

TEST REPORT

Product : Low Power WiFi Module
Trade mark : High-Flying
Model/Type reference : HF-LPB135-10
Serial Number : N/A
Report Number : EED32L00042501
FCC ID : 2ACSV-HF-LPB135
Date of Issue : Apr. 08, 2019
Test Standards : 47 CFR Part 15Subpart C
Test result : PASS

Prepared for:

High-Flying Electronics Technology Co., Ltd
Room 1002, Building 1, No.3000, Longdong Avenue,
Pudong New Area, Shanghai

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Tested By:

Jay Zheng

Jay zheng

Compiled by:

Kevin lan

Kevin lan

Reviewed by:

Ware Xin

Ware xin

Approved by:

Kevin Yang

Kevin yang

Date:

Apr. 08, 2019

Check No.:3319594318



2 Version

Version No.	Date	Description
00	Apr. 08, 2019	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.

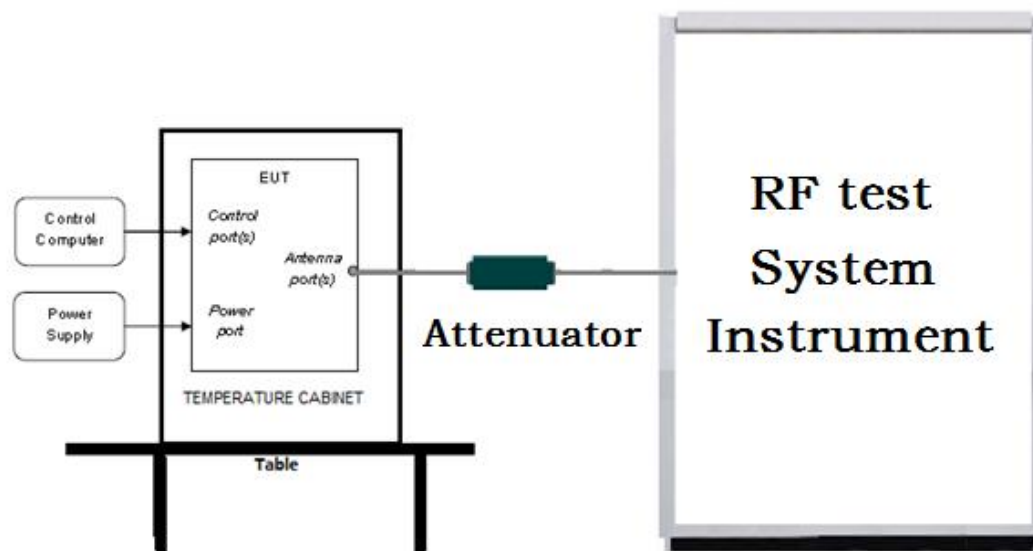
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5 Test Requirement

5.1 Test setup

5.1.1 For Conducted test setup



5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

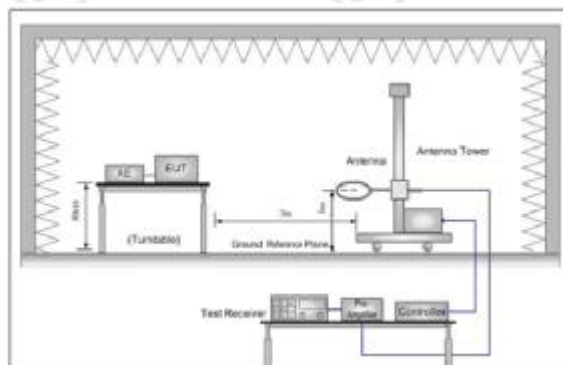


Figure 1. Below 30MHz

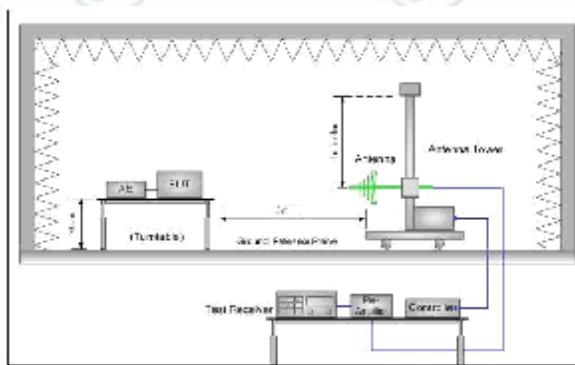


Figure 2. 30MHz to 1GHz

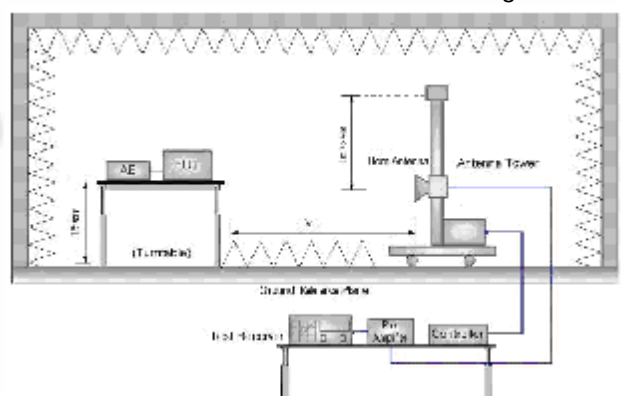
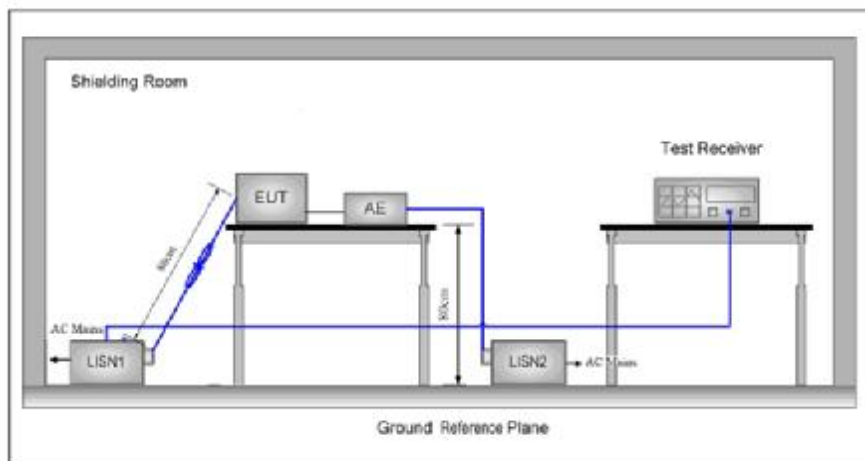


Figure 3. Above 1GHz

5.1.3 For Conducted Emissions test setup

Conducted Emissions setup



5.2 Test Environment

Operating Environment for RF conduct test:

Temperature:	28°C
Humidity:	57% RH
Atmospheric Pressure:	101kPa

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	Channel11
		2412MHz	2437MHz	2462MHz
TX mode:	The EUT transmitted the continuous signal at the specific channel(s).			

Test mode:

Pre-scan under all rate at lowest channel 1

Mode	802.11b								
Data Rate	1Mbps	2Mbps	5.5Mbps	11Mbps					
Power(dBm)	21.11	21.17	21.20	21.28					
Mode	802.11g								
Data Rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps	
Power(dBm)	18.75	18.72	18.70	18.69	18.66	18.61	18.60	18.34	
Mode	802.11n (HT20)								
Data Rate	6.5Mbps	13Mbps	19.5Mbps	26Mbps	39Mbps	52Mbps	58.5Mbps	65Mbps	
Power(dBm)	18.63	18.60	18.54	18.53	18.41	18.33	18.29	18.17	

Through Pre-scan, 11Mbps 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).

6 General Information

6.1 Client Information

Applicant:	Shanghai High-Flying Electronics Technology Co., Ltd
Address of Applicant:	Room 1002, #1 Building A, No.3000 Longdong Avenue, Pudong, Shanghai
Manufacturer:	Shanghai High-Flying Electronics Technology Co., Ltd
Address of Manufacturer:	Room 1002, #1 Building A, No.3000 Longdong Avenue, Pudong, Shanghai
Factory:	China Dragon Technology Co., Ltd.
Address of Factory:	Building B4, Nampo road, oyster road, regard street, Baoan district, Shenzhen city

6.2 General Description of EUT

Product Name:	Low Power WiFi Module
Model No.(EUT):	HF-LPB135-10
Trade Mark:	High-Flying
EUT Supports Radios application:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
Power Supply:	DC 3.3V
Sample Received Date:	Mar. 22, 2019
Sample tested Date:	Mar. 22, 2019 to Apr. 02, 2019

6.3 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz
Channel Numbers:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels
Channel Separation:	5MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20): OFDM (64QAM, 16QAM, QPSK,BPSK)
Test Power Grade:	N/A
Test Software of EUT:	N/A
Antenna Type:	PCB Antenna
Antenna Gain:	1.5dBi
Test Voltage:	DC 3.3V

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		

6.4 Description of Support Units

The EUT has been tested independently.

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

RF test system					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	03-01-2019	02-29-2020
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-01-2019	02-29-2020
Signal Generator	Keysight	N5182B	MY53051549	03-01-2019	02-29-2020
High-pass filter	Sinoscite	FL3CX03WG1 8NM12-0398-0 02	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRO NICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
DC Power	Keysight	E3642A	MY54426035	03-01-2019	02-29-2020
PC-1	Lenovo	R4960d	---	03-01-2019	02-29-2020
BT&WI-FI Automatic control	R&S	OSP120	101374	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-2	15860006	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-1	15860004	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-4	158060007	03-01-2019	02-29-2020
BT&WI-FI Automatic test software	JS Tonscend	JS1120-2	---	03-01-2019	02-29-2020
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	10-12-2018	10-11-2019

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	05-25-2018	05-24-2019
Temperature/ Humidity Indicator	Defu	TH128	/	07-02-2018	07-01-2019
Communication test set	Agilent	E5515C	GB47050 534	03-01-2019	02-29-2020
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
LISN	R&S	ENV216	100098	05-10-2018	05-10-2019
LISN	schwarzbeck	NNLK8121	8121-529	05-10-2018	05-10-2019
Voltage Probe	R&S	ESH2-Z3 0299.7810.5 6	100042	06-13-2017	06-11-2020
Current Probe	R&S	EZ-17 816.2063.03	100106	05-30-2018	05-29-2019
ISN	TESEQ	ISN T800	30297	01-06-2019	01-15-2020

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	---	06-04-2016	06-03-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	12-21-2018	12-20-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-30-2018	07-29-2019
Microwave Preamplifier	Agilent	8449B	3008A02425	08-21-2018	08-20-2019
Microwave Preamplifier	Tonscend	EMC051845 SE	980380	01-16-2019	01-15-2020
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	04-25-2018	04-23-2021
Horn Antenna	ETS-LINDGREN	3117	00057410	06-05-2018	06-03-2021
Double ridge horn antenna	A.H.SYSTEMS	SAS-574	374	06-05-2018	06-04-2021
Pre-amplifier	A.H.SYSTEMS	PAP-1840-60	6041.6041	08-08-2018	08-07-2019
Loop Antenna	ETS	6502	00071730	06-22-2017	06-21-2019
Spectrum Analyzer	R&S	FSP40	100416	05-11-2018	05-10-2019
Receiver	R&S	ESCI	100435	05-25-2018	05-24-2019
Receiver	R&S	ESCI7	100938-003	11-23-2018	11-22-2019
Multi device Controller	maturo	NCD/070/10711112	---	01-09-2019	01-08-2020
LISN	schwarzbeck	NNBM8125	81251547	05-11-2018	05-10-2019
LISN	schwarzbeck	NNBM8125	81251548	05-11-2018	05-10-2019
Signal Generator	Agilent	E4438C	MY45095744	03-01-2019	02-29-2020
Signal Generator	Keysight	E8257D	MY53401106	03-01-2019	02-29-2020
Temperature/Humidity Indicator	Shanghai qixiang	HM10	1804298	10-12-2018	10-11-2019
Communication test set	Agilent	E5515C	GB47050534	03-01-2019	02-29-2020
Cable line	Fulai(7M)	SF106	5219/6A	01-09-2019	01-08-2020
Cable line	Fulai(6M)	SF106	5220/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5216/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5217/6A	01-09-2019	01-08-2020
Communication test set	R&S	CMW500	104466	01-18-2019	01-17-2020
High-pass filter	Sinoscite	FL3CX03WG18NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA09CL12-0395-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA08CL12-0393-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA04CL12-0396-002	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA03CL12-0394-001	---	01-09-2019	01-08-2020

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15C	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed 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)

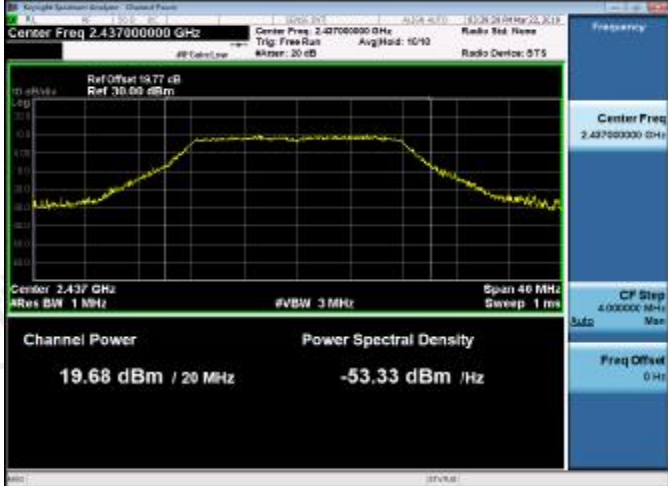
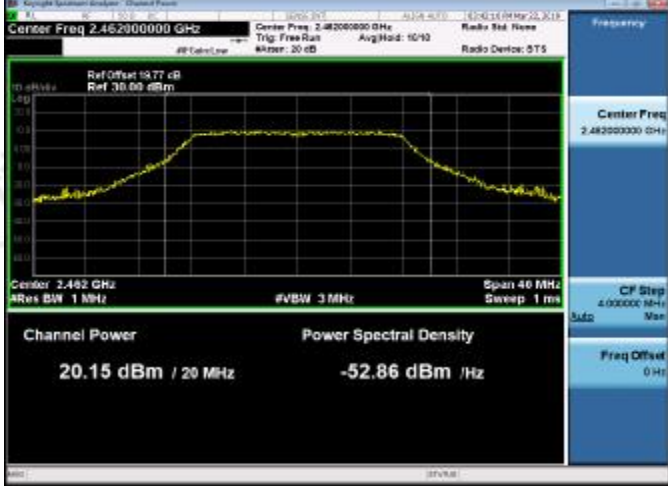
Appendix A): Conducted Peak Output Power

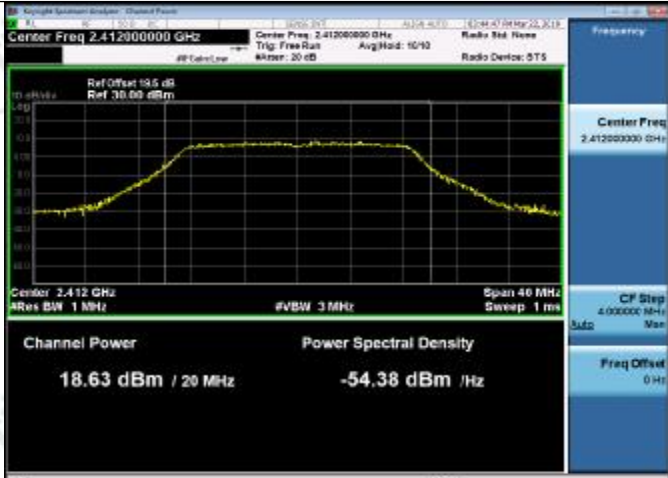
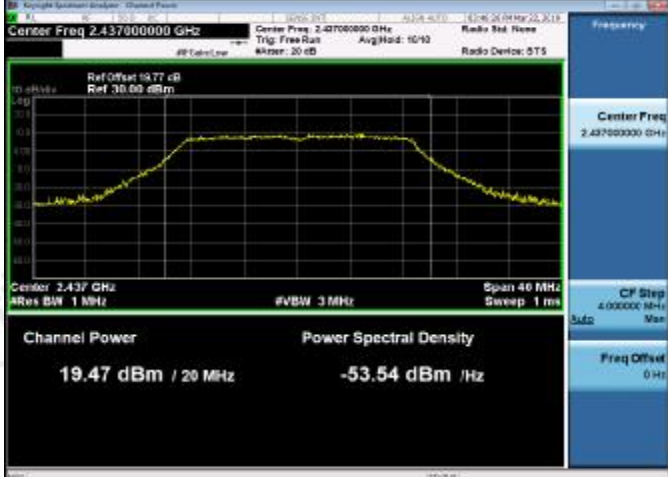
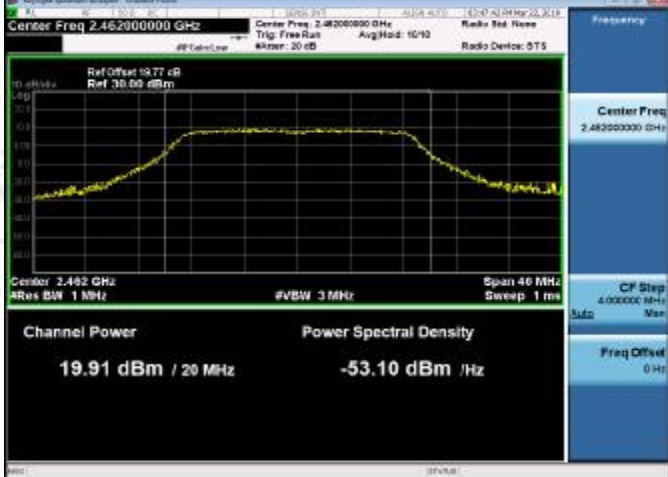
Result Table

Mode	Channel	Conducted Peak Output Power [dBm]	Verdict
11B	LCH	21.28	PASS
11B	MCH	22.13	PASS
11B	HCH	22.44	PASS
11G	LCH	18.75	PASS
11G	MCH	19.68	PASS
11G	HCH	20.15	PASS
11N20SISO	LCH	18.63	PASS
11N20SISO	MCH	19.47	PASS
11N20SISO	HCH	19.91	PASS

Test Graph



11G/LCH	 Center Freq 2.412000000 GHz Channel Power: 18.75 dBm / 20 MHz Power Spectral Density: -54.26 dBm / Hz
11G/MCH	 Center Freq 2.437000000 GHz Channel Power: 19.68 dBm / 20 MHz Power Spectral Density: -53.33 dBm / Hz
11G/HCH	 Center Freq 2.462000000 GHz Channel Power: 20.15 dBm / 20 MHz Power Spectral Density: -52.86 dBm / Hz

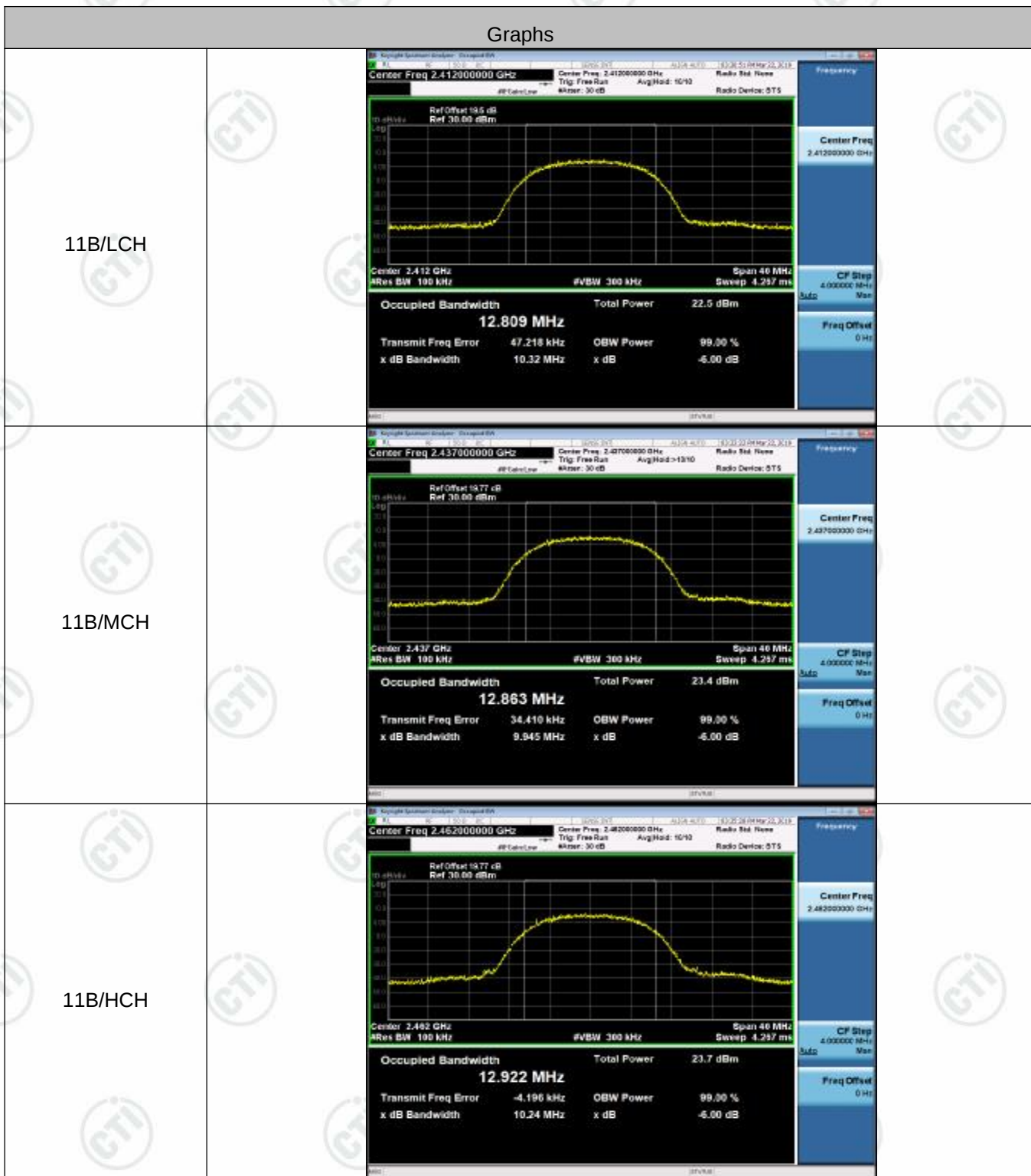
11N20SISO/LCH	
11N20SISO/MCH	
11N20SISO/HCH	

