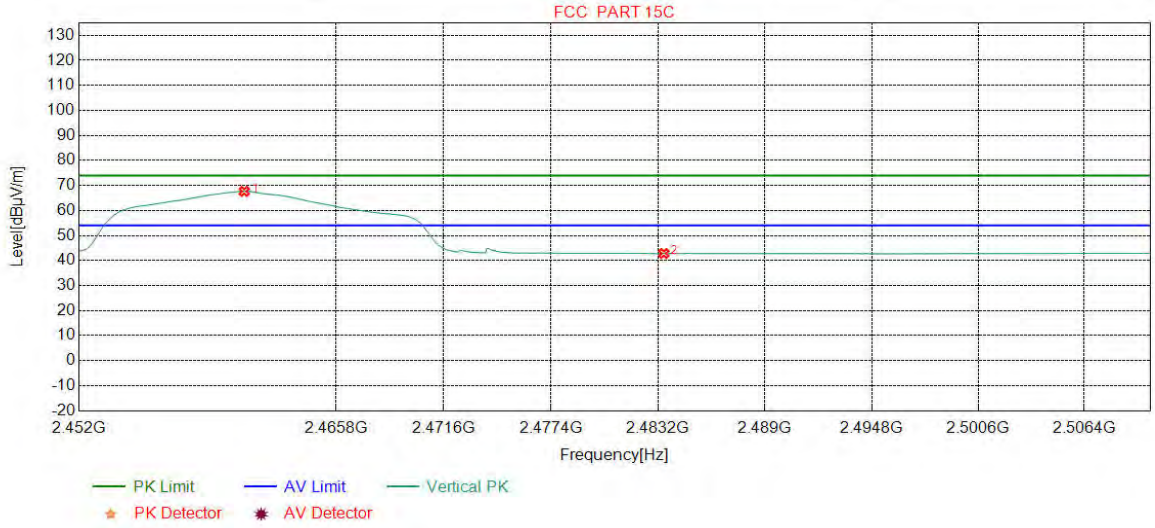
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2460.8561	32.35	13.48	-43.11	75.16	77.88	54.00	-23.88	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	40.17	42.82	54.00	11.18	Pass	Horizontal

Mode:	802.11 g(6Mbps) Transmitting	Channel:	2462
Remark:	AV		

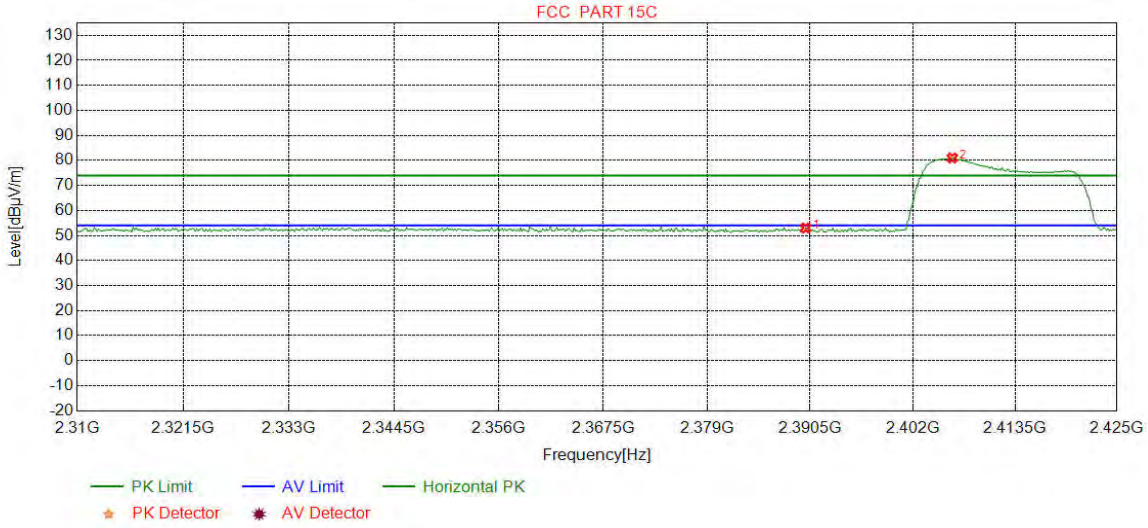
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2460.8561	32.35	13.48	-43.11	64.92	67.64	54.00	-13.64	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	40.17	42.82	54.00	11.18	Pass	Vertical

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Channe	2412
Remark:	PK		

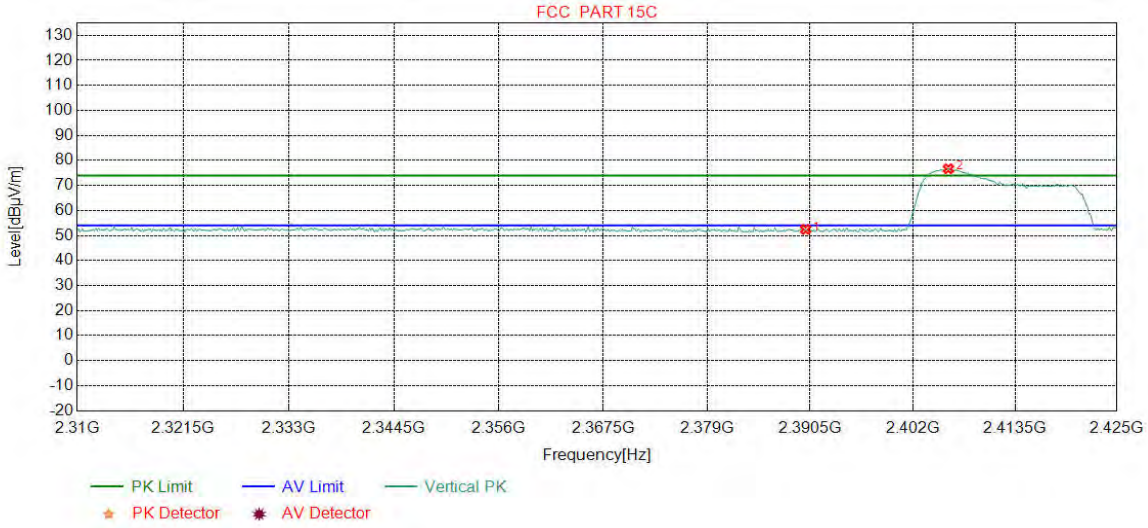
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	50.50	53.00	74.00	21.00	Pass	Horizontal
2	2406.4330	32.27	13.33	-43.12	78.50	80.98	74.00	-6.98	Pass	Horizontal

