

8.3 MAXIMUM POWER SPECTRAL DENSITY

8.3.1 Applicable Standard

According to FCC Part15.247(e) and KDB 558074 D01 15.247 Meas Guidance v05r02

8.3.2 Conformance Limit

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.3.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.3.4 Test Procedure

This procedure shall be used if maximum peak conducted output power was used to demonstrate compliance

The transmitter output (antenna port) was connected to the spectrum analyzer

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz

Set the VBW to:10 kHz.

Set Detector = peak.

Set Sweep time = auto couple.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

Note: If antenna Gain exceeds 6 dBi, then PSD Limit=8-(Gain- 6)

8.3.5 Test Results

Temperature:	25°C
Relative Humidity:	62%
ATM Pressure:	1011 mbar

Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Level (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	1	2412	-5.67	8	PASS
	6	2437	-4.38	8	PASS
	11	2462	-5.22	8	PASS
802.11g	1	2412	-12.02	8	PASS
	6	2437	-11.65	8	PASS
	11	2462	-10.82	8	PASS
802.11n (HT20)	1	2412	-11.29	8	PASS
	6	2437	-11.04	8	PASS
	11	2462	-10.81	8	PASS

Test Model	Power Spectral Density 802.11b Channel 1: 2412MHz
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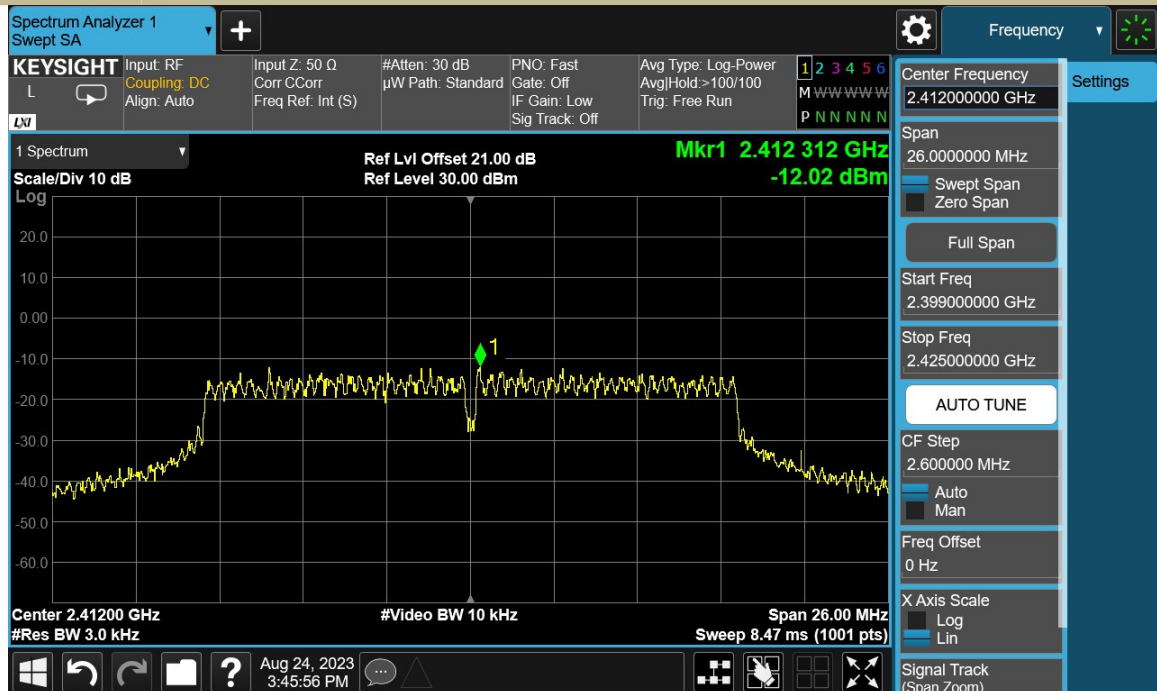
Test Model	Power Spectral Density 802.11b Channel 6: 2437MHz
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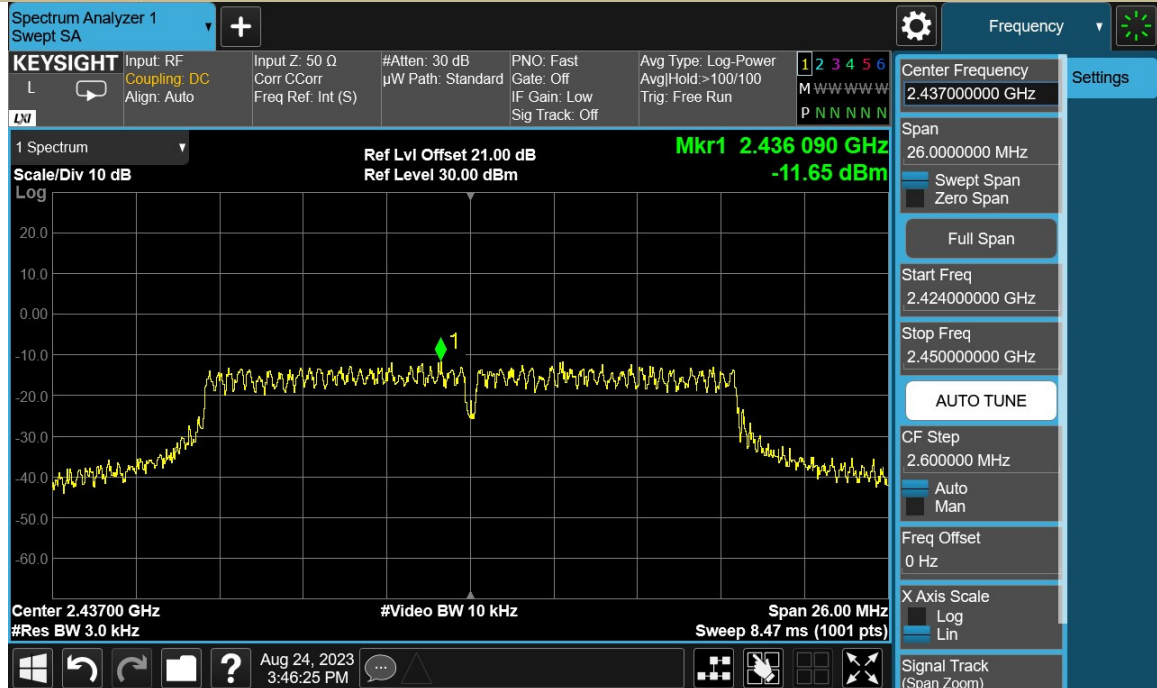
Test Model	Power Spectral Density
	802.11b
	Channel 11: 2462MHz



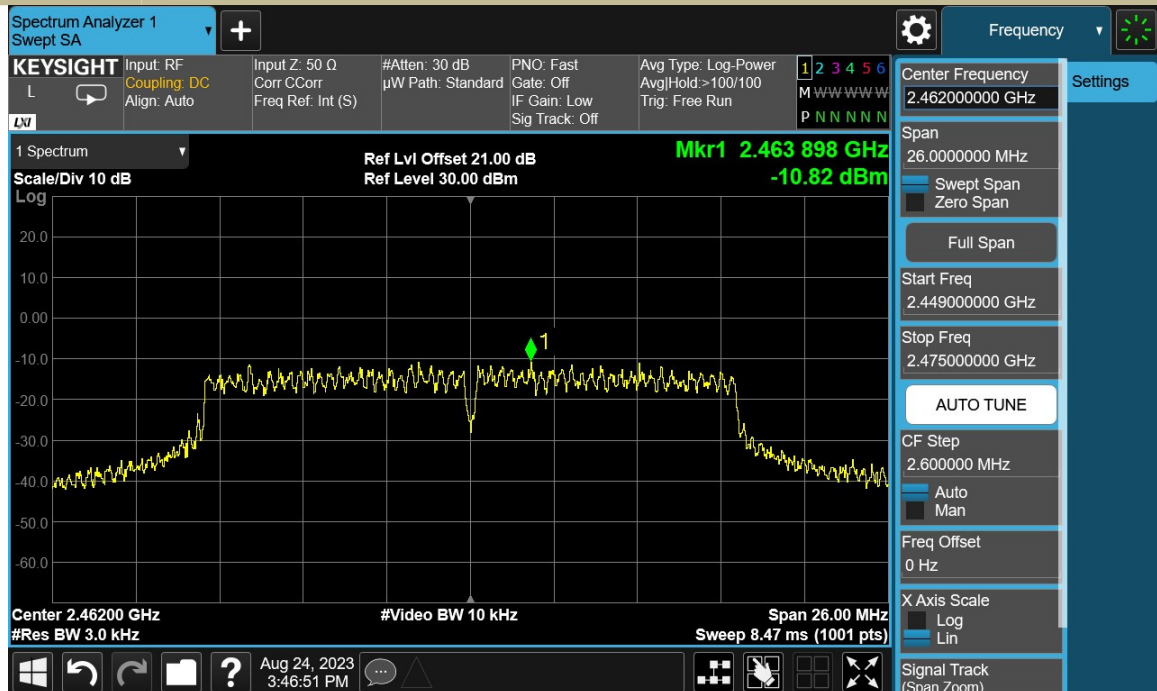
Test Model	Power Spectral Density
	802.11g
	Channel 1: 2412MHz