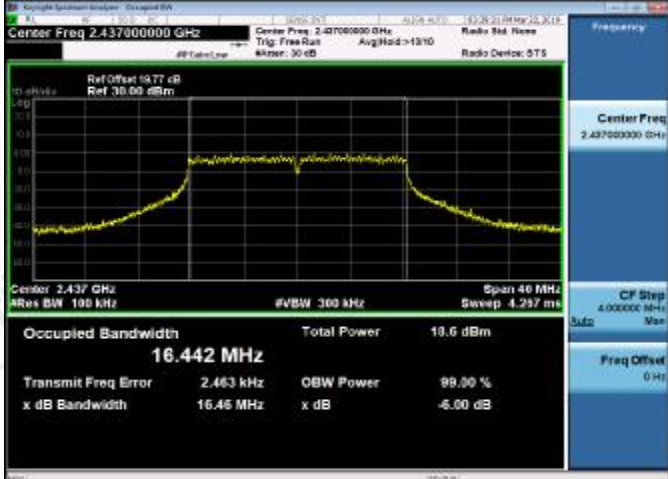
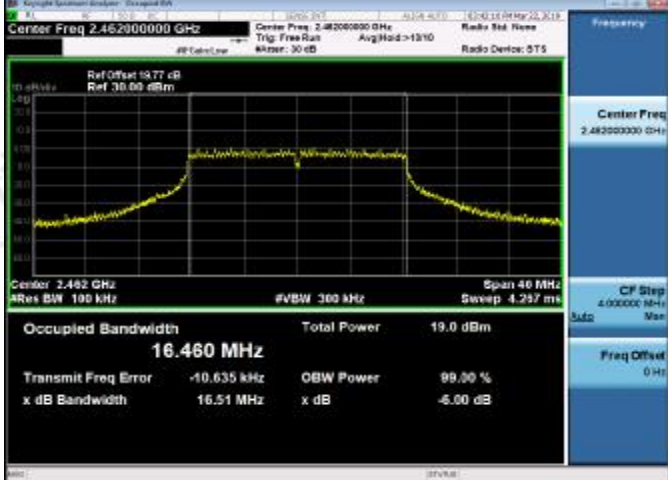
Appendix B): 6dB Occupied Bandwidth

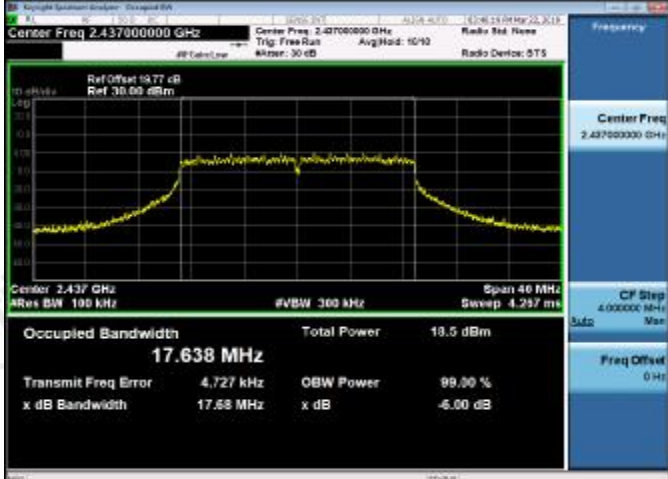
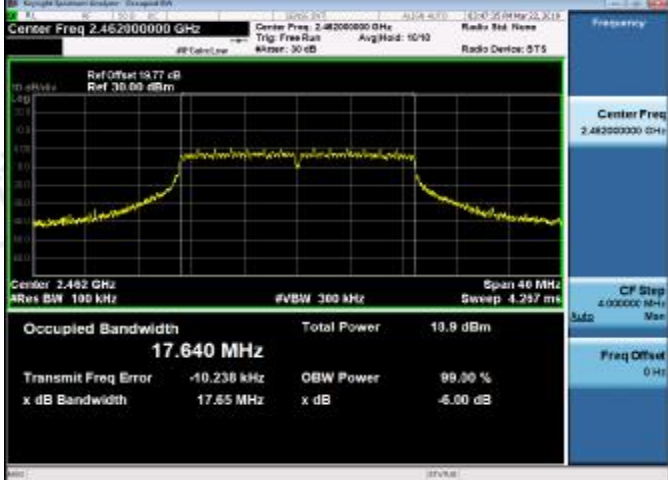
Result Table

Mode	Channel	6dB Bandwidth [MHz]	99% OBW [MHz]	Verdict
11B	LCH	10.32	12.809	PASS
11B	MCH	9.945	12.863	PASS
11B	HCH	10.24	12.922	PASS
11G	LCH	16.46	16.428	PASS
11G	MCH	16.46	16.442	PASS
11G	HCH	16.51	16.460	PASS
11N20SISO	LCH	17.67	17.632	PASS
11N20SISO	MCH	17.68	17.638	PASS
11N20SISO	HCH	17.65	17.640	PASS

Test Graph



11G/LCH	 Center Freq 2.41200000 GHz Ref Offset 19.5 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.297 ms Occupied Bandwidth 16.428 MHz Total Power 17.6 dBm Transmit Freq Error 7.350 kHz OBW Power 99.90 % x dB Bandwidth 16.46 MHz x dB -6.00 dB
11G/MCH	 Center Freq 2.43700000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.297 ms Occupied Bandwidth 16.442 MHz Total Power 19.6 dBm Transmit Freq Error 2.463 kHz OBW Power 99.90 % x dB Bandwidth 16.46 MHz x dB -6.00 dB
11G/HCH	 Center Freq 2.46200000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.297 ms Occupied Bandwidth 16.460 MHz Total Power 19.0 dBm Transmit Freq Error <10.635 kHz OBW Power 99.90 % x dB Bandwidth 16.51 MHz x dB -6.00 dB

11N20SISO/LCH	 Center Freq 2.412000000 GHz Ref Offset 19.5 dB Ref 30.00 dBm Center 2.412 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.297 ms Occupied Bandwidth 17.632 MHz Total Power 17.6 dBm Transmit Freq Error 377 Hz OBW Power 99.90 % x dB Bandwidth 17.57 MHz x dB -6.00 dB
11N20SISO/MCH	 Center Freq 2.437000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.437 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.297 ms Occupied Bandwidth 17.638 MHz Total Power 18.5 dBm Transmit Freq Error 4.727 kHz OBW Power 99.90 % x dB Bandwidth 17.58 MHz x dB -6.00 dB
11N20SISO/HCH	 Center Freq 2.462000000 GHz Ref Offset 19.77 dB Ref 30.00 dBm Center 2.462 GHz #Res BW 100 kHz #VBW 300 kHz Span 40 MHz Sweep 4.297 ms Occupied Bandwidth 17.640 MHz Total Power 18.9 dBm Transmit Freq Error -10.236 kHz OBW Power 99.90 % x dB Bandwidth 17.55 MHz x dB -6.00 dB

Appendix C): Band-edge for RF Conducted Emissions

Result Table

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	5.500	-48.039	-24.5	PASS
11B	HCH	6.923	-47.292	-23.08	PASS
11G	LCH	-0.765	-47.290	-30.77	PASS
11G	HCH	0.568	-43.821	-29.43	PASS
11N20SISO	LCH	-0.593	-46.891	-30.59	PASS
11N20SISO	HCH	0.682	-42.644	-29.32	PASS

Test Graph

Graphs



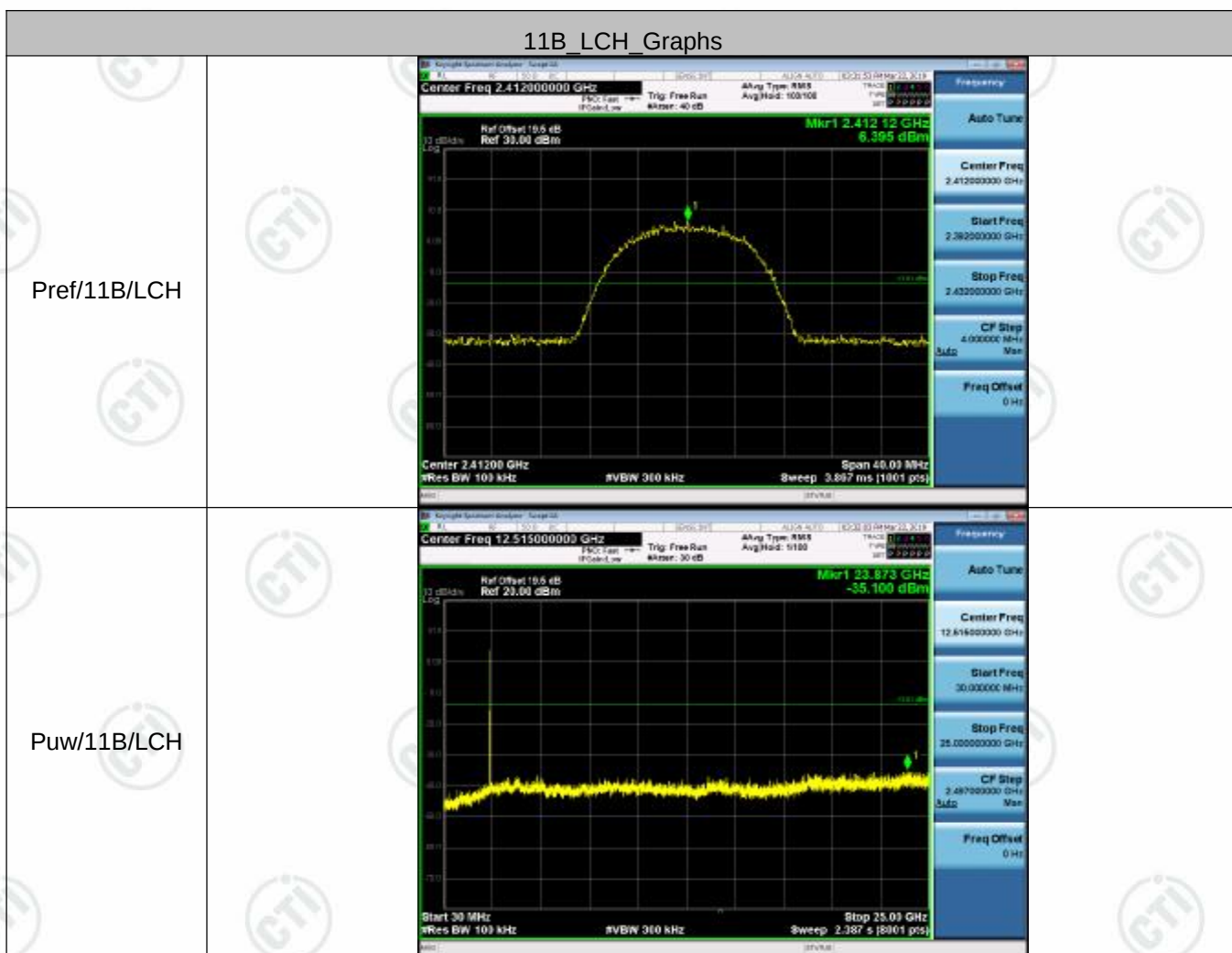
11G/HCH	
11N20SISO/LCH	
11N20SISO/HCH	

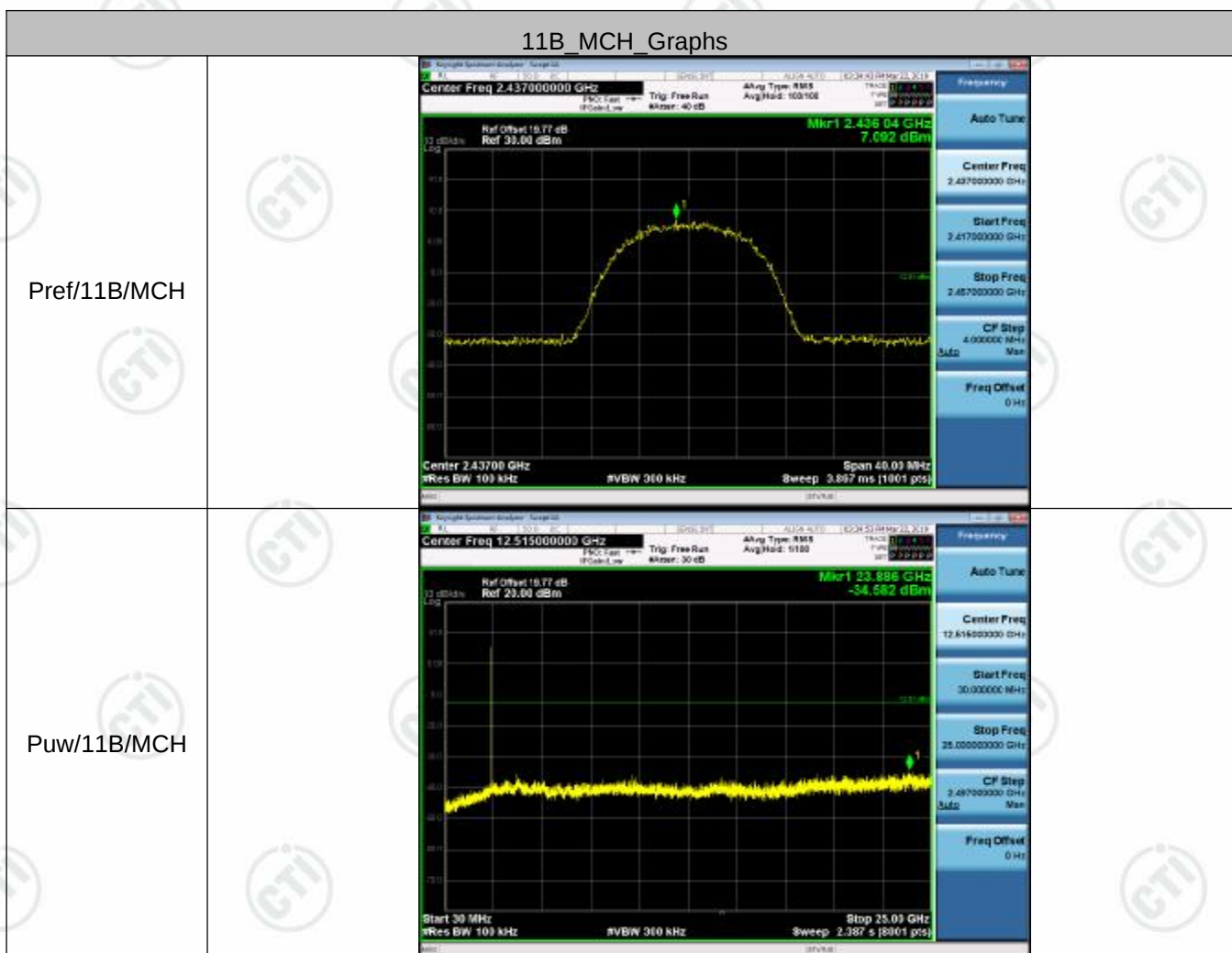
Appendix D): RF Conducted Spurious Emissions

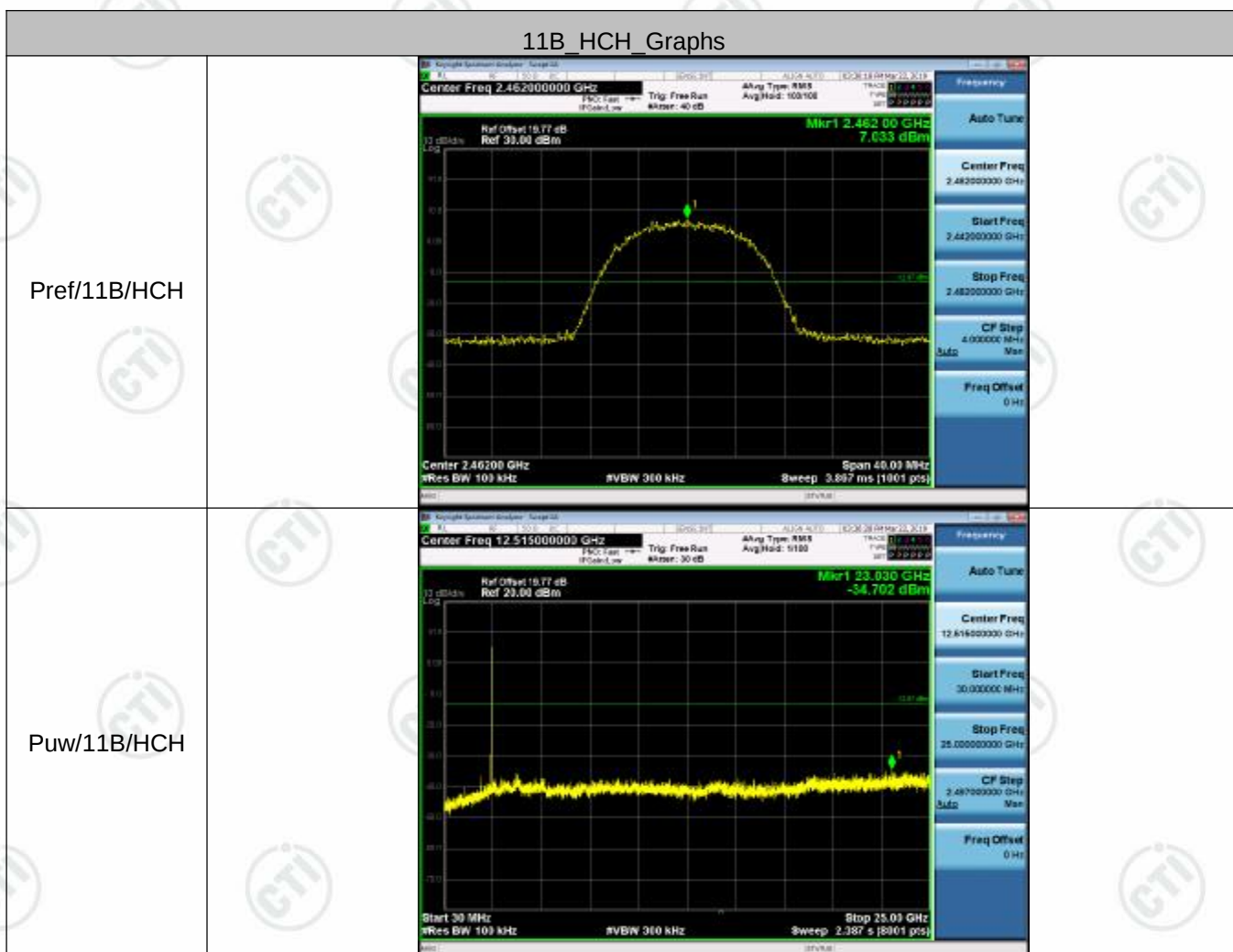
Result Table

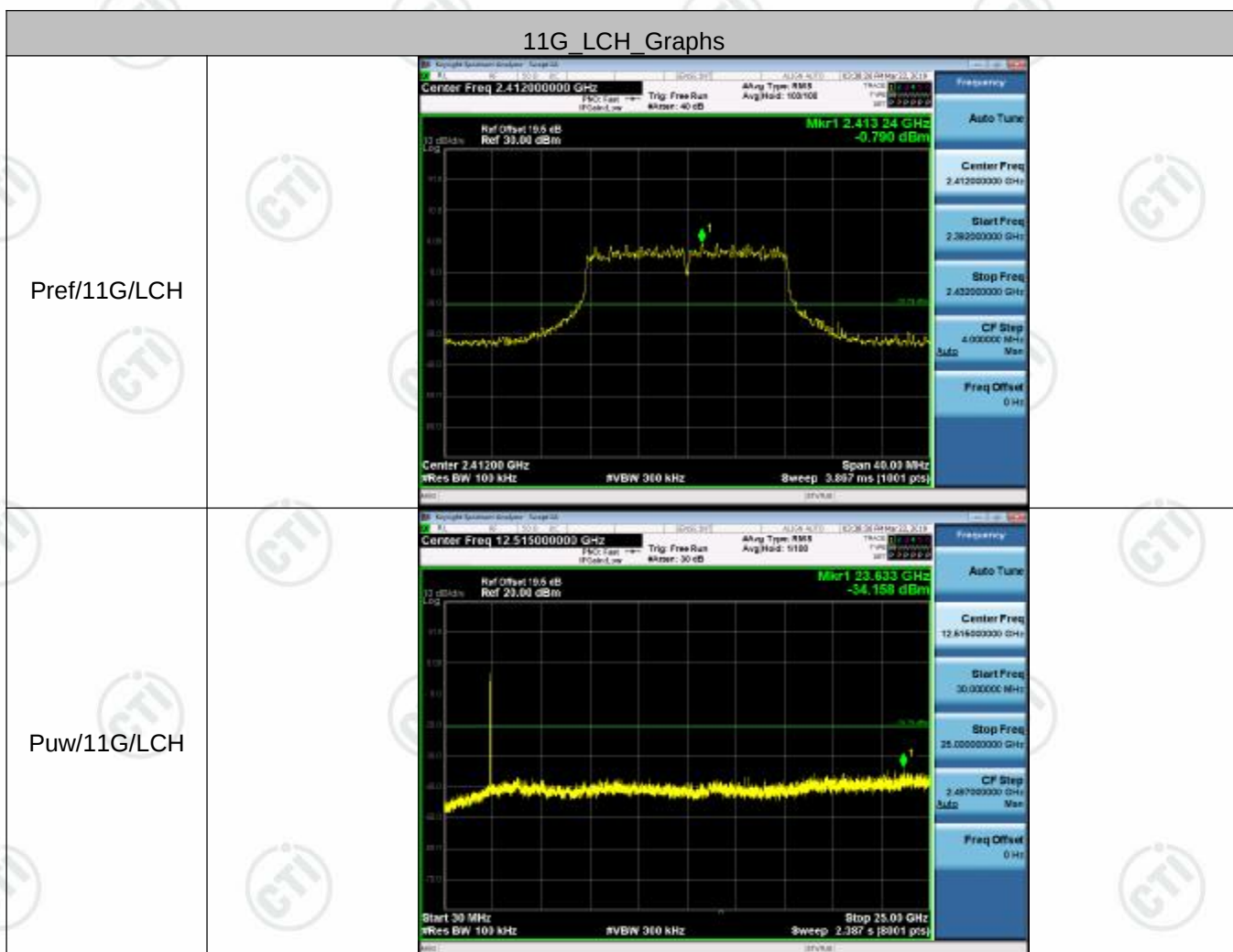
Mode	Channel	Pref [dBm]	Puw[dBm]	Verdict
11B	LCH	6.395	<Limit	PASS
11B	MCH	7.092	<Limit	PASS
11B	HCH	7.033	<Limit	PASS
11G	LCH	-0.79	<Limit	PASS
11G	MCH	0.071	<Limit	PASS
11G	HCH	0.639	<Limit	PASS
11N20SISO	LCH	-0.659	<Limit	PASS
11N20SISO	MCH	0.301	<Limit	PASS
11N20SISO	HCH	0.636	<Limit	PASS