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Cha	2412
Remark:	PK		

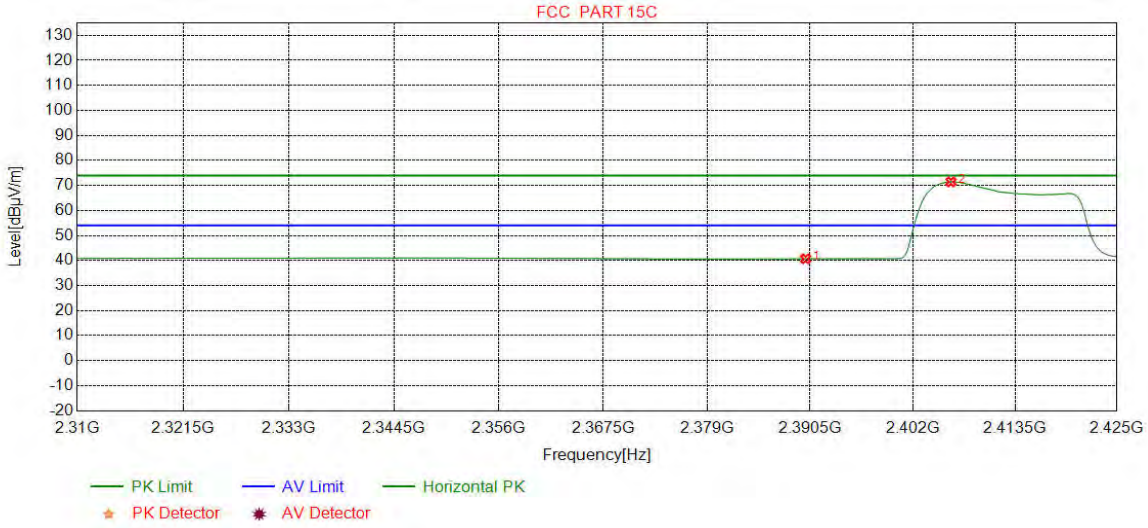
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	49.97	52.47	74.00	21.53	Pass	Vertical
2	2406.0013	32.27	13.33	-43.12	74.20	76.68	74.00	-2.68	Pass	Vertical

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Channel	2412
Remark:	AV		

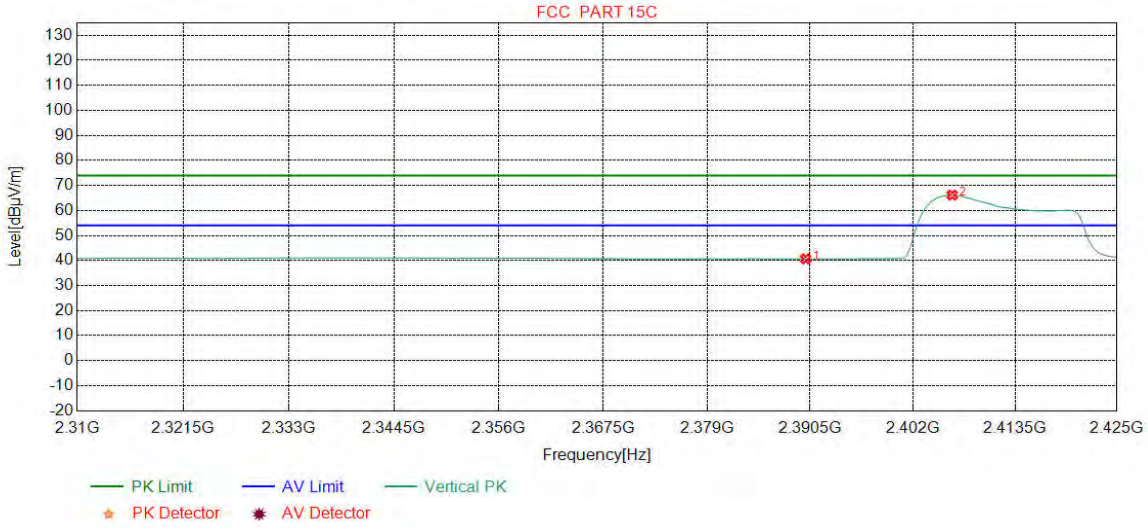
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.18	40.68	54.00	13.32	Pass	Horizontal
2	2406.2891	32.27	13.33	-43.12	68.96	71.44	54.00	-17.44	Pass	Horizontal

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Channe	2412
Remark:	AV		

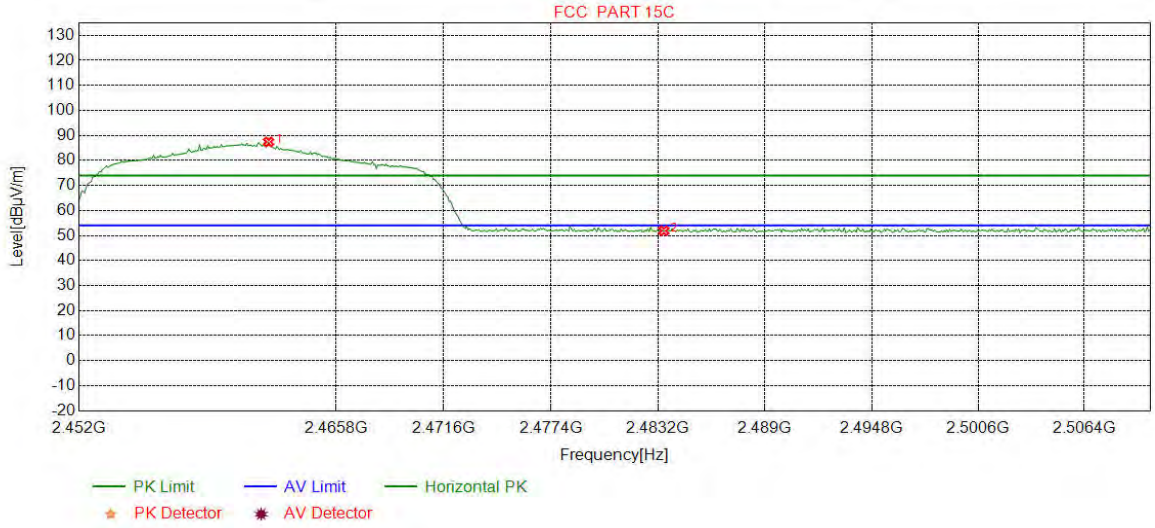
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.16	40.66	54.00	13.34	Pass	Vertical
2	2406.4330	32.27	13.33	-43.12	63.67	66.15	54.00	-12.15	Pass	Vertical

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Channel	2462
Remark:	PK		

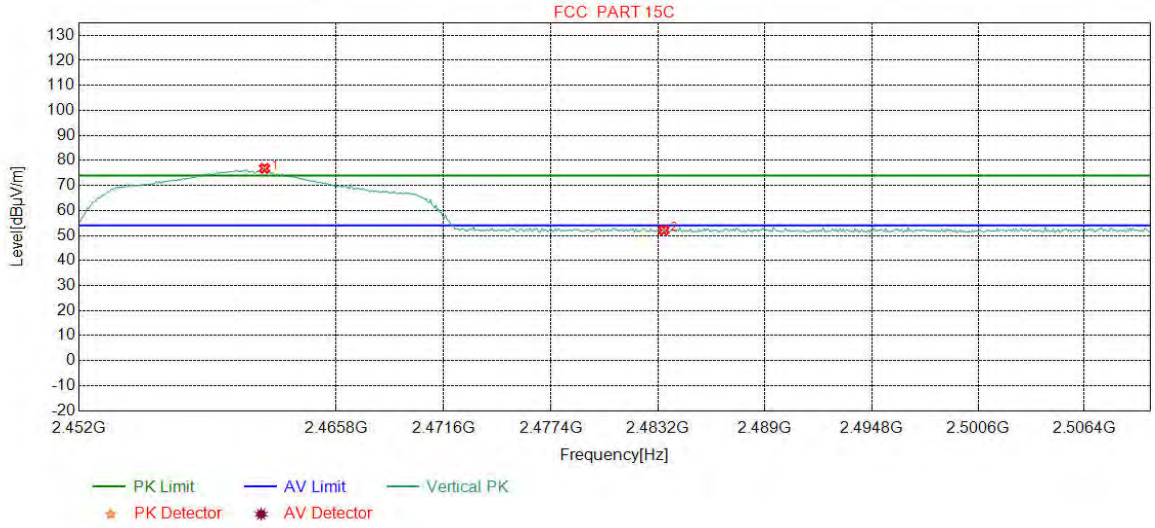
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2462.1627	32.35	13.47	-43.11	84.68	87.39	74.00	-13.39	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	49.22	51.87	74.00	22.13	Pass	Horizontal