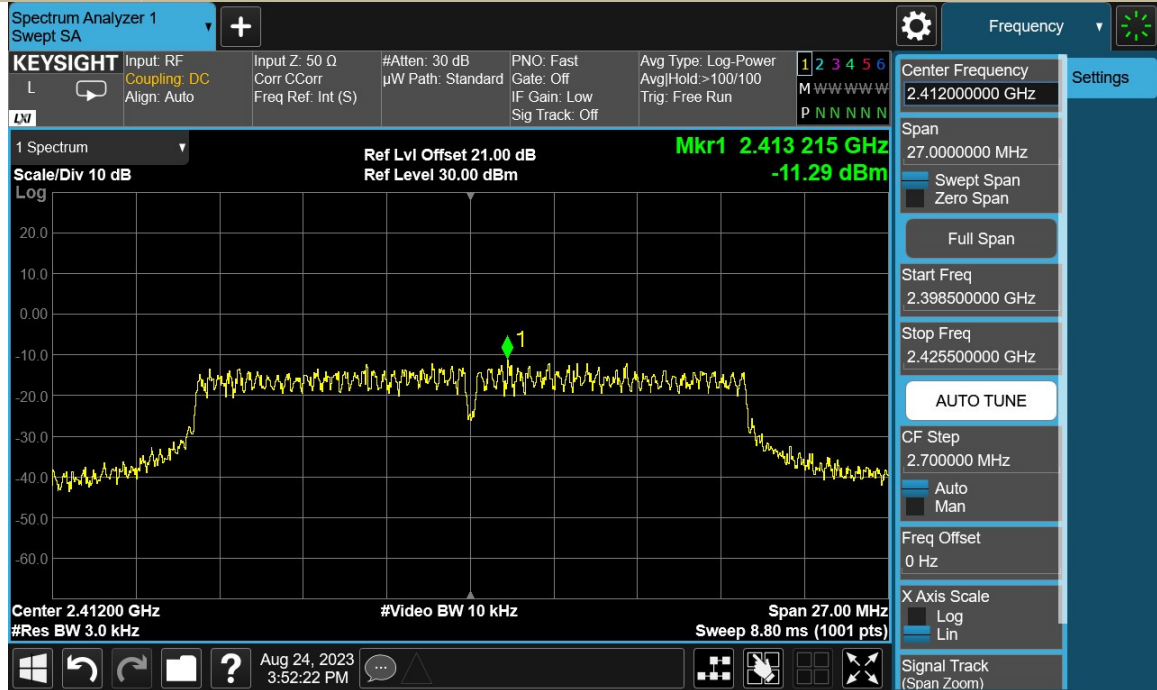
Test Model	Power Spectral Density
	802.11g
	Channel 6: 2437MHz



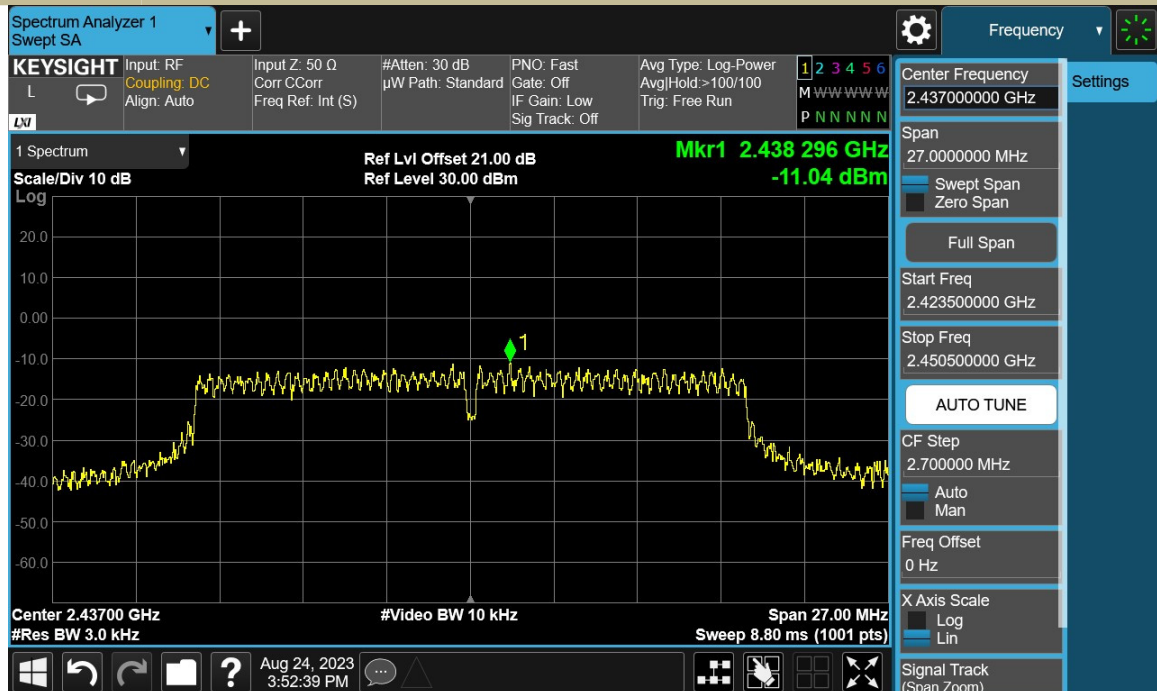
Test Model	Power Spectral Density
	802.11g
	Channel 11: 2462MHz



Test Model	Power Spectral Density 802.11n (HT20) Channel 1: 2412MHz
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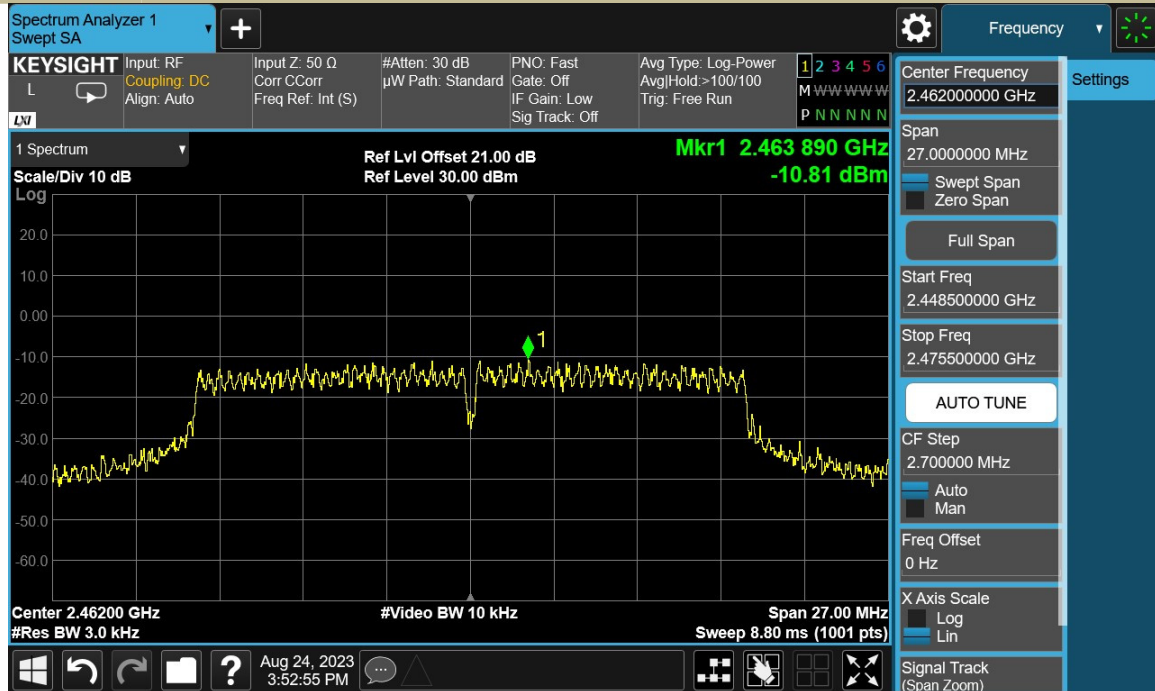


Test Model	Power Spectral Density 802.11n (HT20) Channel 6: 2437MHz
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Test Model

Power Spectral Density
802.11n (HT20)
Channel 11: 2462MHz



8.4 UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

8.4.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02

8.4.2 Conformance Limit

According to FCC Part 15.247(d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

8.4.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

8.4.4 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

■ Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DTS channel center frequency.

Set the span to ≥ 1.5 times the DTS bandwidth.

Set the RBW = 100 kHz.

Set the VBW $\geq 3 \times$ RBW.

Set Detector = peak.

Set Sweep time = auto couple.

Set Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

■ Emission level measurement

Set the center frequency and span to encompass frequency range to be measured.

Set the RBW = 100 kHz.

Set the VBW = 300 kHz.

Set Detector = peak

Sweep time = auto couple.

Trace mode = max hold.

