

CIG SHANGHAI CO., LTD.

Application
For
Certification

FCC ID: SFK-OAPDBNA**WiFi Access Point****Model: WF-3220-Z1**

Report No.: 130422002SZN -001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-12]

Prepared and Checked by:

Approved by:

Sign on file

Billy Li
Supervisor

Leung Wai Leung, Tommy
Deputy General Manager
Date: April 22, 2013

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results referenced from this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
- For Terms and Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch

6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: www.china.intertek-etlsemko.com

1 TABLE OF CONTENTS

1	TABLE OF CONTENTS	2
2	GENERAL INFORMATION	4
	2.1 Product Description for Equipment Under Test (EUT)	4
	2.2 Objective	4
	2.3 Related Submittal(s)/Grant(s)	4
	2.4 Test Methodology	4
	2.5 Test Facility	5
	2.6 Measurement Uncertainty	5
3	EQUIPMENT TEST CONFIGURATION	6
	3.1 Identification of EUT	6
	3.2 Detail Specification	6
	3.3 Information Related to Testing	7
4	SUMMARY OF TEST RESULTS	8
5	ANTENNA REQUIREMENT	9
	5.1 Applicable standard: FCC §15.203	9
	5.2 Limit	9
	5.3 Test Data	9
	5.4 Test Result: Not applicable	9
6	AC LINE CONDUCTED EMISSIONS	10
	6.1 Applicable Standard: FCC §15.207	10
	6.2 Test Equipment List and Details	10
	6.3 Test Procedure	10
	6.4 Environmental Conditions	11
	6.5 Test Result: Pass	11
7	RADIATED EMISSIONS	13
	7.1 Applicable Standard: FCC §15.247(d), 15.209,15.205	13
	7.2 Test Equipment List and Details	14
	7.3 Test Procedure	14
	7.4 Environmental Conditions	15
	7.5 Test Result: Pass	15
8	6dB EMISSION BANDWIDTH	65
	8.1 Applicable Standard: FCC §15.247(a)	65
	8.2 Test Equipment List and Details:	65
	8.3 Test Procedure	65
	8.4 Environmental Conditions	65
	8.5 Test Result: pass	65
9	MAXIMUM PEAK OUTPUT POWER	71
	9.1 Applicable Standard: FCC §15.247	71
	9.2 Test Equipment List and Details	71
	9.3 Test Procedure	71
	9.4 Test Data Environmental Conditions	71
	9.5 Test Result: Pass	71
10	100kHz BANDWIDTH OF FREQUENCY BAND EDGE	73
	10.1 Applicable Standard: FCC § 15.247(d)	73
	10.2 Test Equipment List and Details	73
	10.3 Test Procedure	73
	10.4 Environmental Conditions	73
	10.5 Test Result: pass	73



11 POWER SPECTRAL DENSITY..... 91

11.1 Applicable Standard: FCC § 15.247(e)..... 91

11.2 Test Equipment List and Details..... 91

11.3 Test Procedure 91

11.4 Test Data Environmental Conditions 91

11.5 Test Result: Pass 91

2 GENERAL INFORMATION

2.1 Product Description for Equipment Under Test (EUT)

The CIG SHANGHAI CO.,LTD's product, model number: WF-3220-Z1 (FCC ID:SFK-OAPDBNA)(the "EUT") in this report is a Wireless Access Point, which was measured approximately: 300mm * 226mm * 144.5mm

Adapter information:

Model: DBcom-PSE01A-G

Input: AC100-240V, 50/60Hz,

Output: DC48V, 500mA/25W

Appearance of EUT:



2.2 Objective

This Type approval report is prepared on behalf of CIG SHANGHAI CO.,LTD in accordance with Part 2、 Part 15 of the Federal Communication Commissions rules.

2.3 Related Submittal(s)/Grant(s)

No related submittal(s).

2.4 Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2. as well as the following parts:

Part 15 Wireless Communication Services

Applicable Standards: ANSI C63.4-2009, KDB 558074, KDB 662911.

All radiated and conducted measurement was performed at ZTE Corporation Reliability Testing Center. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.



2.5 Test Facility

The Test site used by ZTE Corporation to collect test data is located in the 1/F,B2 Wing, ZTE Plaza, Keji Road South, Shenzhen, Guangdong, 518057, P.R.China, Tel: +86-755-26771609,Fax: +86-755-26770347. Test site at ZTE Corporation has been fully described in reports submitted to the Federal Communication Commission (FCC). ZTE Corporation EMC Lab was certificated by CNAS and the registration number was L0611. The FCC registration number of ZTE corporation EMC lab is 373926. The IC registration number of ZTE corporation EMC lab is 5200A. The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No. of CIG SHANGHAI CO.,LTD: 0022496871.

2.6 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiated emissions measurement at the EMC lab. is 3.8dB,and conducted emission is 2.1dB



3 EQUIPMENT TEST CONFIGURATION

3.1 Identification of EUT

Category: IEEE 802.11b/g /n Wireless Access Point

Model Name: WF-3220-Z1

Alternate model: N/A

Brand name: N/A

POE Adapter:

Product: Switching Power Supply

Model: DBcom-PSE01A-G

Input: 100-240Vac 50/60Hz

Output: DC48V, 500mA/25W

3.2 Detail Specification

Operation Frequency: 2412 MHz -2462MHz

Type of Spectrum: DBPSK, DQPSK, CCK, OFDM

Category: 802.11b; 802.11g; 802.11n (HT20)

Operation Frequency:2422 MHz -2452MHz

Type of Spectrum: OFDM

Category: 802.11n (HT40)

Antenna Type: External antenna

Antenna Number: 1

MIMO Antenna gain: 15dBi

Modulation type: BPSK, QPSK,16-QAM.64-QAM

Data rate: 1,2,5.5,6,11,12,18,24,36,48,54 and maximum of 135Mbps

3.3 Information Related to Testing

Test mode

TM1: 120VAC 60Hz TX MODE continuous transmitting with maximum power control level.

Remark: Input voltage have been adjusted from 85% to 115% ,no influence of Fundamental emission found

For 802.11 b, g ,n (HT20)

CH LOW: 2412MHz

CH MID: 2437MHz

CH HIGH: 2462MHz

For 802.11n (HT40)

CH LOW: 2422MHz

CH MID: 2437MHz

CH HIGH: 2452MHz

IEEE 802.11b: 1Mbps data rate

IEEE 802.11g: 6Mbps data rate

IEEE 802.11n HT20: MSC10

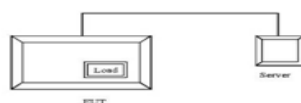
IEEE 802.11n HT40: MSC10

Remark: Only the worse case found by prescan is listed

Support Equipment:

Description	Manufacturer	Model No.
RJ 45 Cable connected between POE adapter and EUT	N/A	unshielded 1.5m
RJ 45 Cable connected between POE adapter and PC	N/A	Unshielded 10m
PC	DELL	Pro80Jn
2 x Antenna Interconnecting Cable	CIG SHANGHAI	2.0m
2 x terminal	N/A	50 ohm
POE adapter	CIG SHANGHAI	Model: DBcom-PSE01A-G

Configuration of Test Setup



Block Diagram of Test Setup





4 SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna requirement	Not applicable
§15.207(a)	AC line conducted emissions	Compliance
§15.209 §15.247(d)	Radiated Emissions	Compliance
§15.247(a)	6dB Emission Bandwidth	Compliance
§15.247(b)	Maximum Peak Output Power	Compliance
§ 15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(a)	Power Spectral Density	Compliance



5 ANTENNA REQUIREMENT

5.1 Applicable standard: FCC §15.203

5.2 Limit

According to FCC §15.203, 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 shall be considered sufficient to comply with the provisions of this Section. 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. The structure and application of the EUT were analyzed to determine compliance with the section §15.203 of the rules, §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Further, this requirement does not apply to intentional radiators that must be professionally installed.

This Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

5.3 Test Data

According to the user manual, the device and cannot be sold retail, to the general public or by mail order. It must be sold to dealers. It is installed by licensed professionals with special training.

The EUT used one dedicated antenna, the maximum gain is 15dBi. And according to FCC47CFR section 15.247(b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB than the directional gain of the antenna exceeds 6dBi. Please refer to MAXIMUM PEAK OUTPUT POWER.

5.4 Test Result: Not applicable

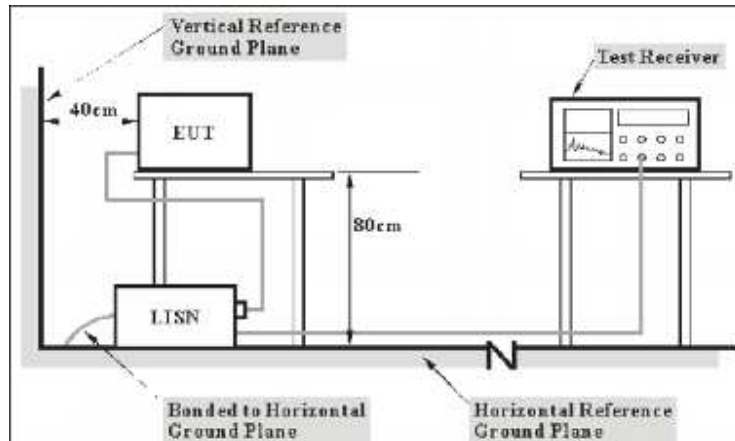
6 AC LINE CONDUCTED EMISSIONS

6.1 Applicable Standard: FCC §15.207

6.2 Test Equipment List and Details

Manufacturer	Equipment	Model	Last Cal.	Cal. Interval
R&S	EMI Test receiver	ESCI 3	2012-7-25	1 year
TESE Q	ISN	ISN T800	2012-5-24	1
Schwarzbeck	LISN	NSLK8128	2012-10-24	1
FCC	Current Probe	F-35	N/A	1

EUT Setup



The setup of EUT is according with per ANSI C63.4-2009 measurement procedure, the specification used was the FCC Part 15.207 limits.

6.3 Test Procedure

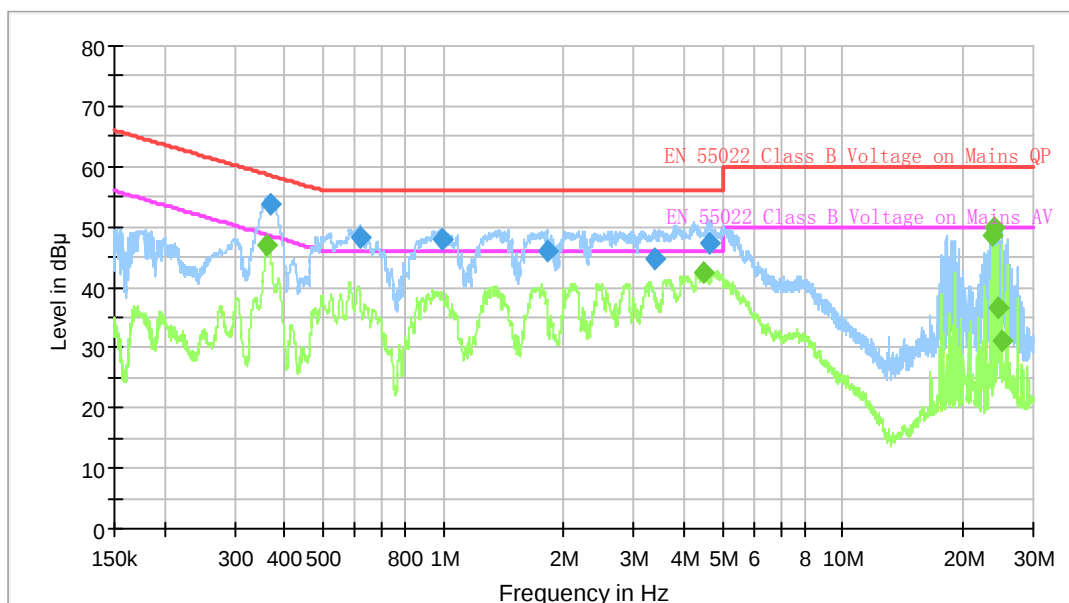
During the conducted emission test, the adapter was connected to the LISN. Maximizing procedure was performed on the six highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

6.4 Environmental Conditions

Temperature:	20°C
Relative Humidity:	60 %
ATM Pressure:	1009 mbar

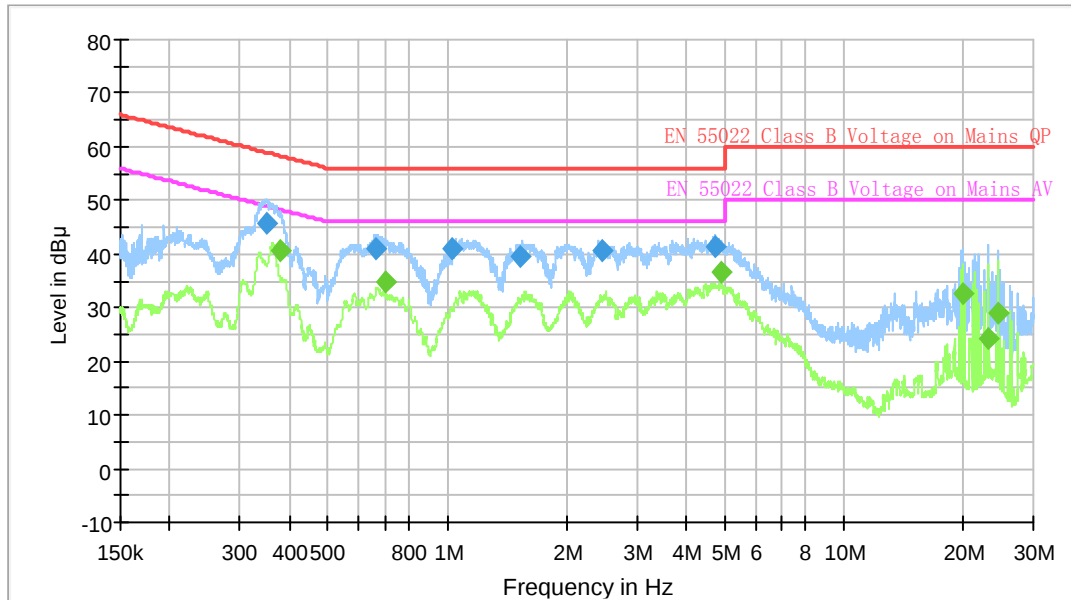
6.5 Test Result: Pass

120Vac/60Hz,Line



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result(dBuV)	Correction Factor(dB)	Limit(dBuV)	Margin(dB)	Detector (QP/Av)
0.368168	53.6	10.0	58.5	4.9	QP
0.617897	48.3	10.0	56.0	7.7	QP
0.987379	47.9	10.0	56.0	8.1	QP
1.823218	45.9	10.0	56.0	10.1	QP
3.400249	44.7	10.0	56.0	11.3	QP
4.661821	47.3	10.0	56.0	8.7	QP
0.362139	46.9	10.0	48.7	1.8	AV
4.468341	42.5	10.0	46.0	3.5	AV
23.699346	48.4	10.0	50.0	1.6	AV
23.937861	49.9	10.0	50.0	0.1	AV
24.422104	36.6	10.0	50.0	13.4	AV
25.141677	31.0	10.0	50.0	19.0	AV

120Vac/60Hz, Neutral



Conducted Emissions			FCC Part 15.207		
Frequency (MHz)	Corrected Result(dBuV)	Correction Factor(dB)	Limit(dBuV)	Margin(dB)	Detector (QP/Av)
0.351168	45.9	10.0	58.9	13.1	QP
0.661834	41.0	10.0	56.0	15.0	QP
1.023553	41.0	10.0	56.0	15.0	QP
1.525356	39.4	10.0	56.0	16.6	QP
2.448908	40.6	10.0	56.0	15.4	QP
4.723660	41.5	10.0	56.0	14.5	QP
0.379178	40.8	10.0	48.3	7.5	AV
0.696991	34.9	10.0	46.0	11.1	AV
4.879066	36.5	10.0	46.0	9.5	AV
19.928974	32.5	10.0	50.0	17.5	AV
22.997982	24.2	10.0	50.0	25.8	AV
24.422150	29.1	10.0	50.0	20.9	AV

7 RADIATED EMISSIONS

7.1 Applicable Standard: FCC §15.247(d), 15.209,15.205

Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a)

According to FCC Part15.209 and relevant rules:

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table

Frequency MHz	Distance m	Field strength		Distance m	Field strength dBμV/m(QP)
		μV/m	dBμV/m(QP)		
30-88	3	100	40.0	10	30.0
88-216	3	150	43.5	10	33.5
216-960	3	200	46.0	10	36.0
960-1000	3	500	54.0	10	44.0
Above 1000	3	74.0 dBμV/m (PK) 54.0 dBμV/m (AV)		/	/

15.205 Restricted bands:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

7.2 Test Equipment List and Details

Manufacturer	Equipment	Model	Last Cal.	Cal. Interval
R&S	EMI Test receiver	ESU26	2012-11-3	1 year
R&S	Log periodic Antenna	SWB-VULB 9163	2012-7-25	1 year
R&S	Horn Antenna	HF907	2012-7-25	1 year
ETS-LINDGREN	Active loop Antenna	6502	2012-7-16	1 year

7.3 Test Procedure

During the radiated emission test, the MIMO and continuously Tx mode was used. The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast.

The EUT were rotated 0 to 360 degree and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. The test results are reported as below.

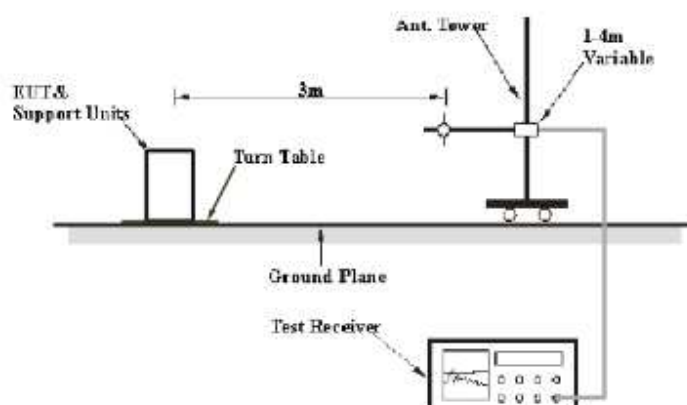
The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. Detector function for radiated emissions above 1GHz is in peak mode and Quasi-Peak mode is used below 1GHz. The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Above 1000 MHz, a resolution bandwidth of 1 MHz as below is used.

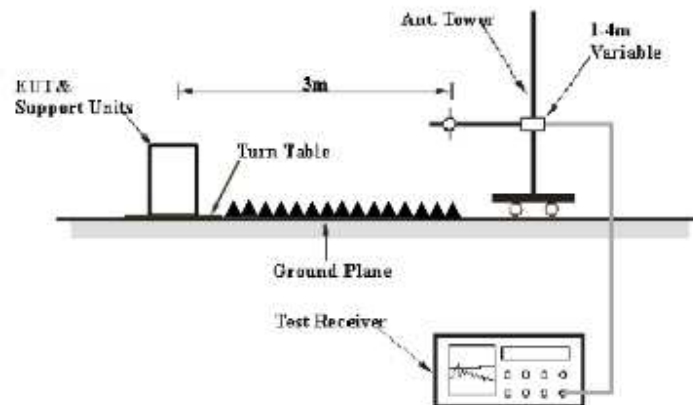
RBW=1MHz; VBW=1MHz, PK detector for peak emissions measurement above 1GHz

RBW=1MHz; VBW=10Hz, AV detector for average emissions measure above 1GHz

EUT Setup:

Below 1 GHz





7.4 Environmental Conditions

Temperature:	20°C
Relative Humidity:	60 %
ATM Pressure:	1009 mbar

7.5 Test Result: Pass

Remark: If PK value is lower than AV limit, only show PK diagram as below, the spurious emissions more than 20 dB below the permissible value are not reported.

From 9 KHz to 30MHz and 18GHz to 25GHz, the spurious emissions more than 20 dB below the limit.

For some 7G to 18G, Spurious Emission meet the limits of the field strength that not be measured.

“*” donates fundamental frequency.

For restriction band test: Only list the restriction band test which there found emission.

For other restriction band: no emission found.