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Channel	2462
Remark:	PK		

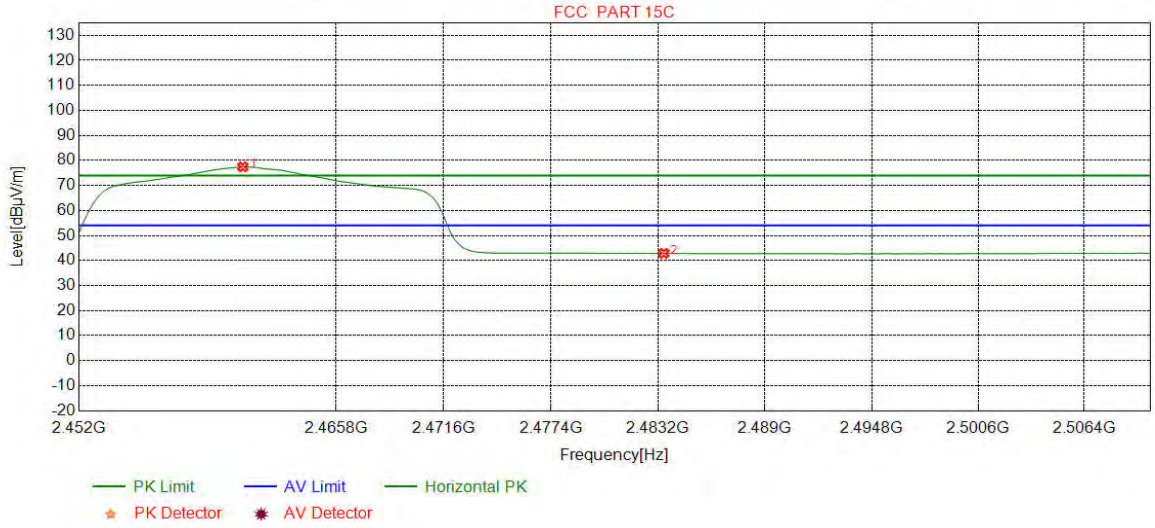
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2461.9449	32.35	13.48	-43.12	74.13	76.84	74.00	-2.84	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	49.49	52.14	74.00	21.86	Pass	Vertical

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Chan	2462
Remark:	AV		

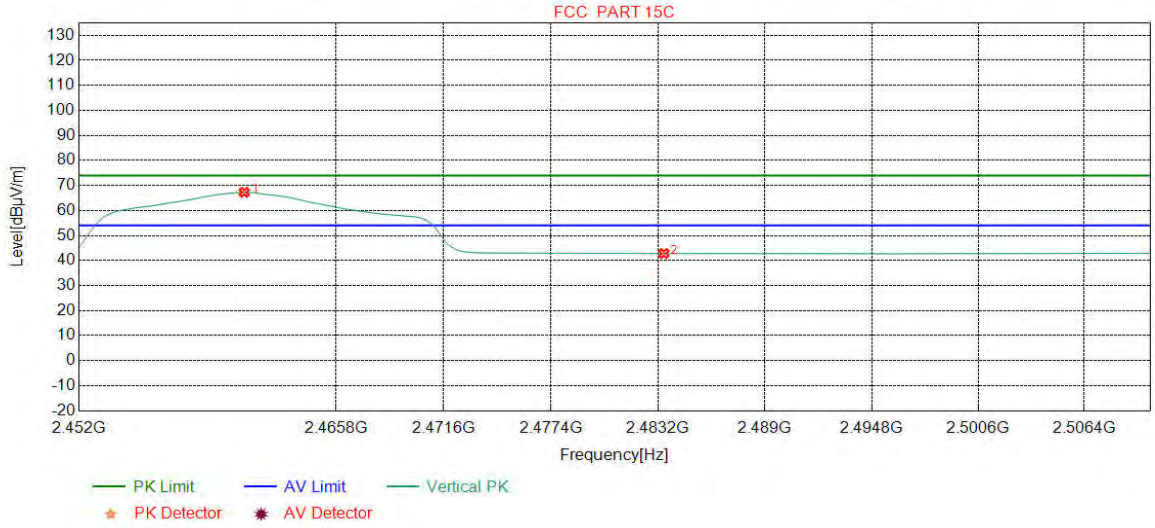
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2460.7835	32.35	13.48	-43.11	74.72	77.44	54.00	-23.44	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	40.20	42.85	54.00	11.15	Pass	Horizontal

Mode:	802.11 n(HT20) (6.5Mbps) Transmitting	Channel:	2462
Remark:	AV		

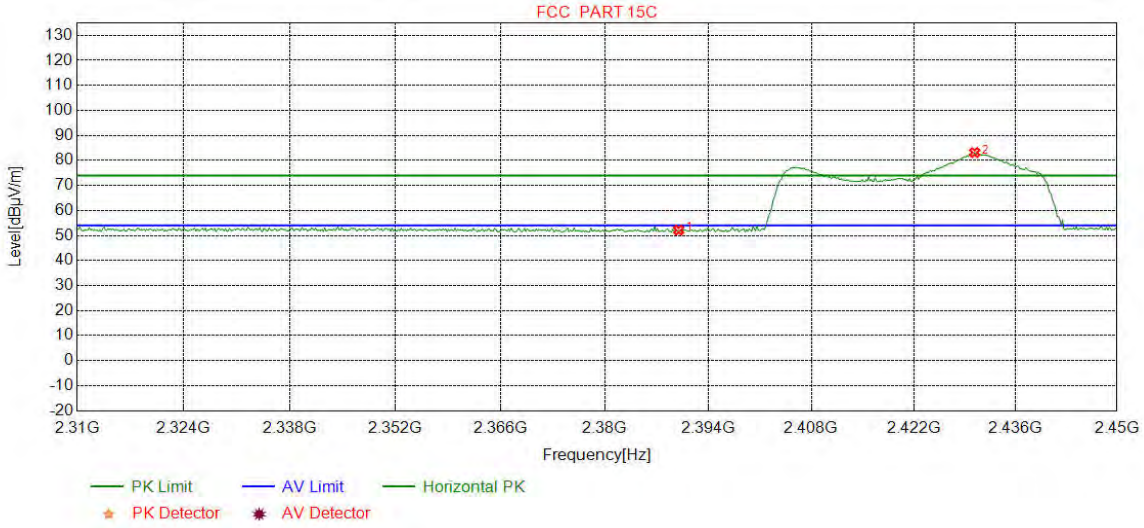
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2460.8561	32.35	13.48	-43.11	64.54	67.26	54.00	-13.26	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	40.15	42.80	54.00	11.20	Pass	Vertical