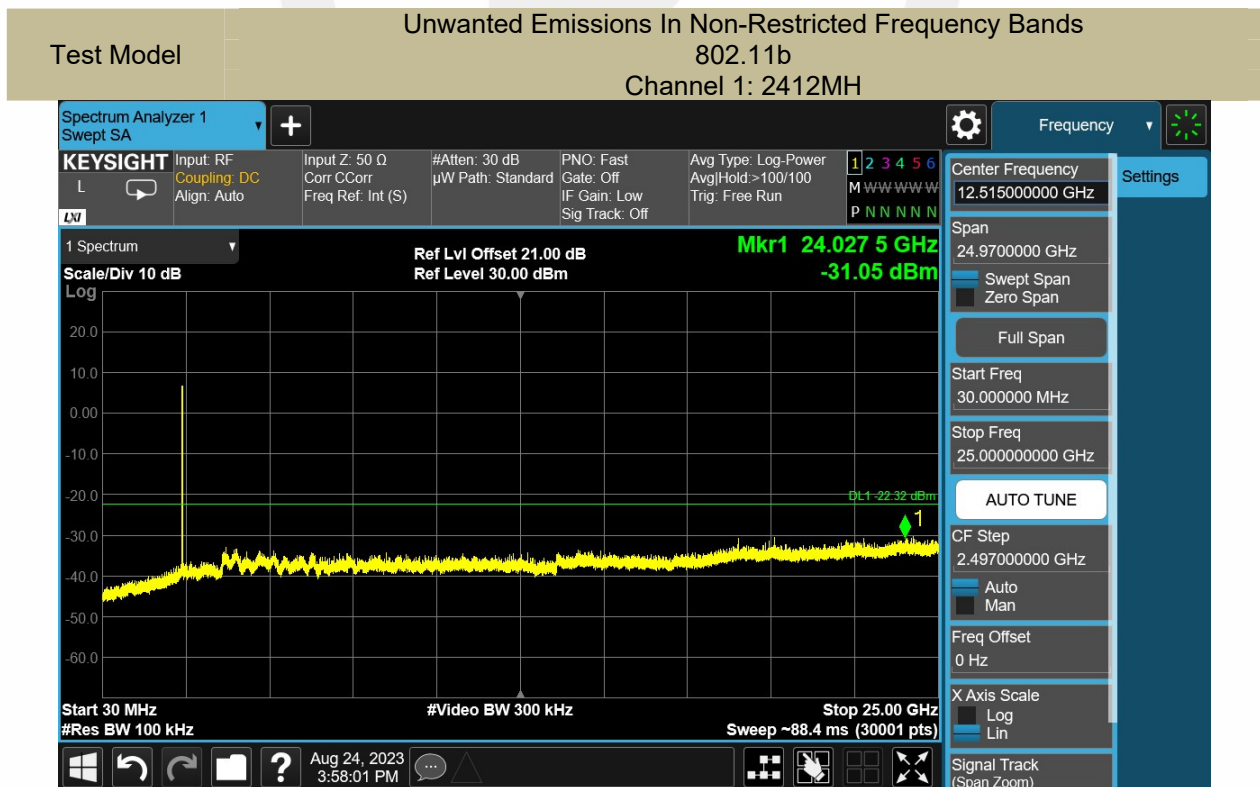
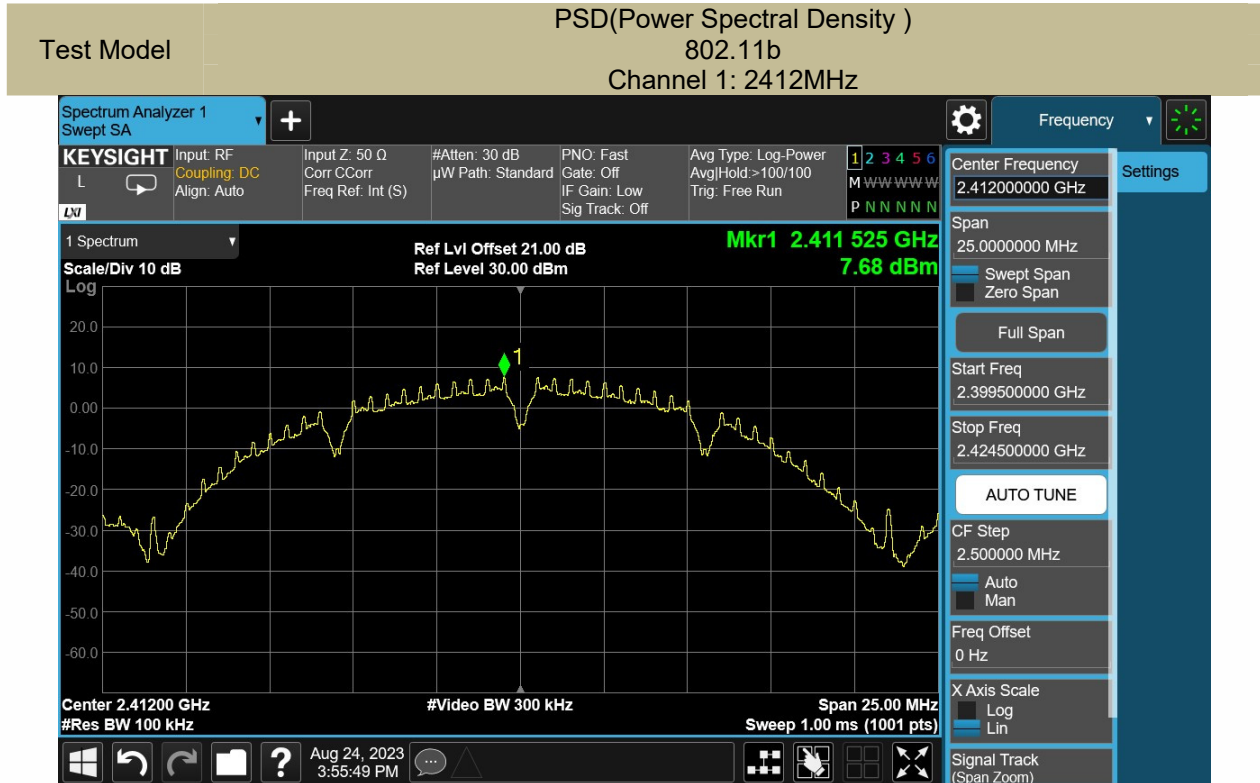
Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements. Report the three highest emissions relative to the limit.

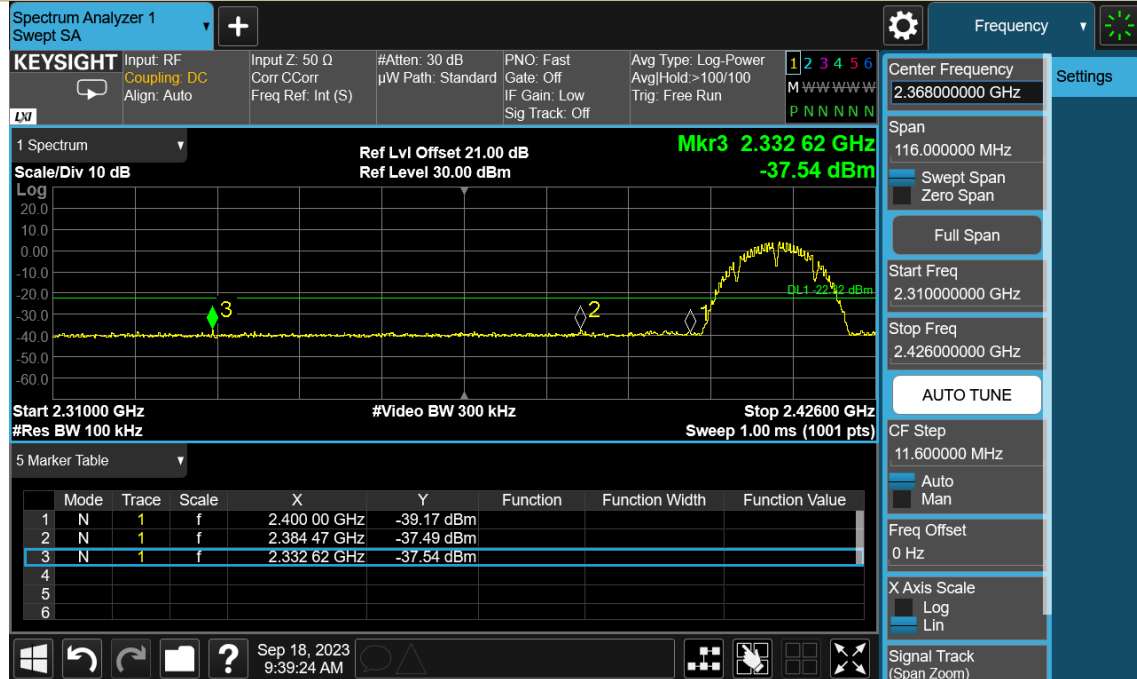
8.4.5 Test Results

All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b recorded was report as below:



Test Model

Band edge
802.11b
Channel 1: 2412MHz



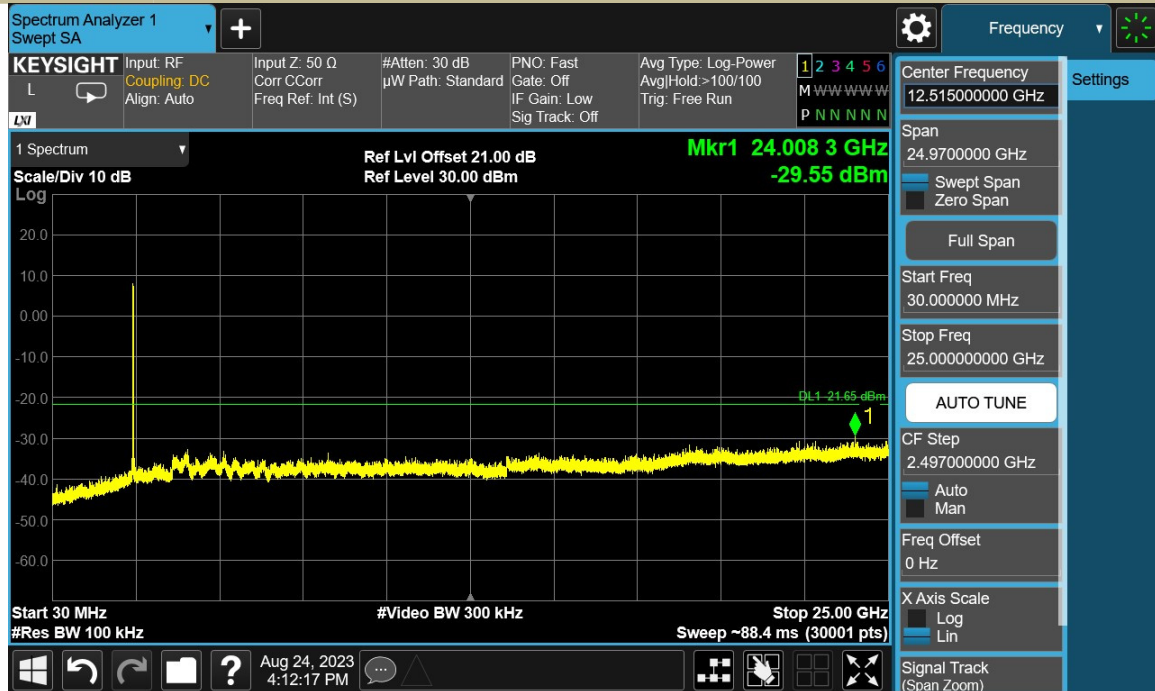
Test Model

PSD(Power Spectral Density)
802.11b
Channel 6: 2437MHz



Test Model

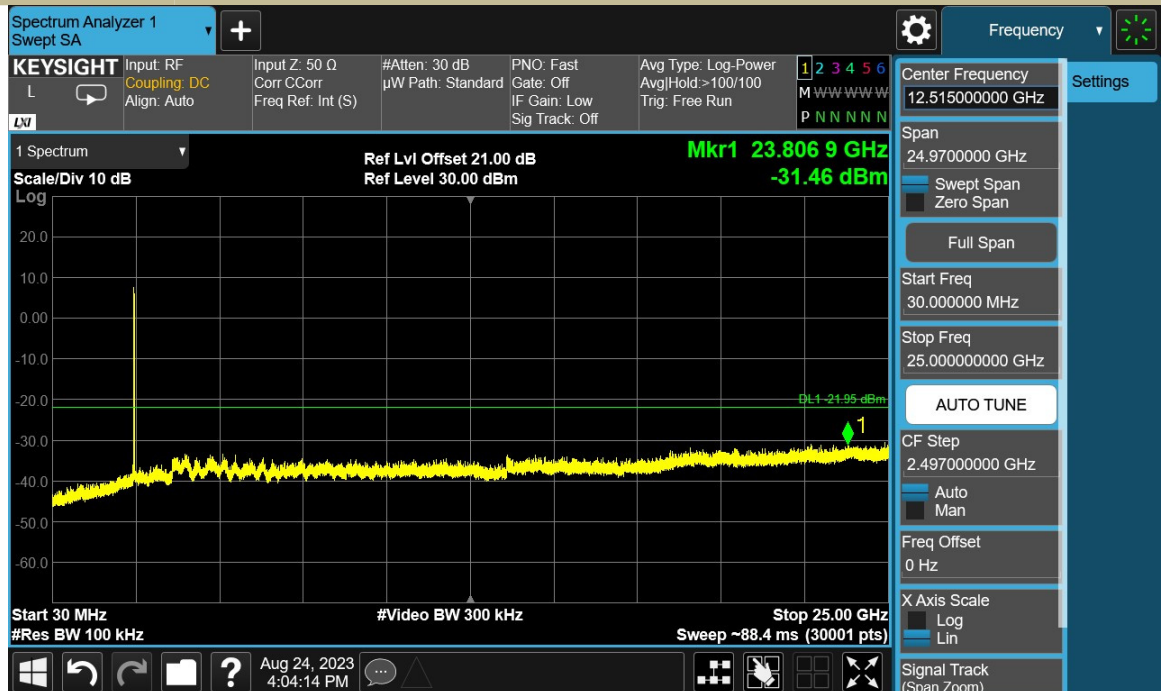
Unwanted Emissions In Non-Restricted Frequency Bands
802.11b
Channel 11: 2437MH

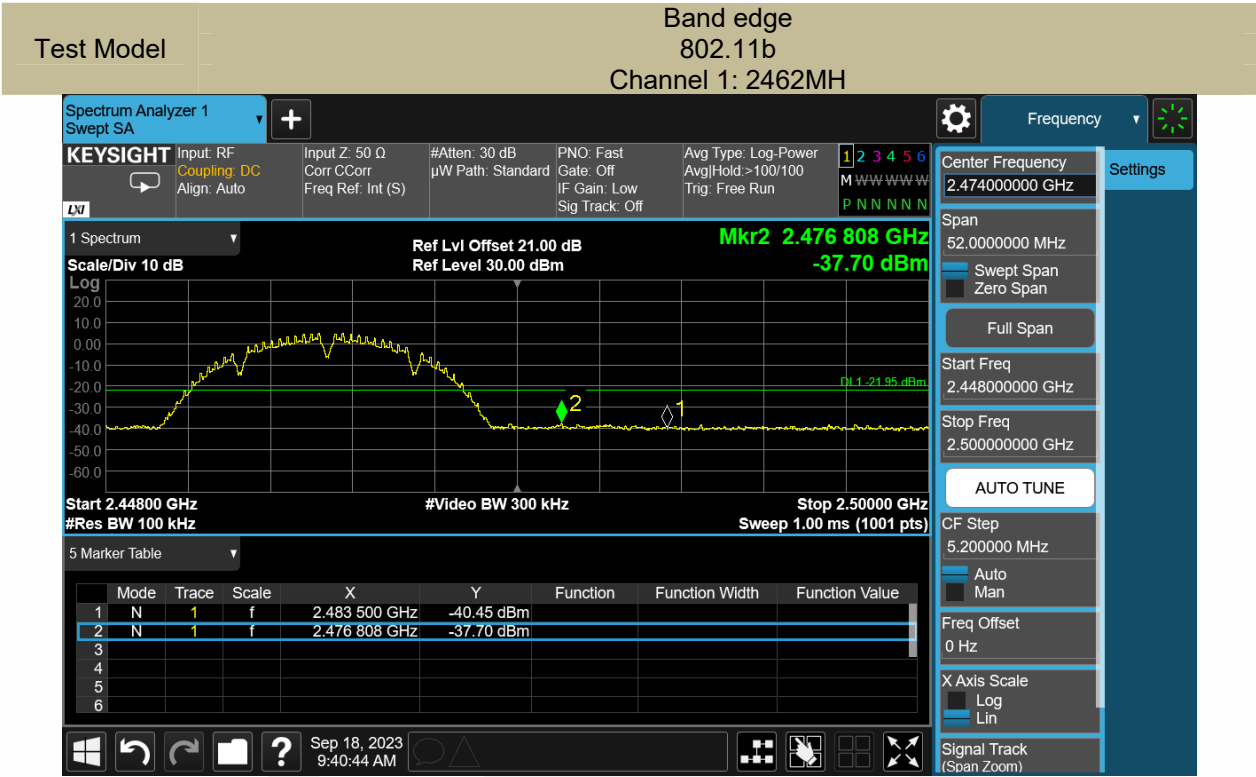


Test Model	PSD(Power Spectral Density) 802.11b Channel 1: 2462MHz
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Test Model	Unwanted Emissions In Non-Restricted Frequency Bands 802.11b Channel 1: 2462MH
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8.5 RADIATED SPURIOUS EMISSION

8.5.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and KDB 558074 D01 15.247 Meas Guidance v05r02

8.5.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part 15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	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	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			

According to FCC Part 15.205, the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	24000/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

8.5.3 Test Configuration

Test according to clause 7.2 radio frequency test setup 2

8.5.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

The EUT was placed on a turn table which is 0.8m above ground plane.

Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz (1GHz to 25GHz), 100 kHz for $f < 1$ GHz (30MHz to 1GHz), 200Hz for $f < 150$ KHz (9KHz to 150KHz), 9KHz for $f < 30$ MHz (150KHz to 30KHz)

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.

Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from $20\log(\text{dwell time}/100 \text{ ms})$, in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

Repeat above procedures until all frequency measured was complete.

8.5.5 Test Results

Temperature:	21°C
Relative Humidity:	70%
ATM Pressure:	1011 mbar

■ Spurious Emission below 30MHz(9KHz to 30MHz)

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
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Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor = $40\log(\text{Specific distance}/\text{test distance})$ (dB);

Limit line = Specific limits(dBuV) + distance extrapolation factor

- Spurious Emission Above 1GHz(1GHz to 25GHz)
- All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b recorded was report as below:

Test mode: 802.11 b Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4824.000	V	47.89	32.01	74.00	54.00	- 26.11	-21.99
7236.000	V	43.04	27.41	74.00	54.00	- 30.96	-26.59
17927.000	V	55.51	38.64	74.00	54.00	- 18.49	-15.36
4824.000	H	52.48	38.45	74.00	54.00	- 21.52	-15.55
7236.000	H	44.88	27.33	74.00	54.00	- 29.12	-26.67
17916.000	H	55.98	36.51	74.00	54.00	- 18.02	-17.49

Test mode: 802.11 b Frequency: Channel 6: 2437MHz

Freq. (MHz)	Ant.Po l. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4874.000	V	51.21	39.07	74.00	54.00	-22.79	-14.93
7311.000	V	44.46	32.81	74.00	54.00	-29.54	-21.19
17972.500	V	56.74	39.42	74.00	54.00	-17.26	-14.58
4874.000	H	49.17	34.08	74.00	54.00	-24.83	-19.92
7311.000	H	45.46	29.77	74.00	54.00	-28.54	-24.23
17898.500	H	56.17	40.36	74.00	54.00	-17.83	-13.64