For Radiated emission test: The EUT has been tested at X, Y, Z axial direction. Only list the worse mode,

Frequency (MHz)	QP Reading (dBμV/m)	Polarization	Margin (dB)	Limit (dBμV/m)	Comment
30.097000	28.3	H	11.7	40.0	Diagram 7- 1
32.619000	31.2	H	8.8	40.0	
35.755333	30.5	H	9.5	40.0	
61.525000	31.4	H	8.6	40.0	
240.005000	36.1	H	9.9	46.0	
359.961667	40.5	H	5.5	46.0	
36.175667	33.1	V	6.9	40.0	Diagram 7-2
56.157667	35.8	V	4.2	40.0	
56.545667	35.6	V	4.4	40.0	
239.875667	40.4	V	5.6	46.0	
240.102000	39.6	V	6.4	46.0	
359.994000	40.2	V	5.8	46.0	

Diagram 7-1

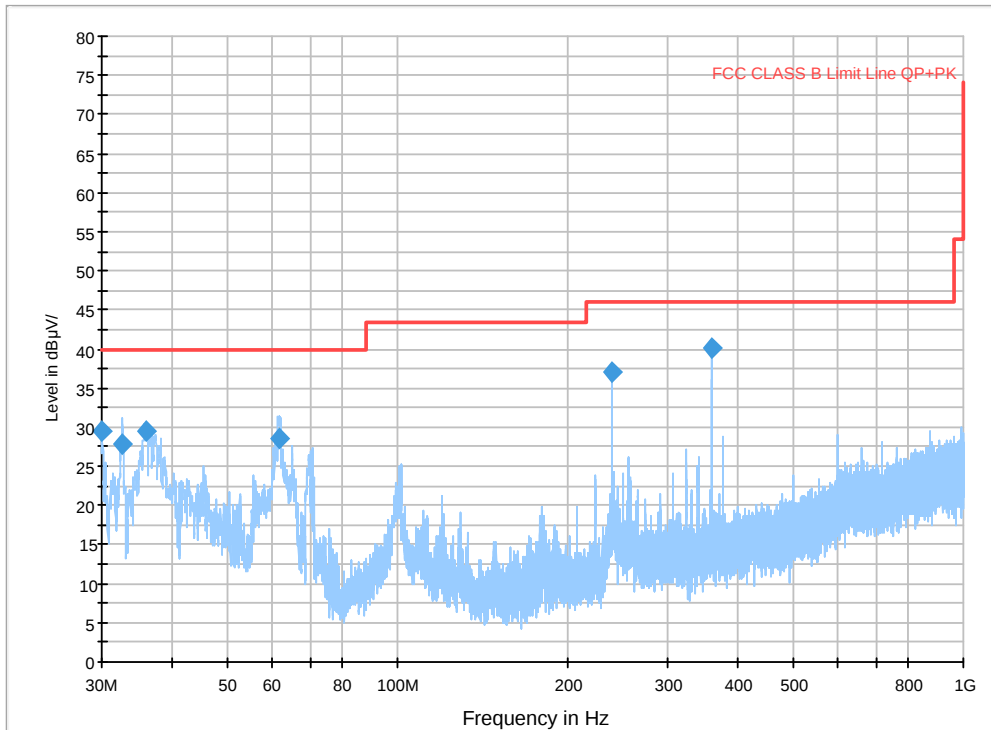
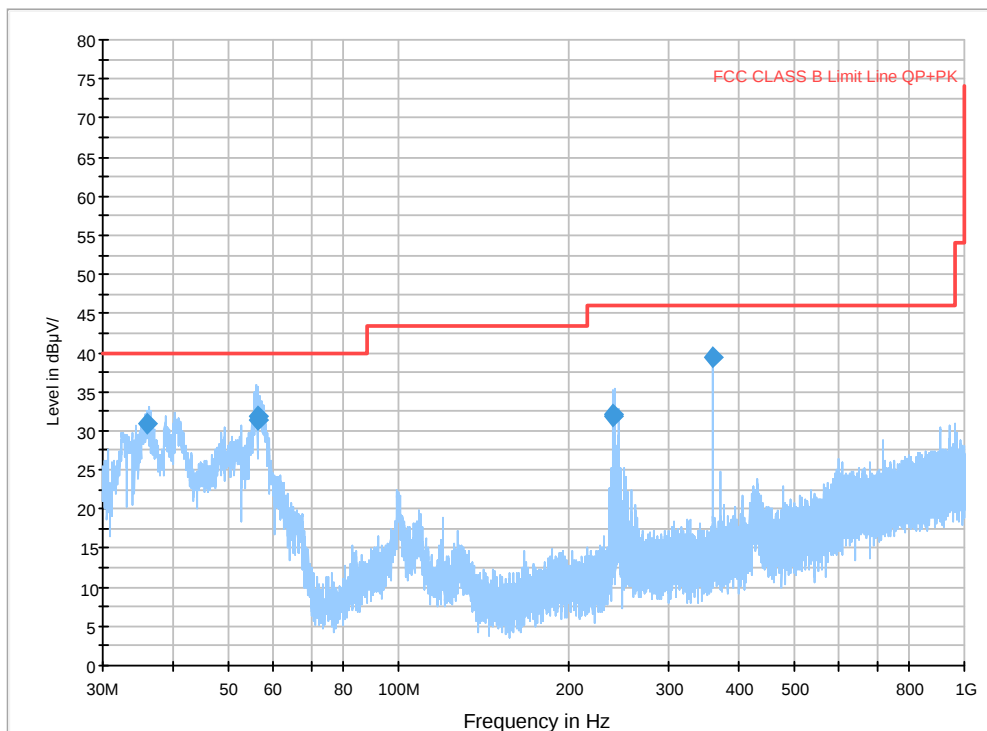


Diagram 7-2



Test Mode	802.11.b-2412MHz					
Frequency (MHz)	Reading (dBμV/m)	Polarization	Margin (dB)	Limit (dBμV/m)	Detector (PK/AV)	Comment
1320.034000	46.9	H	27.1	74.0	PK	Diagram 7- 3
4827.555666	48.1	H	25.9	74.0	PK	
1319.983667	43.3	H	10.7	54.0	AV	
4819.853667	35.3	H	18.7	54.0	AV	
1320.147000	49.6	V	24.4	74.0	PK	Diagram 7-4
1680.043667	50.6	V	23.4	74.0	PK	
1319.980667	45.6	V	8.4	54.0	AV	
1680.079000	41.6	V	12.4	54.0	AV	
2400.006000	48.6	H	25.4	74.0	PK	Diagram 7-5
2390.052000	31.1	H	42.9	74.0	PK	
2398.018000	60.8	H	13.2	74.0	PK	
2386.482000	46.6	H	27.4	74.0	PK	
2408.238000	86.0	H	--	--	PK*	Diagram 7-6
2397.024000	44.3	V	29.7	74.0	PK	
2390.000000	25.0	V	49	74.0	PK	
2400.000000	36.7	V	37.3	74.0	PK	
2411.220000	85.5	V	--	--	PK*	Diagram 7-7
2397.724000	45.6	H	8.4	54.0	AV	
2400.000000	33.4	H	20.6	54.0	AV	
2390.000000	30.0	H	24	54.0	AV	
2390.000000	25.0	V	29	54.0	AV	Diagram 7-8
2400.000000	36.2	V	17.8	54.0	AV	
2397.108000	42.3	V	11.7	54.0	AV	
2411.192000	84.1	V	--	--	AV*	

7238.951334	53.8	H	20.2	74.0	PK	Diagram 7-9
7239.151667	47.1	H	6.9	54.0	AV	
7232.729000	53.1	V	20.9	74.0	PK	Diagram 7-10
7239.081333	46.1	V	7.9	54.0	AV	