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Chann	2422
Remark:	PK		

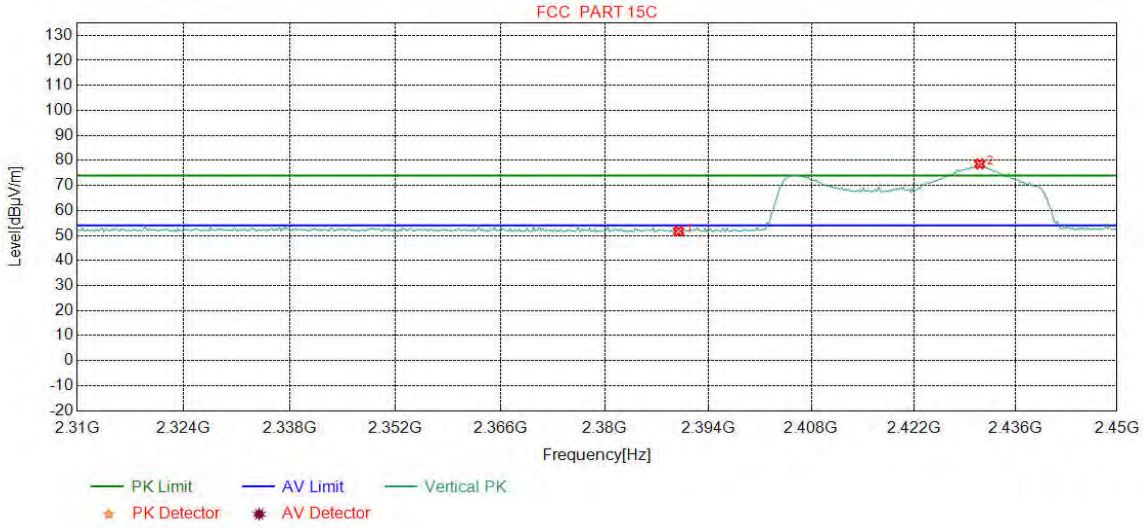
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	49.66	52.16	74.00	21.84	Pass	Horizontal
2	2430.3755	32.30	13.44	-43.11	80.52	83.15	74.00	-9.15	Pass	Horizontal

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Chann	2422
Remark:	PK		

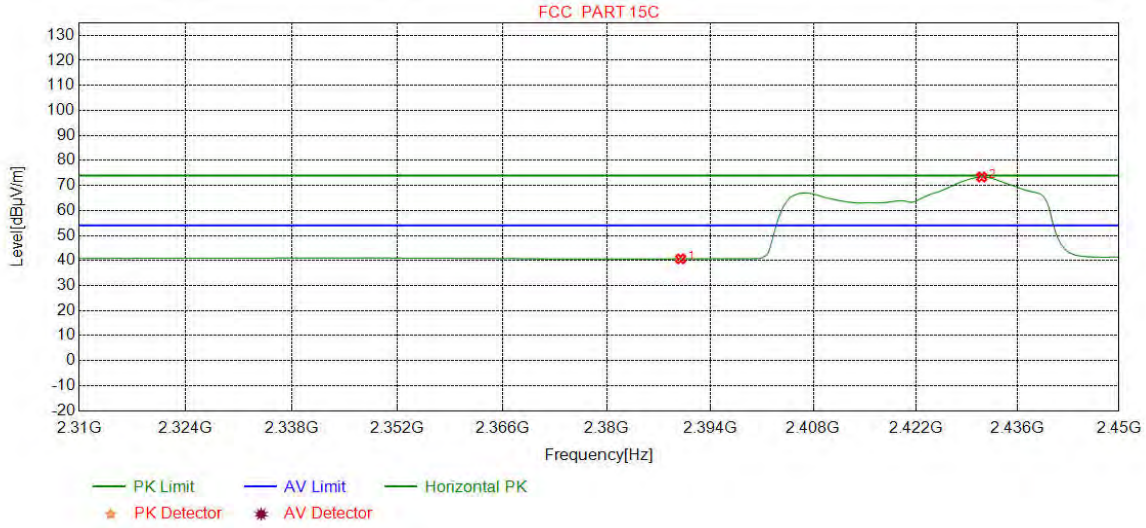
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	49.18	51.68	74.00	22.32	Pass	Vertical
2	2431.0763	32.30	13.44	-43.11	75.99	78.62	74.00	-4.62	Pass	Vertical

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Chann	2422
Remark:	AV		

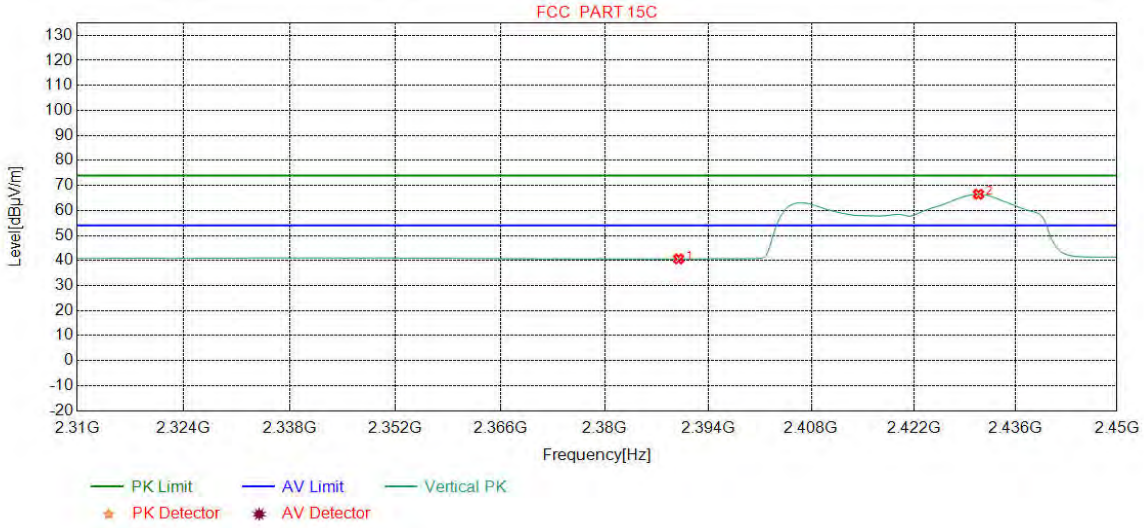
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.18	40.68	54.00	13.32	Pass	Horizontal
2	2431.0763	32.30	13.44	-43.11	70.73	73.36	54.00	-19.36	Pass	Horizontal