Test mode: 802.11 b Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4924.000	V	50.04	36.77	74.00	54.00	-23.96	-17.23
7386.000	V	44.72	27.61	74.00	54.00	-29.28	-26.39
17999.000	V	57.06	40.13	74.00	54.00	-16.94	-13.87
4924.500	H	51.55	37.65	74.00	54.00	-22.45	-16.35
7386.000	H	43.69	30.25	74.00	54.00	-30.31	-23.75
17989.000	H	56.50	40.91	74.00	54.00	-17.50	-13.09

- Note:**
- (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 - (2) Emission Level= Reading Level+Correct Factor.
 - (3) Correct Factor= Ant_F + Cab_L - Preamp
 - (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz
All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11g recorded was report as below:

Test mode: 802.11 b Frequency: Channel 1: 2412MHz

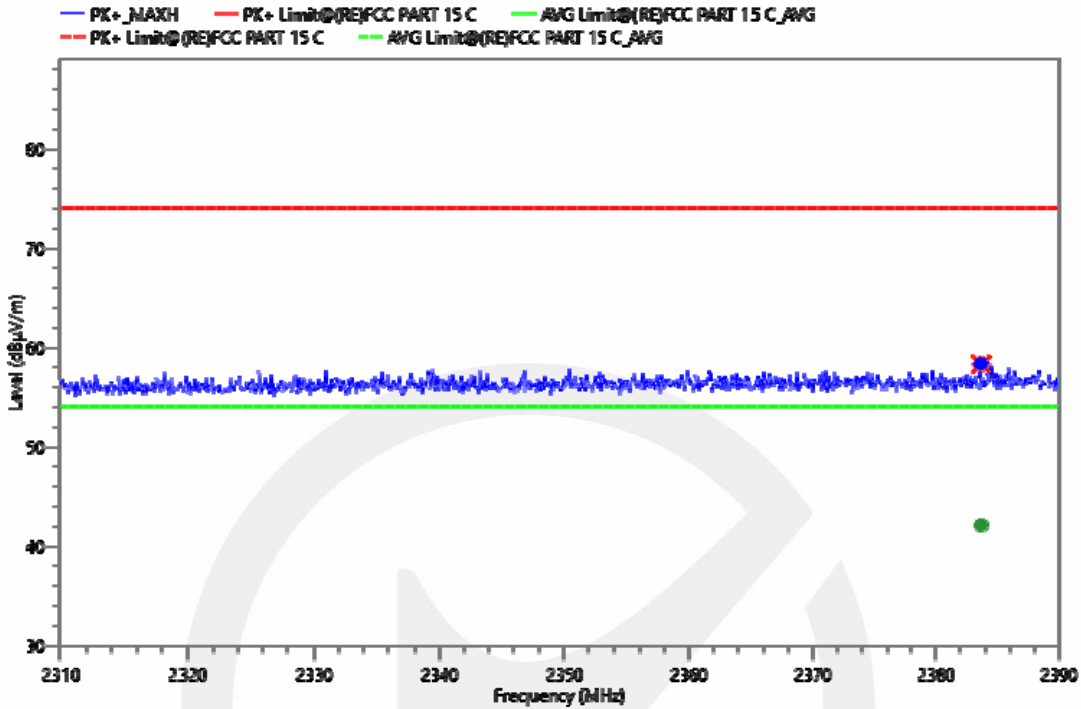
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2383.640	H	58.33	74.00	42.11	54.00
2351.640	V	58.80	74.00	41.02	54.00

Test mode: 802.11 b Frequency: Channel 11: 2462MHz

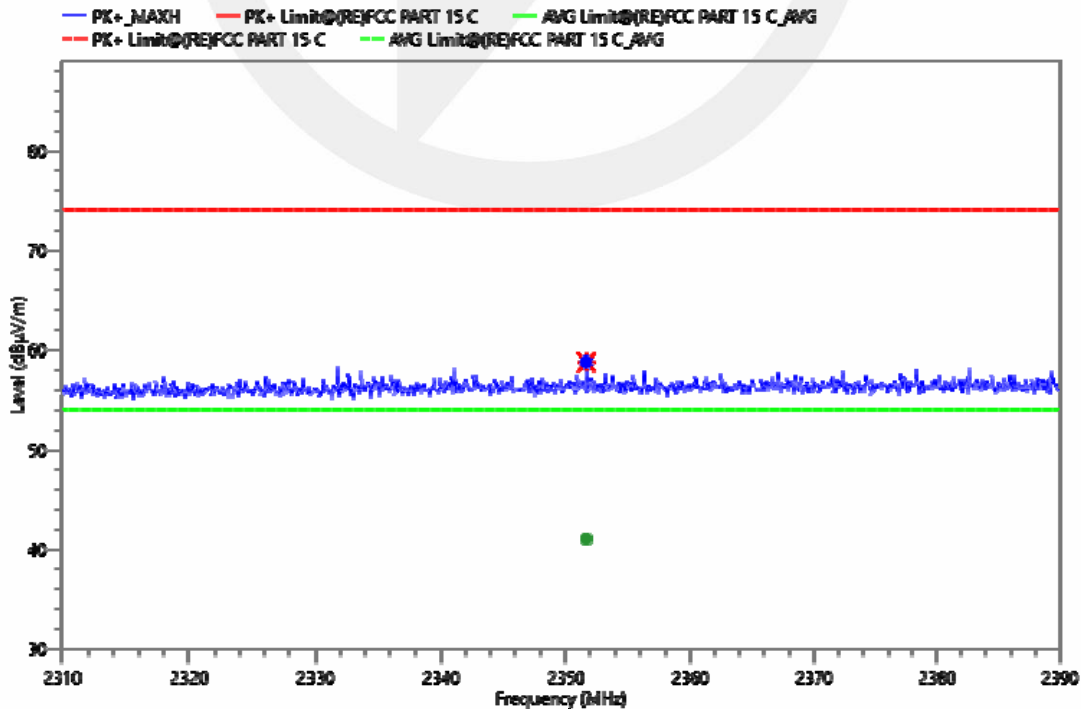
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2484.317	H	60.68	74.00	43.21	54.00
2491.907	V	58.67	74.00	41.37	54.00

- Note:**
- (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
 - (2) Emission Level= Reading Level+Correct Factor +Cable Loss.
 - (3) Correct Factor= Ant_F + Cab_L - Preamp
 - (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

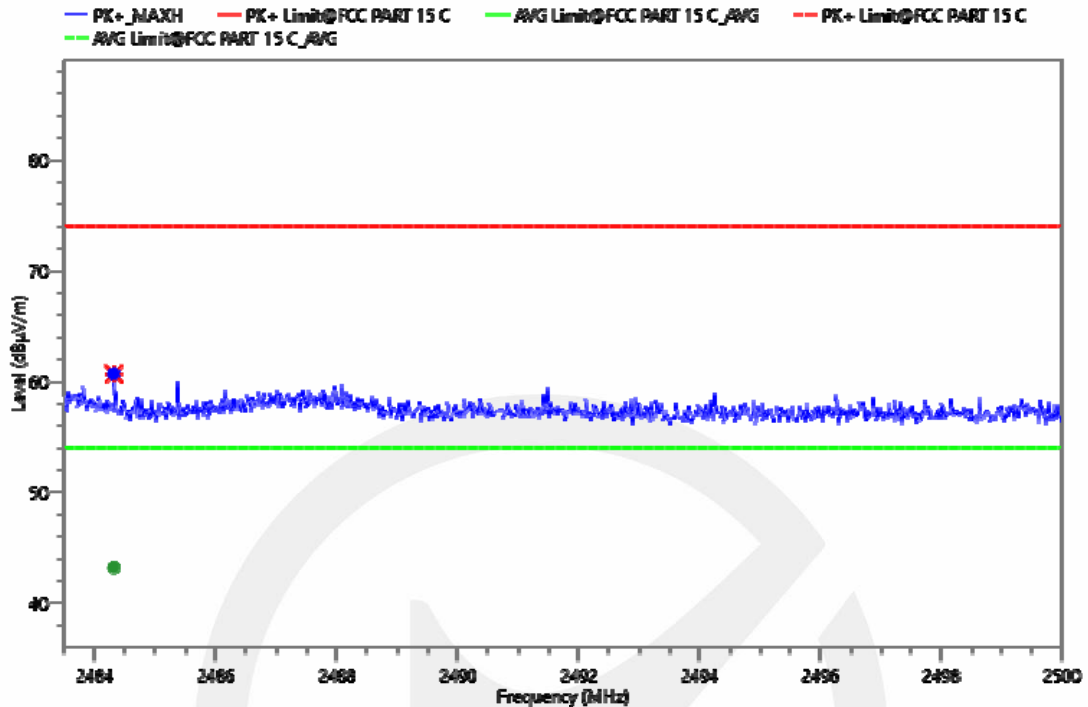
Test Model	Spurious Emission in Restricted Band 2310-2390MHz	
	802.11b	
	Channel 1: 2412MHz	Polarity: H