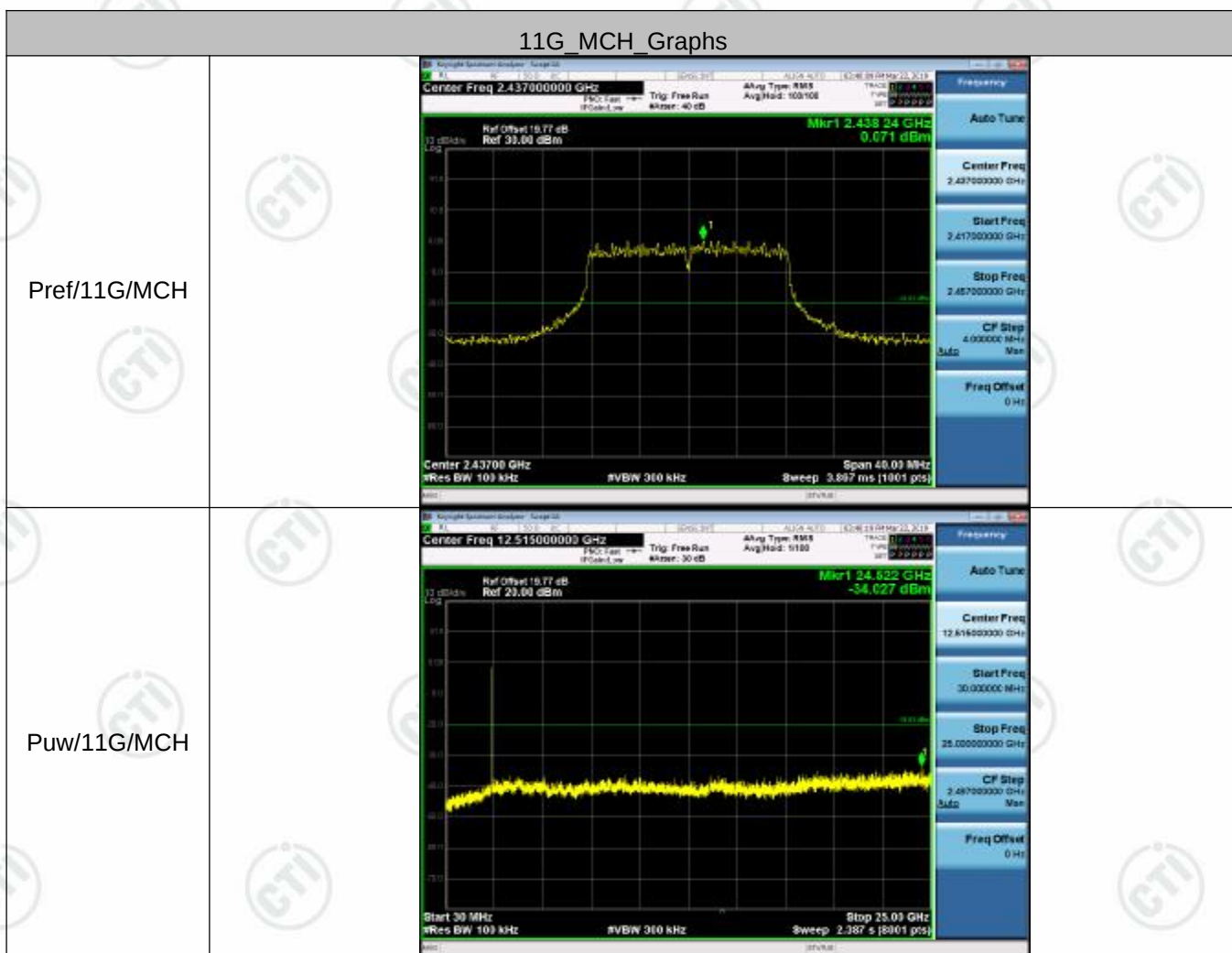
Test Graph

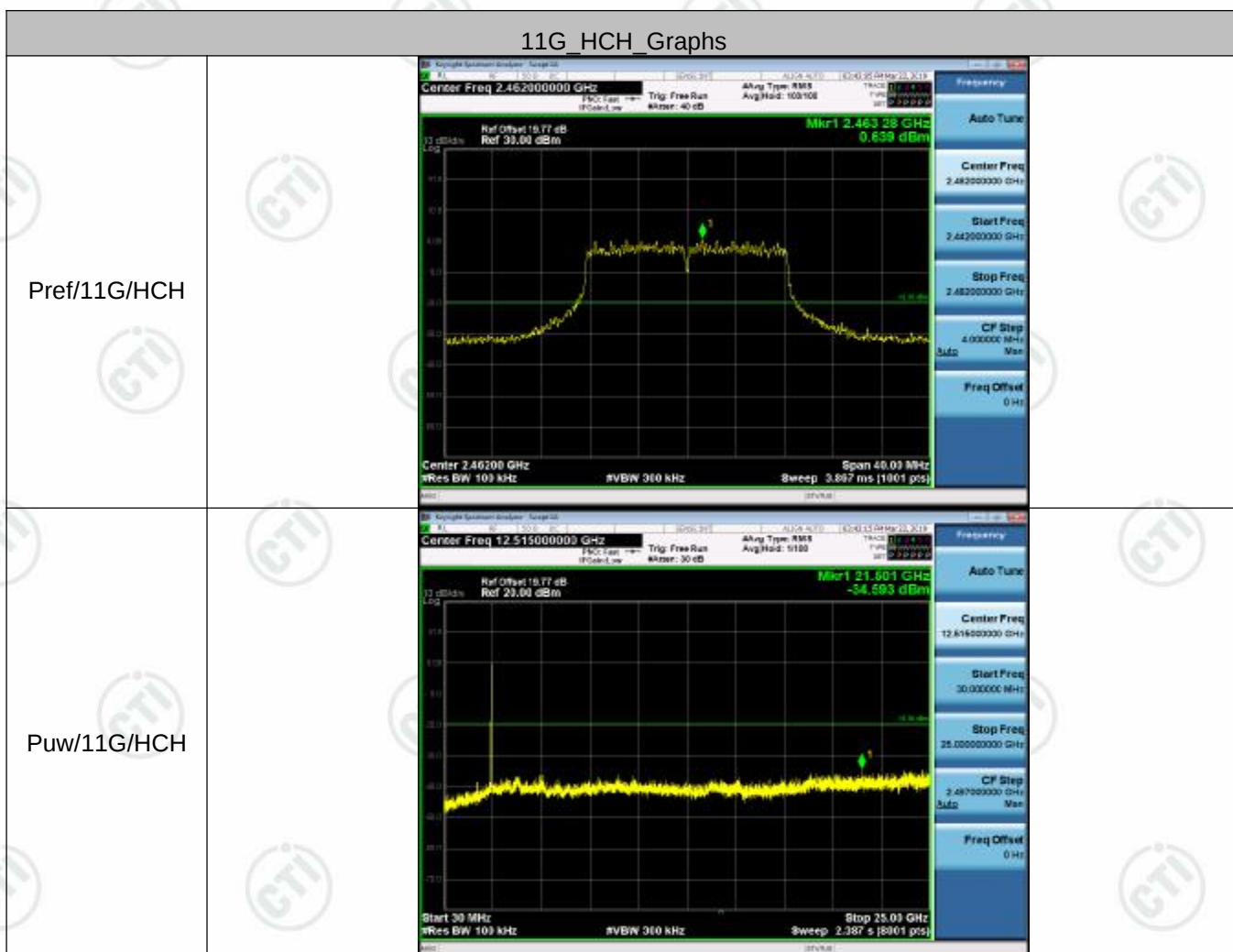


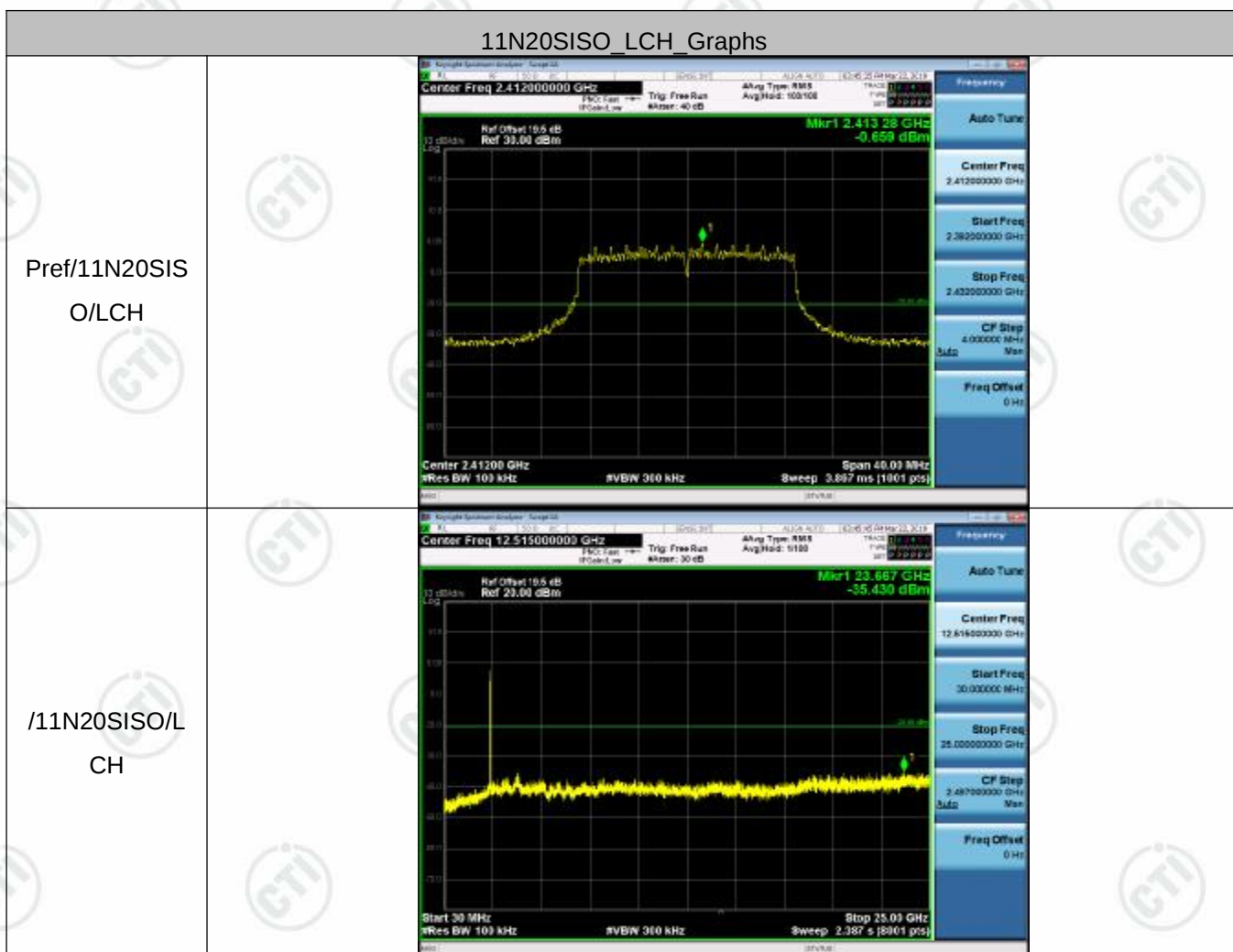


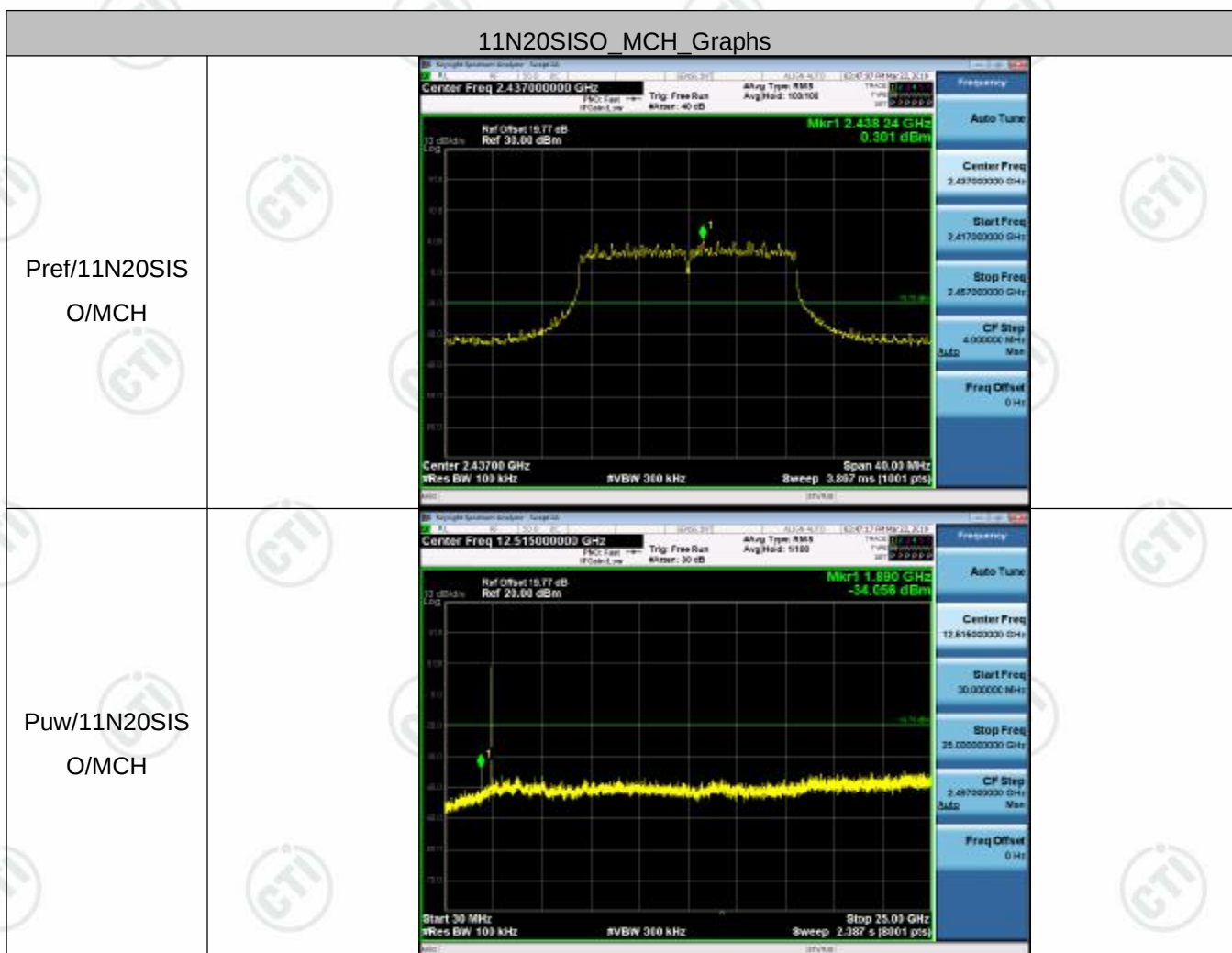


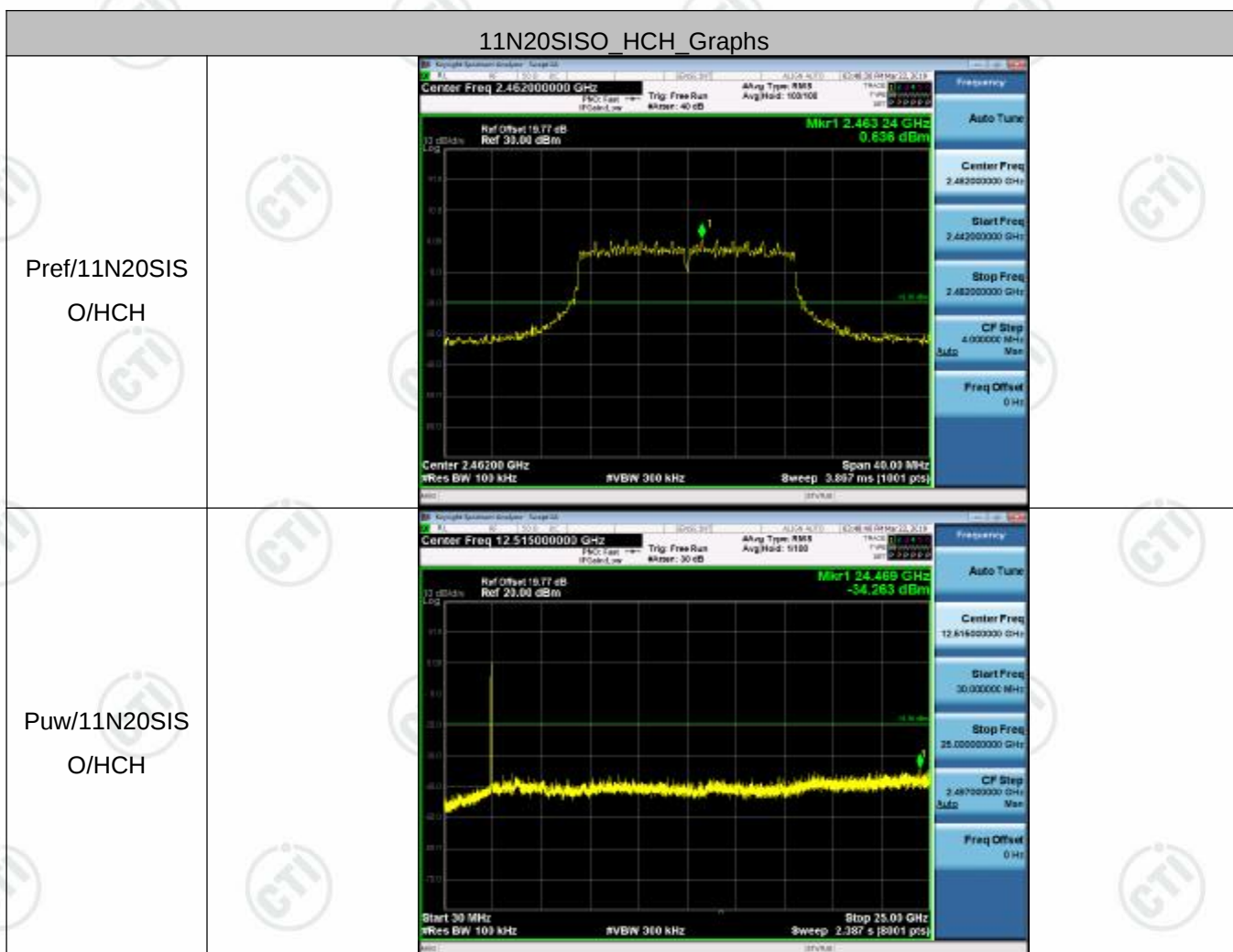










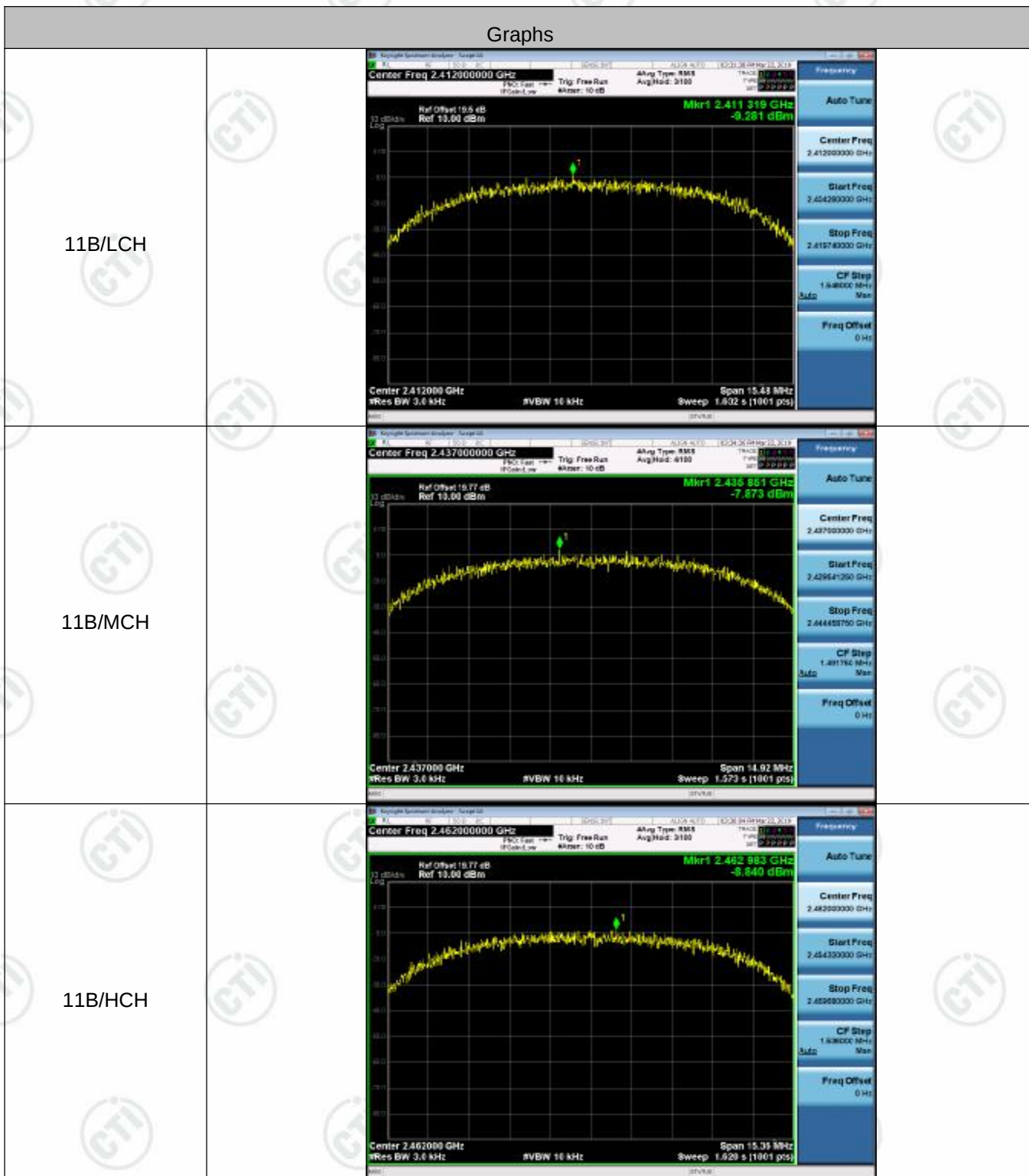


Appendix E): Power Spectral Density

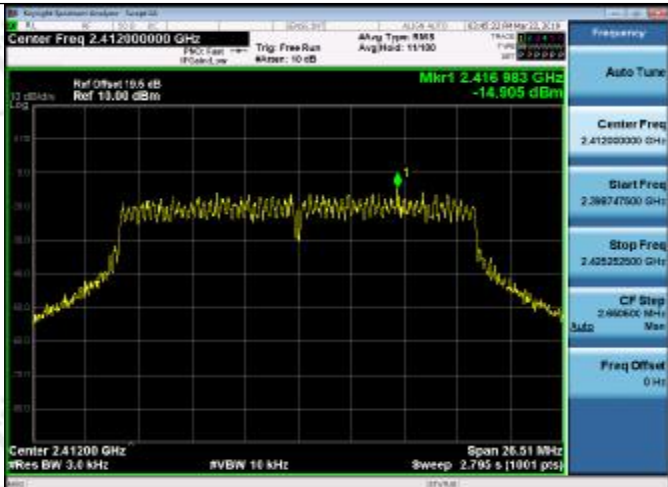
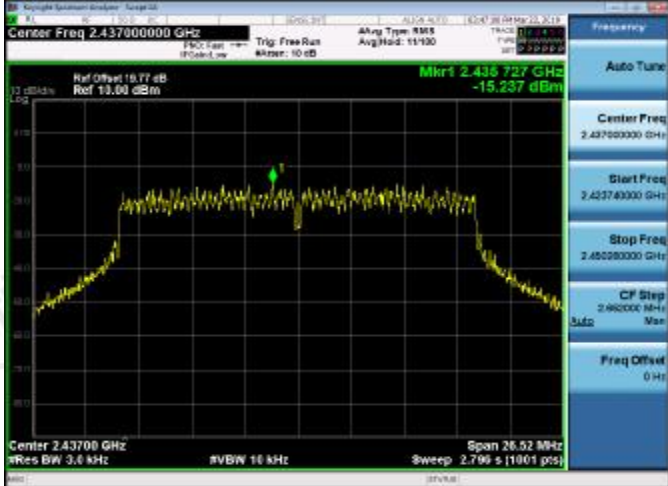
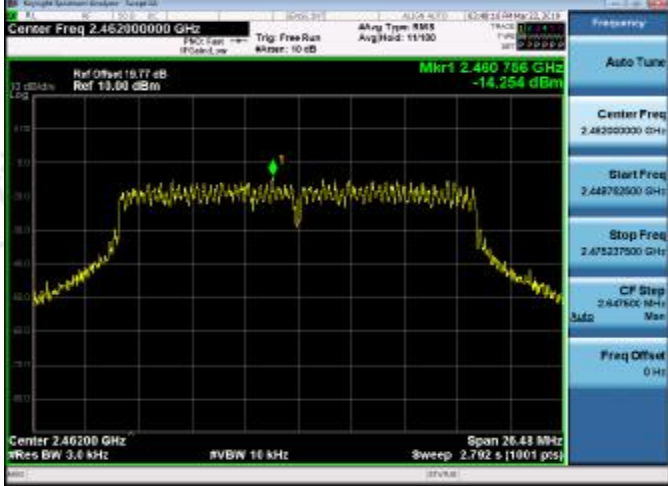
Result Table

Mode	Channel	Power Spectral Density [dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	LCH	-9.281	8	PASS
11B	MCH	-7.873	8	PASS
11B	HCH	-8.840	8	PASS
11G	LCH	-15.282	8	PASS
11G	MCH	-14.381	8	PASS
11G	HCH	-14.183	8	PASS
11N20SISO	LCH	-14.905	8	PASS
11N20SISO	MCH	-15.237	8	PASS
11N20SISO	HCH	-14.254	8	PASS

Test Graph





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

Appendix F): Antenna Requirement

15.203 requirement:

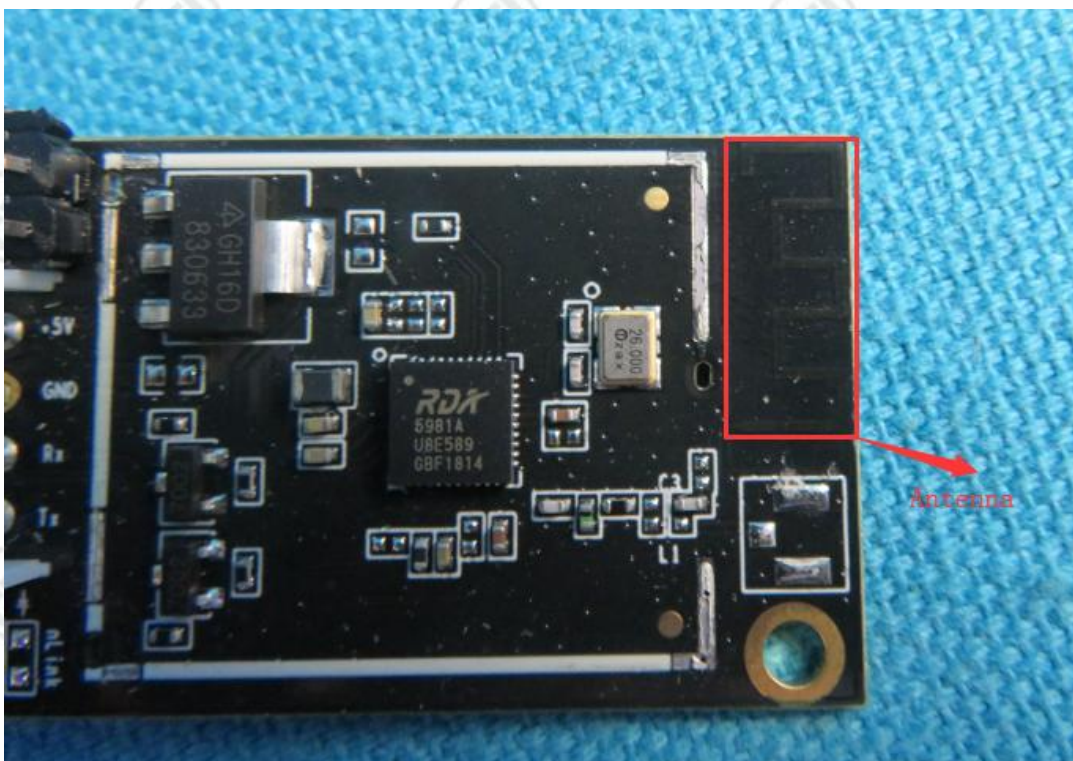
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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 PCB Antenna and no consideration of replacement. The best case gain of the antenna is 1.5dBi.



Appendix G): AC Power Line Conducted Emission

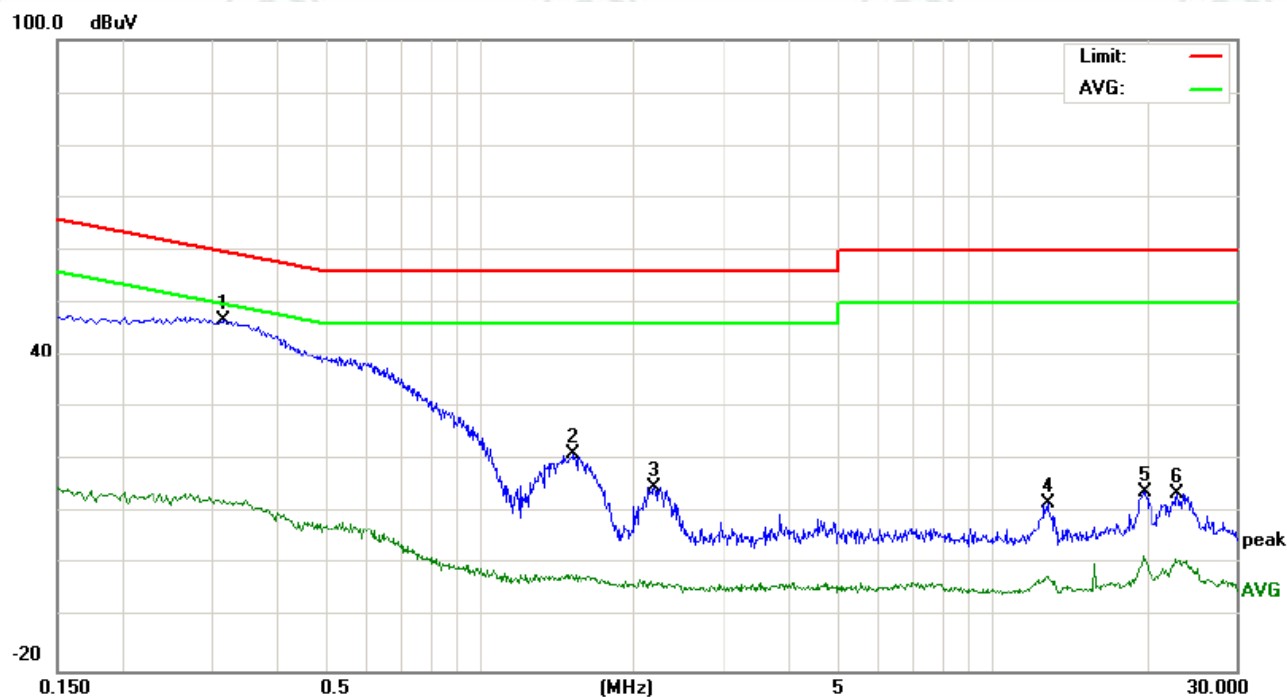
Test Procedure:	Test frequency range :150KHz-30MHz 1)The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all 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.																
Limit:	<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			Frequency range (MHz)	Limit (dBμV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBμV)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
5-30	60	50															
Test Ambient:	Temp.: 22°C	Humid.: 53%	Press.: 101kPa														

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.

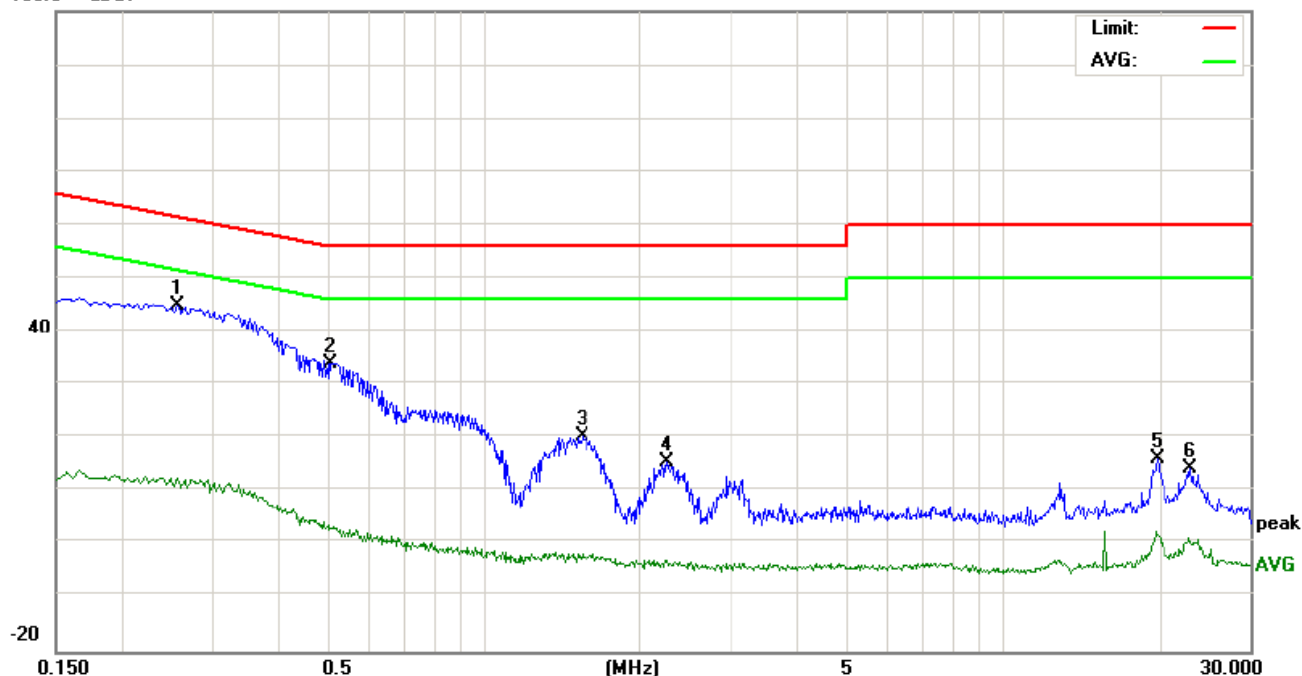
Live line:



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.3180	36.75	31.16	2.02	9.98	46.73	41.14	12.00	59.76	49.76	-18.62	-37.76	P	
2	1.5260	11.53	2.17	-12.8	9.76	21.29	11.93	-3.10	56.00	46.00	-44.07	-49.10	P	
3	2.1980	5.20	-3.85	-13.9	9.72	14.92	5.87	-4.22	56.00	46.00	-50.13	-50.22	P	