Diagram 7- 3

FCC CLASS B HF3.0_1G-7G_HOR

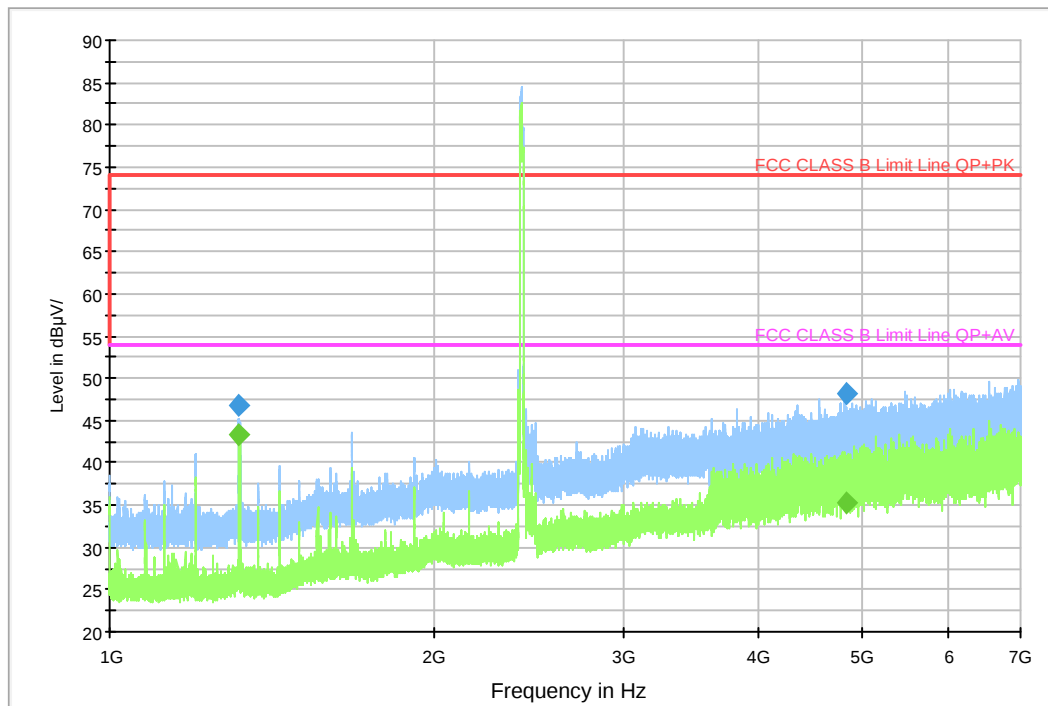


Diagram 7- 4

FCC CLASS B HF3.0_1G-7G_VER

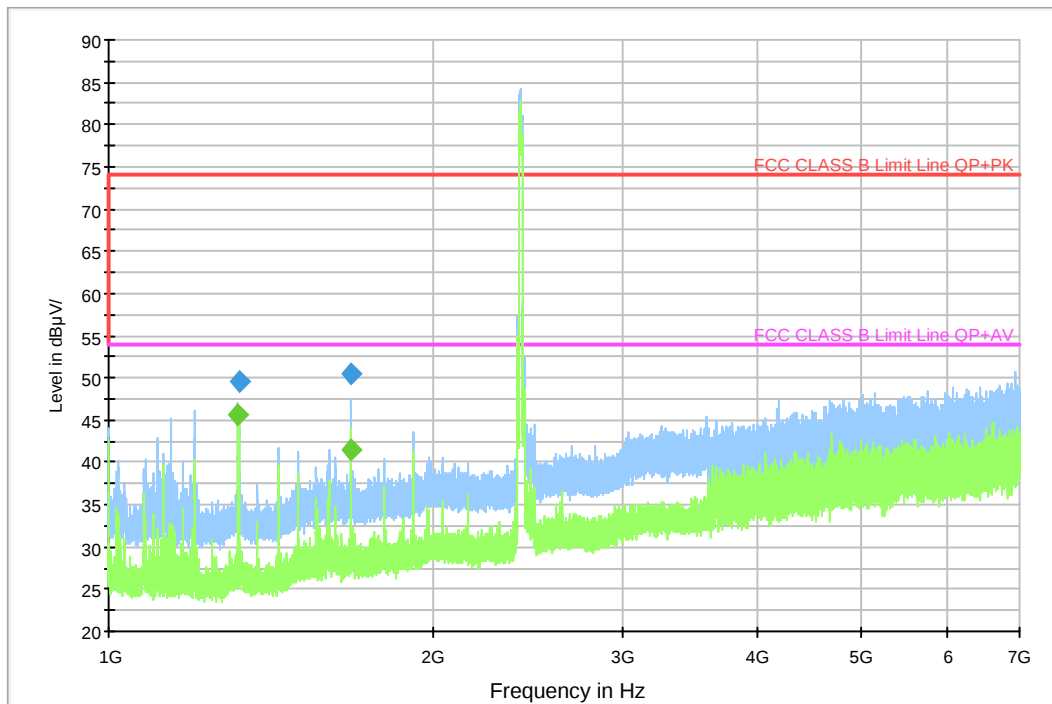


Diagram 7- 5

FCC BAND EDGE 2.4G LOW HF1.0 PK HOR

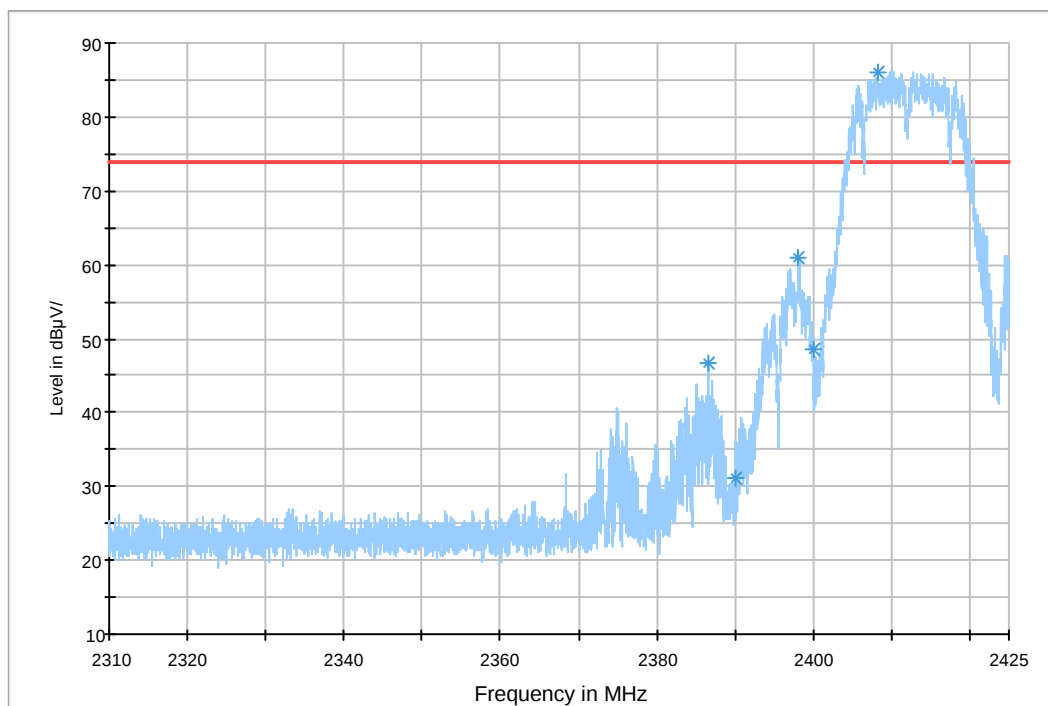


Diagram 7-6

FCC BAND EDGE 2.4G LOW HF1.0 PK VER

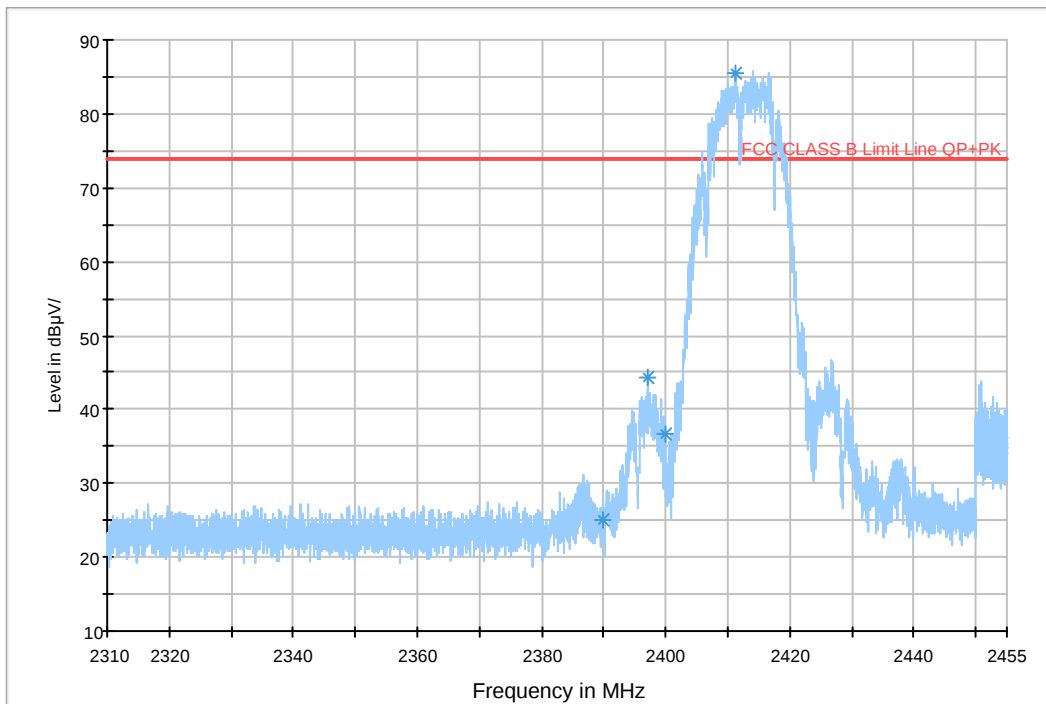


Diagram 7-7

FCC BAND EDGE 2.4G LOW HF1.0 AV HOR

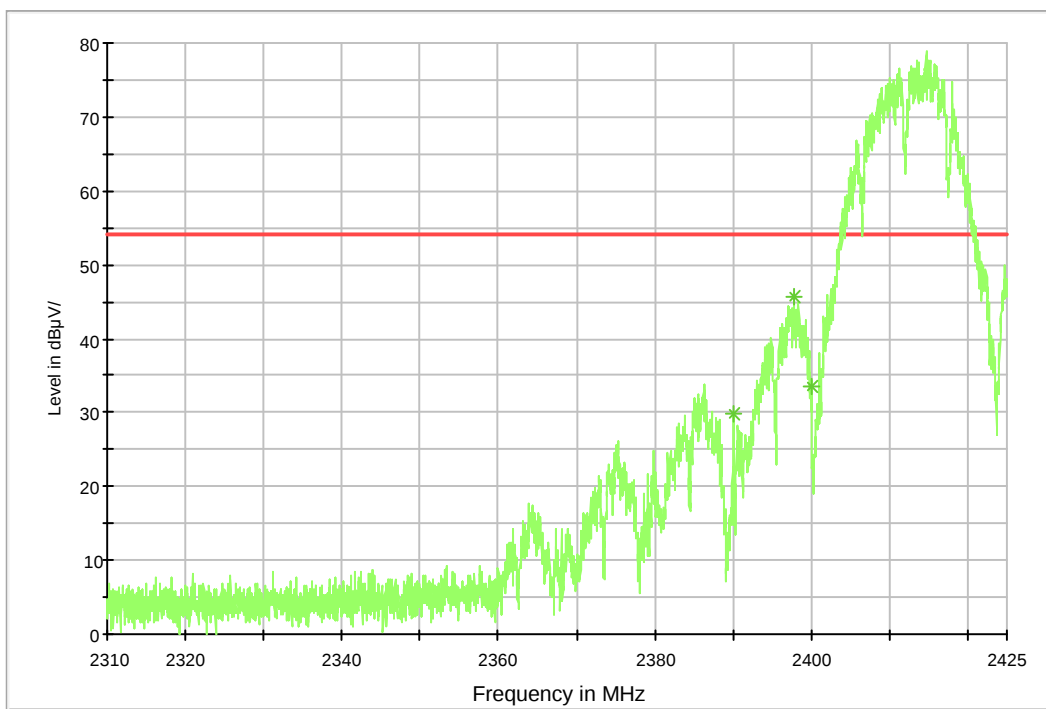


Diagram 7-8

FCC BAND EDGE 2.4G LOW HF1.0 AV VER

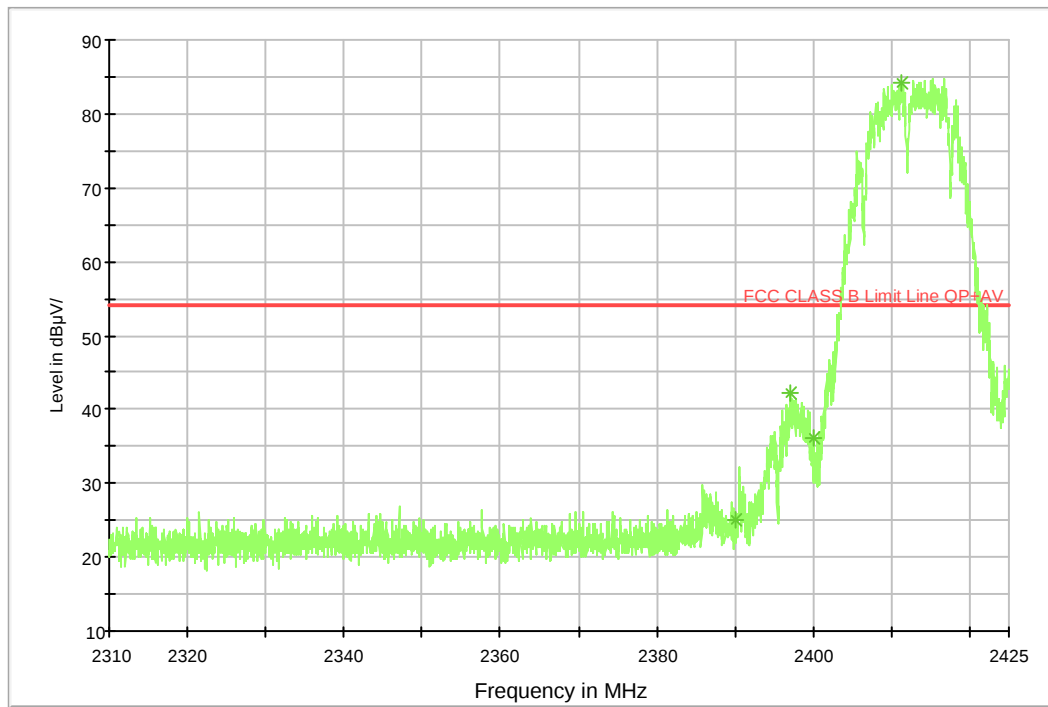


Diagram 7- 9

FCC CLASS B HF7.0_7G-18G_HOR

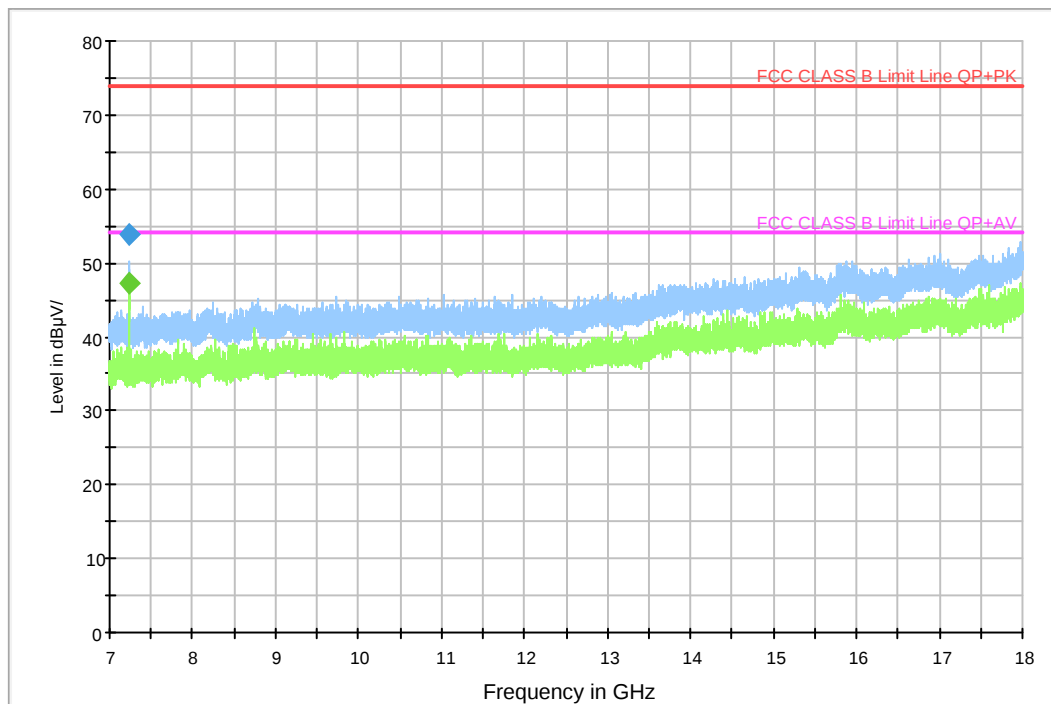
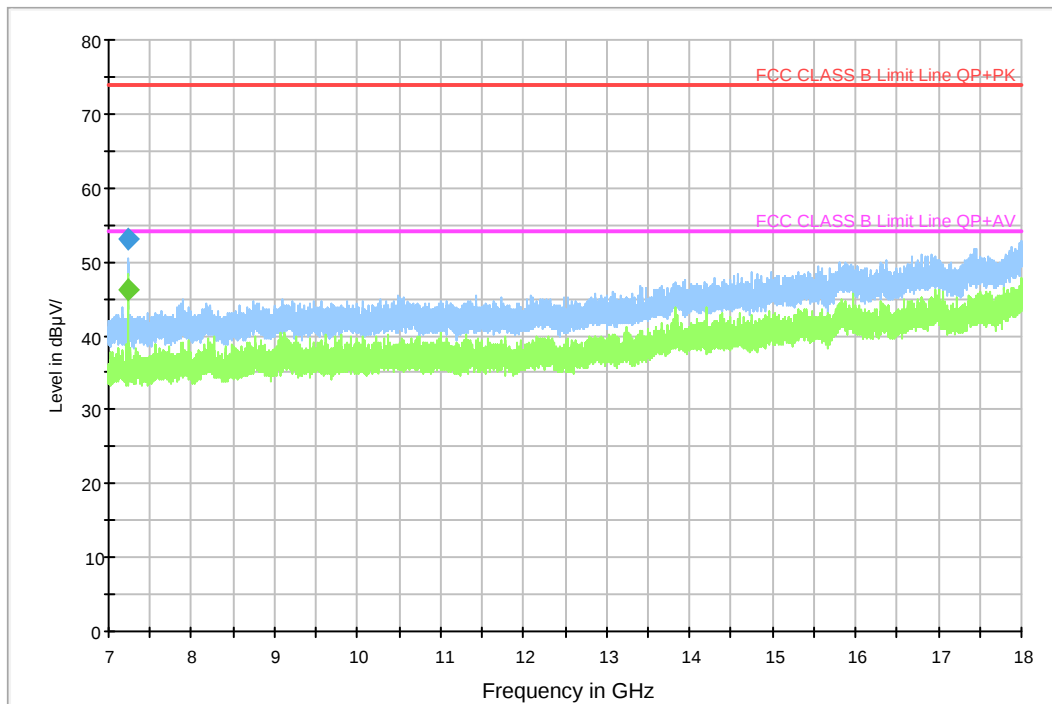


Diagram 7- 10

FCC CLASS B HF7.0_7G-18G_VER



Test Mode	802.11.b-2437MHz					
Frequency (MHz)	Reading (dBµV/m)	Polarization	Margin (dB)	Limit (dBµV/m)	Detector (PK/AV)	Comment
1320.656667	48.6	H	25.4	74.0	PK	Diagram 7- 11
4872.343333	50.4	H	23.6	74.0	PK	
1321.084000	45.0	H	9.0	54.0	AV	
1320.733333	50.3	V	23.8	74.0	PK	Diagram 7-12
4876.300000	50.5	V	23.5	74.0	PK	
1320.043334	46.1	V	7.9	54.0	AV	
7310.380000	55.6	H	18.4	74.0	PK	Diagram 7-13
7310.729000	49.3	H	4.7	54.0	AV	Diagram 7-14
7312.107333	55.8	V	18.2	74.0	PK	
7310.592666	49.3	V	4.7	54.0	AV	

Diagram 7- 11

FCC CLASS B HF3.0_1G-7G_HOR

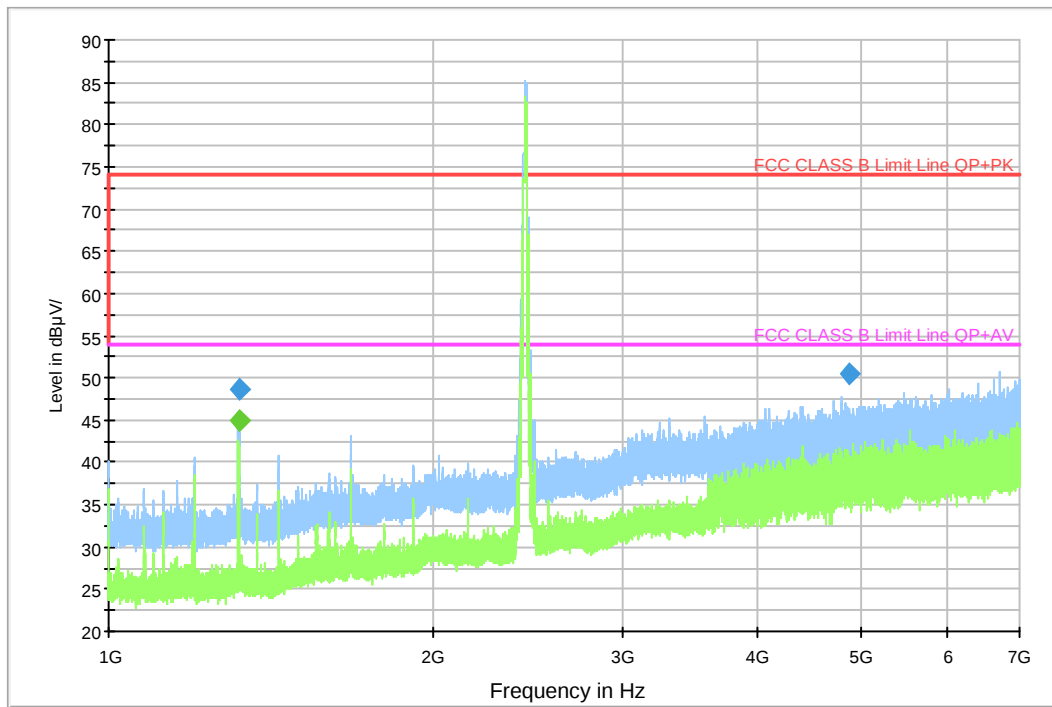


Diagram 7- 12

FCC CLASS B HF3.0_1G-7G_VER

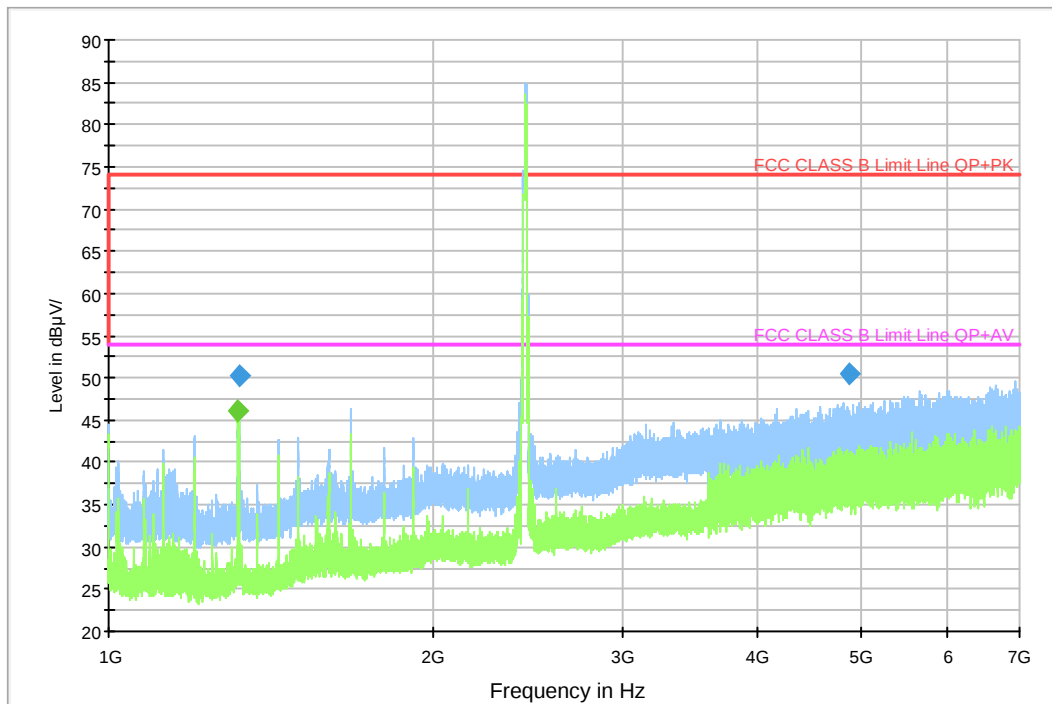


Diagram 7- 13

FCC CLASS B HF7.0_7G-18G_HOR

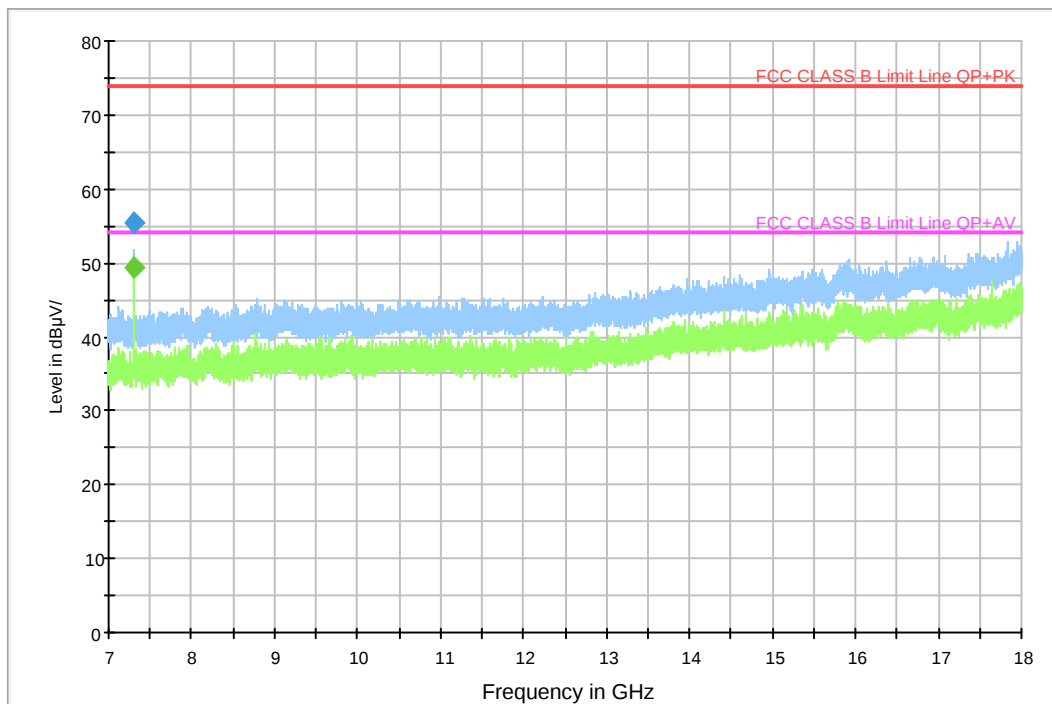
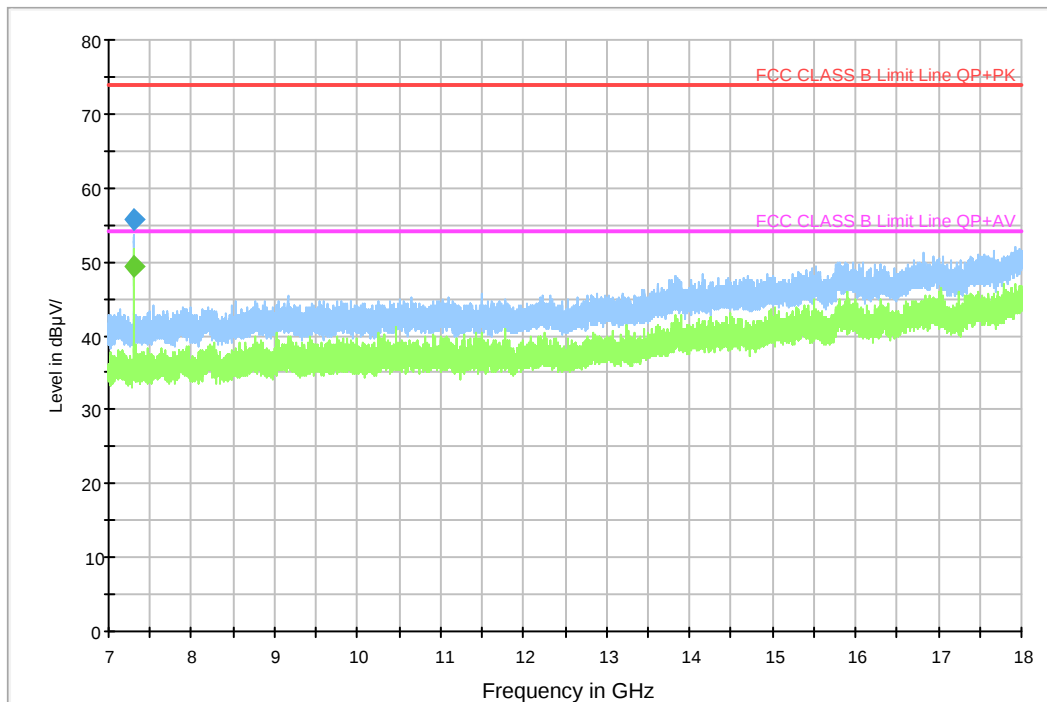


Diagram 7- 14

FCC CLASS B HF7.0_7G-18G_VER



Test Mode	802.11.b-2462MHz					
Frequency (MHz)	Reading (dBµV/m)	Polarization	Margin (dB)	Limit (dBµV/m)	Detector (PK/AV)	Comment
1320.098667	48.5	H	25.5	74.0	PK	Diagram 7- 15
4933.191666	50.8	H	23.2	74.0	PK	
1319.996000	45.0	H	9.0	54.0	AV	
1320.105333	51.0	V	23.0	74.0	PK	Diagram 7-16
4910.383666	50.5	V	23.5	74.0	PK	
1320.908333	47.5	V	6.5	54.0	AV	
2459.22	85	H	--	--	PK*	Diagram 7-17
2476.952	63.7	H	10.3	74.0	PK	
2479.966	56.2	H	17.8	74.0	PK	
2459.236	85.2	V	--	--	PK*	Diagram 7-18
2477.026	58.6	V	15.4	74.0	PK	
2475.62	57.8	V	16.2	74.0	PK	
2464.498	85.4	H	--	--	AV*	Diagram 7-19
2483.934	30.4	H	23.6	54.0	AV	
2483.578	29	H	25	54.0	AV	
2459.24	86.1	V	--	--	AV*	Diagram 7-20
2483.57	32.2	V	21.8	54.0	AV	
2484.142	31	V	23	54.0	AV	
7387.475667	47.6	H	26.4	74.0	PK	Diagram 7-21
7387.187666	38.4	H	15.6	54.0	AV	Diagram 7-22
7385.081000	54.7	V	19.3	74.0	PK	
7385.550000	43.2	V	10.8	54.0	AV	