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Chann	2422
Remark:	AV		

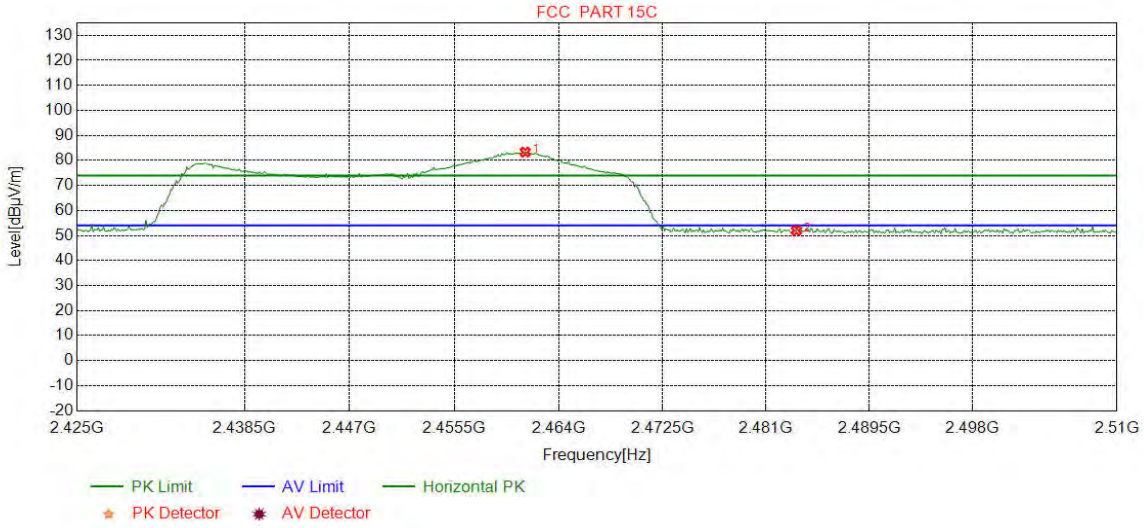
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	38.15	40.65	54.00	13.35	Pass	Vertical
2	2430.9011	32.30	13.44	-43.11	63.86	66.49	54.00	-12.49	Pass	Vertical

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Cha	2452
Remark:	PK		

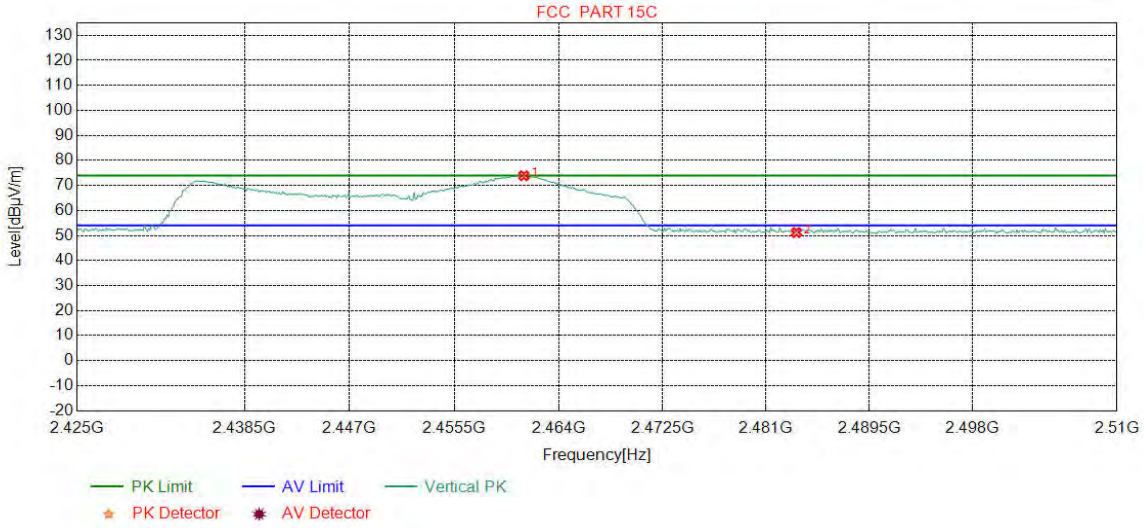
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2461.2766	32.35	13.48	-43.11	80.61	83.33	74.00	-9.33	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	49.32	51.97	74.00	22.03	Pass	Horizontal

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Chann	2452
Remark:	PK		

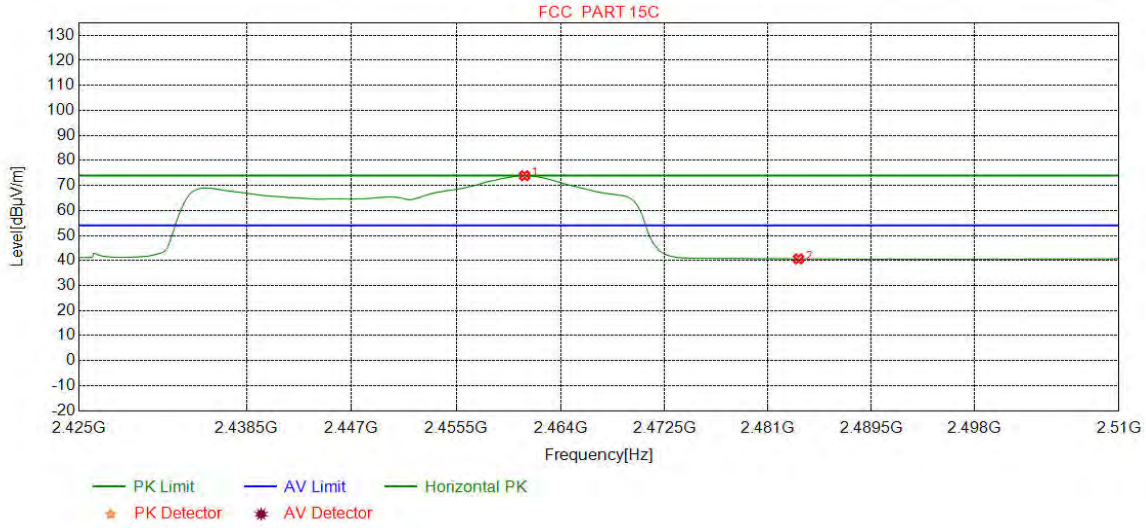
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2461.1702	32.35	13.48	-43.11	71.17	73.89	74.00	0.11	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	48.54	51.19	74.00	22.81	Pass	Vertical