4	12.9100	2.07	-7.13	-13.4	9.93	12.00	2.80	-3.51	60.00	50.00	-57.20	-53.51	P	
5	19.9020	4.15	-3.21	-10.1	9.91	14.06	6.70	-0.28	60.00	50.00	-53.30	-50.28	P	
6	23.0419	3.87	-4.11	-10.6	9.93	13.80	5.82	-0.76	60.00	50.00	-54.18	-50.76	P	

Neutral line:

100.0 dBuV



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.2580	34.91	29.99	1.46	9.96	44.87	39.95	11.42	61.49	51.49	-21.54	-40.07	P	
2	0.5100	35.56	16.75	-7.66	9.91	45.47	26.66	2.25	56.00	46.00	-29.34	-43.75	P	
3	1.5540	10.51	1.81	-12.8	9.76	20.27	11.57	-3.07	56.00	46.00	-44.43	-49.07	P	
4	2.2540	5.93	-3.90	-13.9	9.72	15.65	5.82	-4.19	56.00	46.00	-50.18	-50.19	P	
5	19.8700	6.35	-3.15	-10.1	9.91	16.26	6.76	-0.24	60.00	50.00	-53.24	-50.24	P	
6	23.0459	4.46	-3.17	-9.40	9.93	14.39	6.76	0.53	60.00	50.00	-53.24	-49.47	P	

Notes:

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

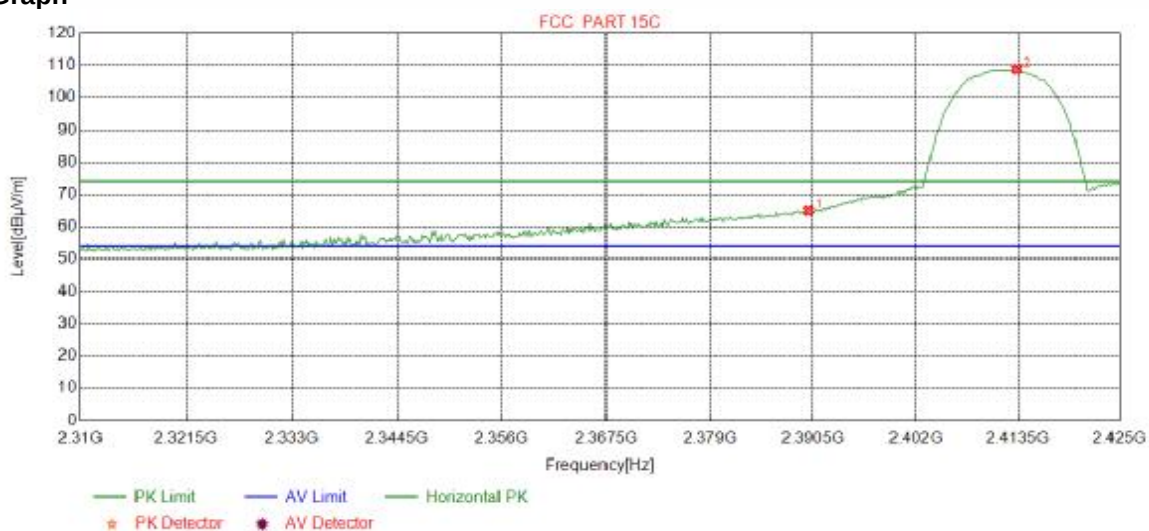
Appendix H): Restricted bands around fundamental frequency (Radiated)

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: - The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - 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. - 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. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - 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: - 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). - Test the EUT in the lowest channel , the Highest channel - 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. - 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 Ambient:	Temp.: 22°C	Humid.: 53%		Press.: 101kPa	

Test plot as follows:

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	PK		

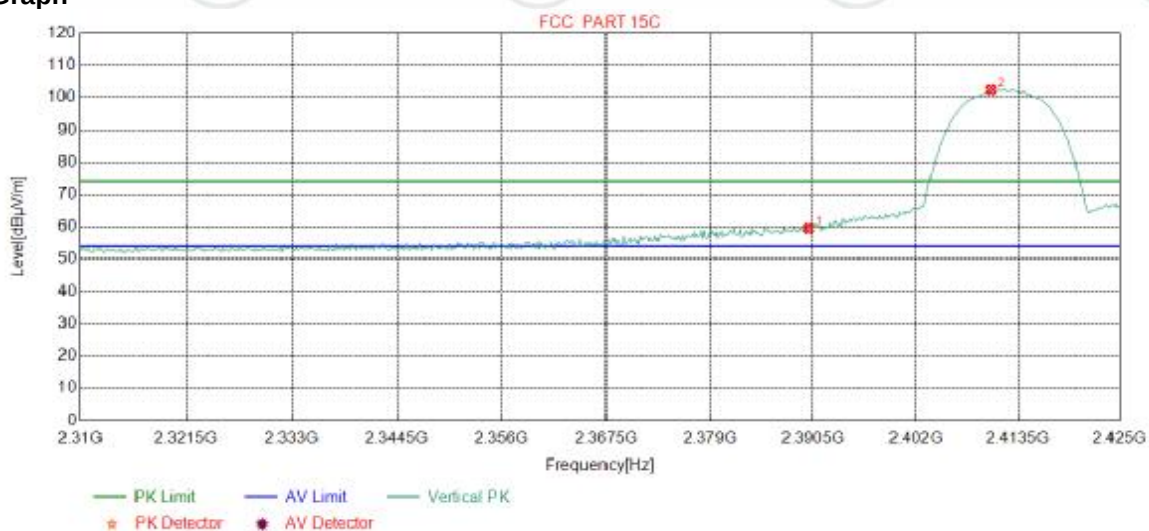
Test Graph



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	-42.44	61.82	65.00	74.00	9.00	Pass	Horizontal
2	2413.3417	32.28	13.36	-42.43	105.60	108.81	74.00	-34.81	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	PK		

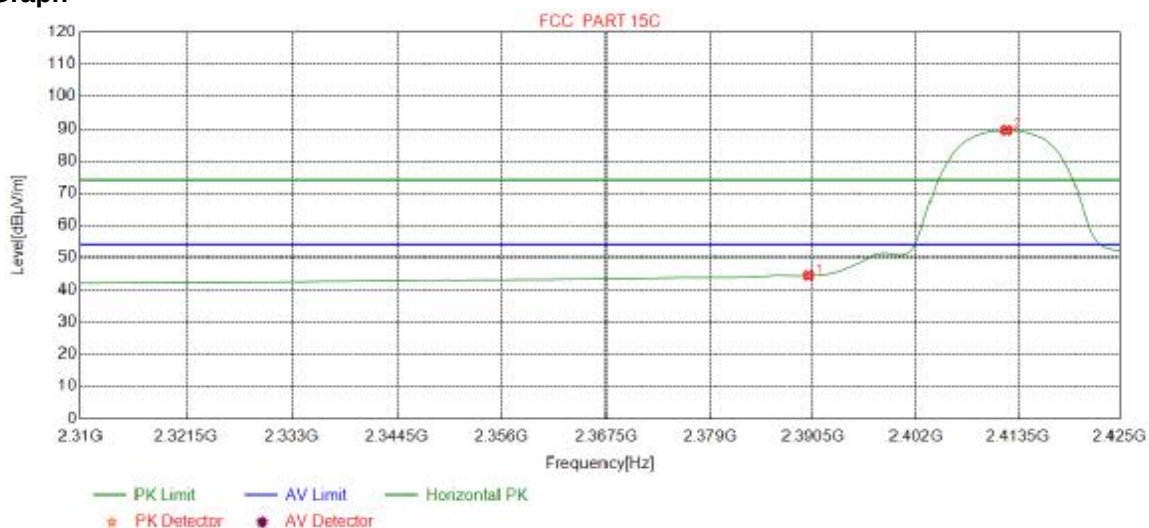
Test Graph



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	-42.44	56.33	59.51	74.00	14.49	Pass	Vertical
2	2410.4631	32.27	13.35	-42.43	99.19	102.38	74.00	-28.38	Pass	Vertical