Diagram 7- 15

FCC CLASS B HF3.0_1G-7G_HOR

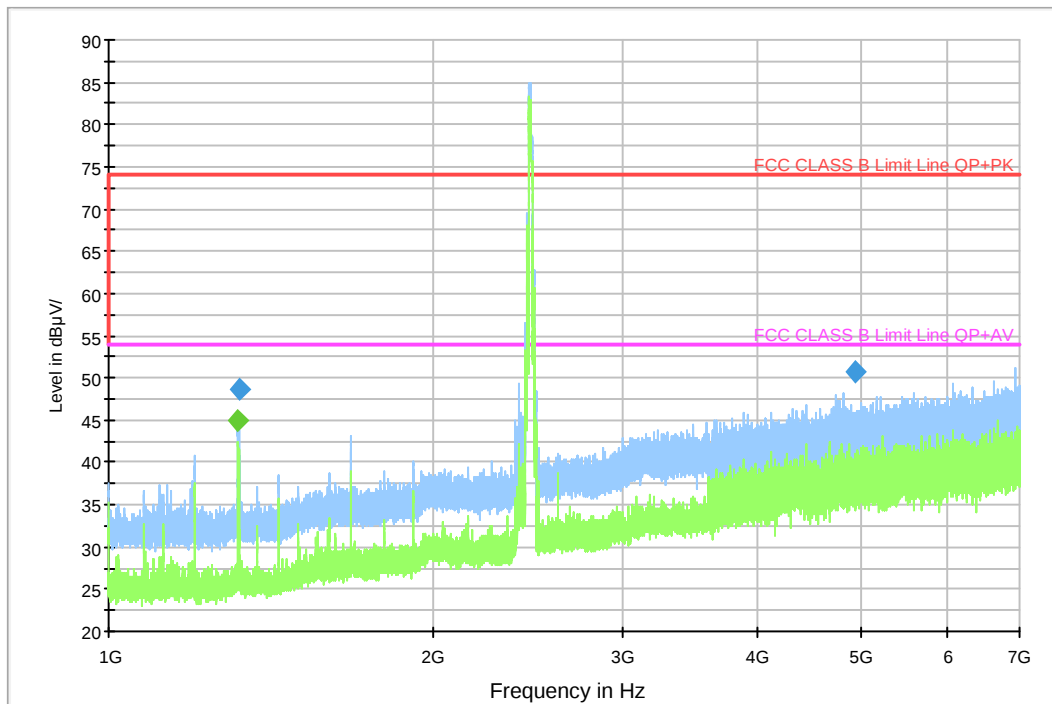


Diagram 7- 16

FCC CLASS B HF3.0_1G-7G_VER

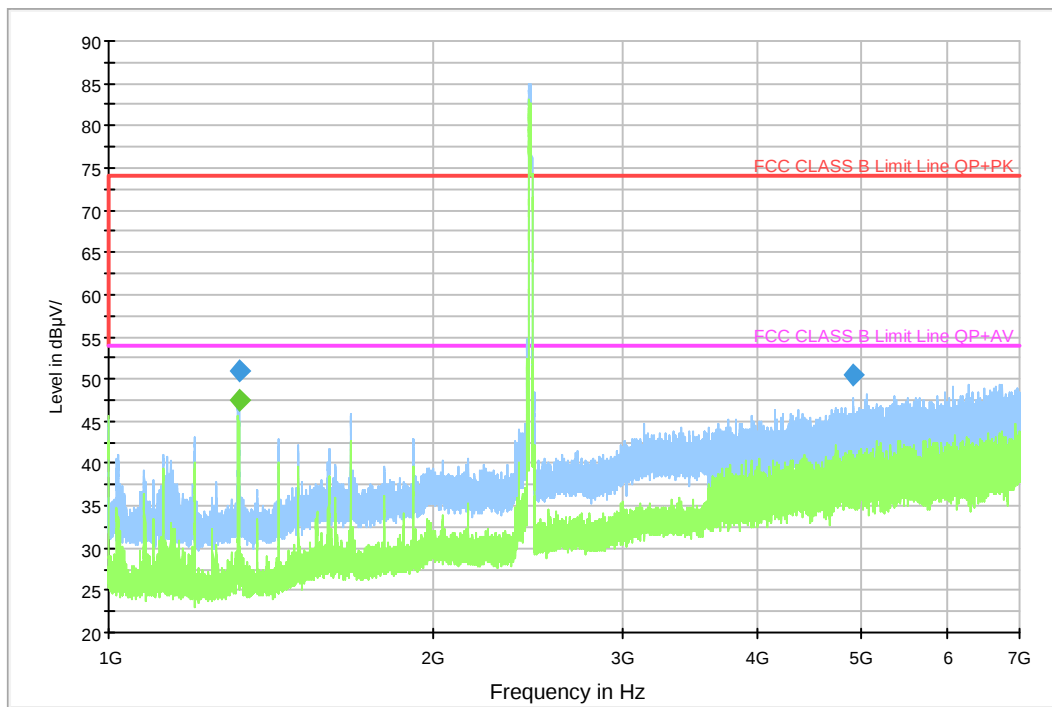


Diagram 7- 17

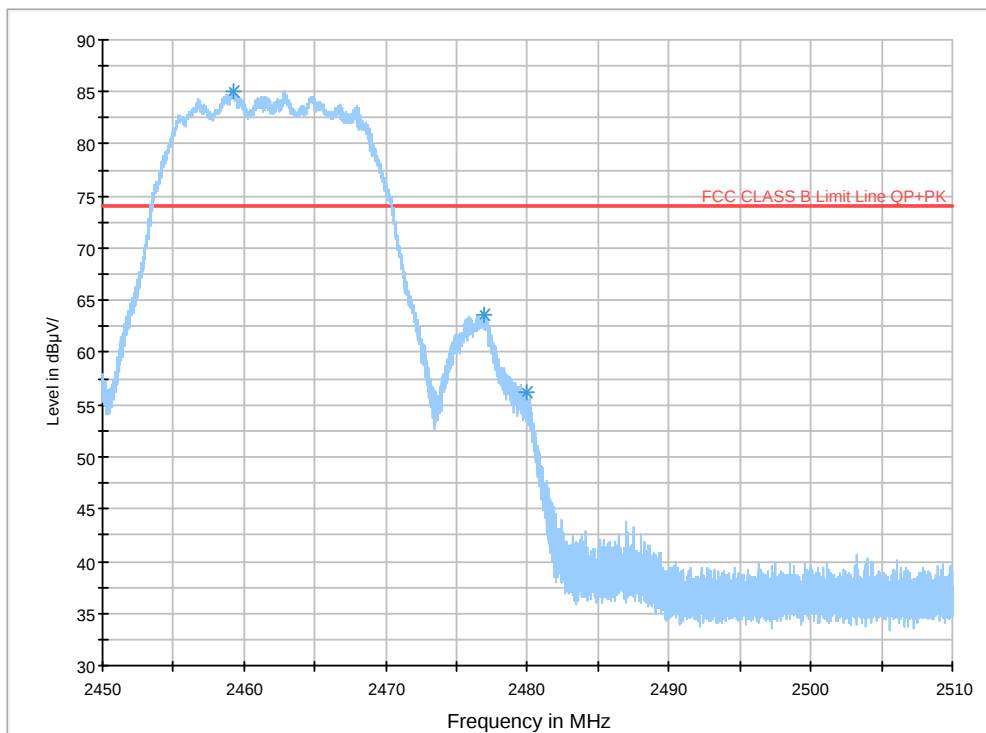


Diagram 7- 18

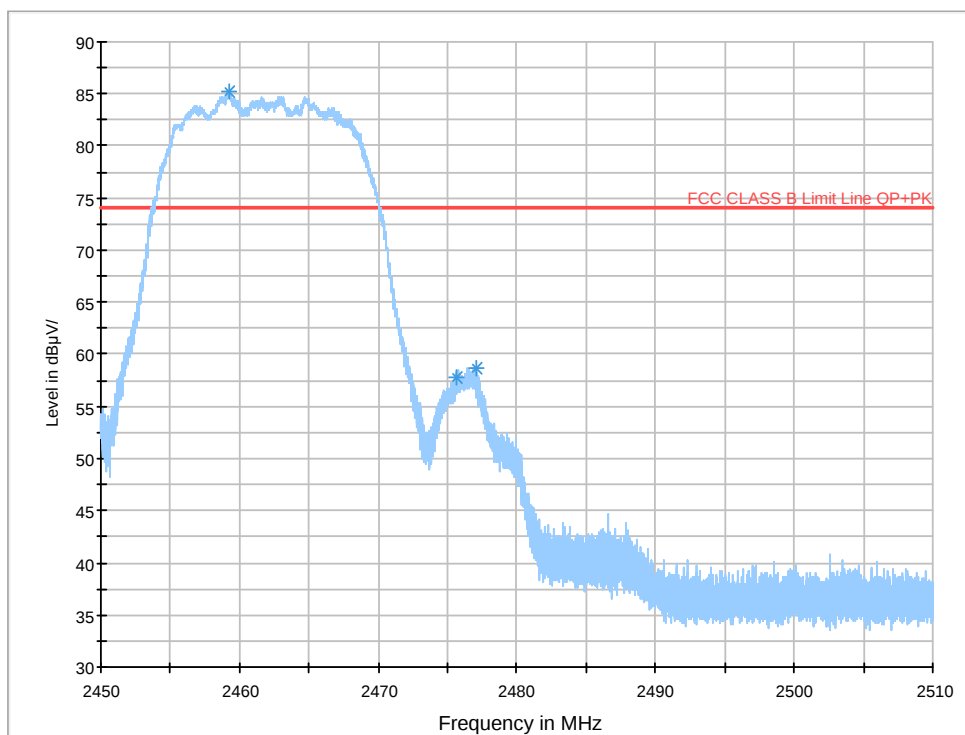


Diagram 7- 19

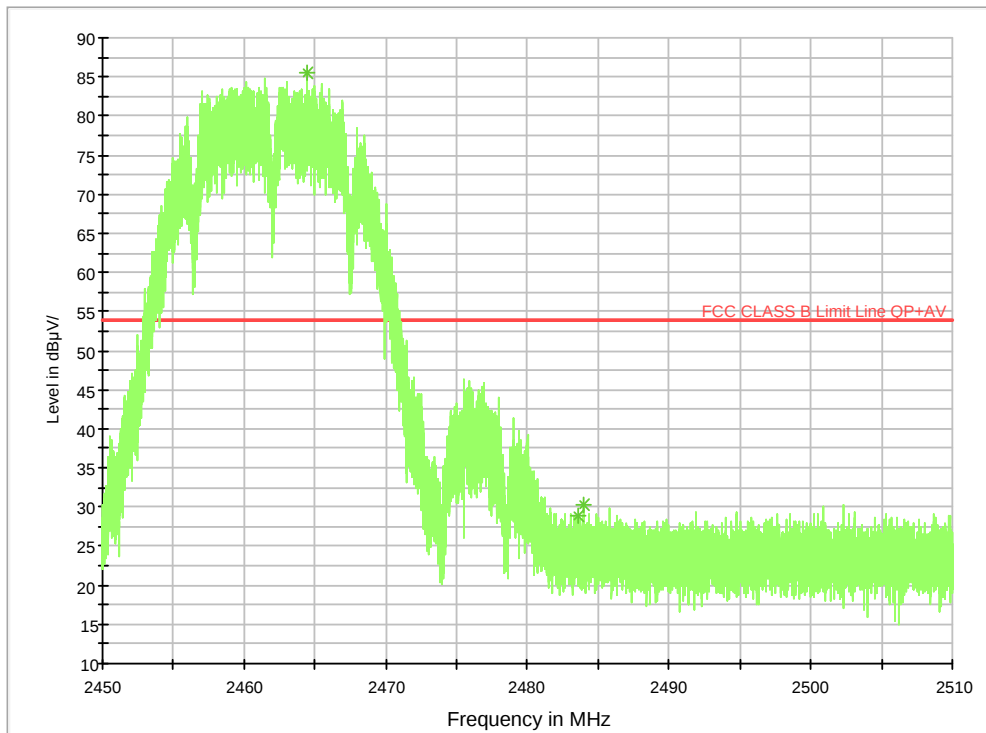


Diagram 7- 20

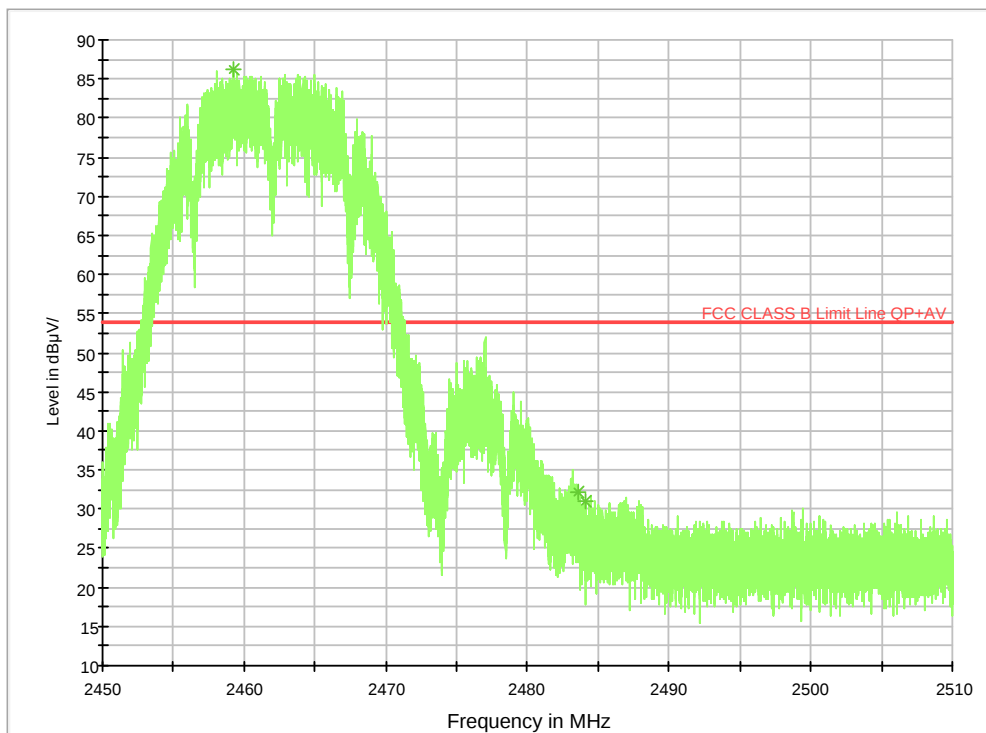


Diagram 7- 21

FCC CLASS B HF7.0_7G-18G_HOR

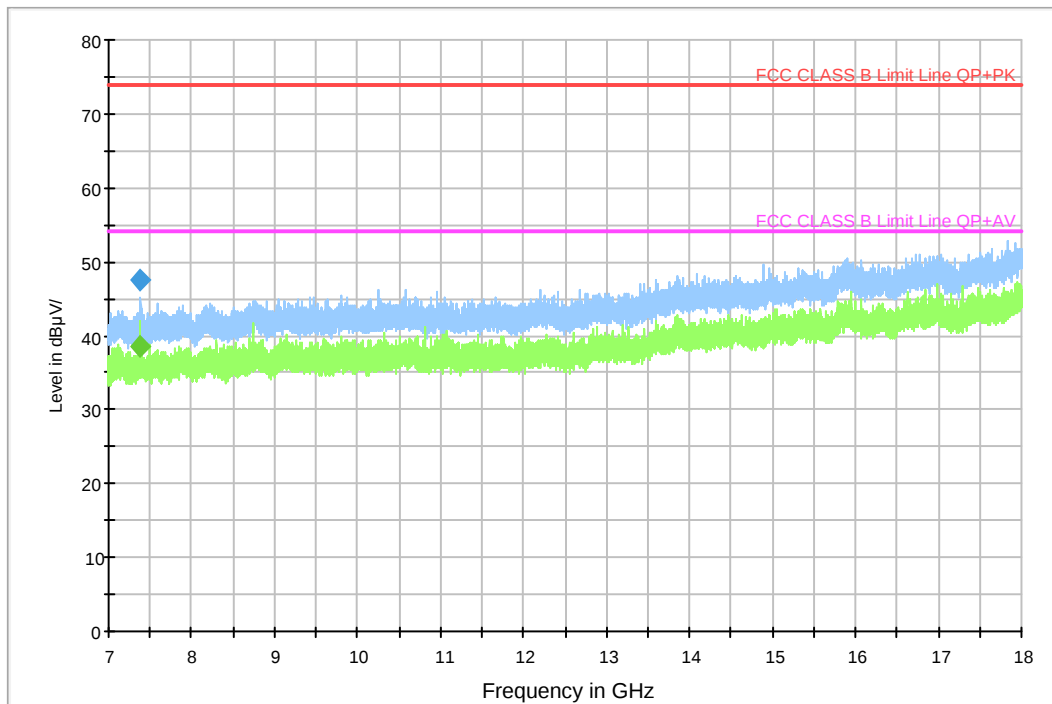
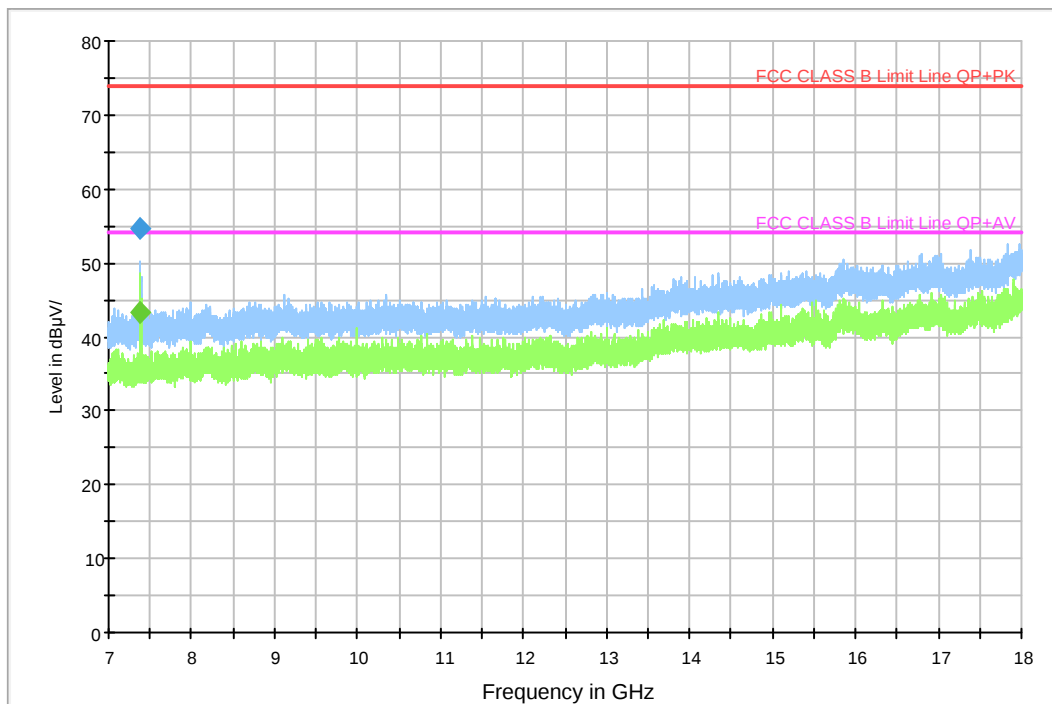


Diagram 7- 22

FCC CLASS B HF7.0_7G-18G_VER



Test Mode	802.11.g-2412MHz
-----------	------------------

Frequency (MHz)	Reading (dBμV/m)	Polarization	Margin (dB)	Limit (dBμV/m)	Detector (PK/AV)	Comment
1320.074000	46.5	H	27.5	74.0	PK	Diagram 7- 23
4821.739667	48.0	H	26.0	74.0	PK	
1320.059333	42.9	H	11.1	54.0	AV	
1320.008000	49.2	V	24.8	74.0	PK	Diagram 7-24
4829.929000	47.9	V	26.1	74.0	PK	
1320.056000	45.9	V	8.1	54.0	AV	
2390.000000	36.4	H	37.6	74.0	PK	Diagram 7-25
2400.000000	44.7	H	29.3	74.0	PK	
2397.052000	60.1	H	13.9	74.0	PK	
2411.360000	86.6	H	--	--	PK*	Diagram 7-26
2390.000000	25.0	V	49	74.0	PK	
2397.024000	44.3	V	29.7	74.0	PK	
2400.000000	36.7	V	37.3	74.0	PK	Diagram 7-27
2411.220000	85.5	V	--	--	PK*	
2390.000000	10.6	H	43.4	54.0	AV	
2400.000000	31.9	H	22.1	54.0	AV	Diagram 7-28
2397.377000	44.7	H	9.3	54.0	AV	
2412.672000	82.0	H	--	--	AV*	
2390.000000	10.9	V	43.1	54.0	AV	Diagram 7-29
2400.000000	11.4	V	42.6	54.0	AV	
2395.054000	27.2	V	26.8	54.0	AV	
2412.787000	73.0	V	--	--	AV*	Diagram 7-30
7245.702667	56.5	H	17.5	74.0	PK	
7233.225333	34.6	H	19.4	54.0	AV	
7233.520000	56.7	V	17.3	74.0	PK	Diagram 7-30
7239.189334	43.8	V	10.2	54.0	AV	