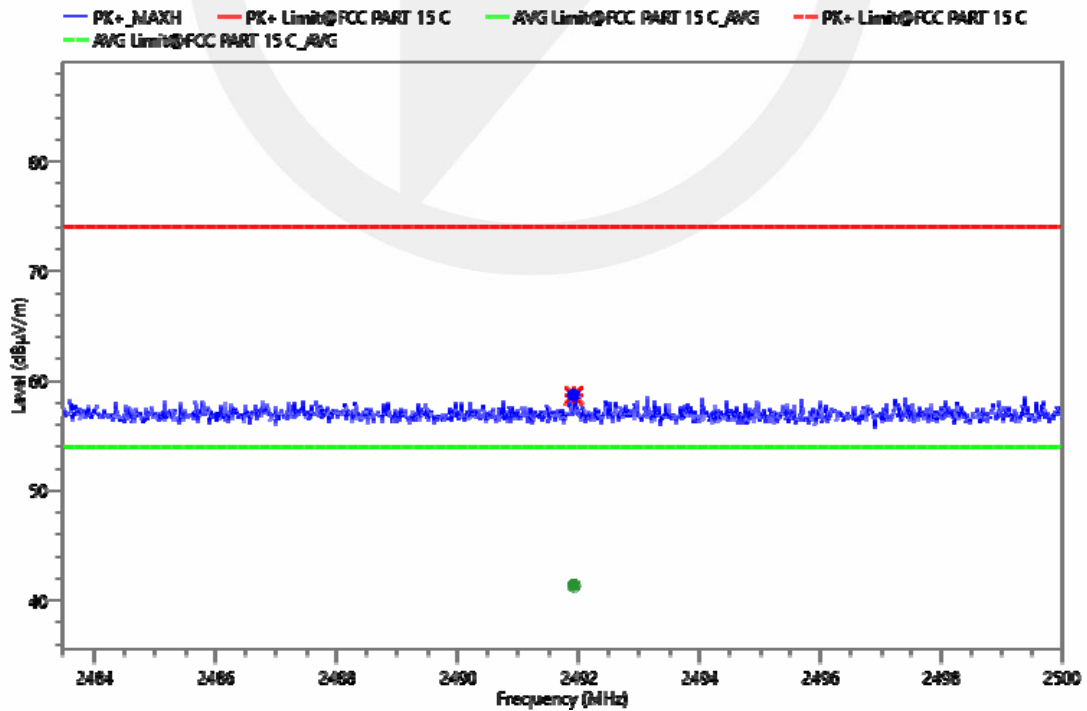
Test Model	Spurious Emission in Restricted Band 2310-2390MHz	
	802.11b	
	Channel 1: 2412MHz	Polarity: V



Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz		
	802.11b		
	Channel 11: 2462MHz	Polarity: H	



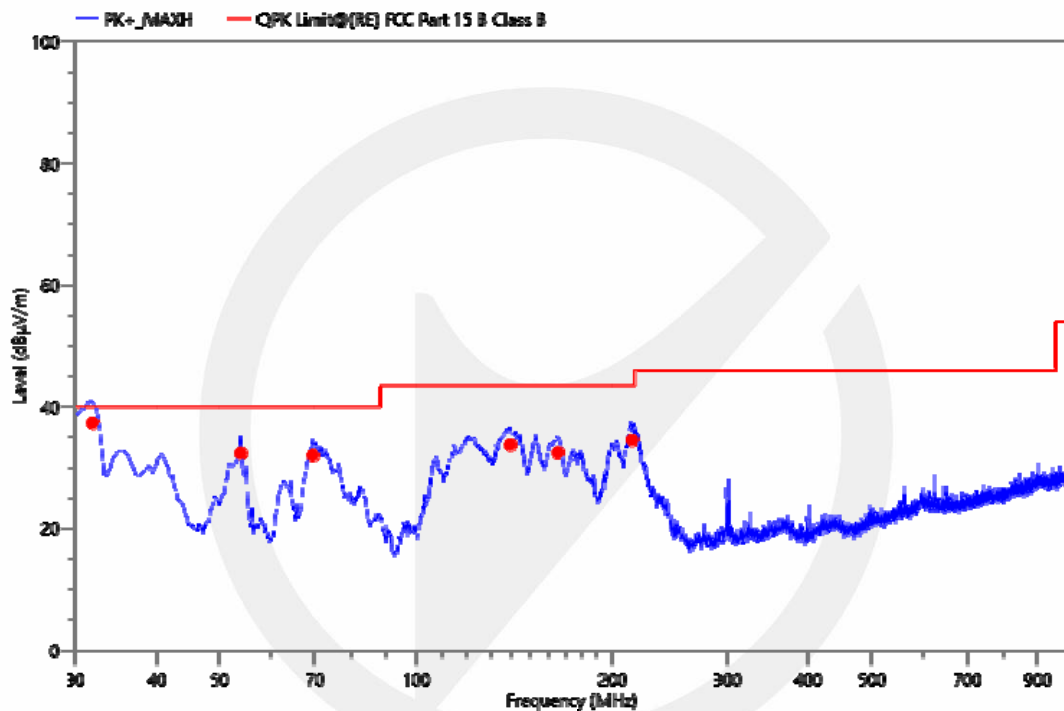
Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz		
	802.11b		
	Channel 11: 2462MHz	Polarity: V	



- Spurious Emission below 1GHz (30MHz to 1GHz)
- All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11g recorded was report as below:

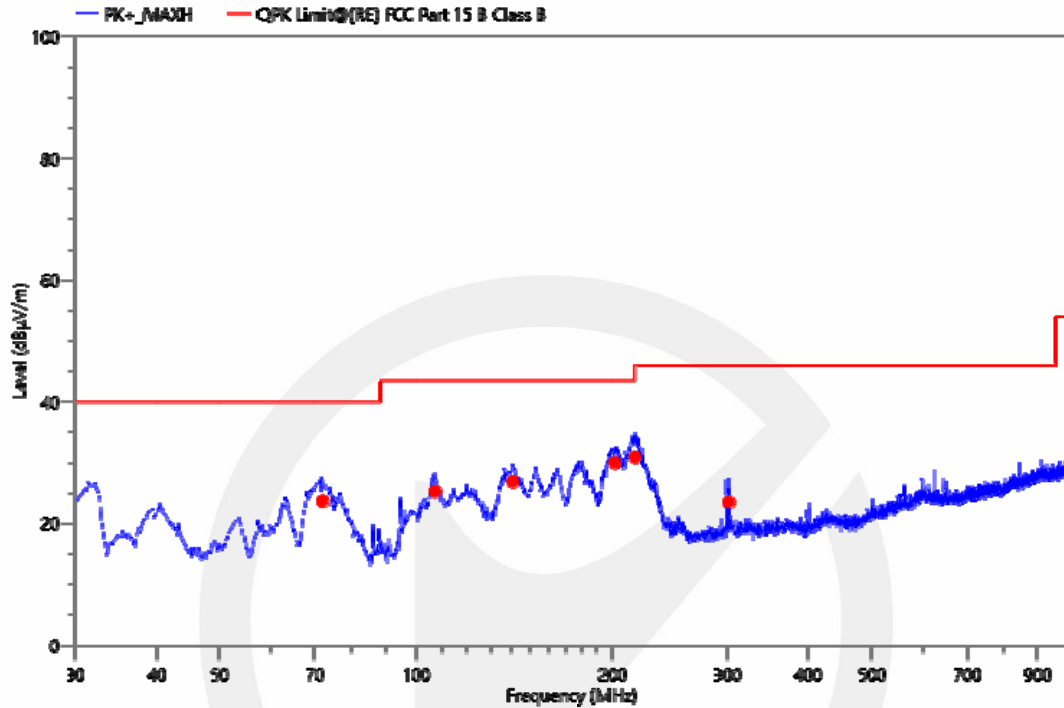
LEX2-S

Project Information			
Mode:	TX2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19℃; Humi:72%	Engineer:	Jackson Xue



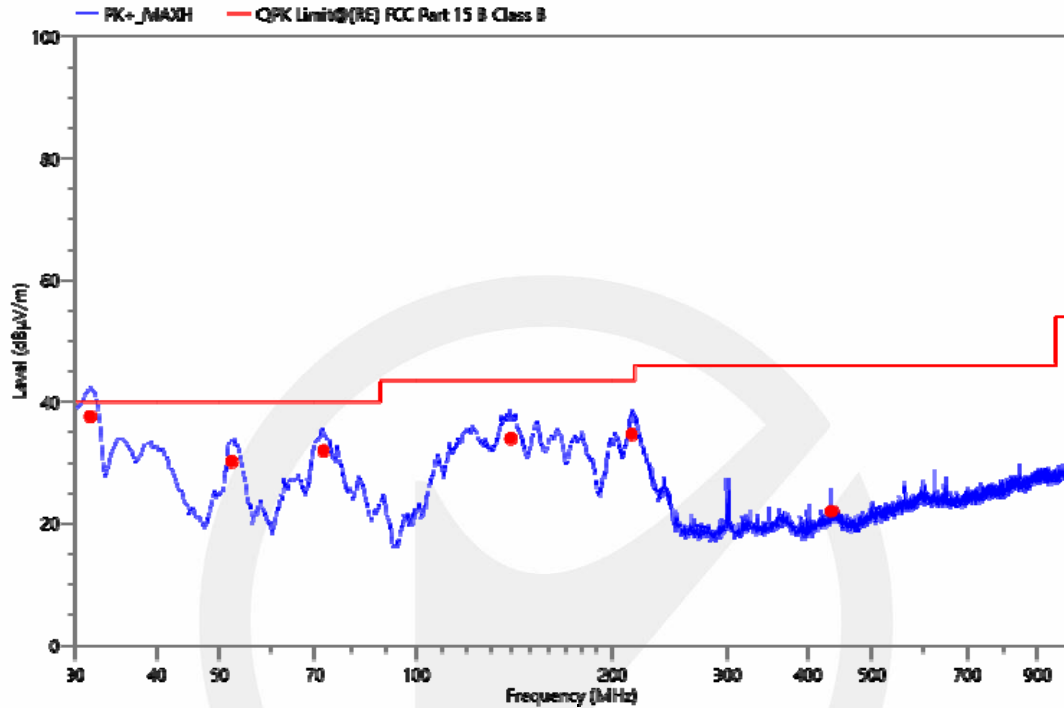
Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
31.940	62.54	37.33	40.00	2.67	QPK	100	V	266.8	-25.21	PASS
53.959	57.21	32.37	40.00	7.63	QPK	100	V	241.6	-24.84	PASS
69.479	59.02	32.04	40.00	7.96	QPK	100	V	84.8	-26.98	PASS
139.319	61.83	33.77	43.50	9.73	QPK	100	V	294.3	-28.06	PASS
165.218	59.30	32.47	43.50	11.03	QPK	100	V	84.8	-26.83	PASS
214.397	58.79	34.52	43.50	8.98	QPK	100	V	65.3	-24.27	PASS