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	AV		

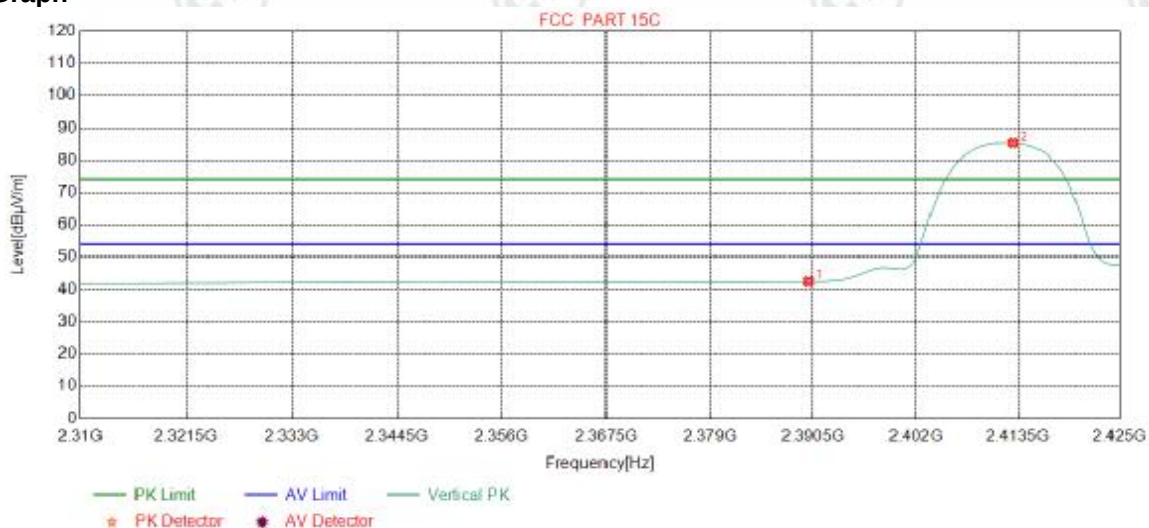
Test Graph



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	-42.44	41.25	44.43	54.00	9.57	Pass	Horizontal
2	2412.1902	32.28	13.36	-42.44	86.34	89.54	54.00	-35.54	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2412
Remark:	AV		

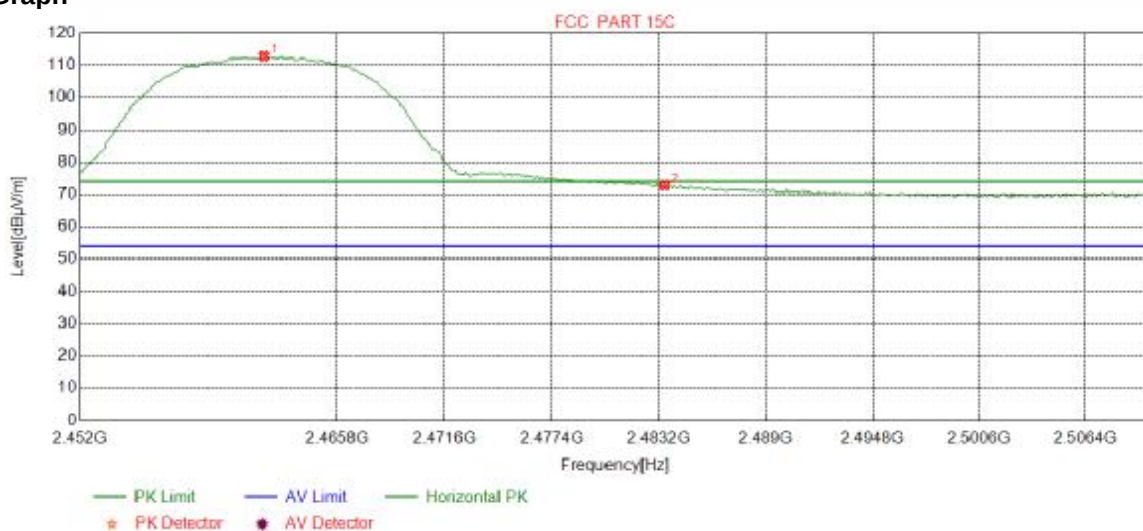
Test Graph



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	-42.44	39.22	42.40	54.00	11.60	Pass	Vertical
2	2412.9099	32.28	13.36	-42.43	82.10	85.31	54.00	-31.31	Pass	Vertical

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2462
Remark:	PK		

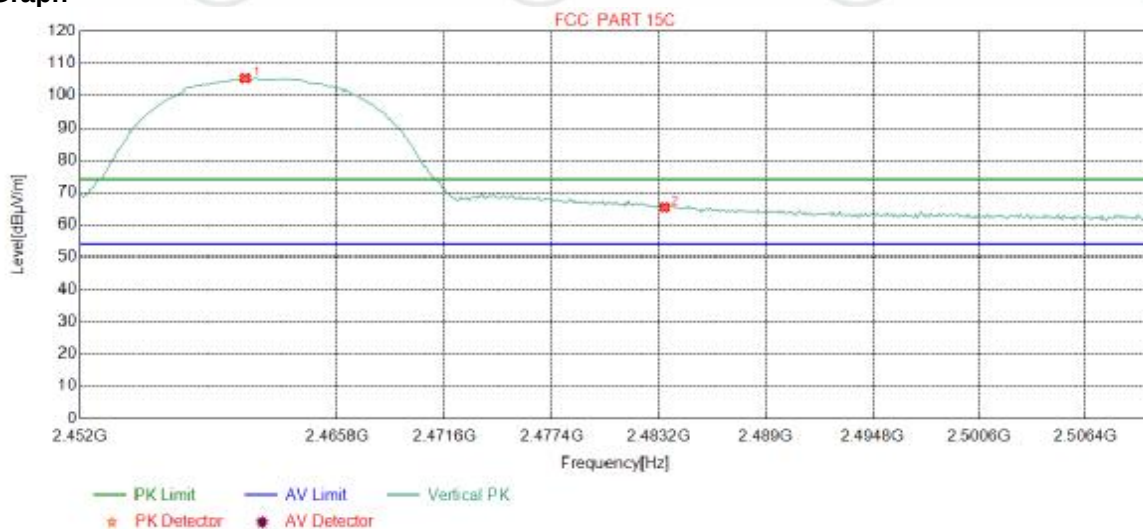
Test Graph



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	2461.8723	32.35	13.48	-42.41	109.37	112.79	74.00	-38.79	Pass	Horizontal
2	2483.5000	32.38	13.38	-42.40	69.43	72.79	74.00	1.21	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2462
Remark:	PK		

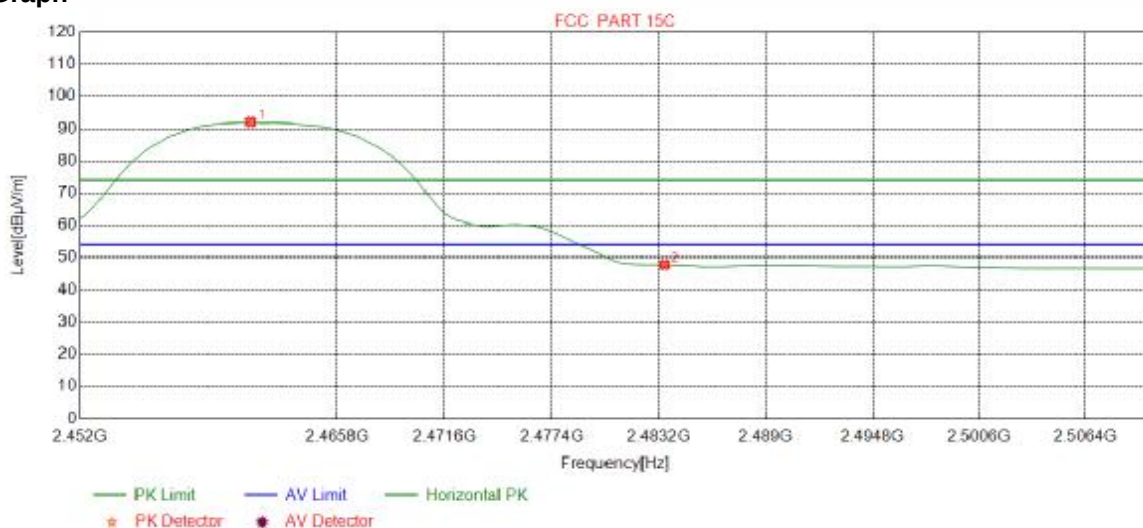
Test Graph



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	-42.41	101.87	105.29	74.00	-31.29	Pass	Vertical
2	2483.5000	32.38	13.38	-42.40	62.02	65.38	74.00	8.62	Pass	Vertical

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2462
Remark:	AV		

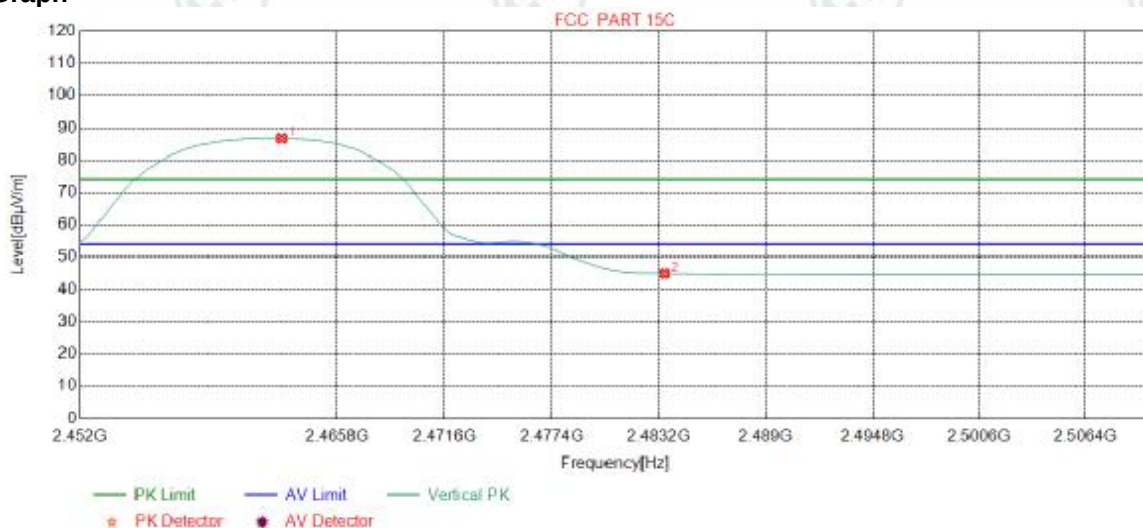
Test Graph



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	2461.1464	32.35	13.48	-42.41	88.66	92.08	54.00	-38.08	Pass	Horizontal
2	2483.5000	32.38	13.38	-42.40	44.47	47.83	54.00	6.17	Pass	Horizontal

Mode:	802.11 b(11Mbps) Transmitting	Channel:	2462
Remark:	AV		

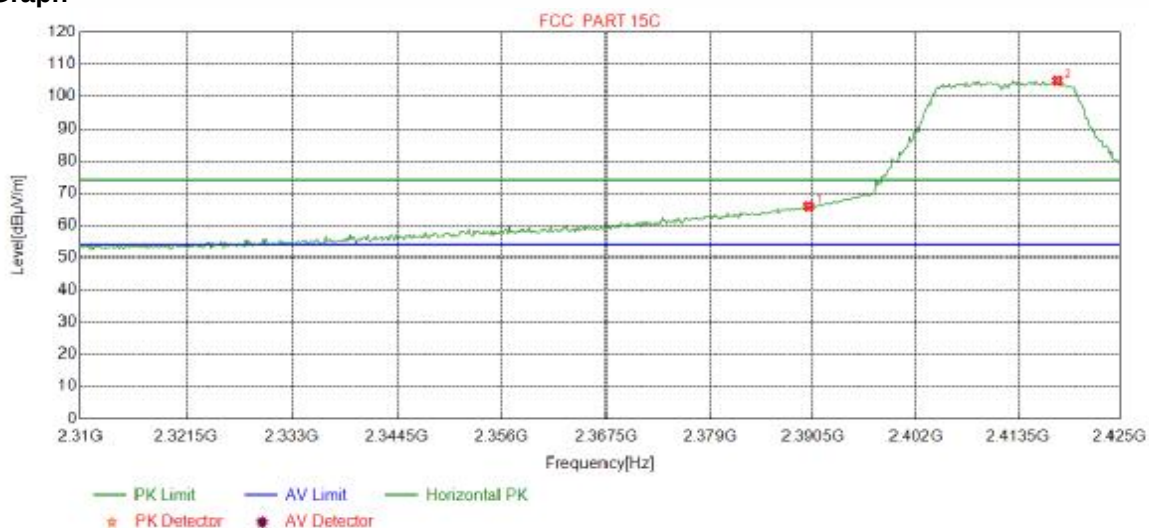
Test Graph



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	2462.8160	32.35	13.47	-42.41	83.32	86.73	54.00	-32.73	Pass	Vertical
2	2483.5000	32.38	13.38	-42.40	41.57	44.93	54.00	9.07	Pass	Vertical

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

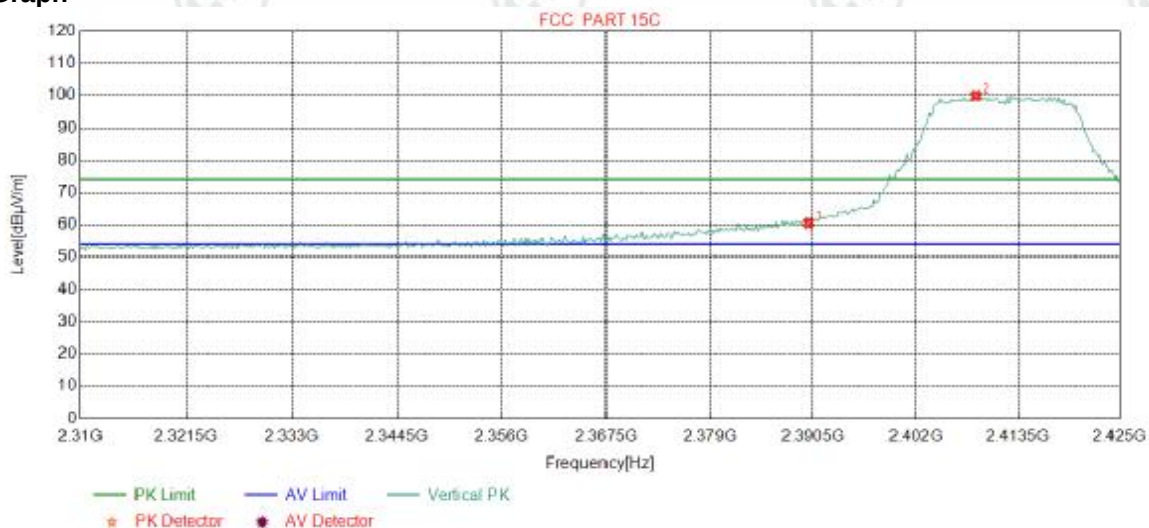
Test Graph



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	-42.44	62.70	65.88	74.00	8.12	Pass	Horizontal
2	2417.9474	32.29	13.38	-42.43	101.52	104.76	74.00	-30.76	Pass	Horizontal

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

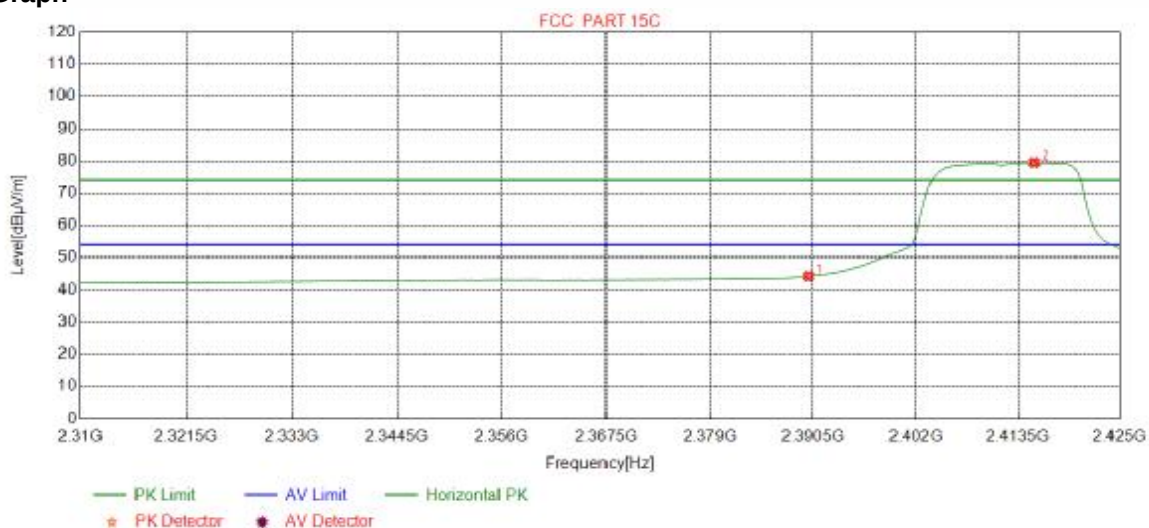
Test Graph



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	-42.44	57.33	60.51	74.00	13.49	Pass	Vertical
2	2408.7359	32.27	13.34	-42.43	96.78	99.96	74.00	-25.96	Pass	Vertical

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

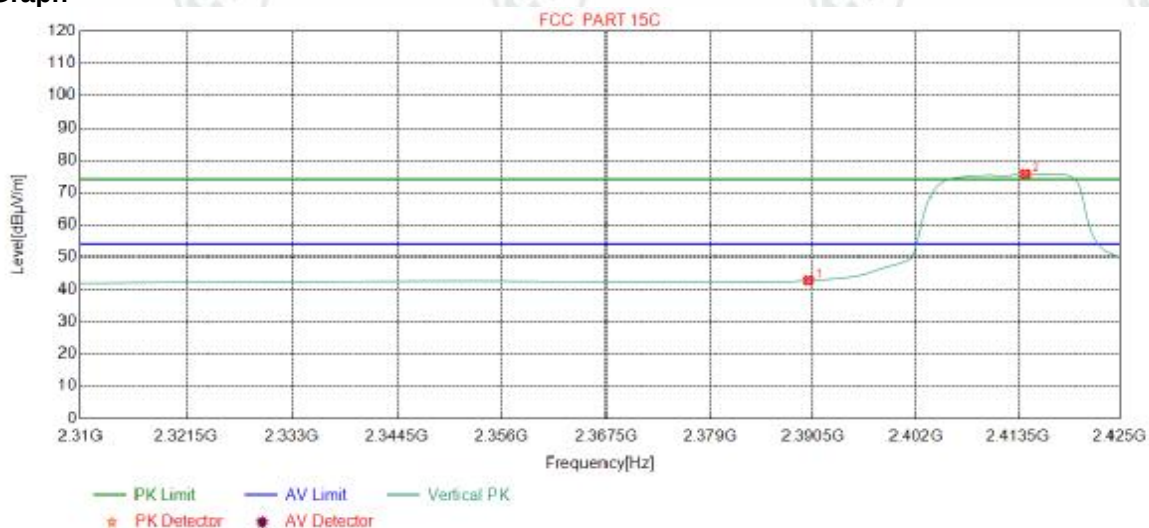
Test Graph



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	-42.44	41.00	44.18	54.00	9.82	Pass	Horizontal
2	2415.3567	32.28	13.37	-42.43	76.26	79.48	54.00	-25.48	Pass	Horizontal

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

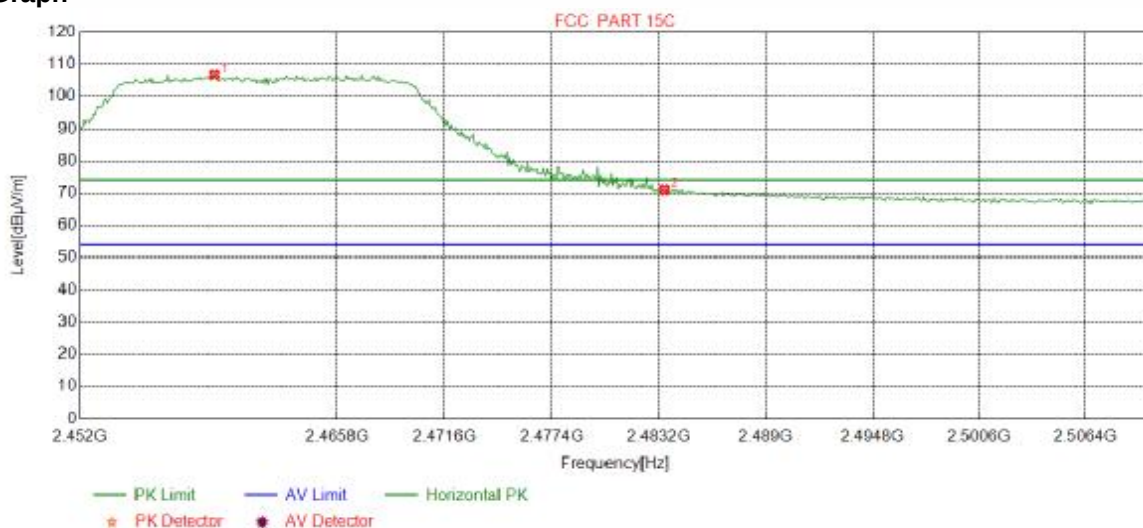
Test Graph



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	-42.44	39.53	42.71	54.00	11.29	Pass	Vertical
2	2414.3492	32.28	13.37	-42.43	72.45	75.67	54.00	-21.67	Pass	Vertical