Diagram 7- 23

FCC CLASS B HF3.0_1G-7G_HOR

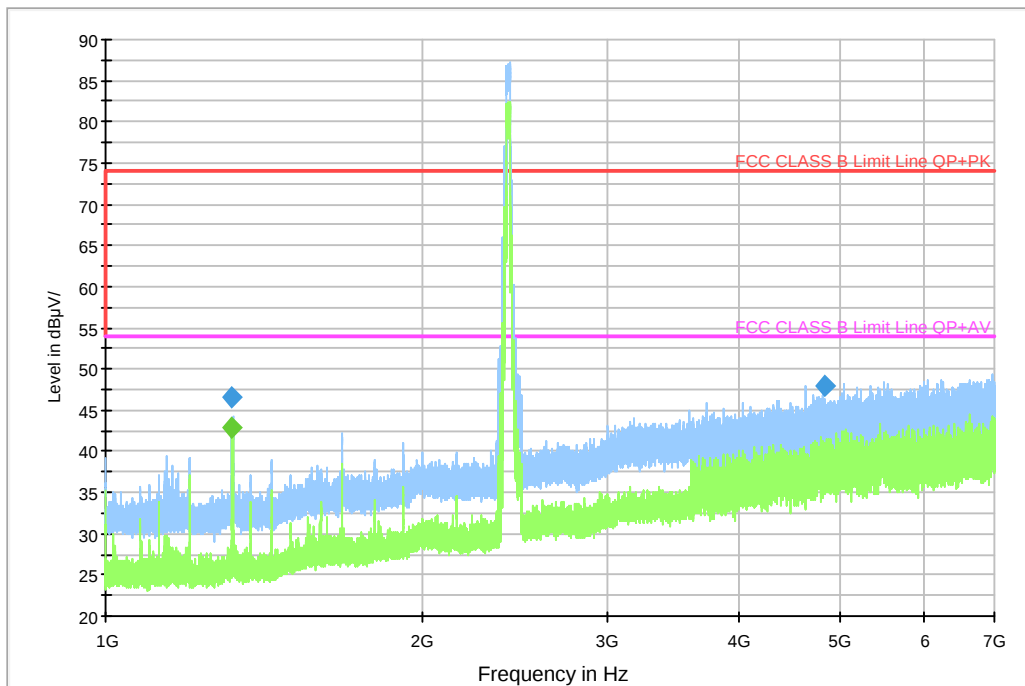


Diagram 7- 24

FCC CLASS B HF3.0_1G-7G_VER

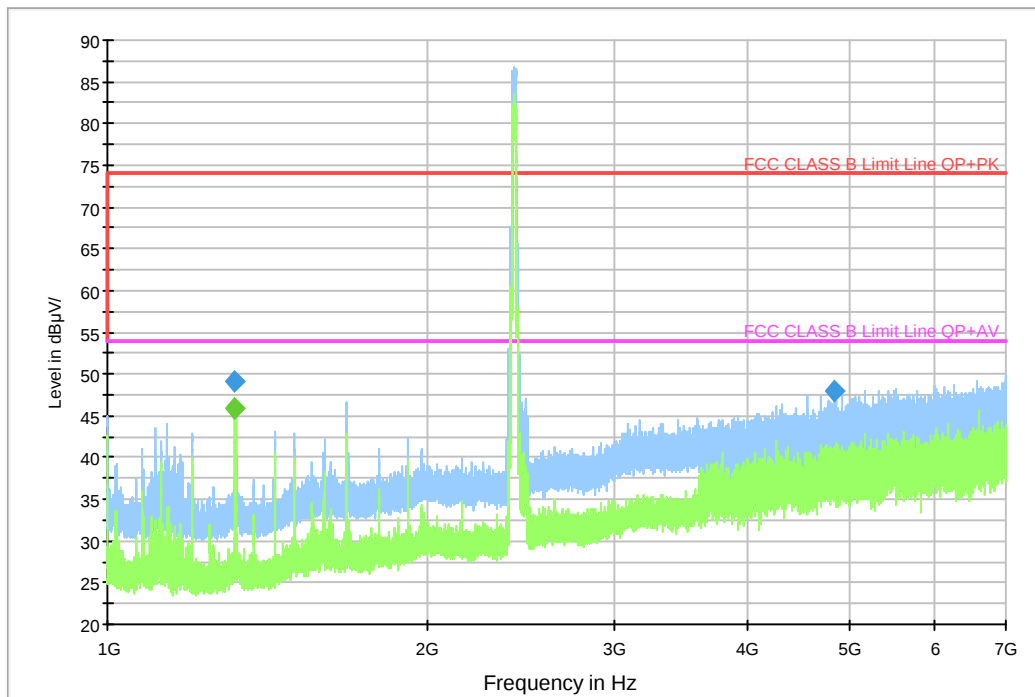


Diagram 7- 25

FCC BAND EDGE 2.4G LOW HF1.0 PK HOR

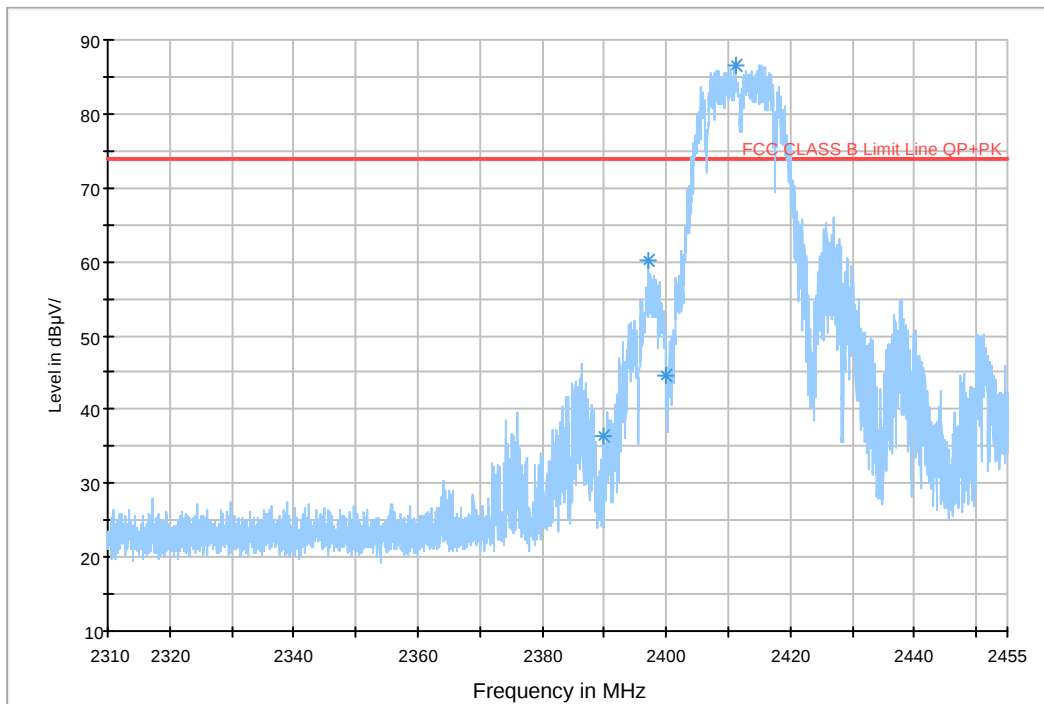


Diagram 7-26

FCC BAND EDGE 2.4G LOW HF1.0 PK VER

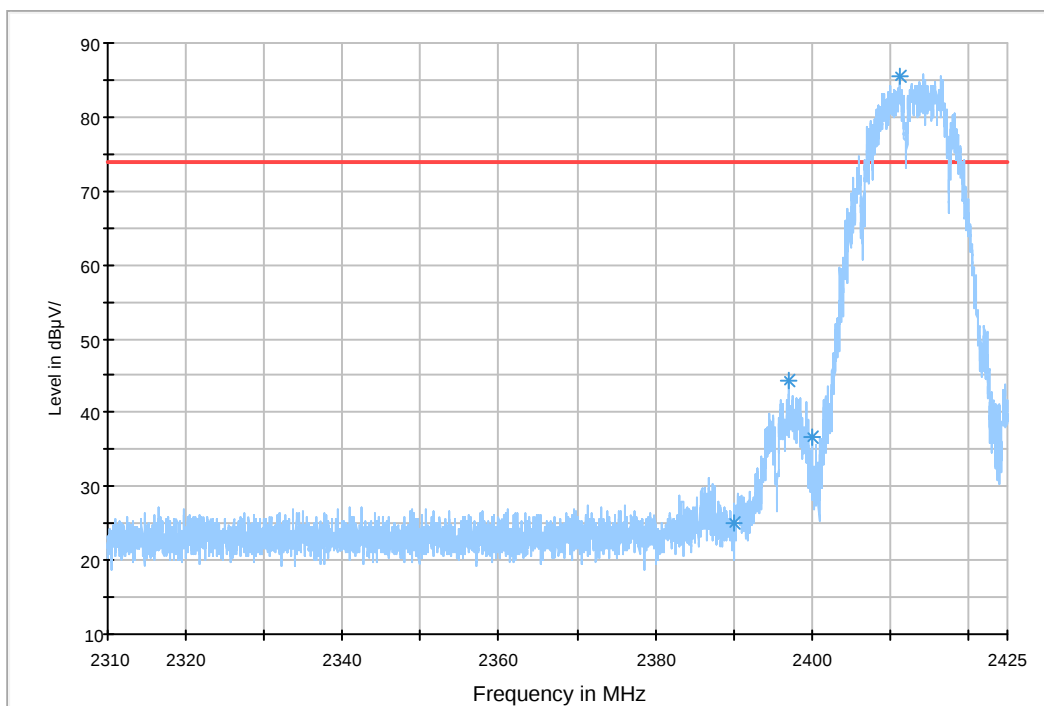


Diagram 7-27

FCC BAND EDGE 2.4G LOW HF1.0 AV HOR

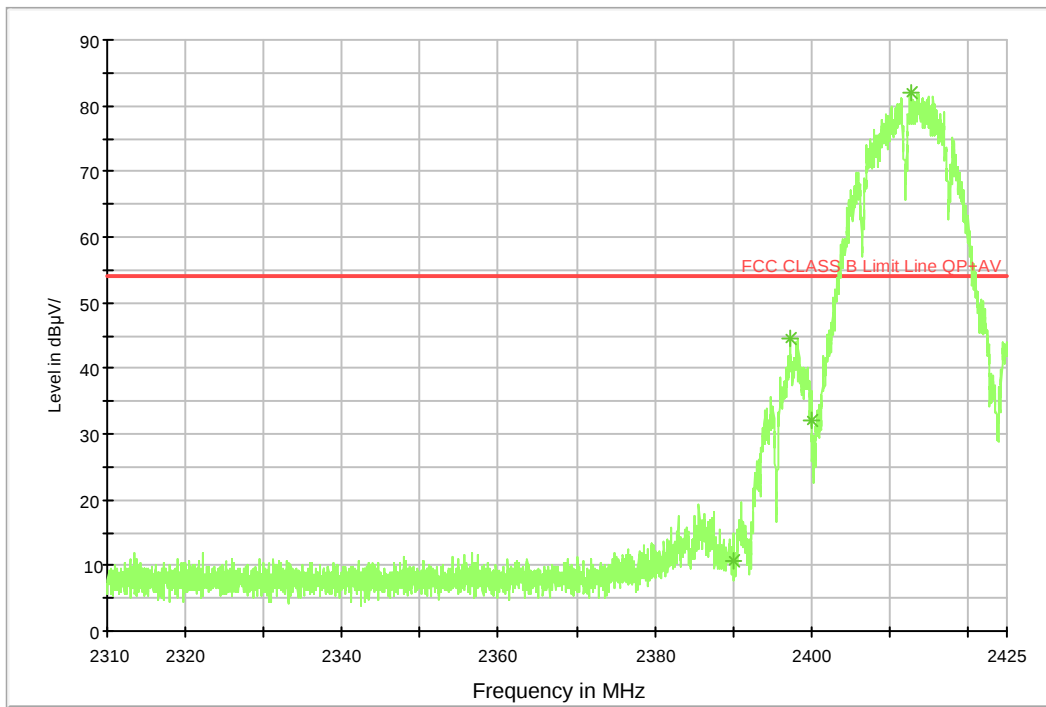


Diagram 7-28

FCC BAND EDGE 2.4G LOW HF1.0 AV VER

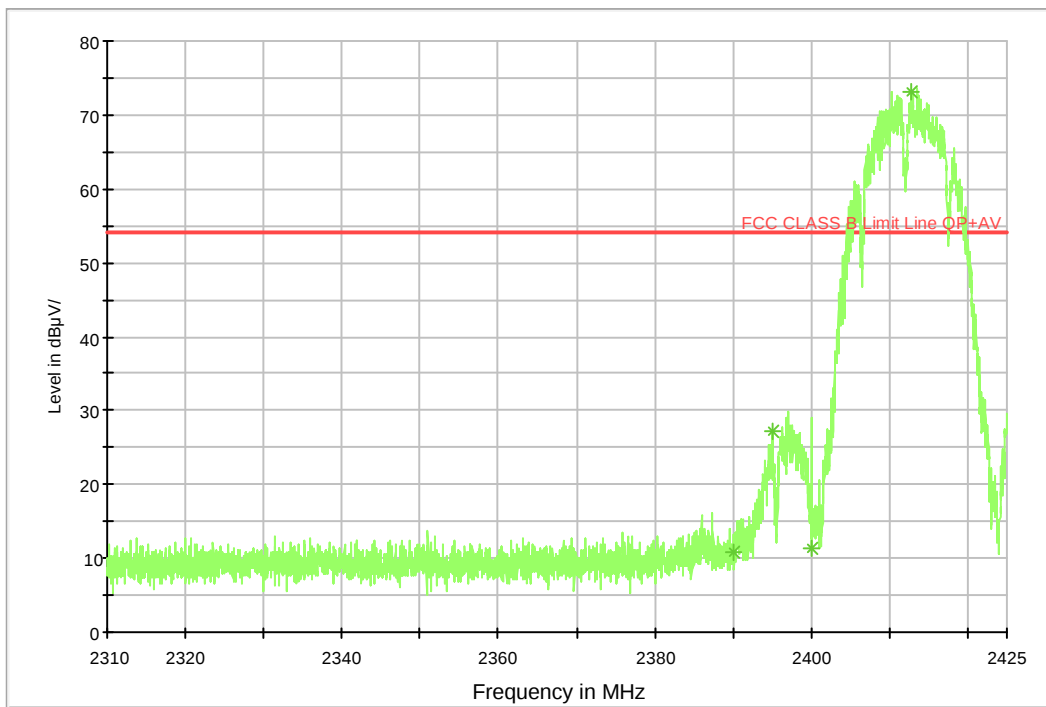


Diagram 7- 29

FCC CLASS B HF7.0_7G-18G_HOR

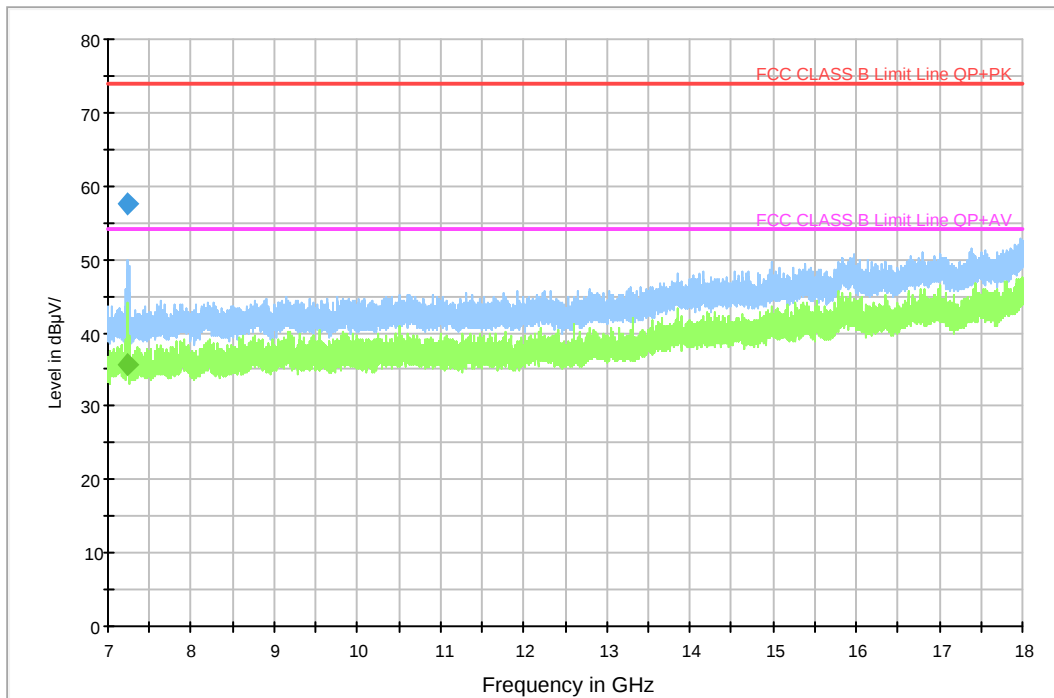
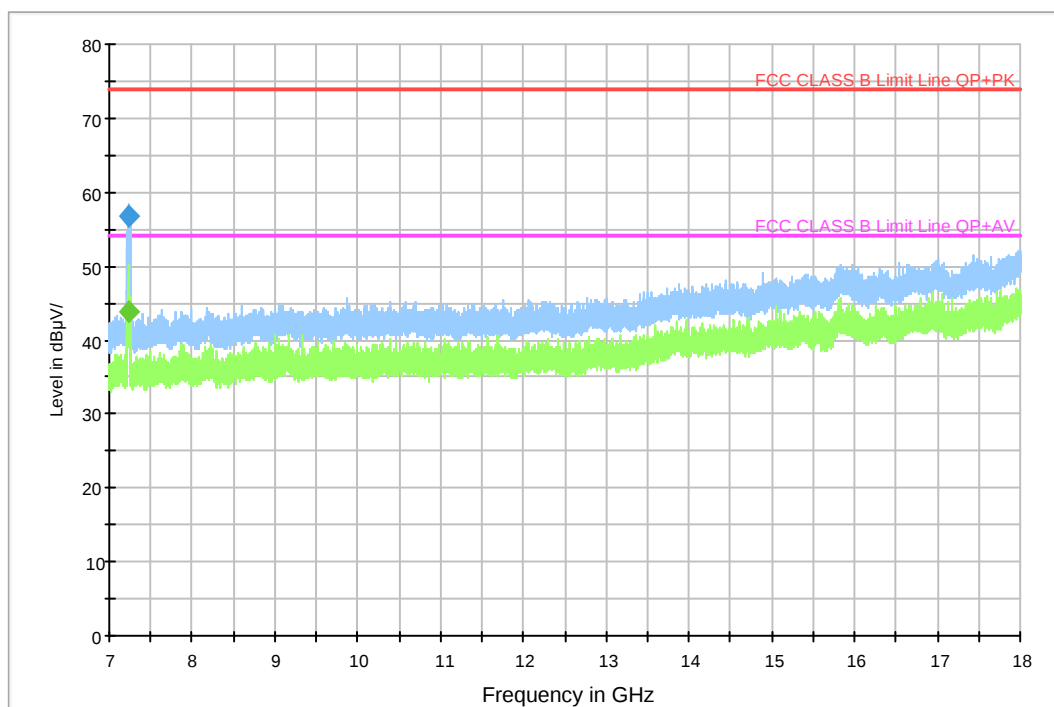


Diagram 7- 30

FCC CLASS B HF7.0_7G-18G_VER

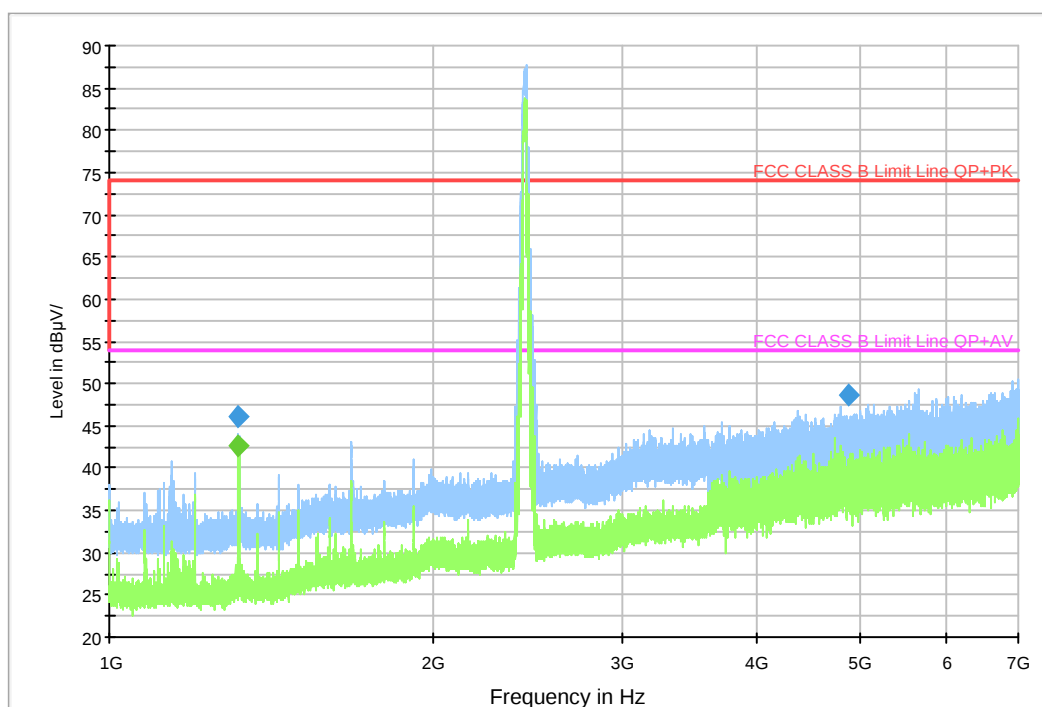


Test Mode | 802.11.g-2437MHz

Frequency (MHz)	Reading (dB μ V/m)	Polarization	Margin (dB)	Limit (dB μ V/m)	Detector (PK/AV)	Comment
1319.830334	46.1	H	27.9	74.0	PK	Diagram 7- 31
4877.711333	48.7	H	25.3	74.0	PK	
1319.896333	42.7	H	11.3	54.0	AV	
1319.964000	49.5	V	24.5	74.0	PK	Diagram 7-32
4819.925334	47.8	V	26.2	74.0	PK	
1320.060333	45.4	V	8.6	54.0	AV	
7313.2912000	49.0	H	25.0	74.0	PK	Diagram 7-33
7313.13333	45.4	H	8.6	54.0	AV	
7303.353666	60.6	V	11.4	74.0	PK	Diagram 7-34
7317.564237	41.2	V	12.8	54.0	AV	