Project Information			
Mode:	TX2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



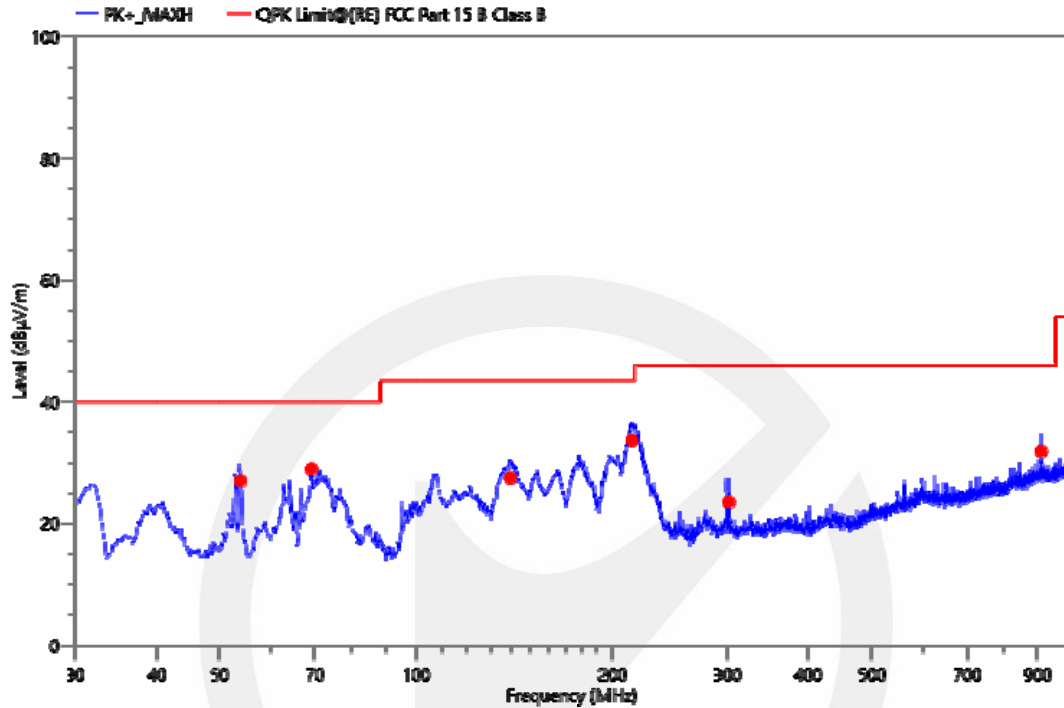
Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
71.904	50.74	23.72	40.00	16.28	QPK	200	H	359.6	-27.02	PASS
107.018	51.07	25.26	43.50	18.24	QPK	200	H	57.0	-25.81	PASS
140.580	54.91	26.89	43.50	16.61	QPK	200	H	55.4	-28.02	PASS
201.496	54.61	29.99	43.50	13.51	QPK	100	H	44.9	-24.62	PASS
216.725	55.08	30.89	46.00	15.11	QPK	100	H	57.3	-24.19	PASS
301.212	45.76	23.52	46.00	22.48	QPK	100	H	125.9	-22.24	PASS

Project Information			
Mode:	TX2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



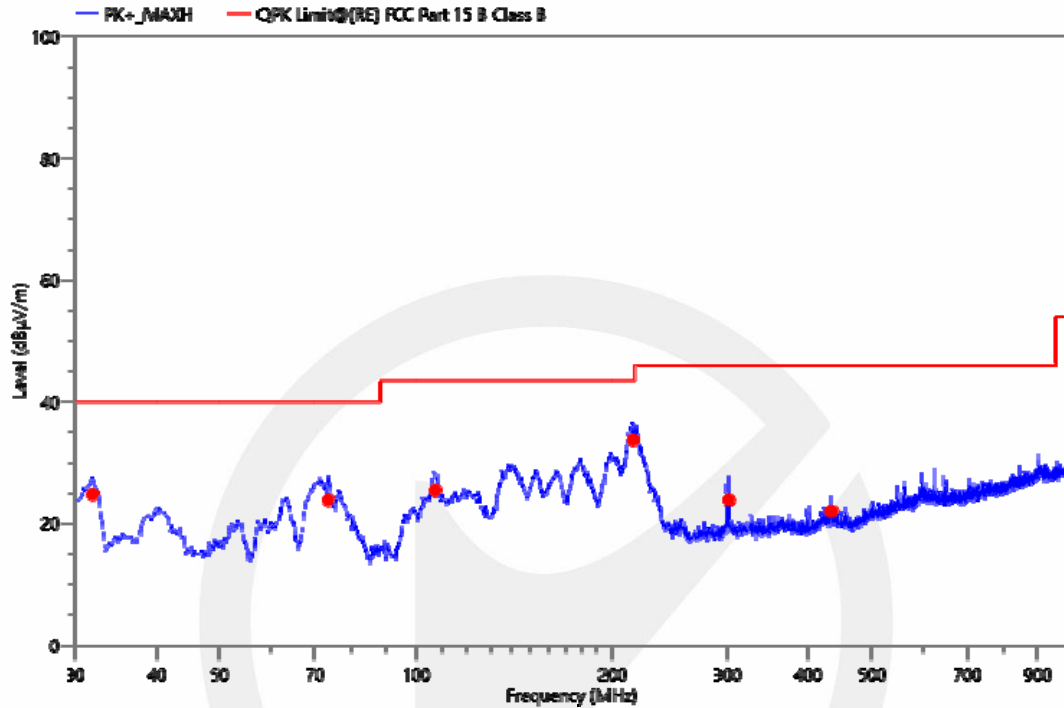
Freq. (MHz)	Reading (dBµV)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
31.649	62.86	37.62	40.00	2.38	QPK	100	V	113.4	-25.24	PASS
52.213	54.73	30.19	40.00	9.81	QPK	100	V	87.5	-24.54	PASS
72.195	58.99	31.97	40.00	8.03	QPK	100	V	73.9	-27.02	PASS
139.513	62.06	33.99	43.50	9.51	QPK	100	V	280.2	-28.07	PASS
214.115	58.95	34.67	43.50	8.83	QPK	100	V	55.2	-24.28	PASS
433.908	41.02	21.97	46.00	24.03	QPK	100	V	184.8	-19.05	PASS

Project Information			
Mode:	TX2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



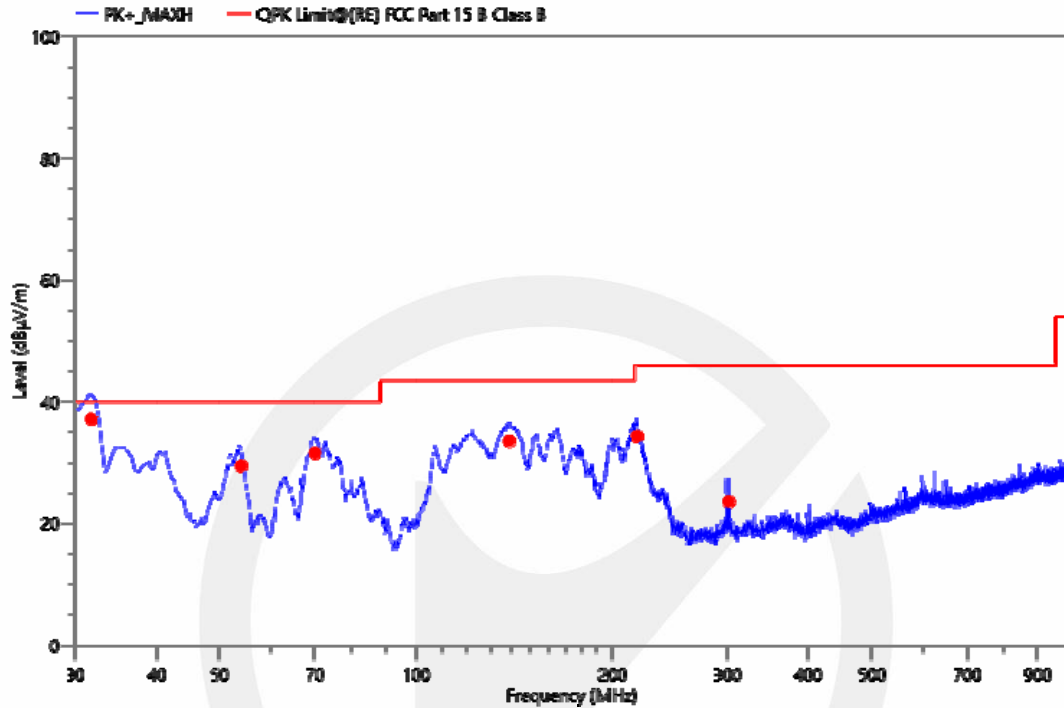
Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
53.862	51.83	27.01	40.00	12.99	QPK	200	H	345.9	-24.82	PASS
69.091	55.90	28.96	40.00	11.04	QPK	200	H	191.5	-26.94	PASS
139.319	55.57	27.51	43.50	15.99	QPK	200	H	53.1	-28.06	PASS
214.106	57.96	33.68	43.50	9.82	QPK	100	H	49.5	-24.28	PASS
301.212	45.76	23.52	46.00	22.48	QPK	100	H	112.9	-22.24	PASS
910.760	43.38	31.87	46.00	14.13	QPK	200	H	360	-11.51	PASS