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Chann	2452
Remark:	AV		

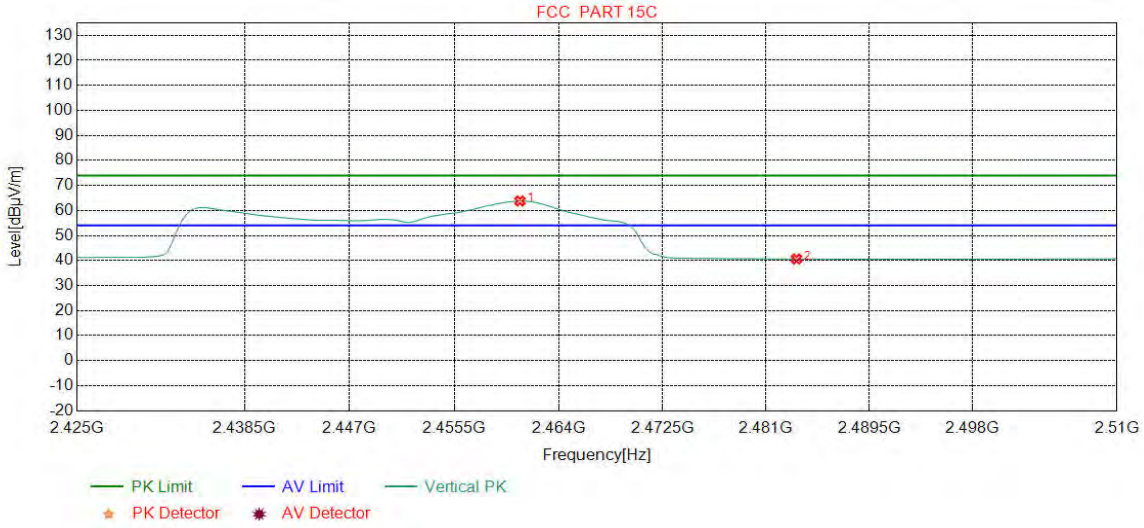
Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2461.0638	32.35	13.48	-43.11	71.18	73.90	54.00	-19.90	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	38.01	40.66	54.00	13.34	Pass	Horizontal

Mode:	802.11 n(HT40) (13.5Mbps) Transmitting	Chan	2452
Remark:	AV		

Test Graph



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2460.8511	32.35	13.48	-43.11	61.08	63.80	54.00	-9.80	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	37.95	40.60	54.00	13.40	Pass	Vertical

Note:

1) Through Pre-scan transmitting mode and charge+transmitter mode with all kind of modulation and data rate, find the 1Mbps of rate is the worst case of 802.11b; 6Mbpsof rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20) , and then Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

Appendix I): Radiated Spurious Emissions

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

Test Procedure:

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter)..
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.
j. Repeat above procedures until all frequencies measured was complete.

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBμV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3
Above 1GHz	500	54.0	Average	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Radiated Spurious Emissions test Data:

Radiated Emission below 1GHz

Mode:		802.11 b (1Mbps) Transmitting				Channel:		2437		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity
1	42.6113	12.77	0.74	-31.52	41.34	23.33	40.00	16.67	Pass	H
2	124.7785	8.48	1.31	-32.04	60.73	38.48	43.50	5.02	Pass	H
3	276.3076	12.73	1.98	-31.92	42.55	25.34	46.00	20.66	Pass	H
4	495.5496	16.93	2.66	-31.90	40.70	28.39	46.00	17.61	Pass	H
5	649.9890	19.40	3.10	-32.07	39.14	29.57	46.00	16.43	Pass	H
6	779.9820	20.68	3.34	-32.01	35.13	27.14	46.00	18.86	Pass	H
7	43.3873	12.91	0.74	-31.58	46.49	28.56	40.00	11.44	Pass	V
8	123.3233	8.70	1.31	-32.05	58.31	36.27	43.50	7.23	Pass	V
9	360.0270	14.52	2.27	-31.84	40.68	25.63	46.00	20.37	Pass	V
10	500.1090	17.00	2.67	-31.90	45.00	32.77	46.00	13.23	Pass	V
11	649.8920	19.40	3.10	-32.07	43.74	34.17	46.00	11.83	Pass	V
12	779.9820	20.68	3.34	-32.01	39.65	31.66	46.00	14.34	Pass	V

Transmitter Emission above 1GHz

Mode:		802.11 b (1Mbps) Transmitting				Channel:		2412			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Preamp gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1062.4062	27.96	2.52	-43.03	56.20	43.65	74.00	30.35	Pass	H	Peak
2	1594.2594	29.02	3.07	-42.91	52.86	42.04	74.00	31.96	Pass	H	Peak
3	2130.3130	31.88	3.62	-43.17	56.18	48.51	74.00	25.49	Pass	H	Peak
4	4811.1207	34.50	4.57	-42.80	50.63	46.90	74.00	27.10	Pass	H	Peak
5	7236.0000	36.34	5.79	-42.16	46.08	46.05	74.00	27.95	Pass	H	Peak
6	9648.0000	37.66	6.72	-42.10	46.24	48.52	74.00	25.48	Pass	H	Peak
7	2125.7126	31.88	3.62	-43.18	61.19	53.51	74.00	20.49	Pass	V	Peak
8	3100.0067	33.24	4.72	-43.10	50.40	45.26	74.00	28.74	Pass	V	Peak
9	3984.0656	33.79	4.33	-43.00	51.34	46.46	74.00	27.54	Pass	V	Peak
10	4824.0000	34.50	4.61	-42.80	49.91	46.22	74.00	27.78	Pass	V	Peak
11	7236.0000	36.34	5.79	-42.16	46.42	46.39	74.00	27.61	Pass	V	Peak
12	9648.0000	37.66	6.72	-42.10	46.87	49.15	74.00	24.85	Pass	V	Peak

Mode:		802.11 b (1Mbps) Transmitting				Channel:		2437			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Preamp gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1062.4062	27.96	2.52	-43.03	55.52	42.97	74.00	31.03	Pass	H	Peak
2	2127.1127	31.88	3.62	-43.18	59.46	51.78	74.00	22.22	Pass	H	Peak
3	3990.0660	33.79	4.33	-43.00	50.64	45.76	74.00	28.24	Pass	H	Peak
4	4868.1245	34.50	4.75	-42.80	50.13	46.58	74.00	27.42	Pass	H	Peak
5	7311.0000	36.41	5.85	-42.14	46.26	46.38	74.00	27.62	Pass	H	Peak
6	9748.0000	37.70	6.77	-42.10	46.64	49.01	74.00	24.99	Pass	H	Peak
7	1382.0382	28.28	2.87	-42.70	52.12	40.57	74.00	33.43	Pass	V	Peak
8	2127.3127	31.88	3.62	-43.18	60.78	53.10	74.00	20.90	Pass	V	Peak
9	3985.0657	33.79	4.33	-43.00	52.56	47.68	74.00	26.32	Pass	V	Peak
10	4874.0000	34.50	4.78	-42.80	48.24	44.72	74.00	29.28	Pass	V	Peak
11	7311.0000	36.41	5.85	-42.14	48.37	48.49	74.00	25.51	Pass	V	Peak
12	9748.0000	37.70	6.77	-42.10	47.06	49.43	74.00	24.57	Pass	V	Peak

Mode:		802.11 b (1Mbps) Transmitting				Channel:		2462			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1064.2064	27.96	2.52	-43.02	55.43	42.89	74.00	31.11	Pass	H	Peak
2	1661.4661	29.47	3.15	-42.75	52.67	42.54	74.00	31.46	Pass	H	Peak
3	2125.1125	31.88	3.62	-43.18	55.73	48.05	74.00	25.95	Pass	H	Peak
4	4924.0000	34.50	4.85	-42.80	47.02	43.57	74.00	30.43	Pass	H	Peak
5	7386.0000	36.49	5.85	-42.13	46.08	46.29	74.00	27.71	Pass	H	Peak
6	9848.0000	37.74	6.83	-42.10	46.69	49.16	74.00	24.84	Pass	H	Peak
7	1418.4418	28.32	2.92	-42.76	51.96	40.44	74.00	33.56	Pass	V	Peak
8	2129.3129	31.88	3.62	-43.17	60.02	52.35	74.00	21.65	Pass	V	Peak
9	3986.0657	33.79	4.33	-43.00	52.69	47.81	74.00	26.19	Pass	V	Peak
10	4924.0000	34.50	4.85	-42.80	48.38	44.93	74.00	29.07	Pass	V	Peak
11	7386.0000	36.49	5.85	-42.13	46.72	46.93	74.00	27.07	Pass	V	Peak
12	9848.0000	37.74	6.83	-42.10	46.40	48.87	74.00	25.13	Pass	V	Peak