Diagram 7- 31

FCC CLASS B HF3.0_1G-7G_HOR



FCC CLASS B HF3.0_1G-7G_VER

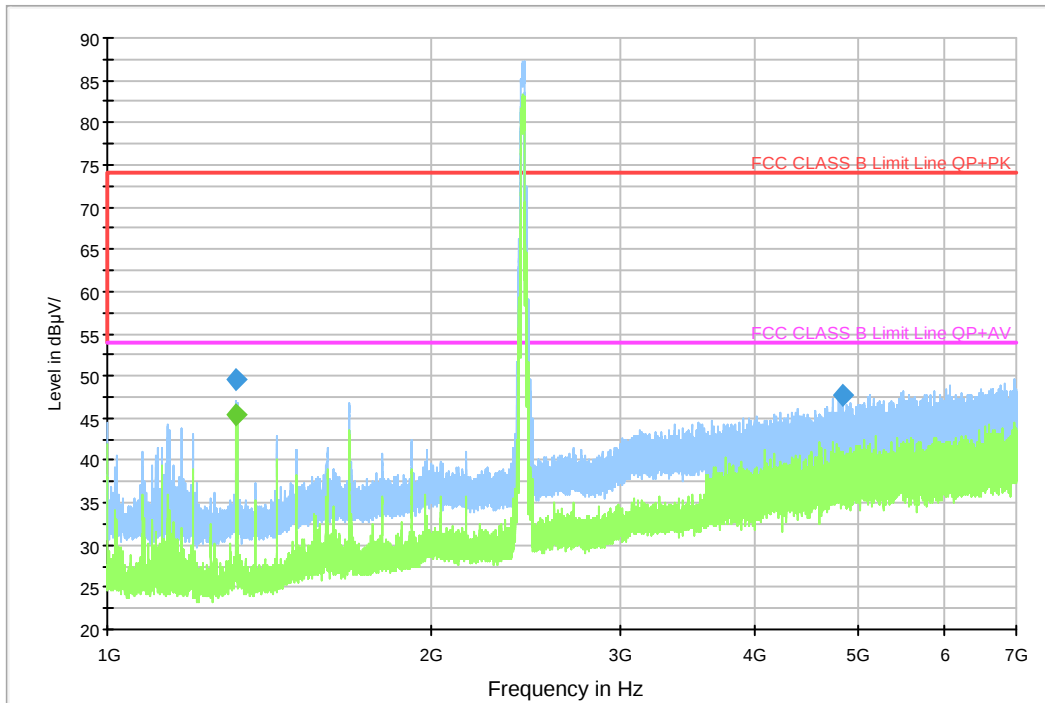


Diagram 7- 33

FCC CLASS B HF7.0_7G-18G_HOR

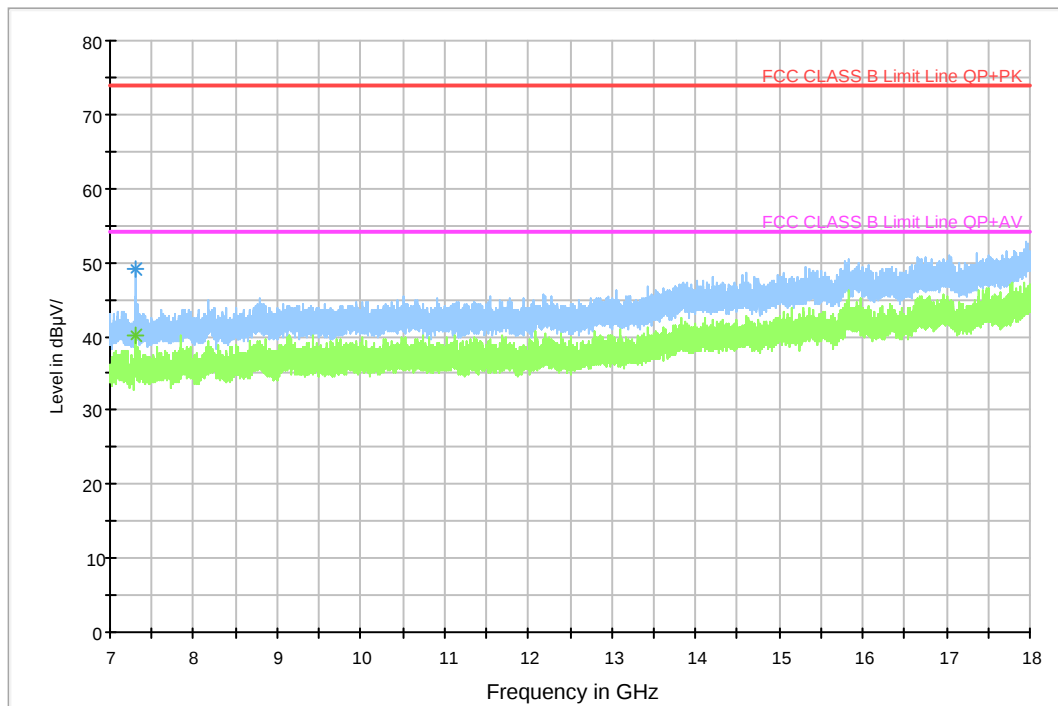
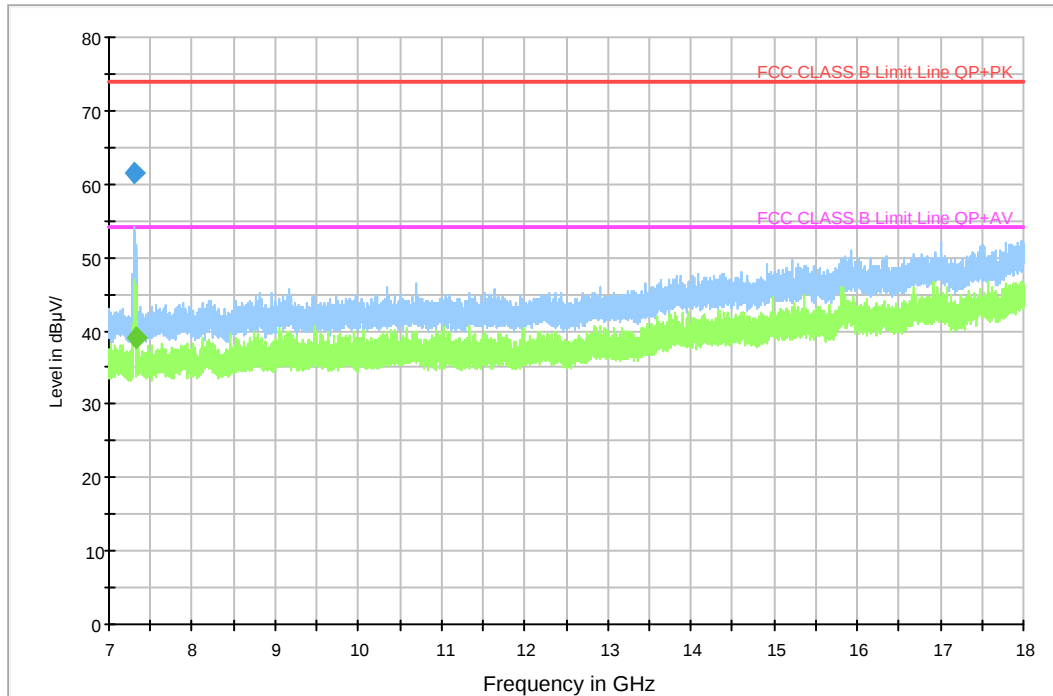


Diagram 7- 34

FCC CLASS B HF7.0_7G-18G_VER



Test Mode	802.11.g-2462MHz					
Frequency (MHz)	Reading (dBµV/m)	Polarization	Margin (dB)	Limit (dBµV/m)	Detector (PK/AV)	Comment
1320.674000	48.5	H	25.5	74.0	PK	Diagram 7- 35
4820.739667	51.0	H	24.0	74.0	PK	
1322.459333	40.9	H	13.1	54.0	AV	
1320.623780	51.2	V	26.8	74.0	PK	Diagram 7-36
4830.929000	49.9	V	28.1	74.0	PK	
1320.656000	44.9	V	9.1	54.0	AV	
2454.270000	86.4	H	--	--	PK*	Diagram 7-37
2483.542000	48.5	H	25.5	74	PK	
2484.300000	45.3	H	28.7	74	PK	
2454.772000	87.5	V	--	--	PK*	Diagram 7-38
2483.548000	63.0	V	11	74	PK	
2483.922000	62.1	V	11.9	74	PK	
2467.028000	78.0	H	--	--	AV*	Diagram 7-39
2484.420000	28.7	H	45.3	74	AV	
2483.994000	28.1	H	45.9	74	AV	
2469.518000	80.5	V	--	--	AV*	Diagram 7-40
2483.544000	32.3	V	21.7	54	AV	
2483.900000	31.1	V	22.9	54	AV	
7387.587667	48.6	H	25.4	74.0	PK	Diagram 7-41
7387.095666	36.5	H	17.5	54.0	AV	Diagram 7-42
7392.146334	56.1	V	17.9	74.0	PK	
7392.809667	37.8	V	16.2	54.0	AV	

FCC CLASS B HF3.0_1G-7G_HOR

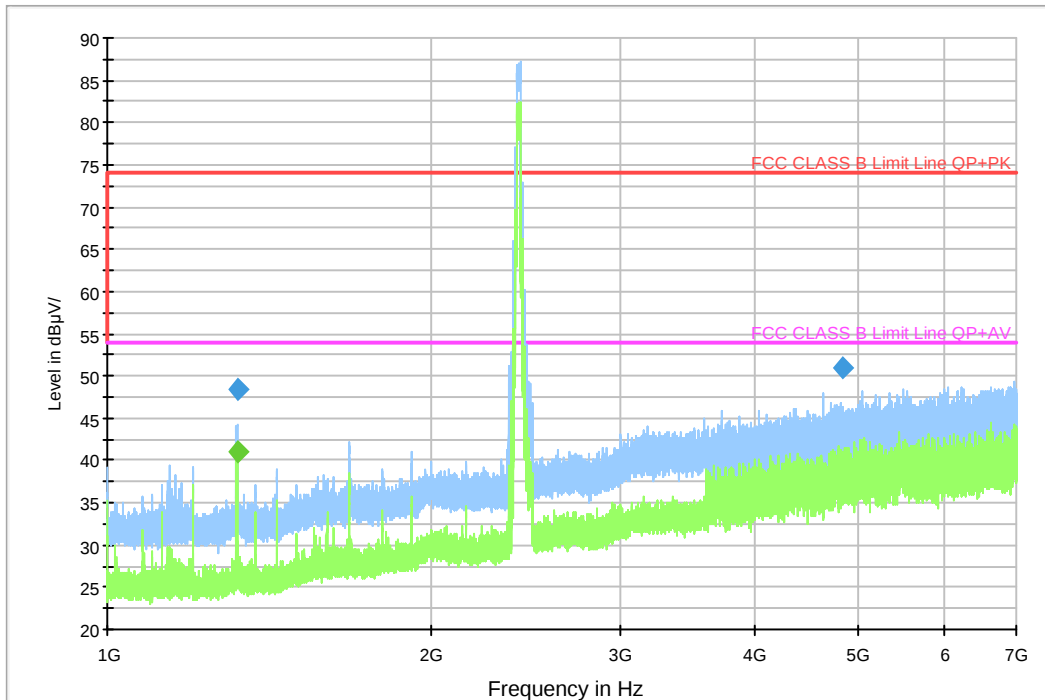
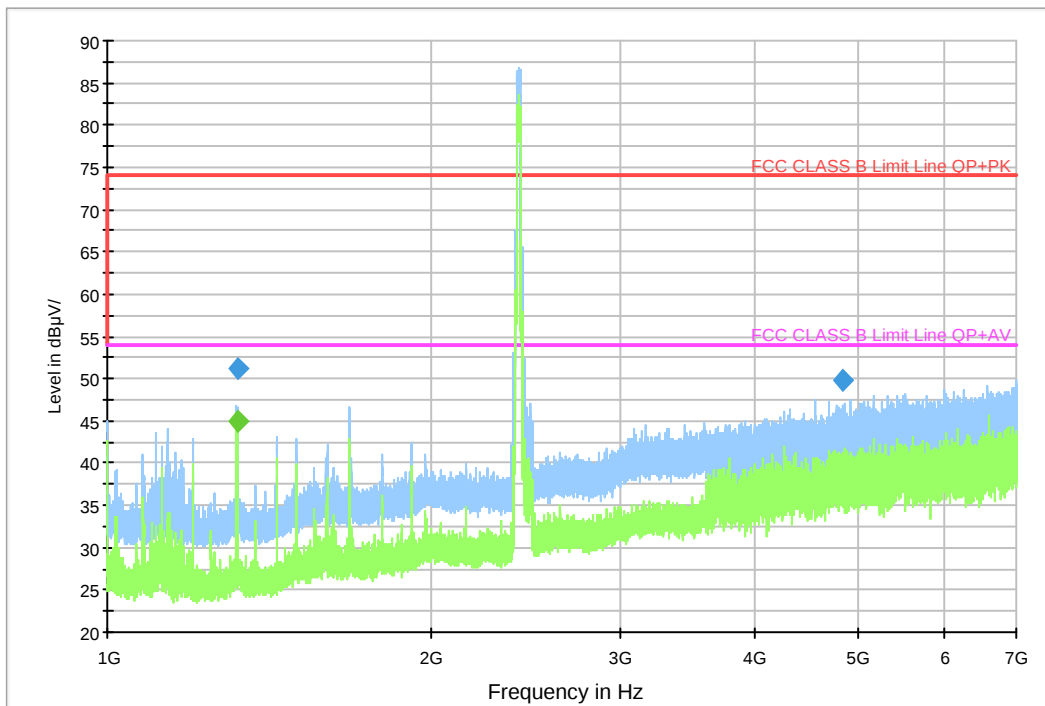


Diagram 7- 36

FCC CLASS B HF3.0_1G-7G_VER



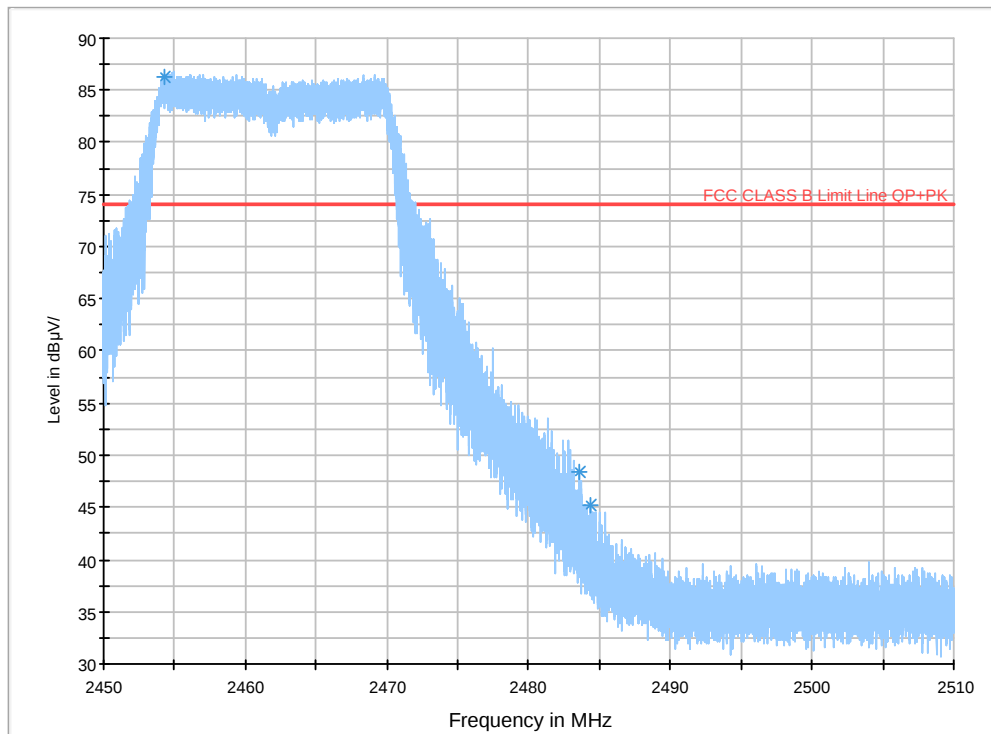
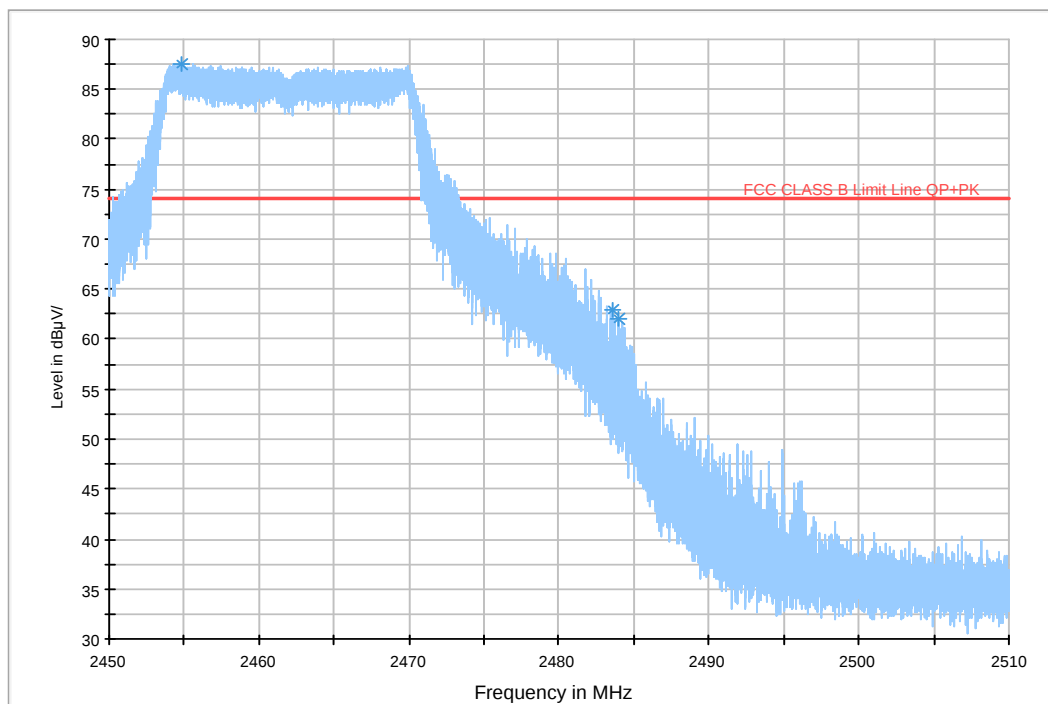


Diagram 7- 38



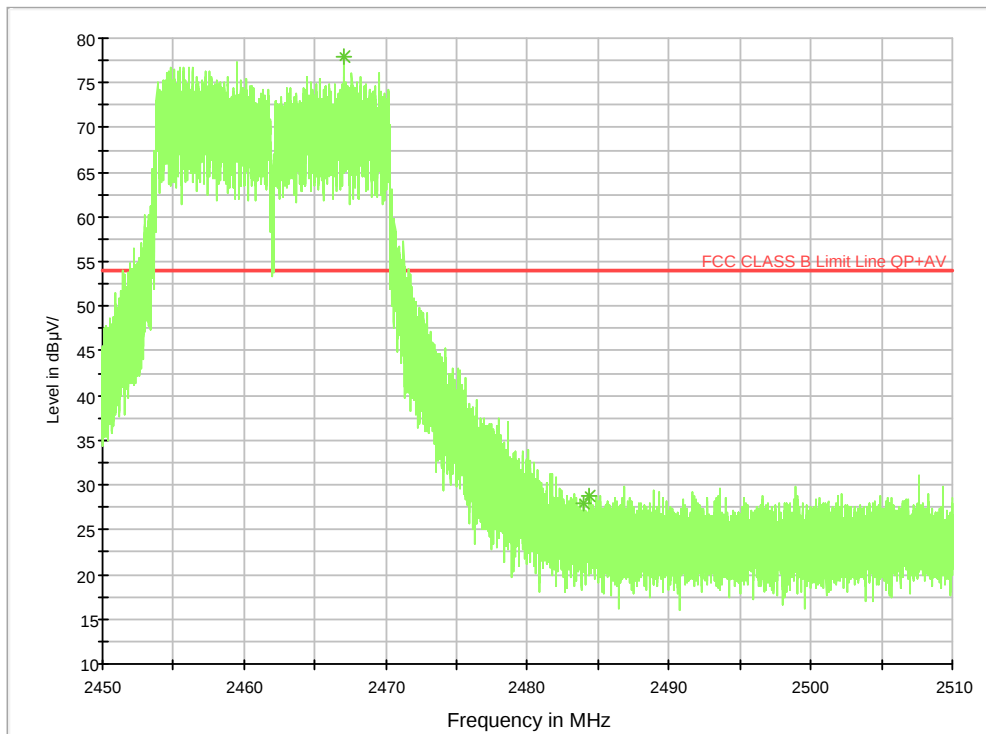
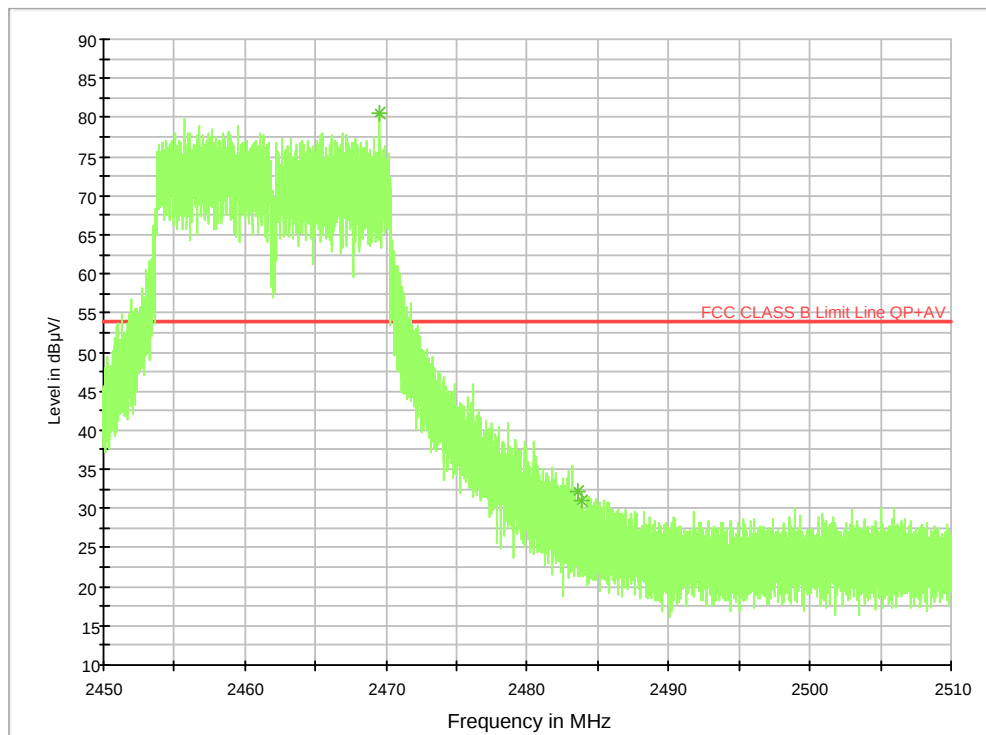