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

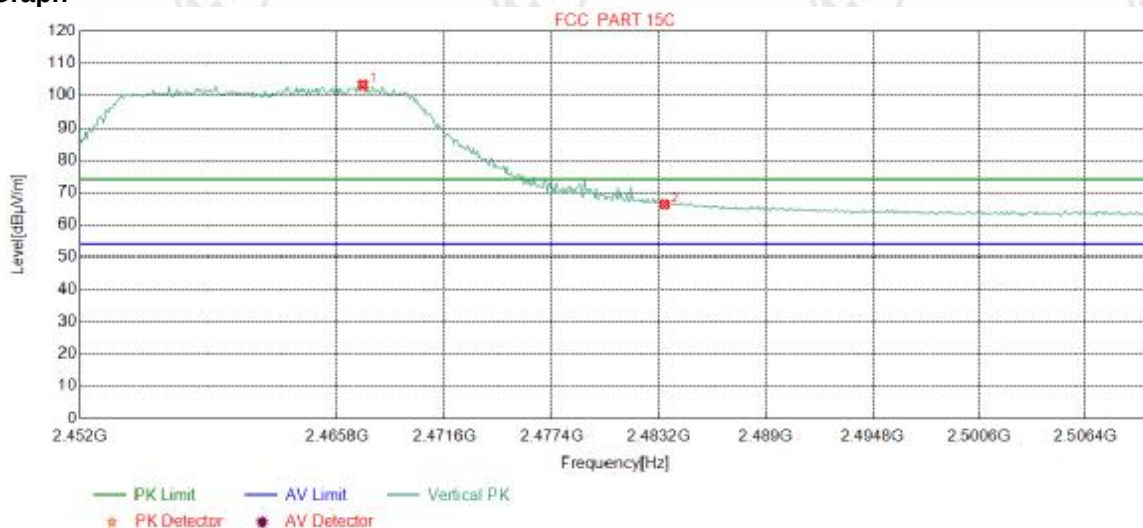
Test Graph



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	2459.1865	32.34	13.49	-42.41	103.31	106.73	74.00	-32.73	Pass	Horizontal
2	2483.5000	32.38	13.38	-42.40	67.64	71.00	74.00	3.00	Pass	Horizontal

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

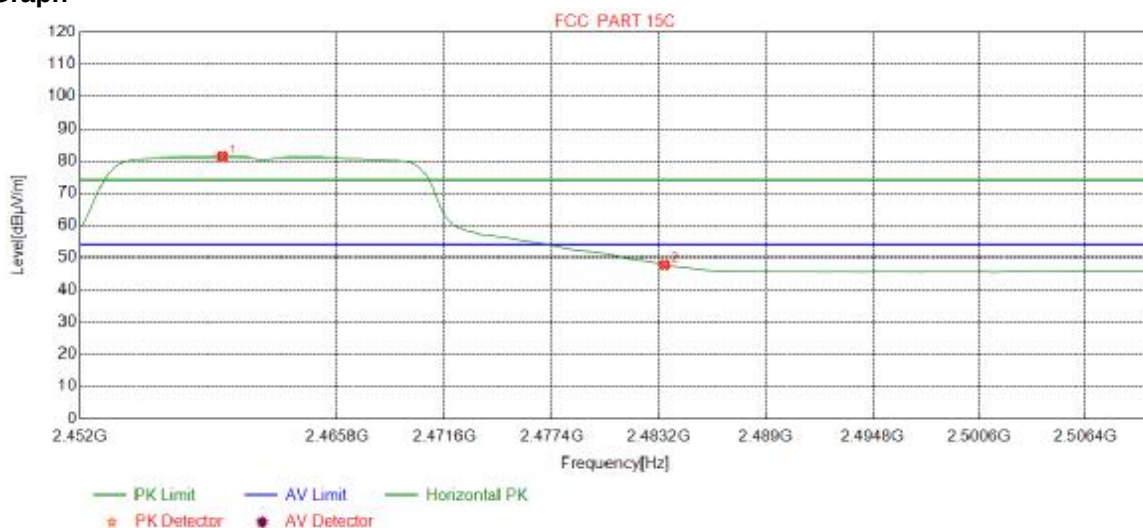
Test Graph



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	2467.1715	32.35	13.45	-42.40	99.83	103.23	74.00	-29.23	Pass	Vertical
2	2483.5000	32.38	13.38	-42.40	62.96	66.32	74.00	7.68	Pass	Vertical

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

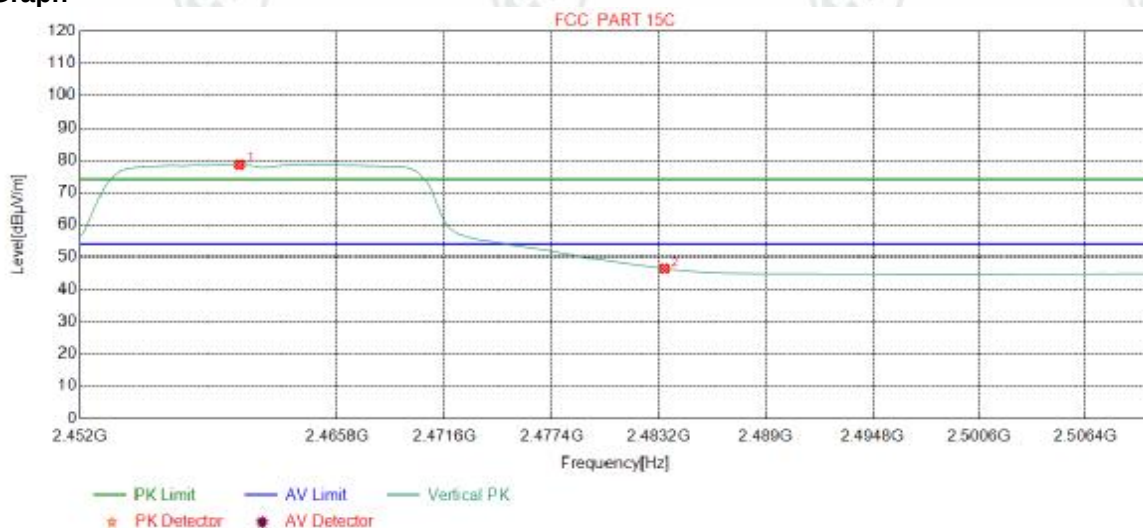
Test Graph



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	2459.6220	32.34	13.49	-42.41	77.88	81.30	54.00	-27.30	Pass	Horizontal
2	2483.5000	32.38	13.38	-42.40	44.45	47.81	54.00	6.19	Pass	Horizontal

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

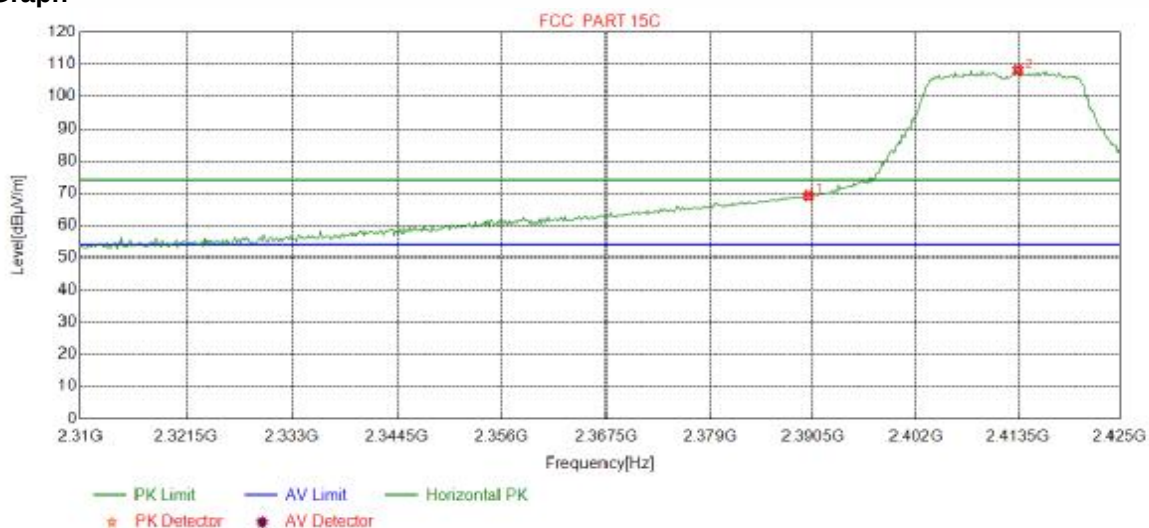
Test Graph



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	2460.5657	32.34	13.48	-42.40	75.22	78.64	54.00	-24.64	Pass	Vertical
2	2483.5000	32.38	13.38	-42.40	43.13	46.49	54.00	7.51	Pass	Vertical

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

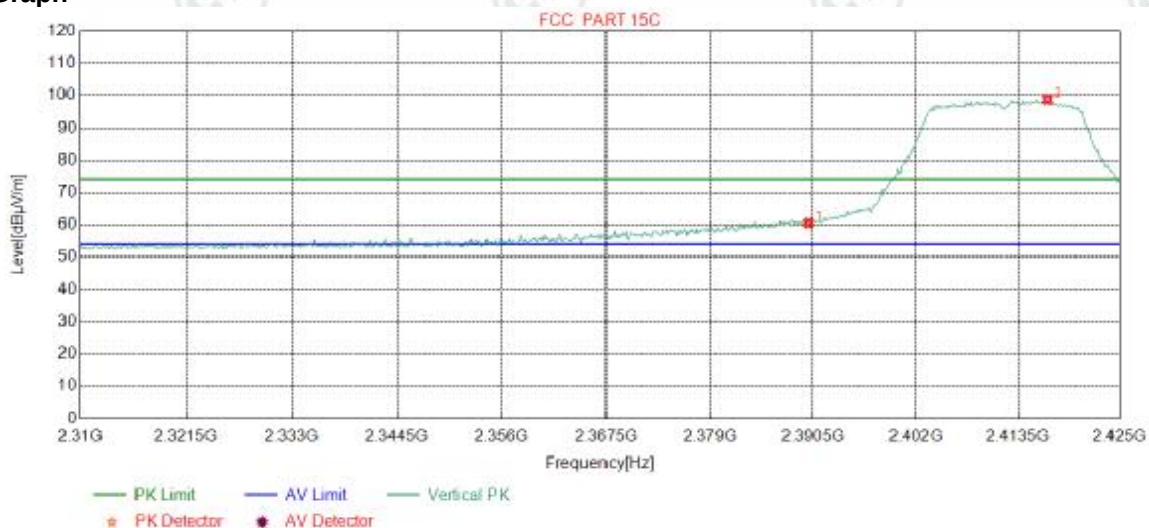
Test Graph



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	-42.44	66.00	69.18	74.00	4.82	Pass	Horizontal
2	2413.4856	32.28	13.36	-42.43	104.94	108.15	74.00	-34.15	Pass	Horizontal

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

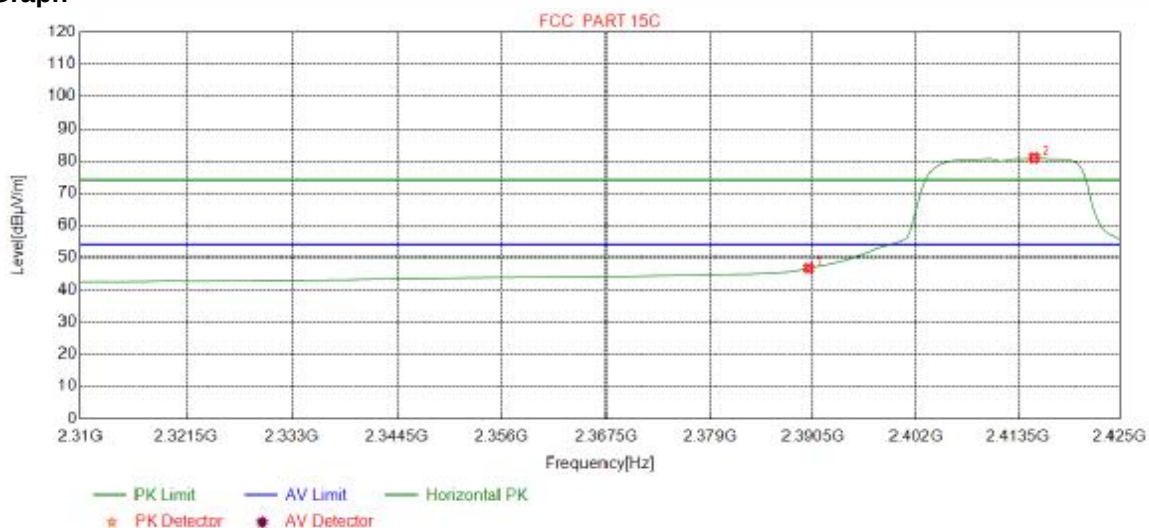
Test Graph



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	-42.44	57.38	60.56	74.00	13.44	Pass	Vertical
2	2416.7960	32.28	13.38	-42.43	95.55	98.78	74.00	-24.78	Pass	Vertical

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

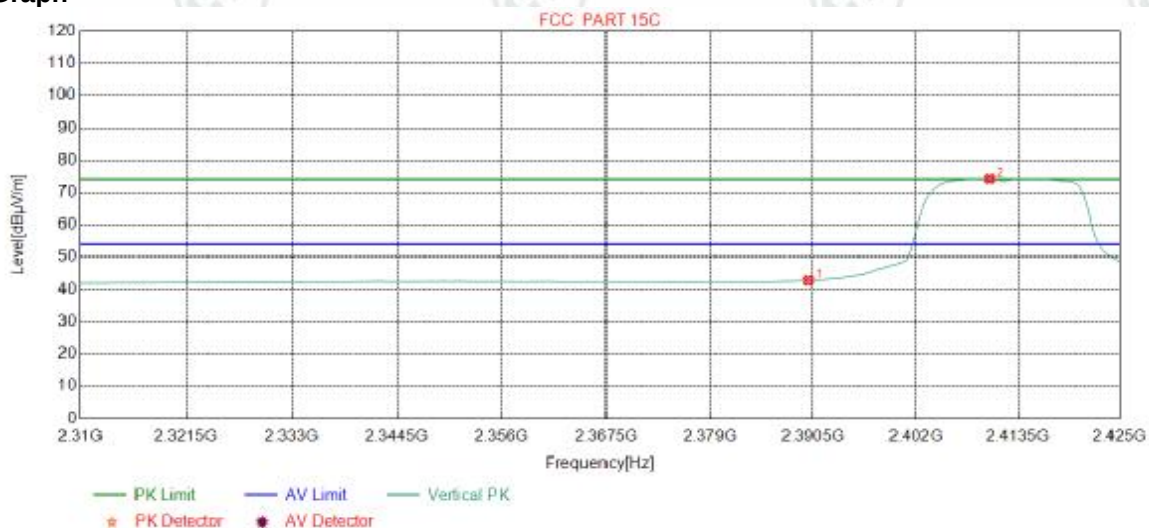
Test Graph



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	-42.44	43.57	46.75	54.00	7.25	Pass	Horizontal
2	2415.3567	32.28	13.37	-42.43	77.69	80.91	54.00	-26.91	Pass	Horizontal

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

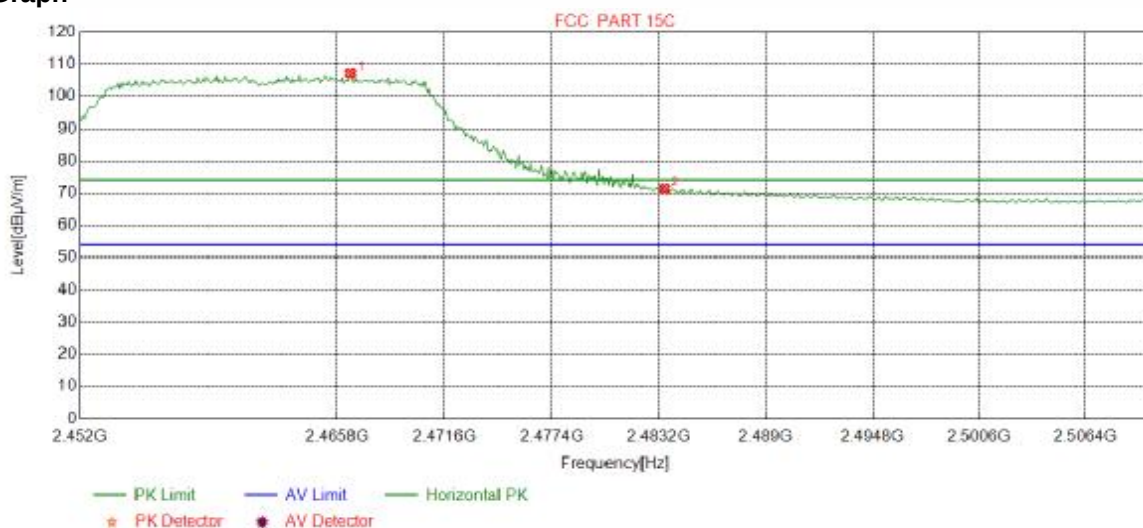
Test Graph



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	-42.44	39.59	42.77	54.00	11.23	Pass	Vertical
2	2410.3191	32.27	13.35	-42.43	70.98	74.17	54.00	-20.17	Pass	Vertical

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

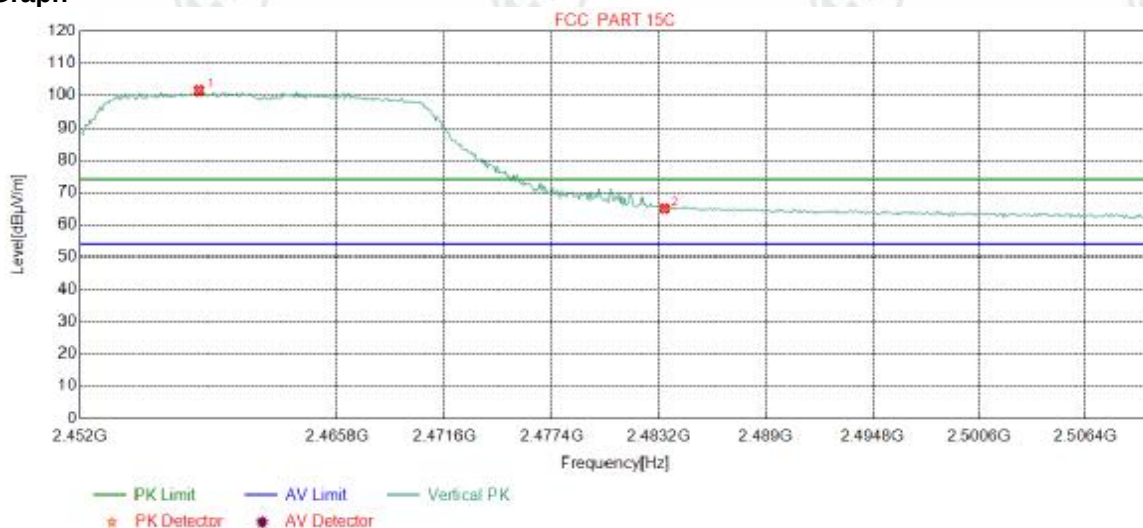
Test Graph



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	2466.5181	32.35	13.45	-42.40	103.75	107.15	74.00	-33.15	Pass	Horizontal
2	2483.5000	32.38	13.38	-42.40	67.93	71.29	74.00	2.71	Pass	Horizontal

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

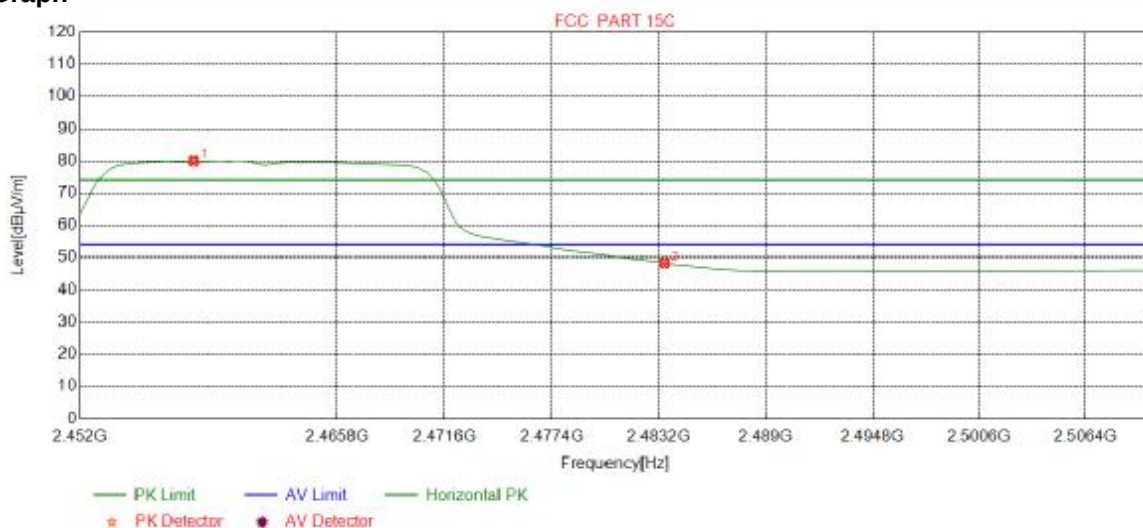
Test Graph



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	2458.3880	32.34	13.49	-42.41	98.11	101.53	74.00	-27.53	Pass	Vertical
2	2483.5000	32.38	13.38	-42.40	61.64	65.00	74.00	9.00	Pass	Vertical