Mode:		802.11 g (6Mbps) Transmitting				Channel:		2412			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1062.4062	27.96	2.52	-43.03	55.96	43.41	74.00	30.59	Pass	H	Peak
2	1592.8593	29.01	3.06	-42.91	54.58	43.74	74.00	30.26	Pass	H	Peak
3	2123.7124	31.87	3.61	-43.17	61.14	53.45	74.00	20.55	Pass	H	Peak
4	4824.0000	34.50	4.61	-42.80	48.37	44.68	74.00	29.32	Pass	H	Peak
5	7236.0000	36.34	5.79	-42.16	47.56	47.53	74.00	26.47	Pass	H	Peak
6	9648.0000	37.66	6.72	-42.10	47.42	49.70	74.00	24.30	Pass	H	Peak
7	1445.4445	28.35	2.95	-42.88	51.30	39.72	74.00	34.28	Pass	V	Peak
8	2130.3130	31.88	3.62	-43.17	58.93	51.26	74.00	22.74	Pass	V	Peak
9	3981.0654	33.78	4.33	-43.00	50.53	45.64	74.00	28.36	Pass	V	Peak
10	4824.0000	34.50	4.61	-42.80	48.65	44.96	74.00	29.04	Pass	V	Peak
11	7236.0000	36.34	5.79	-42.16	45.74	45.71	74.00	28.29	Pass	V	Peak
12	9648.0000	37.66	6.72	-42.10	47.33	49.61	74.00	24.39	Pass	V	Peak

Mode:		802.11 g (6Mbps) Transmitting				Channel:		2437			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1065.0065	27.97	2.53	-43.04	54.90	42.36	74.00	31.64	Pass	H	Peak
2	1667.4667	29.51	3.16	-42.74	51.88	41.81	74.00	32.19	Pass	H	Peak
3	2127.7128	31.88	3.62	-43.18	57.30	49.62	74.00	24.38	Pass	H	Peak
4	4824.0000	34.50	4.61	-42.80	47.46	43.77	74.00	30.23	Pass	H	Peak
5	7236.0000	36.34	5.79	-42.16	45.62	45.59	74.00	28.41	Pass	H	Peak
6	9648.0000	37.66	6.72	-42.10	47.74	50.02	74.00	23.98	Pass	H	Peak
7	1417.2417	28.32	2.92	-42.76	50.95	39.43	74.00	34.57	Pass	V	Peak
8	2125.9126	31.88	3.62	-43.18	58.67	50.99	74.00	23.01	Pass	V	Peak
9	3997.0665	33.80	4.33	-43.00	51.84	46.97	74.00	27.03	Pass	V	Peak
10	4874.0000	34.50	4.78	-42.80	47.89	44.37	74.00	29.63	Pass	V	Peak
11	7311.0000	36.41	5.85	-42.14	45.22	45.34	74.00	28.66	Pass	V	Peak
12	9748.0000	37.70	6.77	-42.10	46.77	49.14	74.00	24.86	Pass	V	Peak

Mode:		802.11 g (6Mbps) Transmitting				Channel:		2462			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1665.0665	29.49	3.16	-42.75	52.55	42.45	74.00	31.55	Pass	H	Peak
2	2133.5134	31.89	3.63	-43.18	59.38	51.72	74.00	22.28	Pass	H	Peak
3	2664.5665	32.66	4.10	-43.10	55.28	48.94	74.00	25.06	Pass	H	Peak
4	4923.1282	34.50	4.85	-42.80	50.29	46.84	74.00	27.16	Pass	H	Peak
5	7386.0000	36.49	5.85	-42.13	46.46	46.67	74.00	27.33	Pass	H	Peak
6	9848.0000	37.74	6.83	-42.10	46.76	49.23	74.00	24.77	Pass	H	Peak
7	1419.4419	28.32	2.92	-42.76	51.63	40.11	74.00	33.89	Pass	V	Peak
8	2129.7130	31.88	3.62	-43.17	58.01	50.34	74.00	23.66	Pass	V	Peak
9	3988.0659	33.79	4.33	-43.00	51.78	46.90	74.00	27.10	Pass	V	Peak
10	4924.0000	34.50	4.85	-42.80	48.92	45.47	74.00	28.53	Pass	V	Peak
11	7386.0000	36.49	5.85	-42.13	48.36	48.57	74.00	25.43	Pass	V	Peak
12	9848.0000	37.74	6.83	-42.10	45.88	48.35	74.00	25.65	Pass	V	Peak

Mode:		802.11 n (HT20) (6.5Mbps)				Channel:		2412			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1066.4066	27.97	2.53	-43.04	54.96	42.42	74.00	31.58	Pass	H	Peak
2	2124.5125	31.87	3.61	-43.17	60.89	53.20	74.00	20.80	Pass	H	Peak
3	3574.0383	33.46	4.39	-43.08	50.14	44.91	74.00	29.09	Pass	H	Peak
4	4824.0000	34.50	4.61	-42.80	48.55	44.86	74.00	29.14	Pass	H	Peak
5	7236.0000	36.34	5.79	-42.16	45.79	45.76	74.00	28.24	Pass	H	Peak
6	9648.0000	37.66	6.72	-42.10	46.85	49.13	74.00	24.87	Pass	H	Peak
7	1399.4399	28.30	2.90	-42.68	51.63	40.15	74.00	33.85	Pass	V	Peak
8	2129.9130	31.88	3.62	-43.17	56.62	48.95	74.00	25.05	Pass	V	Peak
9	4263.0842	34.17	4.48	-42.90	52.14	47.89	74.00	26.11	Pass	V	Peak
10	4824.0000	34.50	4.61	-42.80	49.05	45.36	74.00	28.64	Pass	V	Peak
11	7236.0000	36.34	5.79	-42.16	46.25	46.22	74.00	27.78	Pass	V	Peak
12	9648.0000	37.66	6.72	-42.10	46.89	49.17	74.00	24.83	Pass	V	Peak