Diagram 7-40



FCC CLASS B HF7.0_7G-18G_HOR

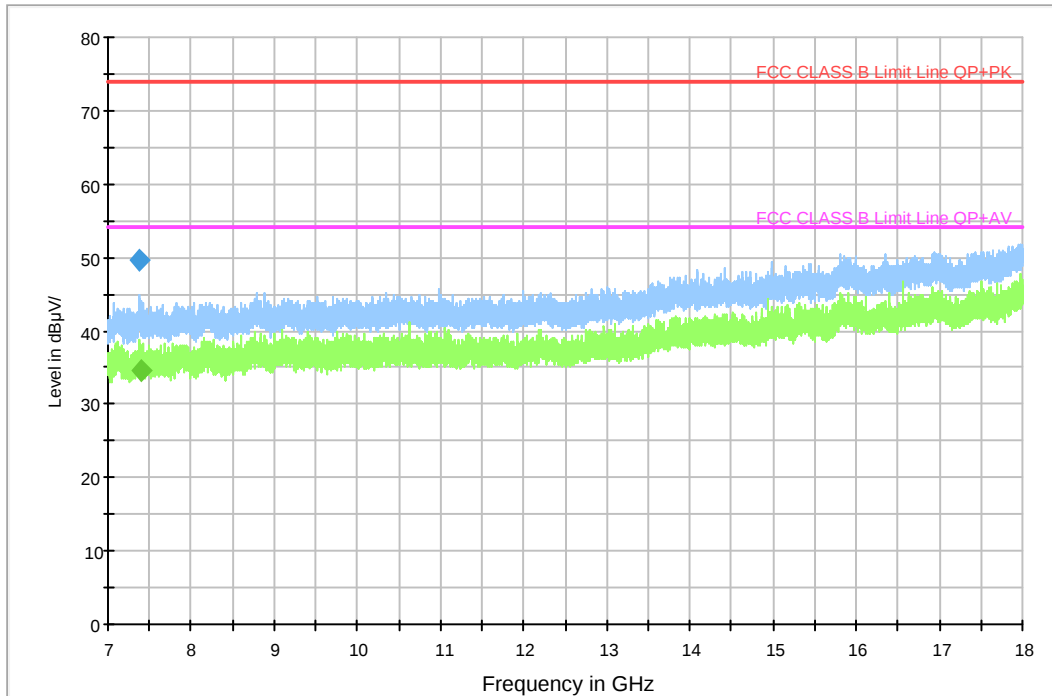
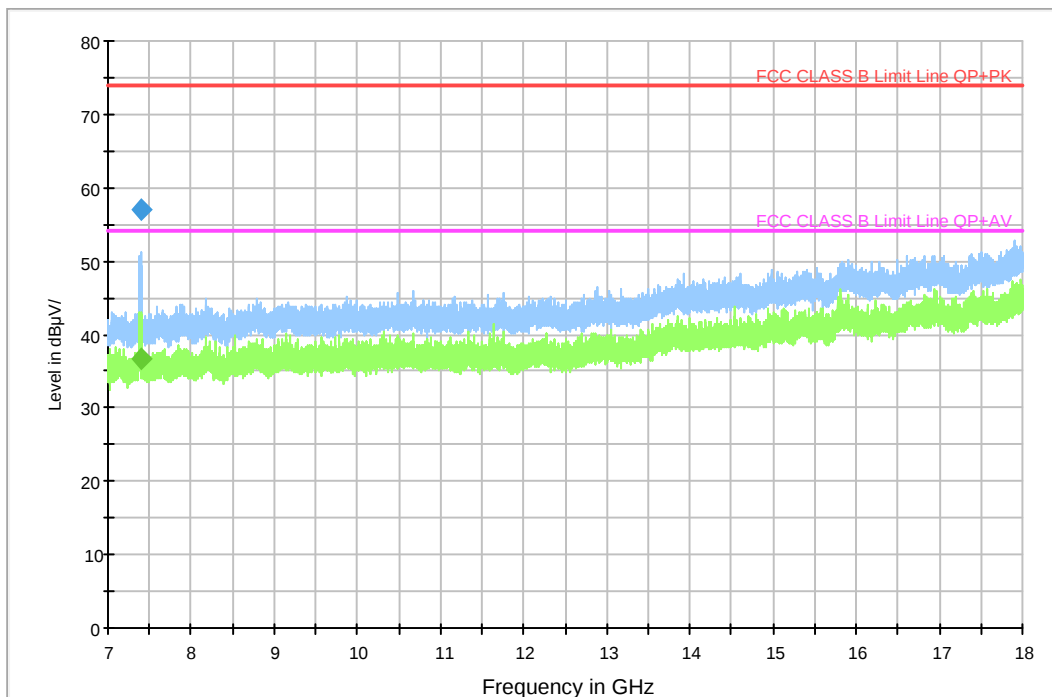


Diagram 7- 42

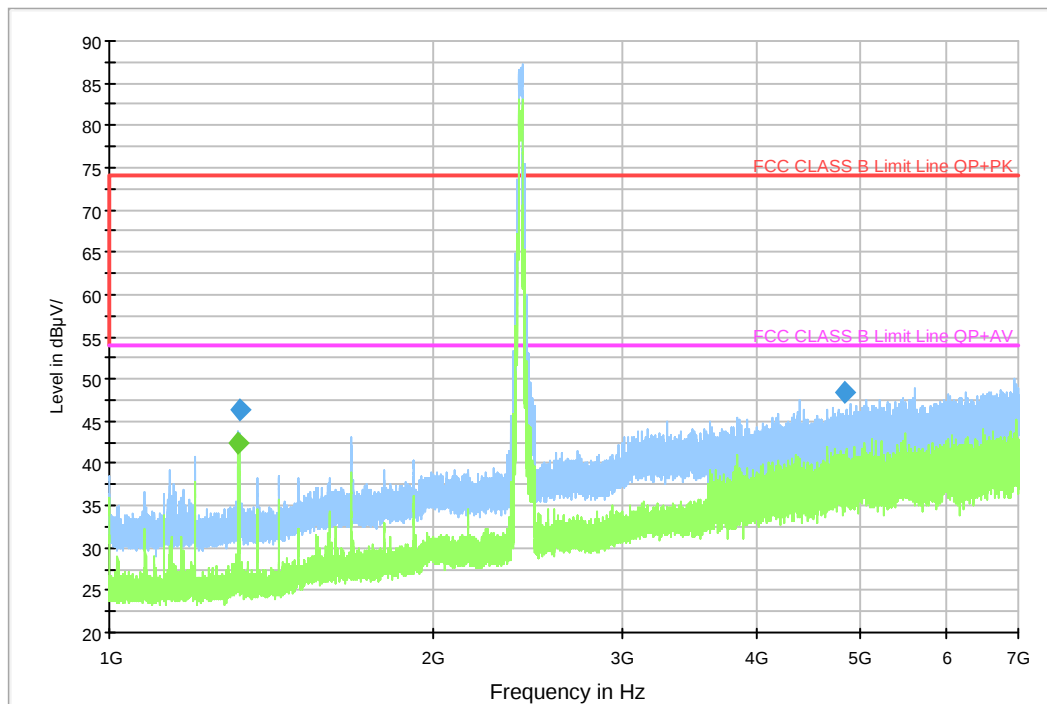
FCC CLASS B HF7.0_7G-18G_VER



Test Mode	802.11.n20-2412MHz					
Frequency (MHz)	Reading (dBμV/m)	Polarization	Margin (dB)	Limit (dBμV/m)	Detector (PK/AV)	Comment
1320.211000	46.4	H	27.6	74.0	PK	Diagram 7- 43
4817.503333	48.4	H	25.6	74.0	PK	
1320.052000	42.5	H	11.5	54.0	AV	
1320.000334	49.4	V	24.6	74.0	PK	Diagram 7-44
4830.514667	48.8	V	25.2	74.0	PK	
1320.020667	45.6	V	8.4	54.0	AV	
2390.000000	55.6	H	18.4	74	PK	Diagram 7-45
2400.000000	67.2	H	6.8	74	PK	
2405.335000	86.7	H	--	--	PK*	
2390.000000	38.7	V	35.3	74	PK	Diagram 7-46
2400.000000	65.4	V	8.6	74	PK	
2413.626500	85.9	V	--	--	PK	
2390.000000	19.4	H	34.6	54	AV	Diagram 7-47
2400.000000	37.5	H	16.5	54	AV	
2416.674000	75.3	H	--	--	AV*	
2390.000000	11.6	V	42.4	54	AV	Diagram 7-48
2400.000000	30.9	V	23.1	54	AV	
2418.905000	70.1	V	--	--	AV*	
7239.675138	53.3	H	20.7	74.0	PK	Diagram 7-49
7239.267158	48.3	H	5.7	54.0	AV	Diagram 7-50
7231.967524	56.7	V	17.3	74.0	PK	
7239.128763	48.7	V	5.3	54.0	AV	