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

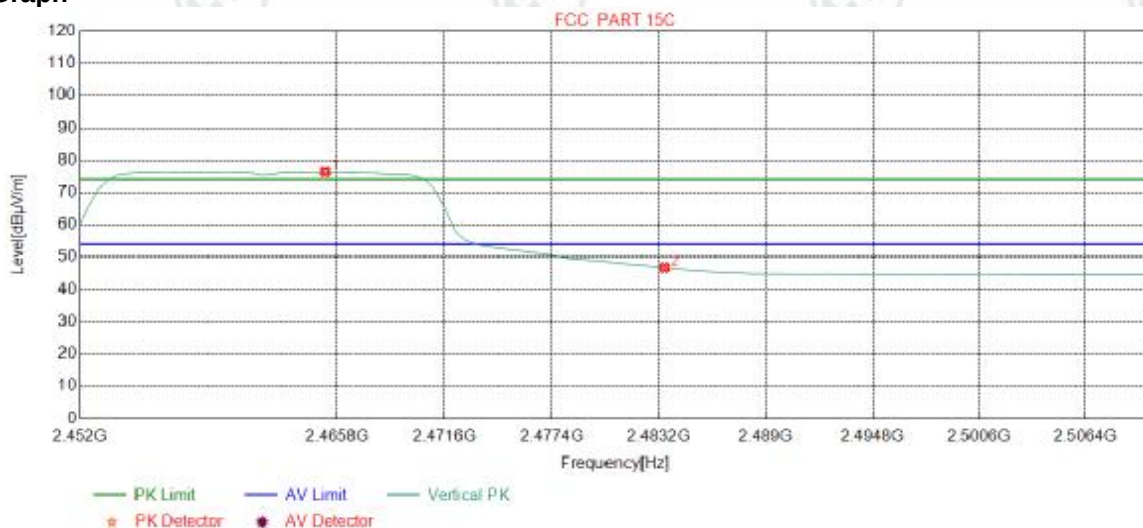
Test Graph



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	2458.0976	32.34	13.49	-42.40	76.56	79.99	54.00	-25.99	Pass	Horizontal
2	2483.5000	32.38	13.38	-42.40	44.94	48.30	54.00	5.70	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	2465.1389	32.35	13.46	-42.40	73.01	76.42	54.00	-22.42	Pass	Vertical
2	2483.5000	32.38	13.38	-42.40	43.42	46.78	54.00	7.22	Pass	Vertical

Note:

1) Through Pre-scan transmitter mode with all kind of modulation and data rate, find the 11Mbps 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), 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.					
Test Ambient:	Temp.: 22°C	Humid.: 53%	Press.: 101kPa		

Radiated Spurious Emissions test Data:
Radiated Emission below 1GHz

Mode:			802.11 b(11Mbps) Transmitting				Channel:		2462	
Remark:			QP							
NO	Freq. [MHz]	AntFac tor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level[dBμ V/m]	Limit [dBμV/m]	Magin[dB]	Result	Polarity
1	227.9968	11.63	1.79	-31.92	55.32	36.82	46.00	9.18	Pass	Horizontal
2	324.0364	13.73	2.14	-31.81	56.92	40.98	46.00	5.02	Pass	Horizontal
3	383.9884	15.05	2.33	-31.86	56.68	42.20	46.00	3.80	Pass	Horizontal
4	396.0176	15.31	2.37	-31.78	55.73	41.63	46.00	4.37	Pass	Horizontal
5	432.0082	15.91	2.46	-31.83	56.26	42.80	46.00	3.20	Pass	Horizontal
6	444.0374	16.10	2.49	-31.88	55.27	41.98	46.00	4.02	Pass	Horizontal

Mode:			802.11 b(11Mbps) Transmitting				Channel:		2462	
Remark:			QP							
NO	Freq. [MHz]	AntFac tor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level[dBμ V/m]	Limit [dBμV/m]	Magin[dB]	Result	Polarity
1	227.9968	11.63	1.79	-31.92	47.06	28.56	46.00	17.44	Pass	Vertical
2	299.9780	13.20	2.06	-31.85	47.98	31.39	46.00	14.61	Pass	Vertical
3	347.9978	14.26	2.22	-31.86	49.10	33.72	46.00	12.28	Pass	Vertical
4	372.0562	14.79	2.30	-31.88	49.53	34.74	46.00	11.26	Pass	Vertical
5	420.0760	15.72	2.45	-31.84	53.84	40.17	46.00	5.83	Pass	Vertical
6	492.0572	16.87	2.65	-31.89	46.97	34.60	46.00	11.40	Pass	Vertical

Mode:			802.11 g(6Mbps) Transmitting				Channel:		2412	
Remark:			QP							
NO	Freq. [MHz]	AntFac tor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level[dBμ V/m]	Limit [dBμV/m]	Magin[dB]	Result	Polarity
1	179.9770	9.00	1.58	-31.99	52.46	31.05	43.50	12.45	Pass	Horizontal
2	227.9968	11.63	1.79	-31.92	55.60	37.10	46.00	8.90	Pass	Horizontal
3	324.0364	13.73	2.14	-31.81	56.75	40.81	46.00	5.19	Pass	Horizontal
4	360.0270	14.52	2.27	-31.84	57.27	42.22	46.00	3.78	Pass	Horizontal
5	371.9592	14.78	2.30	-31.87	56.44	41.65	46.00	4.35	Pass	Horizontal
6	444.0374	16.10	2.49	-31.88	55.41	42.12	46.00	3.88	Pass	Horizontal

Mode:			802.11 g(6Mbps) Transmitting				Channel:		2412	
Remark:			QP							
NO	Freq. [MHz]	AntFac tor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level[dBμ V/m]	Limit [dBμV/m]	Magin[dB]	Result	Polarity
1	120.0250	9.20	1.30	-32.07	44.11	22.54	43.50	20.96	Pass	Vertical
2	227.9968	11.63	1.79	-31.92	46.37	27.87	46.00	18.13	Pass	Vertical
3	276.0166	12.72	1.98	-31.91	46.70	29.49	46.00	16.51	Pass	Vertical
4	372.0562	14.79	2.30	-31.88	47.97	33.18	46.00	12.82	Pass	Vertical
5	420.0760	15.72	2.45	-31.84	53.17	39.50	46.00	6.50	Pass	Vertical
6	467.9988	16.49	2.58	-31.87	47.11	34.31	46.00	11.69	Pass	Vertical

Mode:			802.11 n(HT20) (6.5Mbps) Transmitting				Channel:		2412	
Remark:			QP							
NO	Freq. [MHz]	AntFac tor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level[dBμ V/m]	Limit [dBμV/m]	Magin[dB]	Result	Polarity
1	179.9770	9.00	1.58	-31.99	52.94	31.53	43.50	11.97	Pass	Horizontal
2	227.9968	11.63	1.79	-31.92	55.60	37.10	46.00	8.90	Pass	Horizontal
3	299.9780	13.20	2.06	-31.85	56.37	39.78	46.00	6.22	Pass	Horizontal
4	324.0364	13.73	2.14	-31.81	56.91	40.97	46.00	5.03	Pass	Horizontal
5	383.9884	15.05	2.33	-31.86	55.77	41.29	46.00	4.71	Pass	Horizontal
6	432.0082	15.91	2.46	-31.83	56.25	42.79	46.00	3.21	Pass	Horizontal

Mode:			802.11 n(HT20) (6.5Mbps) Transmitting				Channel:		2412	
Remark:			QP							
NO	Freq. [MHz]	AntFac tor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level[dBμ V/m]	Limit [dBμV/m]	Magin[dB]	Result	Polarity
1	120.0250	9.20	1.30	-32.07	44.16	22.59	43.50	20.91	Pass	Vertical
2	227.9968	11.63	1.79	-31.92	47.78	29.28	46.00	16.72	Pass	Vertical
3	299.9780	13.20	2.06	-31.85	48.45	31.86	46.00	14.14	Pass	Vertical
4	372.0562	14.79	2.30	-31.88	50.10	35.31	46.00	10.69	Pass	Vertical
5	419.9790	15.72	2.45	-31.84	54.37	40.70	46.00	5.30	Pass	Vertical
6	492.0572	16.87	2.65	-31.89	47.65	35.28	46.00	10.72	Pass	Vertical

Remark : All modes are tested, only the worst data were reported.

Transmitter Emission above 1GHz

Mode:		802.11 b(11Mbps) 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	1371.6372	28.27	2.85	-42.70	54.26	42.68	74.00	31.32	Pass	H	PK
2	1790.8791	30.32	3.30	-42.70	55.39	46.31	74.00	27.69	Pass	H	PK
3	3063.7042	33.23	4.80	-42.09	51.28	47.22	74.00	26.78	Pass	H	PK
4	4824.0000	34.50	4.61	-40.65	45.77	44.23	74.00	29.77	Pass	H	PK
5	7236.0000	36.34	5.79	-40.99	44.50	45.64	74.00	28.36	Pass	H	PK
6	9648.0000	37.66	6.72	-40.73	44.77	48.42	74.00	25.58	Pass	H	PK
7	1393.6394	28.29	2.89	-42.68	53.44	41.94	74.00	32.06	Pass	V	PK
8	1894.0894	31.00	3.42	-42.67	54.97	46.72	74.00	27.28	Pass	V	PK
9	3075.4050	33.23	4.77	-42.07	51.05	46.98	74.00	27.02	Pass	V	PK
10	4824.0000	34.50	4.61	-40.65	50.08	48.54	74.00	25.46	Pass	V	PK
11	7236.0000	36.34	5.79	-40.99	44.76	45.90	74.00	28.10	Pass	V	PK
12	9648.0000	37.66	6.72	-40.73	44.93	48.58	74.00	25.42	Pass	V	PK

Mode:		802.11 b(11Mbps) 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	1364.6365	28.26	2.84	-42.71	51.90	40.29	74.00	33.71	Pass	H	PK
2	1799.2799	30.38	3.32	-42.72	54.94	45.92	74.00	28.08	Pass	H	PK
3	3255.4670	33.30	4.46	-41.96	49.94	45.74	74.00	28.26	Pass	H	PK
4	4874.0000	34.50	4.78	-40.61	46.25	44.92	74.00	29.08	Pass	H	PK
5	7311.0000	36.41	5.85	-40.93	46.08	47.41	74.00	26.59	Pass	H	PK
6	9748.0000	37.70	6.77	-40.63	45.48	49.32	74.00	24.68	Pass	H	PK
7	1394.2394	28.29	2.89	-42.68	55.91	44.41	74.00	29.59	Pass	V	PK
8	1847.0847	30.69	3.38	-42.69	55.81	47.19	74.00	26.81	Pass	V	PK
9	3221.6648	33.29	4.56	-41.98	49.37	45.24	74.00	28.76	Pass	V	PK
10	4874.0000	34.50	4.78	-40.61	49.77	48.44	74.00	25.56	Pass	V	PK
11	7311.0000	36.41	5.85	-40.93	44.72	46.05	74.00	27.95	Pass	V	PK
12	9748.0000	37.70	6.77	-40.63	45.68	49.52	74.00	24.48	Pass	V	PK

Mode:		802.11 b(11Mbps) 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	1394.4394	28.29	2.89	-42.68	54.23	42.73	74.00	31.27	Pass	H	PK
2	1921.0921	31.18	3.42	-42.65	52.32	44.27	74.00	29.73	Pass	H	PK
3	3403.0269	33.36	4.55	-41.87	48.96	45.00	74.00	29.00	Pass	H	PK
4	4924.0000	34.50	4.85	-40.56	45.97	44.76	74.00	29.24	Pass	H	PK
5	7386.0000	36.49	5.85	-40.87	45.93	47.40	74.00	26.60	Pass	H	PK
6	9848.0000	37.74	6.83	-40.54	44.35	48.38	74.00	25.62	Pass	H	PK
7	1395.6396	28.30	2.89	-42.69	54.65	43.15	74.00	30.85	Pass	V	PK
8	1844.2844	30.67	3.37	-42.68	57.00	48.36	74.00	25.64	Pass	V	PK
9	2988.3988	33.18	4.52	-42.13	52.94	48.51	74.00	25.49	Pass	V	PK
10	4924.0000	34.50	4.85	-40.56	51.86	50.65	74.00	23.35	Pass	V	PK
11	7386.0000	36.49	5.85	-40.87	47.02	48.49	74.00	25.51	Pass	V	PK
12	9848.0000	37.74	6.83	-40.54	44.84	48.87	74.00	25.13	Pass	V	PK

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	1306.0306	28.21	2.76	-42.78	51.70	39.89	74.00	34.11	Pass	H	PK
2	1844.0844	30.67	3.37	-42.68	52.08	43.44	74.00	30.56	Pass	H	PK
3	3173.5616	33.27	4.61	-42.02	50.62	46.48	74.00	27.52	Pass	H	PK
4	4824.0000	34.50	4.61	-40.65	46.61	45.07	74.00	28.93	Pass	H	PK
5	7236.0000	36.34	5.79	-40.99	45.65	46.79	74.00	27.21	Pass	H	PK
6	9648.0000	37.66	6.72	-40.73	45.57	49.22	74.00	24.78	Pass	H	PK
7	1394.8395	28.29	2.89	-42.68	55.79	44.29	74.00	29.71	Pass	V	PK
8	1897.2897	31.02	3.42	-42.66	55.12	46.90	74.00	27.10	Pass	V	PK
9	3298.3699	33.32	4.58	-41.95	50.75	46.70	74.00	27.30	Pass	V	PK
10	4824.0000	34.50	4.61	-40.65	45.74	44.20	74.00	29.80	Pass	V	PK
11	7236.0000	36.34	5.79	-40.99	44.39	45.53	74.00	28.47	Pass	V	PK
12	9648.0000	37.66	6.72	-40.73	44.92	48.57	74.00	25.43	Pass	V	PK

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	1226.6227	28.13	2.67	-42.86	51.78	39.72	74.00	34.28	Pass	H	PK
2	1808.0808	30.43	3.33	-42.70	51.09	42.15	74.00	31.85	Pass	H	PK
3	3364.6743	33.35	4.53	-41.90	49.45	45.43	74.00	28.57	Pass	H	PK
4	4874.0000	34.50	4.78	-40.61	45.36	44.03	74.00	29.97	Pass	H	PK
5	7311.0000	36.41	5.85	-40.93	45.01	46.34	74.00	27.66	Pass	H	PK
6	9748.0000	37.70	6.77	-40.63	45.44	49.28	74.00	24.72	Pass	H	PK
7	1396.8397	28.30	2.89	-42.68	54.15	42.66	74.00	31.34	Pass	V	PK
8	1774.4774	30.21	3.27	-42.69	55.46	46.25	74.00	27.75	Pass	V	PK
9	3184.6123	33.27	4.63	-42.01	50.02	45.91	74.00	28.09	Pass	V	PK
10	4874.0000	34.50	4.78	-40.61	46.36	45.03	74.00	28.97	Pass	V	PK
11	7311.0000	36.41	5.85	-40.93	44.25	45.58	74.00	28.42	Pass	V	PK
12	9748.0000	37.70	6.77	-40.63	45.24	49.08	74.00	24.92	Pass	V	PK

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	1559.8560	28.80	3.04	-42.81	52.85	41.88	74.00	32.12	Pass	H	PK
2	1943.0943	31.32	3.42	-42.63	51.15	43.26	74.00	30.74	Pass	H	PK
3	2993.1993	33.19	4.53	-42.12	51.76	47.36	74.00	26.64	Pass	H	PK
4	4924.0000	34.50	4.85	-40.56	45.92	44.71	74.00	29.29	Pass	H	PK
5	7386.0000	36.49	5.85	-40.87	44.73	46.20	74.00	27.80	Pass	H	PK
6	9848.0000	37.74	6.83	-40.54	45.40	49.43	74.00	24.57	Pass	H	PK
7	1396.2396	28.30	2.89	-42.68	54.73	43.24	74.00	30.76	Pass	V	PK
8	1878.8879	30.90	3.40	-42.67	55.72	47.35	74.00	26.65	Pass	V	PK
9	2992.3992	33.19	4.53	-42.13	50.92	46.51	74.00	27.49	Pass	V	PK
10	4924.0000	34.50	4.85	-40.56	47.04	45.83	74.00	28.17	Pass	V	PK
11	7386.0000	36.49	5.85	-40.87	46.71	48.18	74.00	25.82	Pass	V	PK
12	9848.0000	37.74	6.83	-40.54	45.51	49.54	74.00	24.46	Pass	V	PK

Mode:		802.11 n(HT20) (6.5Mbps) 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	1487.8488	28.39	2.98	-42.67	52.48	41.18	74.00	32.82	Pass	H	PK
2	1762.6763	30.13	3.25	-42.68	51.19	41.89	74.00	32.11	Pass	H	PK
3	3241.1661	33.30	4.49	-41.98	49.86	45.67	74.00	28.33	Pass	H	PK
4	4824.0000	34.50	4.61	-40.65	45.10	43.56	74.00	30.44	Pass	H	PK
5	7236.0000	36.34	5.79	-40.99	44.55	45.69	74.00	28.31	Pass	H	PK
6	9648.0000	37.66	6.72	-40.73	45.10	48.75	74.00	25.25	Pass	H	PK
7	1398.4398	28.30	2.90	-42.69	55.22	43.73	74.00	30.27	Pass	V	PK
8	1951.0951	31.38	3.42	-42.64	53.18	45.34	74.00	28.66	Pass	V	PK
9	3334.1223	33.33	4.54	-41.92	49.72	45.67	74.00	28.33	Pass	V	PK
10	4824.0000	34.50	4.61	-40.65	45.59	44.05	74.00	29.95	Pass	V	PK
11	7236.0000	36.34	5.79	-40.99	45.76	46.90	74.00	27.10	Pass	V	PK
12	9648.0000	37.66	6.72	-40.73	46.07	49.72	74.00	24.28	Pass	V	PK

Mode:		802.11 n(HT20) (6.5Mbps) 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	1391.2391	28.29	2.89	-42.69	51.23	39.72	74.00	34.28	Pass	H	PK
2	1793.8794	30.34	3.31	-42.71	53.04	43.98	74.00	30.02	Pass	H	PK
3	3000.0000	33.20	4.93	-42.12	50.61	46.62	74.00	27.38	Pass	H	PK
4	4874.0000	34.50	4.78	-40.61	44.80	43.47	74.00	30.53	Pass	H	PK
5	7311.0000	36.41	5.85	-40.93	44.47	45.80	74.00	28.20	Pass	H	PK
6	9748.0000	37.70	6.77	-40.63	46.02	49.86	74.00	24.14	Pass	H	PK
7	1397.0397	28.30	2.90	-42.69	54.61	43.12	74.00	30.88	Pass	V	PK
8	1890.8891	30.98	3.41	-42.66	55.38	47.11	74.00	26.89	Pass	V	PK
9	3307.4705	33.32	4.57	-41.93	49.67	45.63	74.00	28.37	Pass	V	PK
10	4874.0000	34.50	4.78	-40.61	46.83	45.50	74.00	28.50	Pass	V	PK
11	7311.0000	36.41	5.85	-40.93	46.10	47.43	74.00	26.57	Pass	V	PK
12	9748.0000	37.70	6.77	-40.63	45.51	49.35	74.00	24.65	Pass	V	PK

Mode:		802.11 n(HT20) (6.5Mbps) 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	1379.4379	28.28	2.87	-42.71	51.78	40.22	74.00	33.78	Pass	H	PK
2	1974.0974	31.53	3.44	-42.62	50.83	43.18	74.00	30.82	Pass	H	PK
3	3190.4627	33.28	4.63	-42.00	49.54	45.45	74.00	28.55	Pass	H	PK
4	4924.0000	34.50	4.85	-40.56	45.52	44.31	74.00	29.69	Pass	H	PK
5	7386.0000	36.49	5.85	-40.87	44.73	46.20	74.00	27.80	Pass	H	PK
6	9848.0000	37.74	6.83	-40.54	45.21	49.24	74.00	24.76	Pass	H	PK
7	1399.4399	28.30	2.90	-42.68	54.03	42.55	74.00	31.45	Pass	V	PK
8	1949.6950	31.37	3.42	-42.64	54.06	46.21	74.00	27.79	Pass	V	PK
9	2996.3996	33.19	4.54	-42.12	52.23	47.84	74.00	26.16	Pass	V	PK
10	4924.0000	34.50	4.85	-40.56	45.90	44.69	74.00	29.31	Pass	V	PK
11	7386.0000	36.49	5.85	-40.87	44.18	45.65	74.00	28.35	Pass	V	PK
12	9848.0000	37.74	6.83	-40.54	45.20	49.23	74.00	24.77	Pass	V	PK

Note:

1) Through Pre-scan transmitter mode with all kind of modulation and data rate, find the 11Mbps 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), 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