Mode:		802.11 n (HT20) (6.5Mbps)				Channel:		2437			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1062.4062	27.96	2.52	-43.03	56.40	43.85	74.00	30.15	Pass	H	Peak
2	2130.7131	31.88	3.62	-43.17	59.76	52.09	74.00	21.91	Pass	H	Peak
3	3198.0132	33.28	4.65	-43.10	50.53	45.36	74.00	28.64	Pass	H	Peak
4	4874.0000	34.50	4.78	-42.80	47.35	43.83	74.00	30.17	Pass	H	Peak
5	7311.0000	36.41	5.85	-42.14	46.55	46.67	74.00	27.33	Pass	H	Peak
6	9748.0000	37.70	6.77	-42.10	46.23	48.60	74.00	25.40	Pass	H	Peak
7	1273.4273	28.17	2.71	-42.81	51.96	40.03	74.00	33.97	Pass	V	Peak
8	2128.5129	31.88	3.62	-43.17	57.39	49.72	74.00	24.28	Pass	V	Peak
9	4251.0834	34.15	4.51	-42.90	52.13	47.89	74.00	26.11	Pass	V	Peak
10	4874.0000	34.50	4.78	-42.80	47.11	43.59	74.00	30.41	Pass	V	Peak
11	7311.0000	36.41	5.85	-42.14	46.01	46.13	74.00	27.87	Pass	V	Peak
12	9748.0000	37.70	6.77	-42.10	47.57	49.94	74.00	24.06	Pass	V	Peak

Mode:		802.11 n (HT20) (6.5Mbps)				Channel:		2462			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Readin g [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1065.0065	27.97	2.53	-43.04	55.17	42.63	74.00	31.37	Pass	H	Peak
2	1599.8600	29.06	3.07	-42.90	55.10	44.33	74.00	29.67	Pass	H	Peak
3	3923.0615	33.74	4.34	-43.02	49.70	44.76	74.00	29.24	Pass	H	Peak
4	4924.0000	34.50	4.85	-42.80	47.25	43.80	74.00	30.20	Pass	H	Peak
5	7386.0000	36.49	5.85	-42.13	46.88	47.09	74.00	26.91	Pass	H	Peak
6	9848.0000	37.74	6.83	-42.10	45.91	48.38	74.00	25.62	Pass	H	Peak
7	1419.4419	28.32	2.92	-42.76	51.50	39.98	74.00	34.02	Pass	V	Peak
8	2127.3127	31.88	3.62	-43.18	59.06	51.38	74.00	22.62	Pass	V	Peak
9	3935.0623	33.75	4.34	-43.01	51.02	46.10	74.00	27.90	Pass	V	Peak
10	4924.0000	34.50	4.85	-42.80	47.76	44.31	74.00	29.69	Pass	V	Peak
11	7386.0000	36.49	5.85	-42.13	46.24	46.45	74.00	27.55	Pass	V	Peak
12	9848.0000	37.74	6.83	-42.10	46.57	49.04	74.00	24.96	Pass	V	Peak

Mode:		802.11 n(HT40) (13.5Mbps) Transmitting				Channel:		2422			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1662.6663	29.47	3.16	-42.75	53.48	43.36	74.00	30.64	Pass	H	Peak
2	2123.1123	31.87	3.61	-43.17	59.88	52.19	74.00	21.81	Pass	H	Peak
3	3986.0657	33.79	4.33	-43.00	51.24	46.36	74.00	27.64	Pass	H	Peak
4	4844.0000	34.50	4.66	-42.80	47.68	44.04	74.00	29.96	Pass	H	Peak
5	7266.0000	36.37	5.80	-42.15	45.05	45.07	74.00	28.93	Pass	H	Peak
6	9688.0000	37.68	6.62	-42.10	47.08	49.28	74.00	24.72	Pass	H	Peak
7	1660.2660	29.46	3.15	-42.76	51.89	41.74	74.00	32.26	Pass	V	Peak
8	2131.3131	31.88	3.62	-43.17	59.02	51.35	74.00	22.65	Pass	V	Peak
9	3329.0219	33.33	4.55	-43.10	50.01	44.79	74.00	29.21	Pass	V	Peak
10	4844.0000	34.50	4.66	-42.80	48.22	44.58	74.00	29.42	Pass	V	Peak
11	7266.0000	36.37	5.80	-42.15	47.10	47.12	74.00	26.88	Pass	V	Peak
12	9688.0000	37.68	6.62	-42.10	46.94	49.14	74.00	24.86	Pass	V	Peak

Mode:		802.11 n(HT40) (13.5Mbps) Transmitting				Channel:		2437			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1065.6066	27.97	2.53	-43.04	56.19	43.65	74.00	30.35	Pass	H	Peak
2	1662.0662	29.47	3.15	-42.75	52.55	42.42	74.00	31.58	Pass	H	Peak
3	2130.1130	31.88	3.62	-43.17	58.10	50.43	74.00	23.57	Pass	H	Peak
4	4874.0000	34.50	4.78	-42.80	48.57	45.05	74.00	28.95	Pass	H	Peak
5	7311.0000	36.41	5.85	-42.14	46.12	46.24	74.00	27.76	Pass	H	Peak
6	9748.0000	37.70	6.77	-42.10	47.63	50.00	74.00	24.00	Pass	H	Peak
7	2126.5127	31.88	3.62	-43.18	56.26	48.58	74.00	25.42	Pass	V	Peak
8	2659.3659	32.65	4.10	-43.10	57.52	51.17	74.00	22.83	Pass	V	Peak
9	3986.0657	33.79	4.33	-43.00	50.41	45.53	74.00	28.47	Pass	V	Peak
10	4874.0000	34.50	4.78	-42.80	47.86	44.34	74.00	29.66	Pass	V	Peak
11	7311.0000	36.41	5.85	-42.14	46.33	46.45	74.00	27.55	Pass	V	Peak
12	9748.0000	37.70	6.77	-42.10	46.65	49.02	74.00	24.98	Pass	V	Peak

Mode:		802.11 n(HT40) (13.5Mbps) Transmitting				Channel:		2452			
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Readin g [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1061.6062	27.96	2.52	-43.03	55.92	43.37	74.00	30.63	Pass	H	Peak
2	1593.4593	29.02	3.06	-42.91	55.70	44.87	74.00	29.13	Pass	H	Peak
3	2131.5132	31.88	3.62	-43.17	59.82	52.15	74.00	21.85	Pass	H	Peak
4	4904.0000	34.50	4.88	-42.80	47.31	43.89	74.00	30.11	Pass	H	Peak
5	7356.0000	36.46	5.85	-42.13	46.14	46.32	74.00	27.68	Pass	H	Peak
6	9808.0000	37.72	6.59	-42.10	47.29	49.50	74.00	24.50	Pass	H	Peak
7	1752.8753	30.07	3.24	-42.69	51.13	41.75	74.00	32.25	Pass	V	Peak
8	2127.7128	31.88	3.62	-43.18	56.66	48.98	74.00	25.02	Pass	V	Peak
9	3984.0656	33.79	4.33	-43.00	51.91	47.03	74.00	26.97	Pass	V	Peak
10	4904.0000	34.50	4.88	-42.80	46.68	43.26	74.00	30.74	Pass	V	Peak
11	7356.0000	36.46	5.85	-42.13	46.41	46.59	74.00	27.41	Pass	V	Peak
12	9808.0000	37.72	6.59	-42.10	47.22	49.43	74.00	24.57	Pass	V	Peak

Note:

1) Through Pre-scan transmitting mode and charge+transmitter mode with all kind of modulation and data rate, find the 11Mbps of rate is the worst case of 802.11b; 6Mbpsof rate is the worst case of 802.11g; 6.5Mbps of rate is the worst case of 802.11n(HT20) ,and then Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

3) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No.EED32M00160901 for EUT external and internal photos.

*** End of Report ***