Diagram 7- 43

FCC CLASS B HF3.0_1G-7G_HOR



FCC CLASS B HF3.0_1G-7G_VER

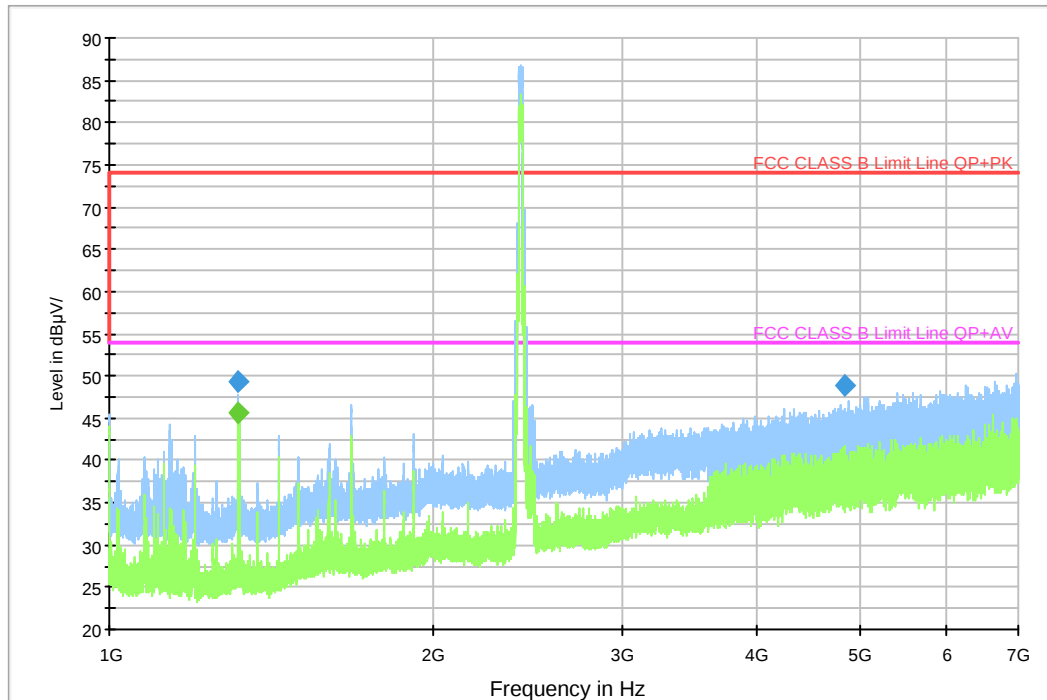


Diagram 7- 45

FCC BAND EDGE 2.4G LOW HF1.0 PK HOR

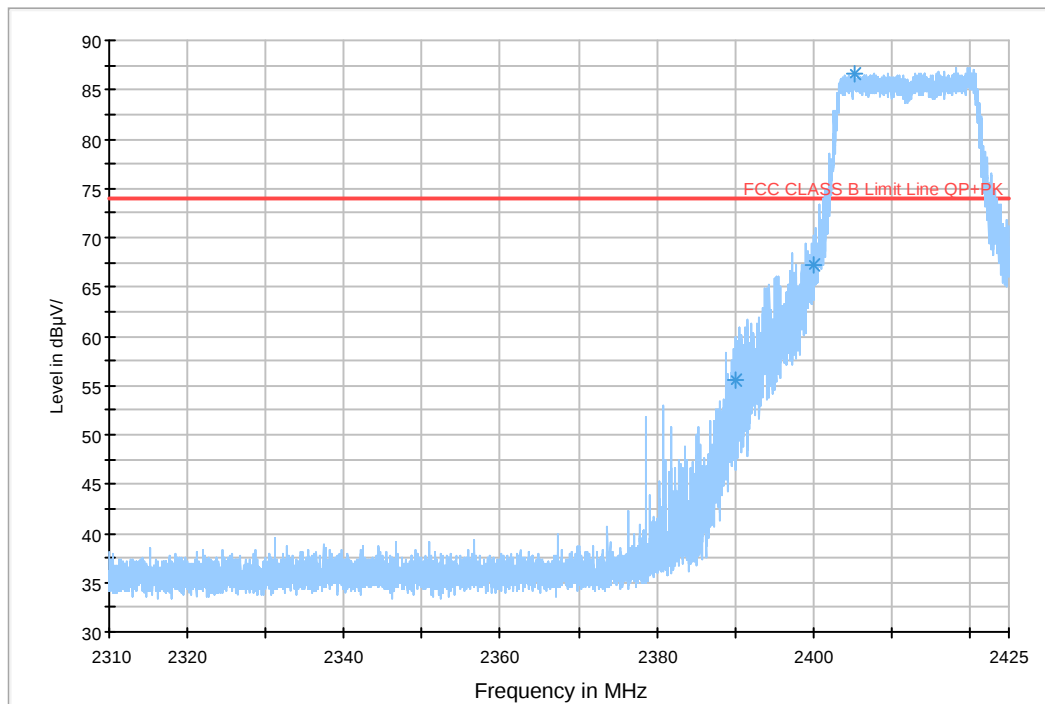


Diagram 7-46

FCC BAND EDGE 2.4G LOW HF1.0 PK VER

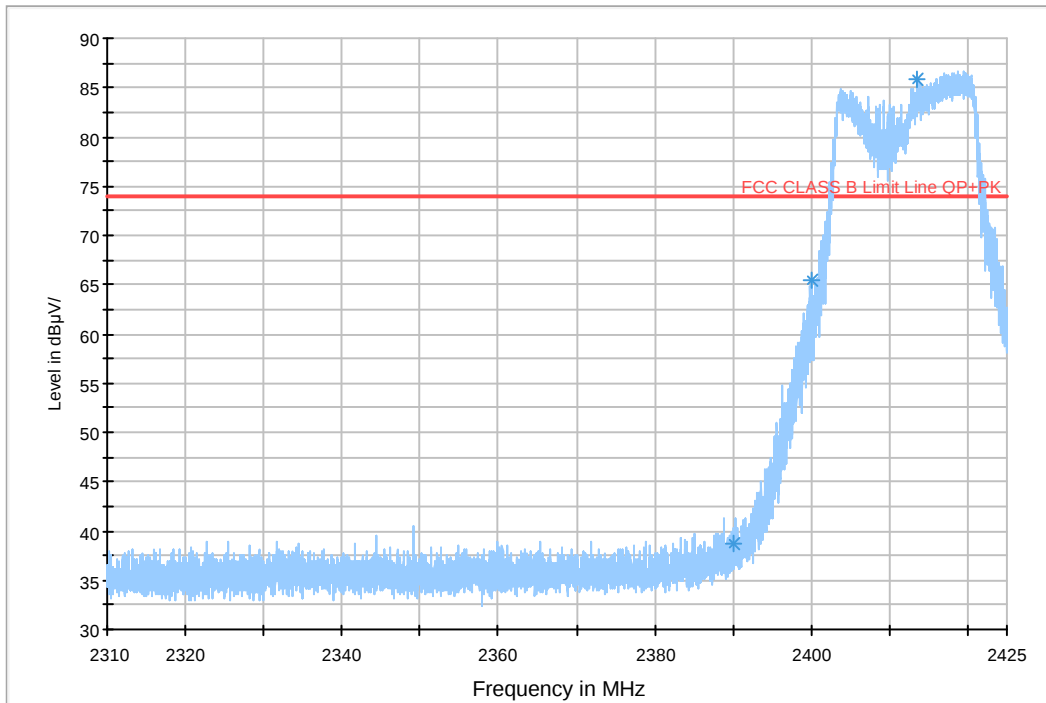


Diagram 7-47

FCC BAND EDGE 2.4G LOW HF1.0 AV HOR

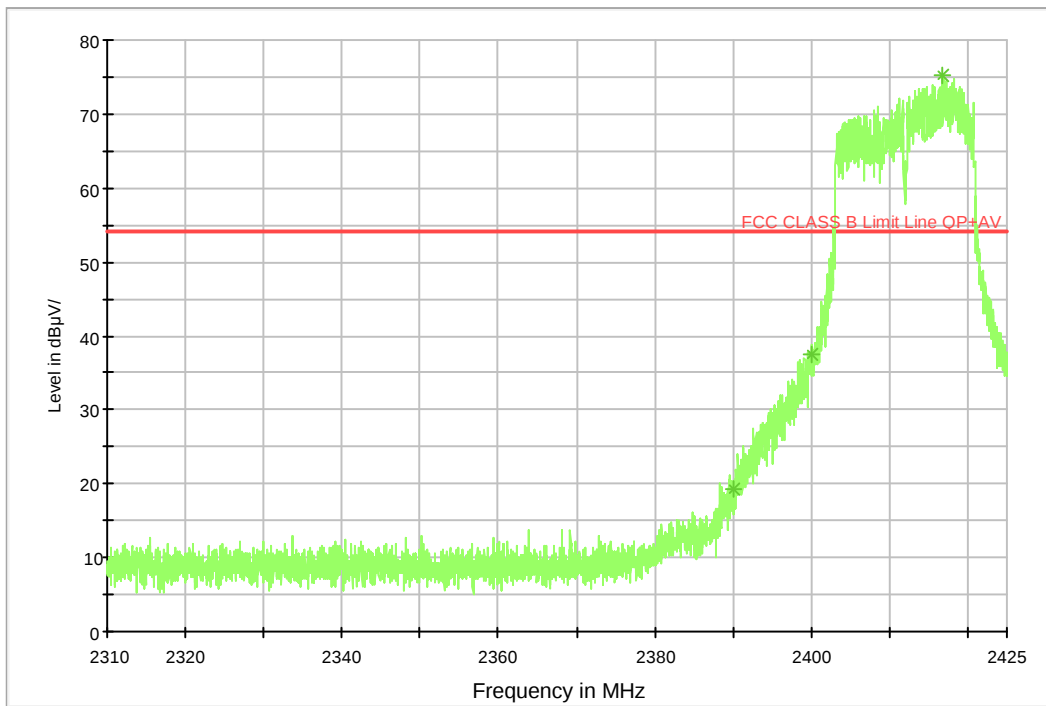


Diagram 7-48

FCC BAND EDGE 2.4G LOW HF1.0 AV VER

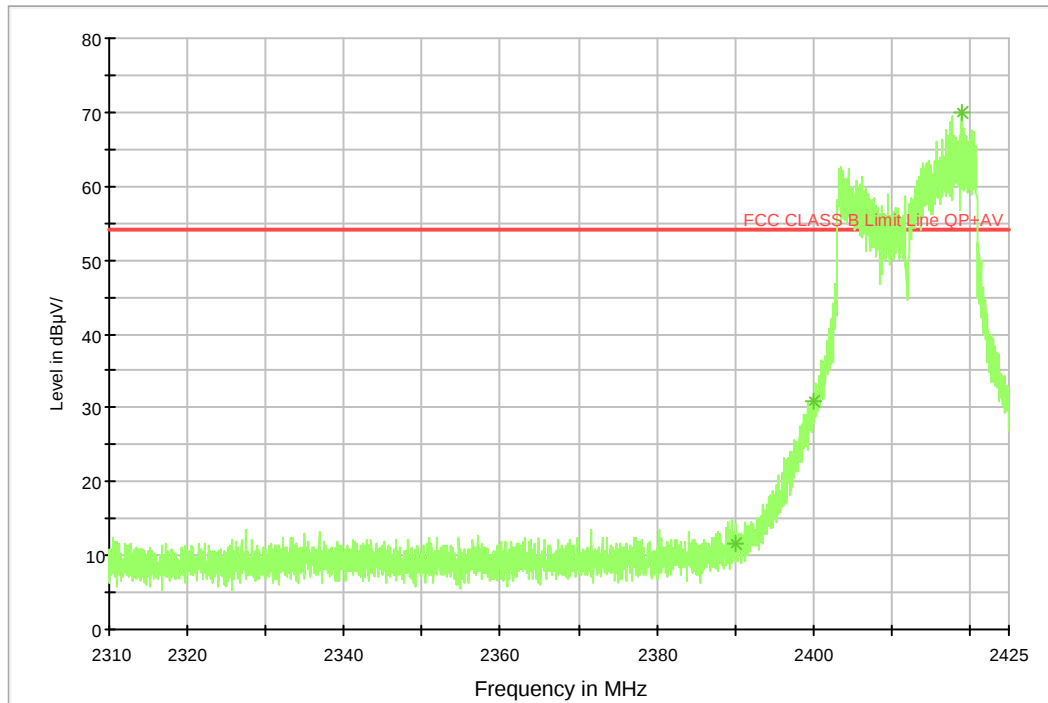


Diagram 7- 49

FCC CLASS B HF7.0_7G-18G_HOR

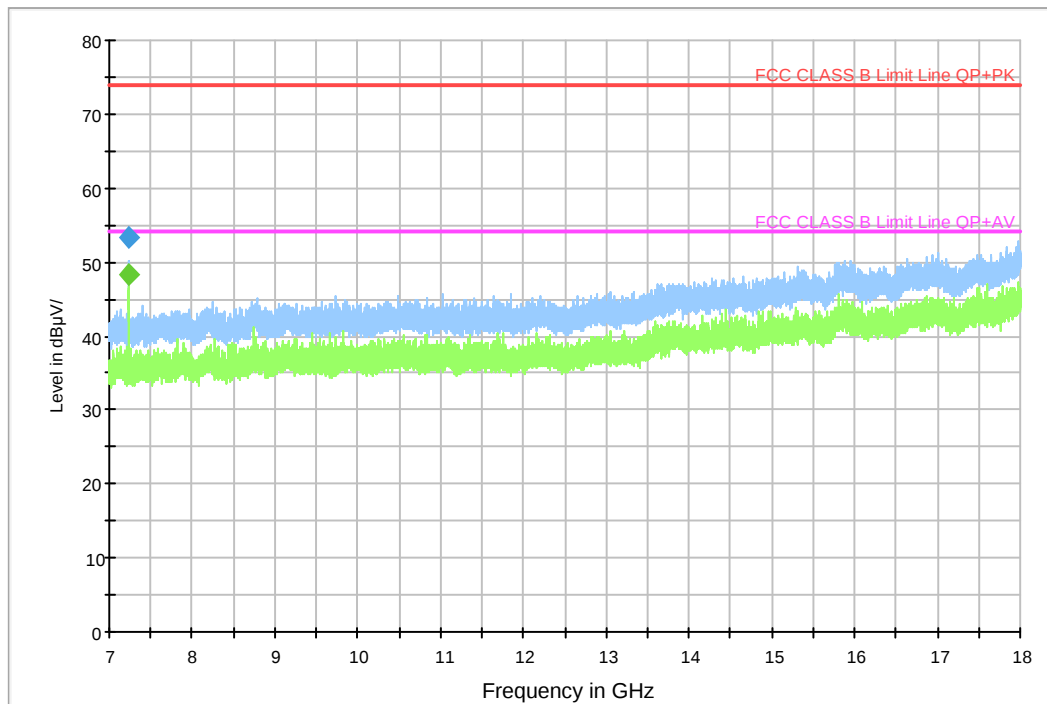
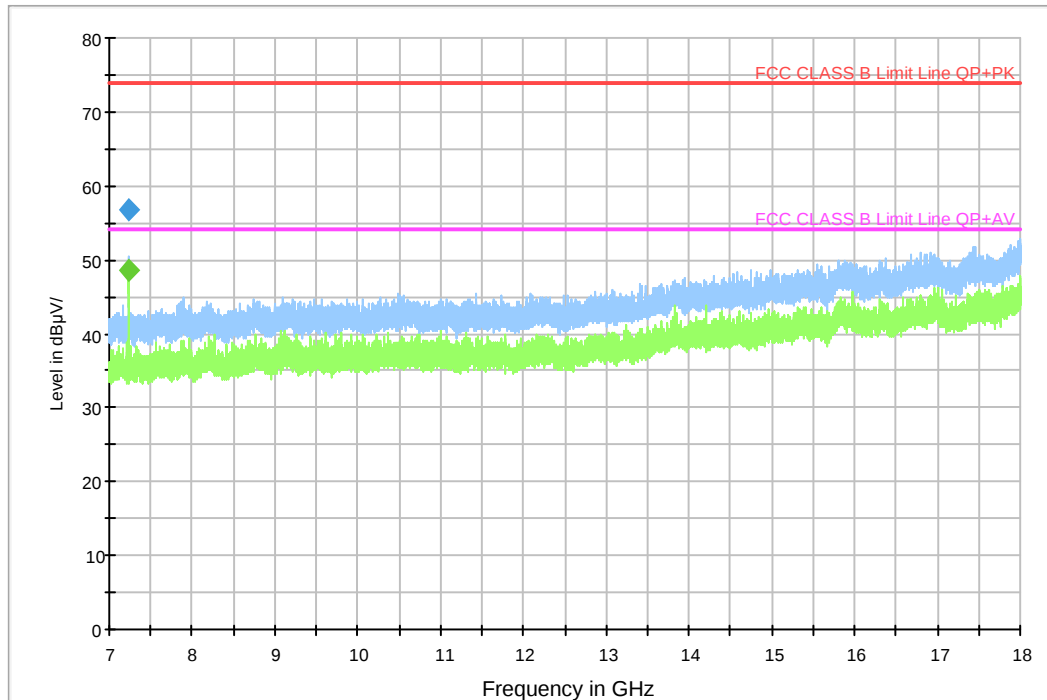


Diagram 7- 50

FCC CLASS B HF7.0_7G-18G_VER



Test Mode	802.11.n20-2437MHz					
Frequency (MHz)	Reading (dBµV/m)	Polarization	Margin (dB)	Limit (dBµV/m)	Detector (PK/AV)	Comment
1320.224667	46.0	H	28.0	74.0	PK	Diagram 7- 51
4975.103334	48.3	H	25.7	74.0	PK	
1319.957333	42.8	H	11.2	54.0	AV	
1320.184333	49.0	V	25.0	74.0	PK	Diagram 7-52
4875.470667	48.3	V	25.7	74.0	PK	
1320.011333	45.9	V	8.1	54.0	AV	
7310.963726	59.6	H	14.4	74.0	PK	Diagram 7-53
7310.376843	49.4	H	4.6	54.0	AV	
7312.037648	55.8	V	18.2	74.0	PK	Diagram 7-54
7312.037548	48.9	V	4.1	54.0	AV	

FCC CLASS B HF3.0_1G-7G_HOR

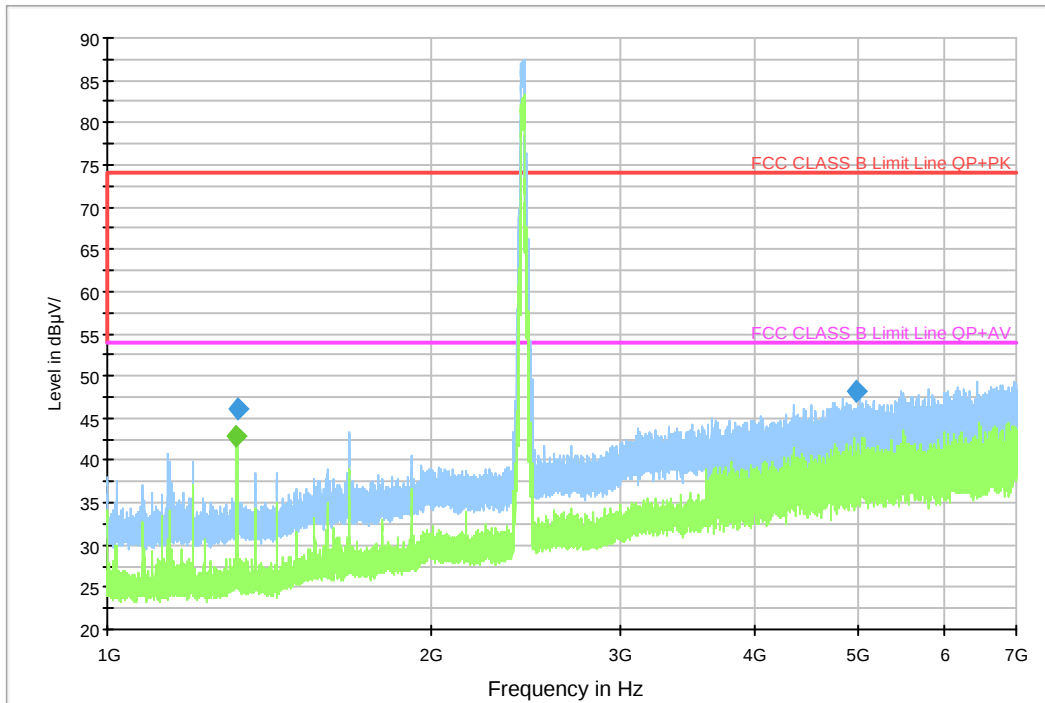
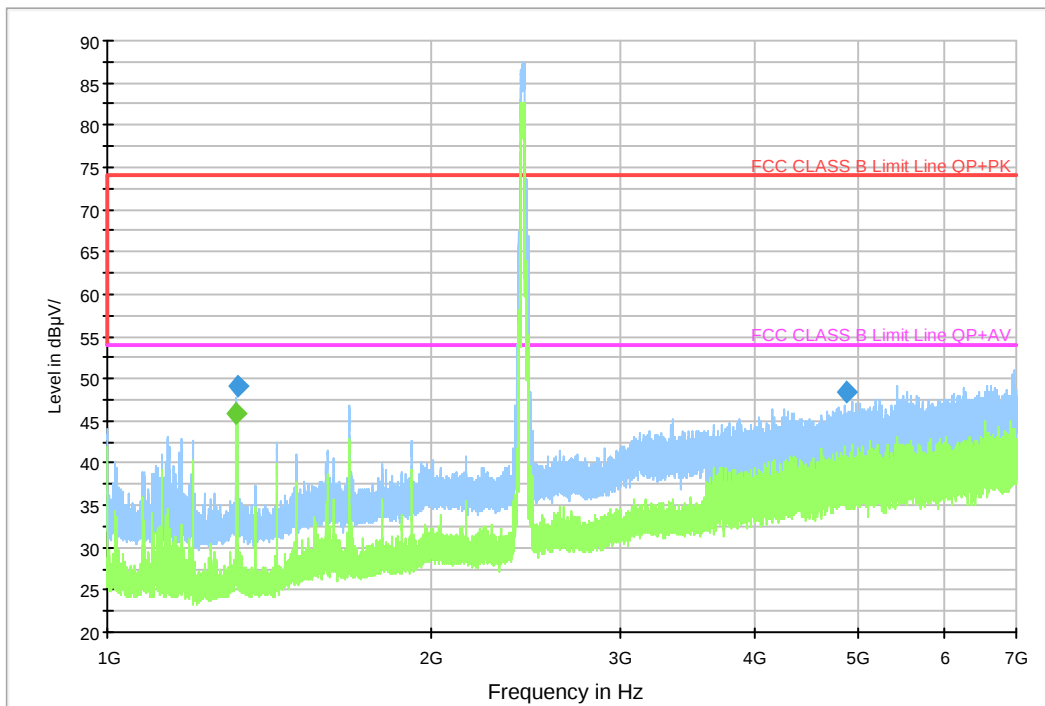


Diagram 7- 52

FCC CLASS B HF3.0_1G-7G_VER



FCC CLASS B HF7.0_7G-18G_HOR

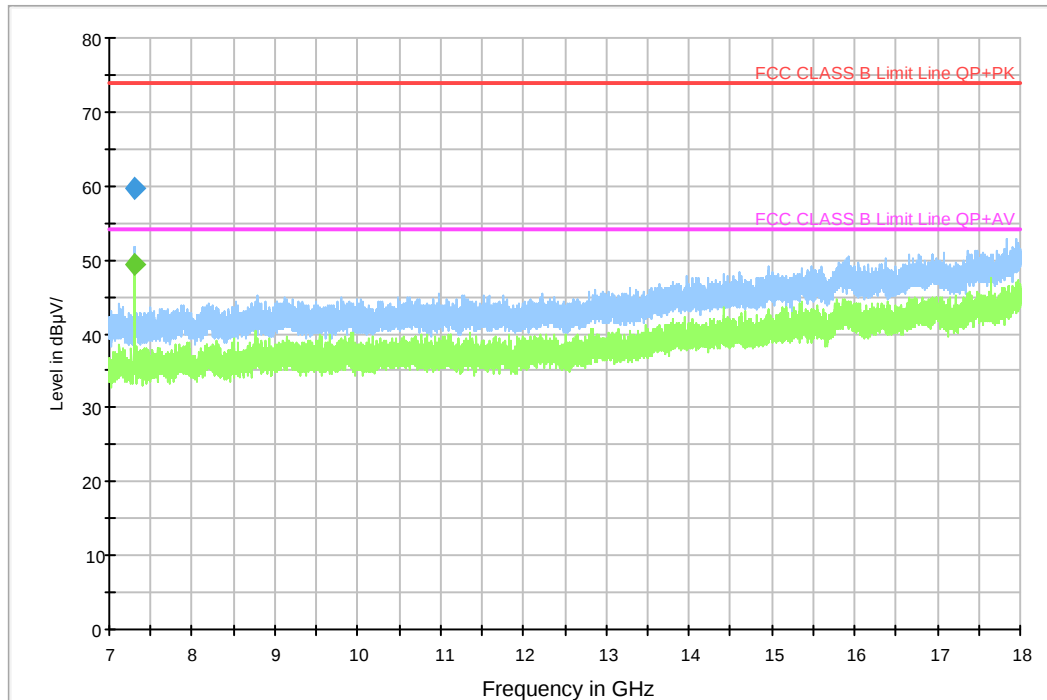
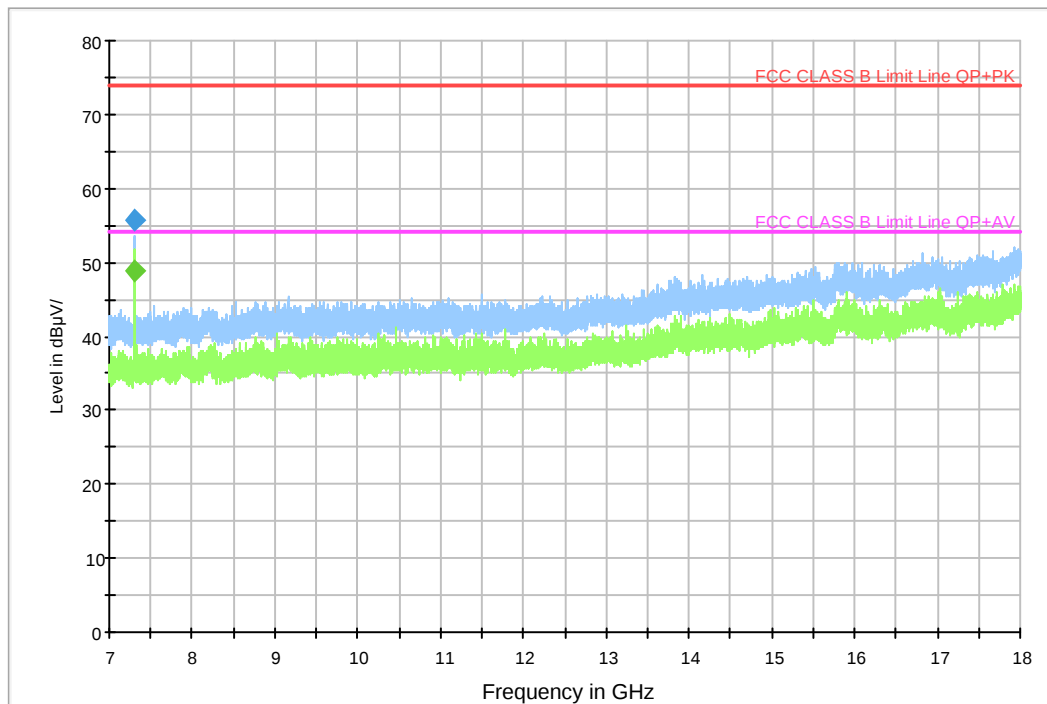


Diagram 7- 54

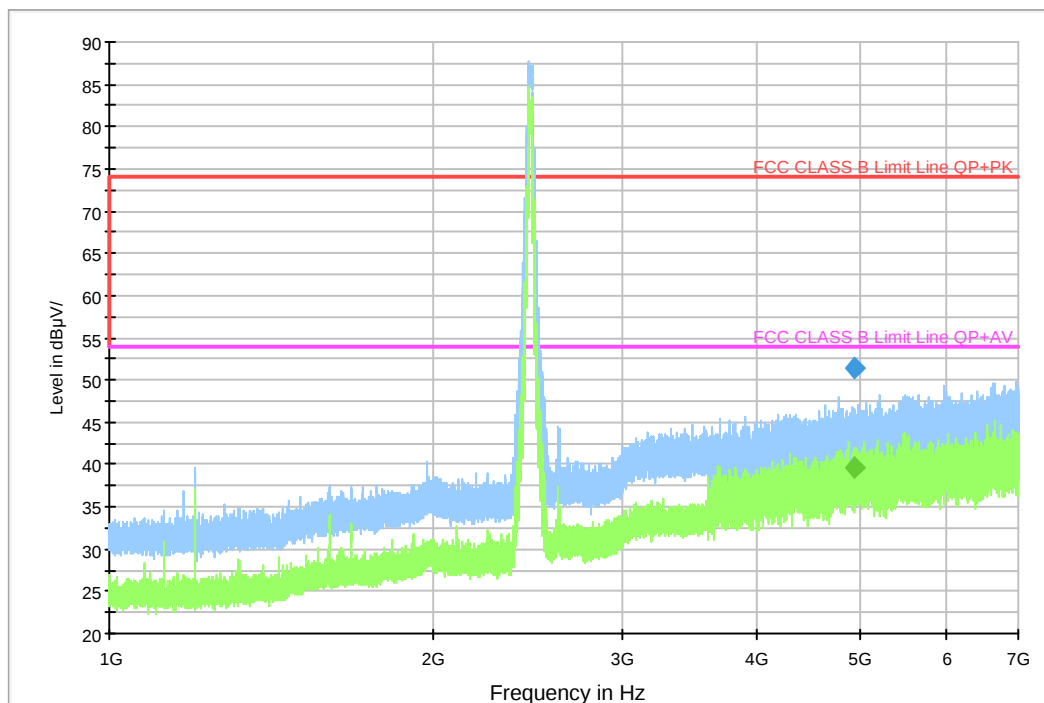
FCC CLASS B HF7.0_7G-18G_VER



Test Mode	802.11.n20-2462MHz					
Frequency (MHz)	Reading (dBμV/m)	Polarization	Margin (dB)	Limit (dBμV/m)	Detector (PK/AV)	Comment
4924.667333	51.4	H	22.6	74.0	PK	Diagram 7- 55
4924.077667	39.7	H	14.3	54.0	AV	
4924.902333	51.5	V	22.5	74.0	PK	Diagram 7-56
4924.169333	39.8	V	14.2	54.0	AV	
2453.506000	87.3	H	--	--	PK*	Diagram 7-57
2483.600000	62.5	H	11.5	74.0	PK	
2483.880000	61.9	H	12.1	74.0	PK	
2453.964000	87.6	V	--	--	PK*	Diagram 7-58
2483.526000	67.6	V	6.4	74.0	PK	
2483.822000	64.2	V	9.8	74.0	PK	
2456.676000	78.5	H	--	--	AV*	Diagram 7-59
2483.674000	31.0	H	23	54.0	AV	
2484.482000	31.8	H	22.2	54.0	AV	
2464.488000	83.4	V	--	--	AV*	Diagram 7-60
2483.808000	36.5	V	17.5	54.0	AV	
2484.232000	35.2	V	18.8	54.0	AV	
73887.325610	48.6	H	25.4	74.0	PK	Diagram 7-61
7387.534680	36.4	H	17.6	54.0	AV	Diagram 7-62
7386.027680	55.4	V	18.6	74.0	PK	
7385.963700	43.6	V	11.4	54.0	AV	

Diagram 7- 55

FCC CLASS B HF3.0_1G-7G_HOR



FCC CLASS B HF3.0_1G-7G_VER

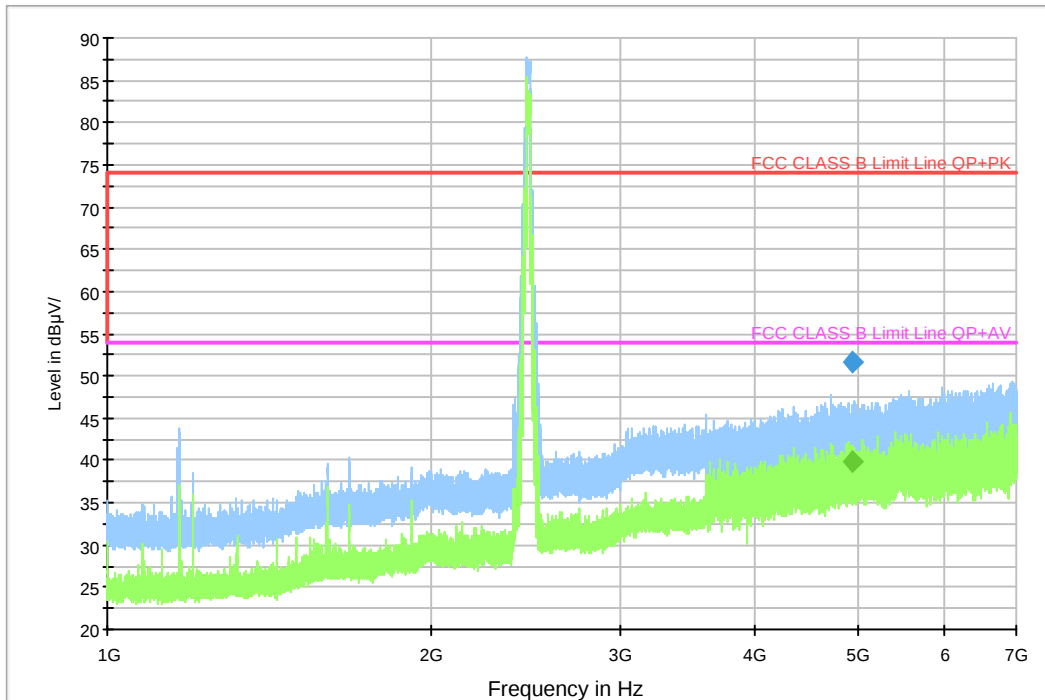


Diagram 7- 57