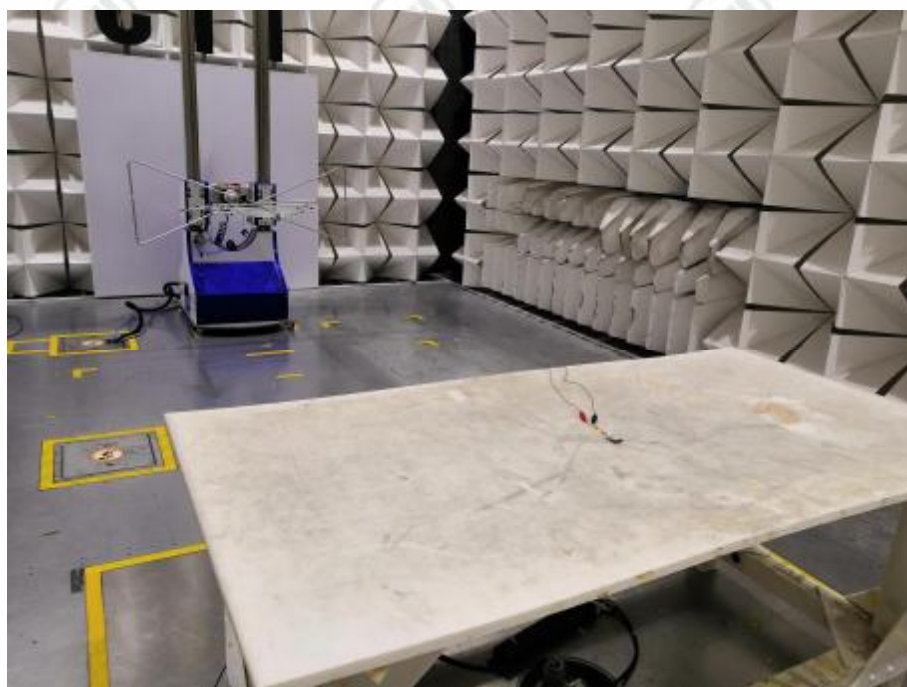
3) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below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

PHOTOGRAPHS OF TEST SETUP

Test model No.: HF-LPB135-10



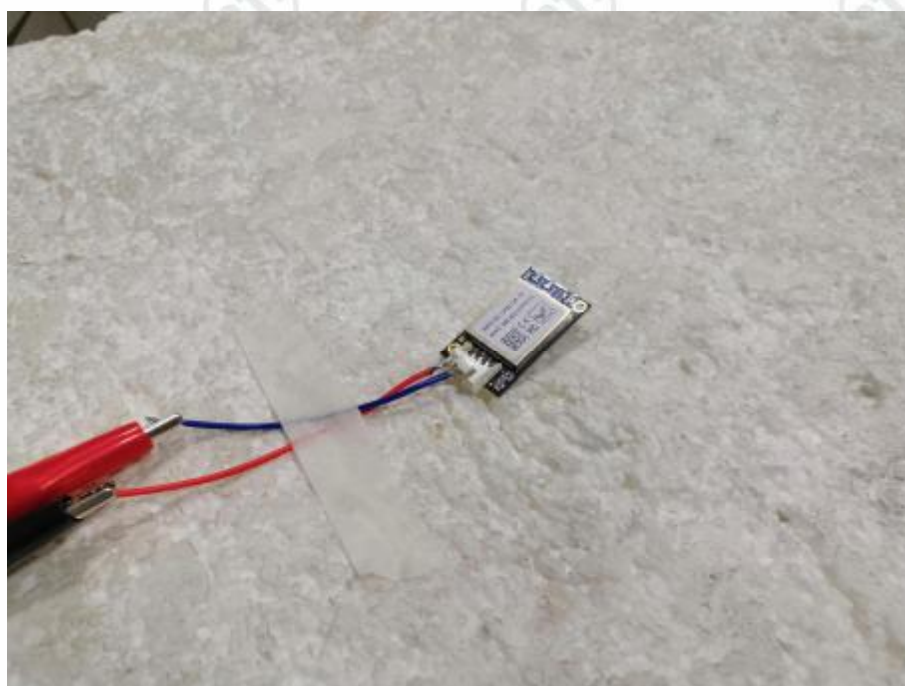
Radiated spurious emission Test Setup-1(9kHz-30MHz)



Radiated spurious emission Test Setup-2(30MHz-1GHz)



Radiated spurious emission Test Setup-3(Above 1GHz)



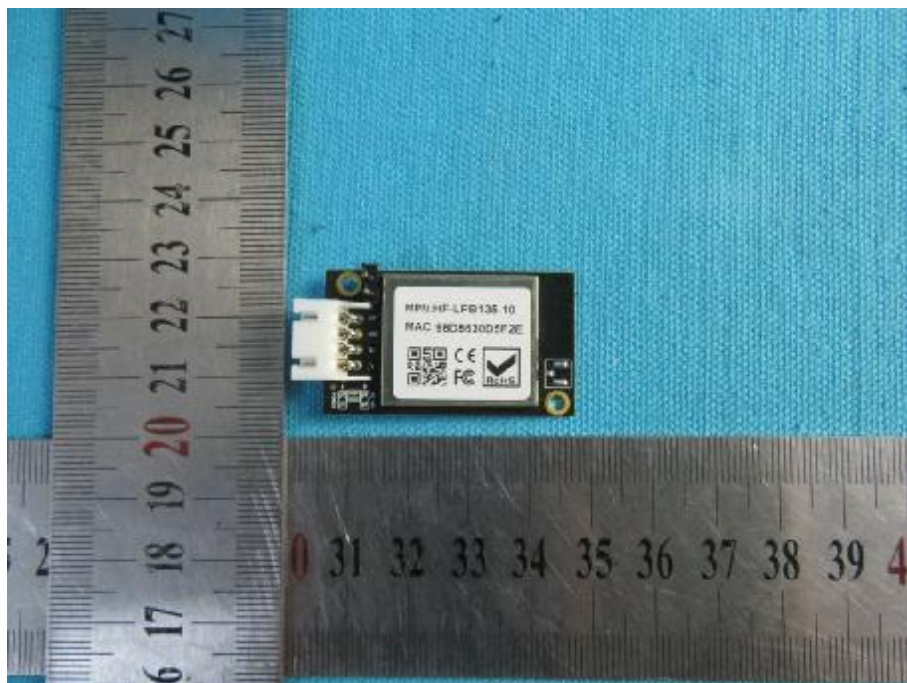
Radiated spurious emission Test Setup for Close-up



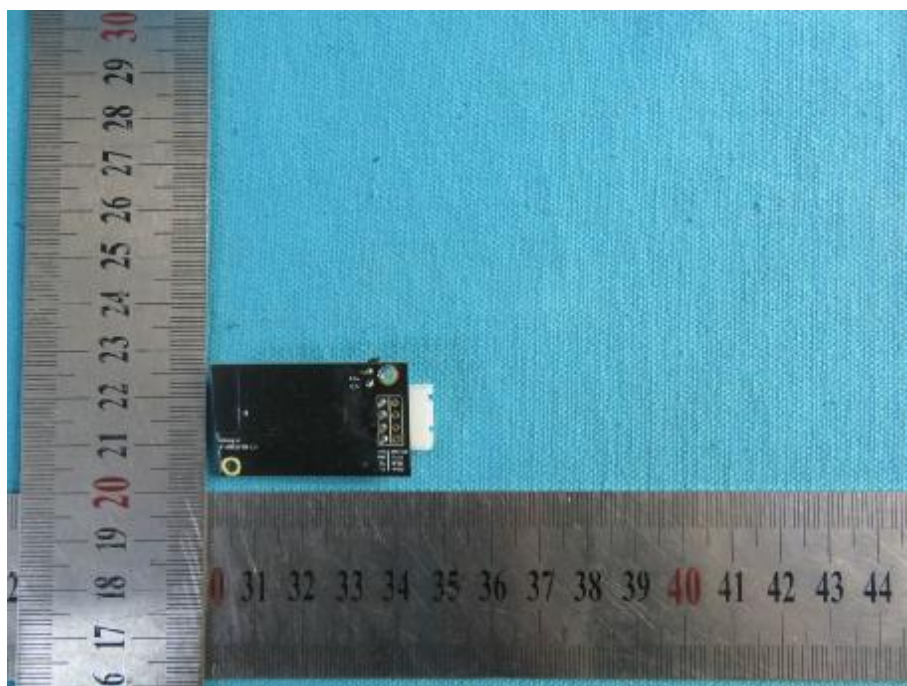
Conducted Emissions Test Setup

PHOTOGRAPHS OF EUT Constructional Details

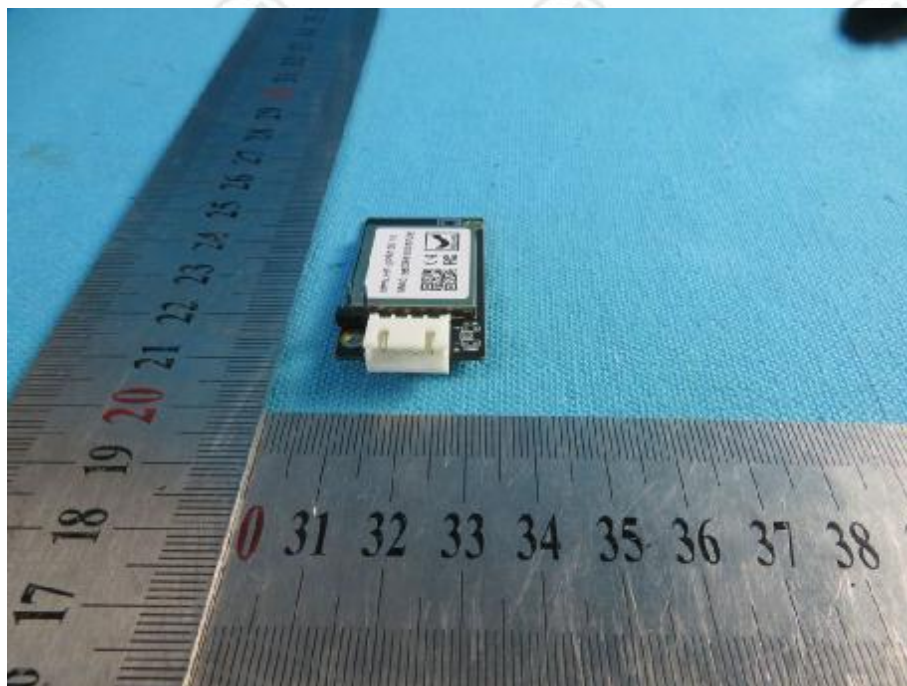
Test model No.: HF-LPB135-10



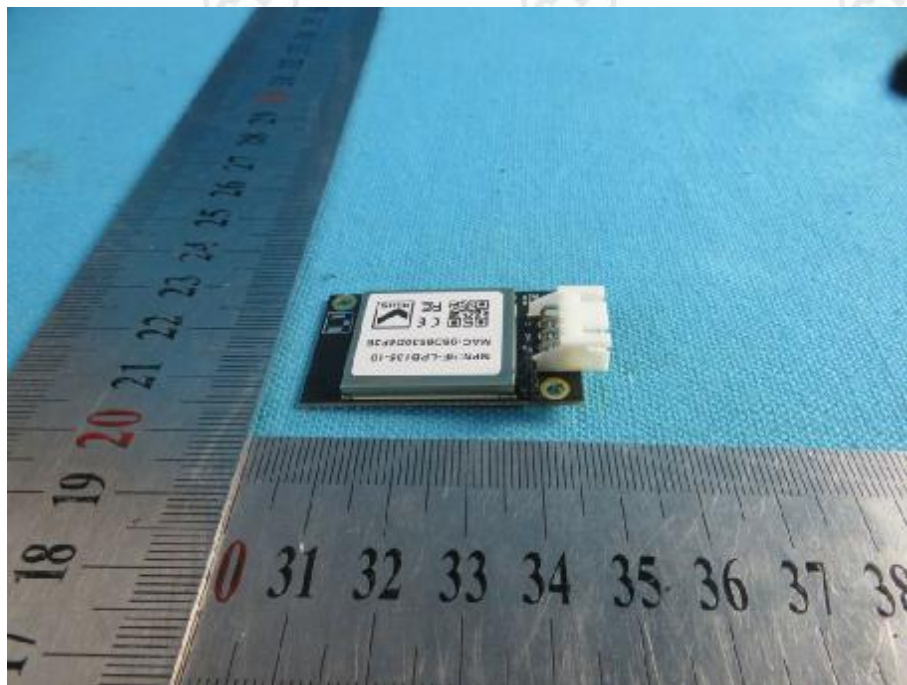
View of Product-1



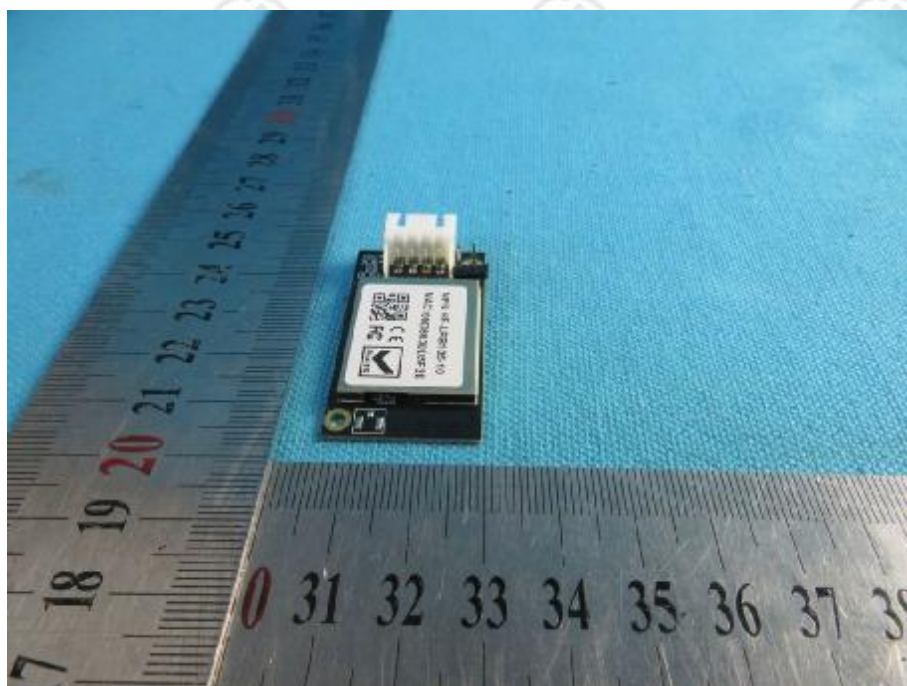
View of Product-2



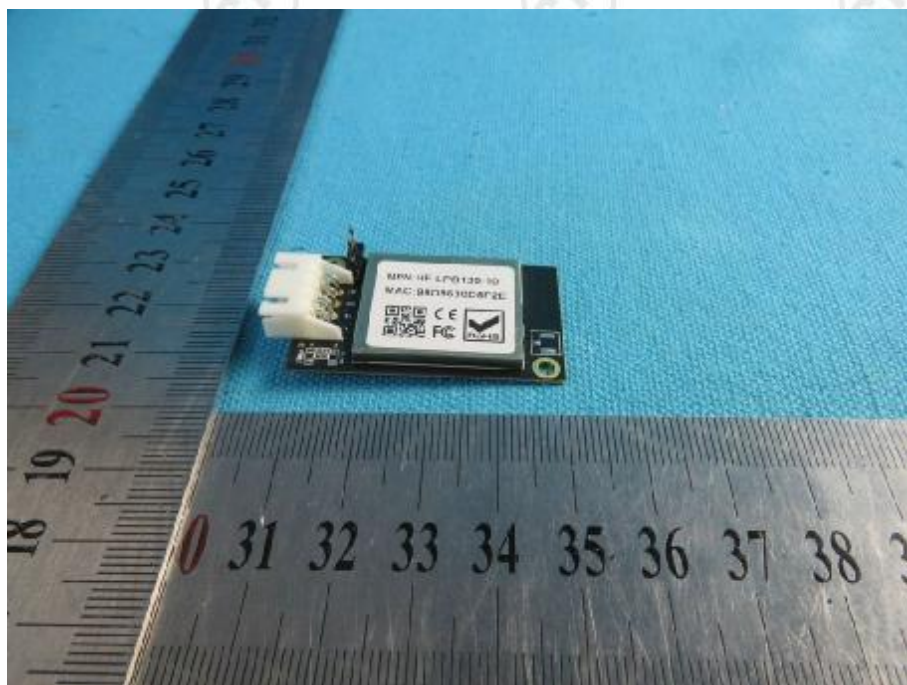
View of Product-3



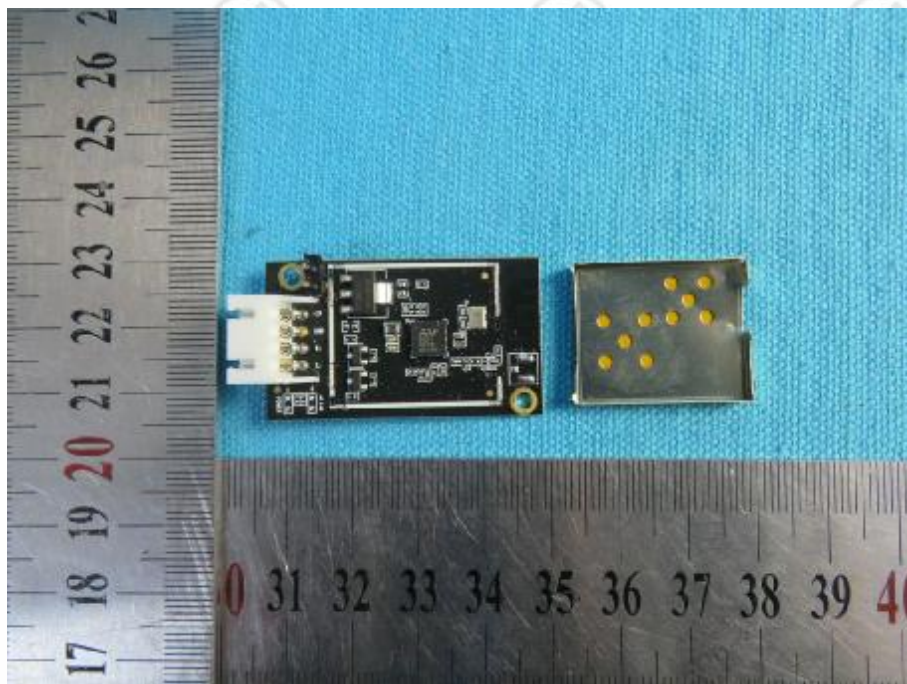
View of Product-4



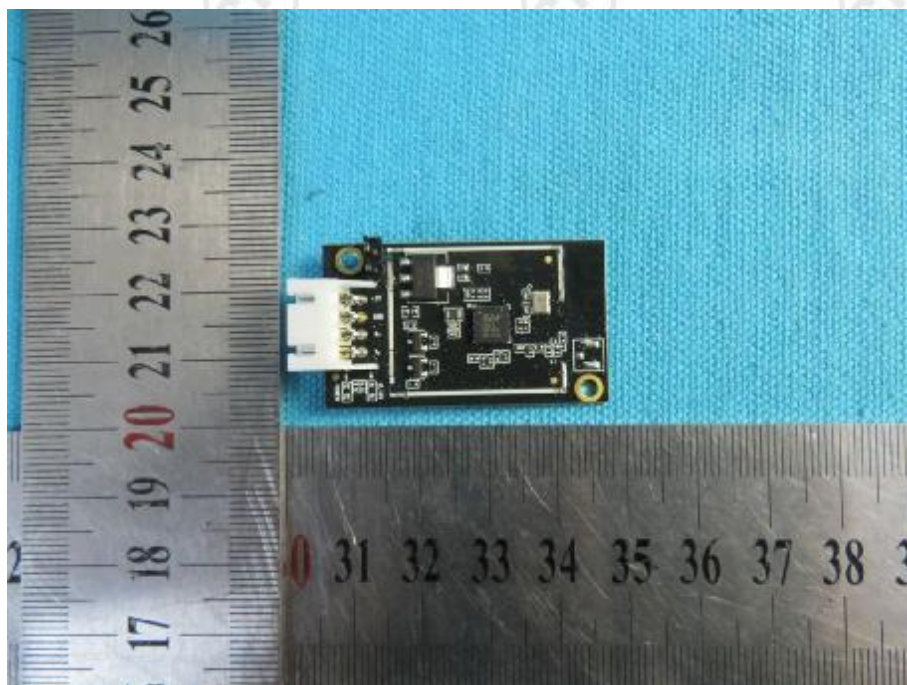
View of Product-5



View of Product-6



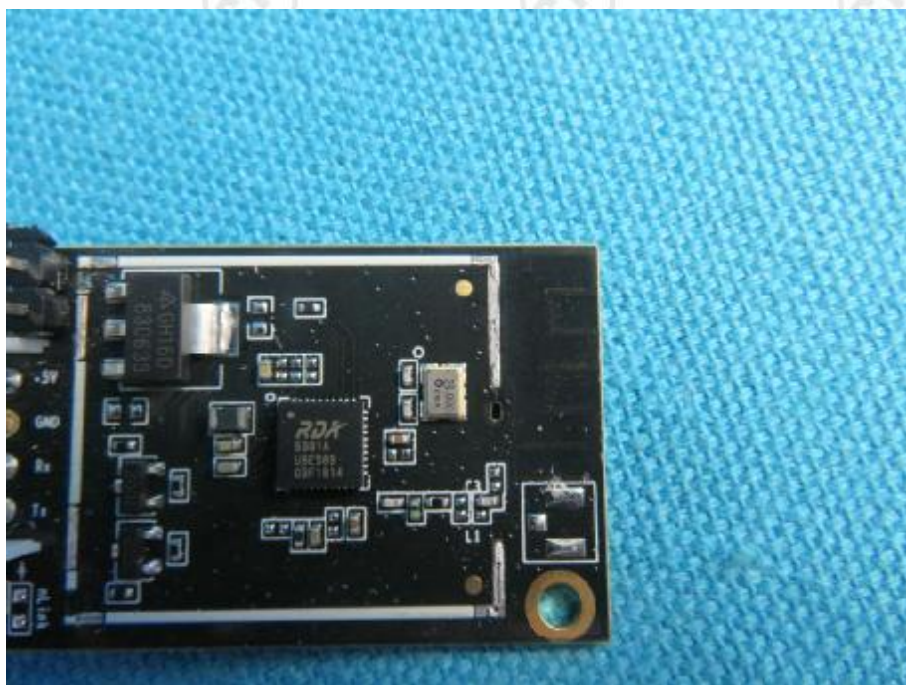
View of Product-7



View of Product-8



View of Product-9



View of Product-10

*** End of Report ***

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