Project Information			
Mode:	TX2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
31.940	49.99	24.78	40.00	15.22	QPK	200	H	41.8	-25.21	PASS
73.456	50.83	23.83	40.00	16.17	QPK	200	H	359.3	-27	PASS
107.115	51.26	25.44	43.50	18.06	QPK	200	H	68.9	-25.82	PASS
215.076	57.96	33.71	43.50	9.79	QPK	100	H	53.7	-24.25	PASS
301.212	46.10	23.86	46.00	22.14	QPK	200	H	97.6	-22.24	PASS
434.014	41.01	21.95	46.00	24.05	QPK	100	H	331.8	-19.06	PASS

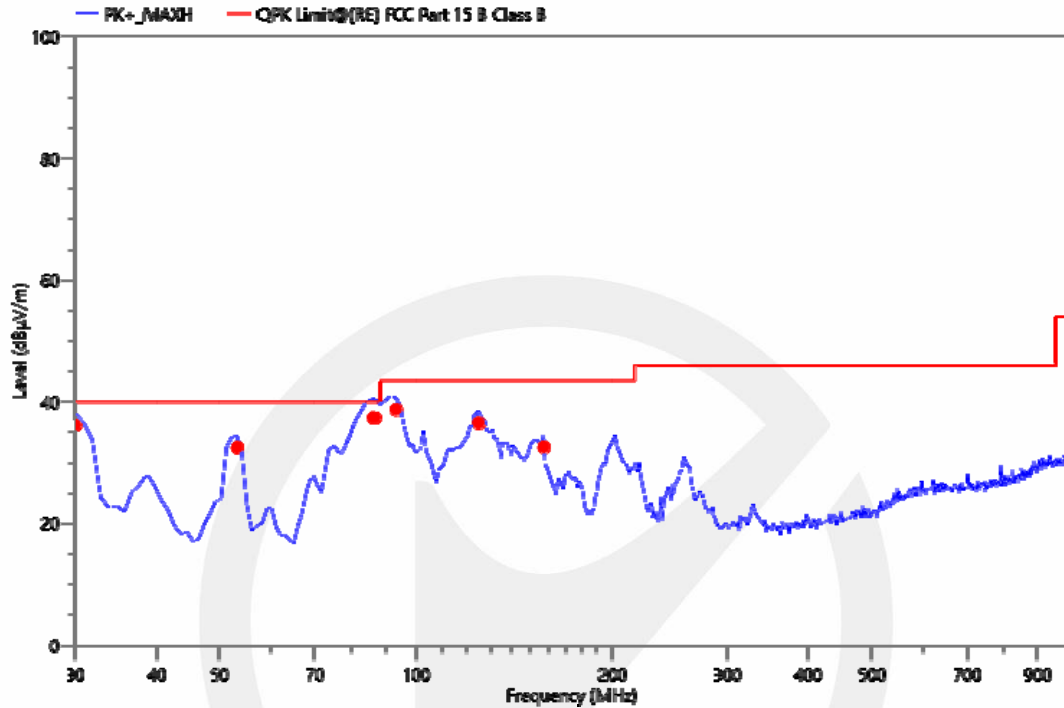
Project Information			
Mode:	TX2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



Freq. (MHz)	Reading (dBµV)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
31.794	62.39	37.17	40.00	2.83	QPK	100	V	174.4	-25.22	PASS
54.056	54.30	29.45	40.00	10.55	QPK	100	V	65.5	-24.85	PASS
70.061	58.61	31.57	40.00	8.43	QPK	100	V	130.5	-27.04	PASS
138.737	61.60	33.56	43.50	9.94	QPK	100	V	310.1	-28.04	PASS
218.180	58.46	34.31	46.00	11.69	QPK	100	V	70.7	-24.15	PASS
301.212	45.84	23.60	46.00	22.40	QPK	100	V	94.6	-22.24	PASS

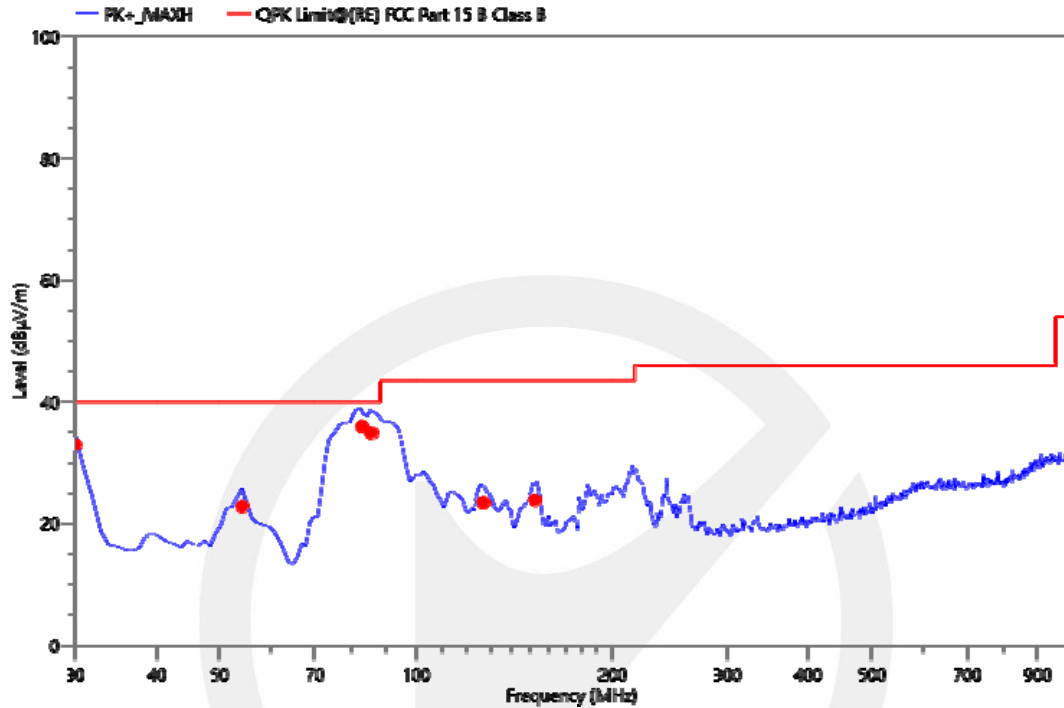
LEX5-S

Project Information			
Mode:	TX2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



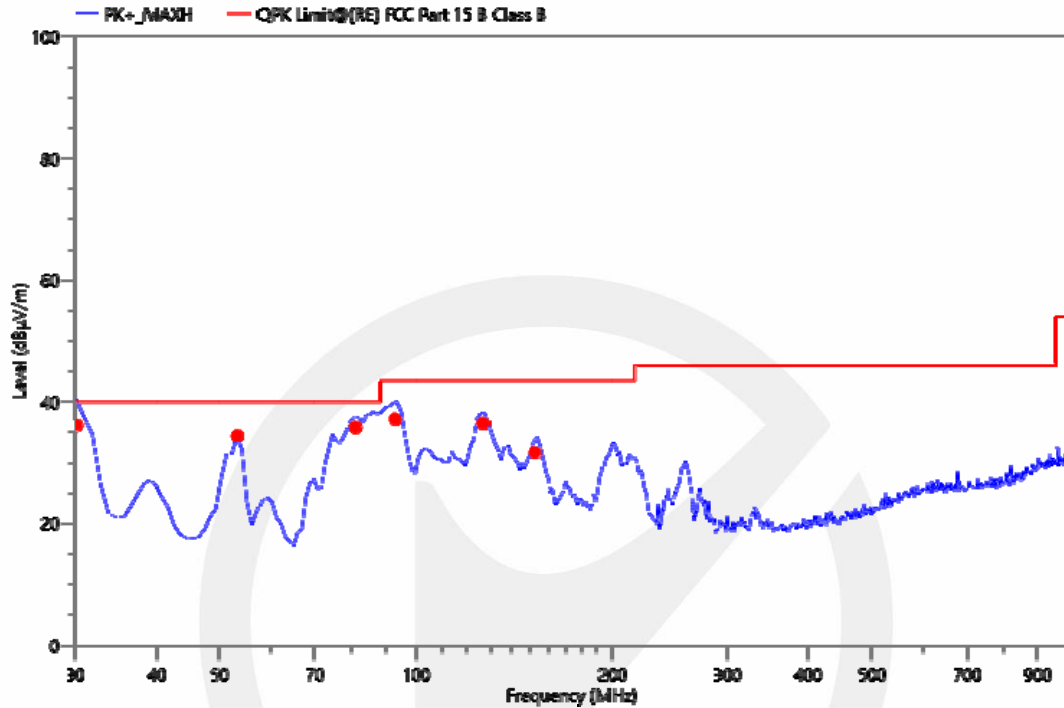
Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
30.000	54.60	36.16	40.00	3.84	QPK	100	V	142.3	-18.44	PASS
53.280	50.10	32.51	40.00	7.49	QPK	100	V	242.7	-17.59	PASS
86.260	56.55	37.39	40.00	2.61	QPK	100	V	166.3	-19.16	PASS
93.050	58.71	38.73	43.50	4.77	QPK	100	V	192.7	-19.98	PASS
125.060	54.88	36.52	43.50	6.98	QPK	100	V	171.7	-18.36	PASS
157.070	51.65	32.56	43.50	10.94	QPK	100	V	139.7	-19.09	PASS

Project Information			
Mode:	TX2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



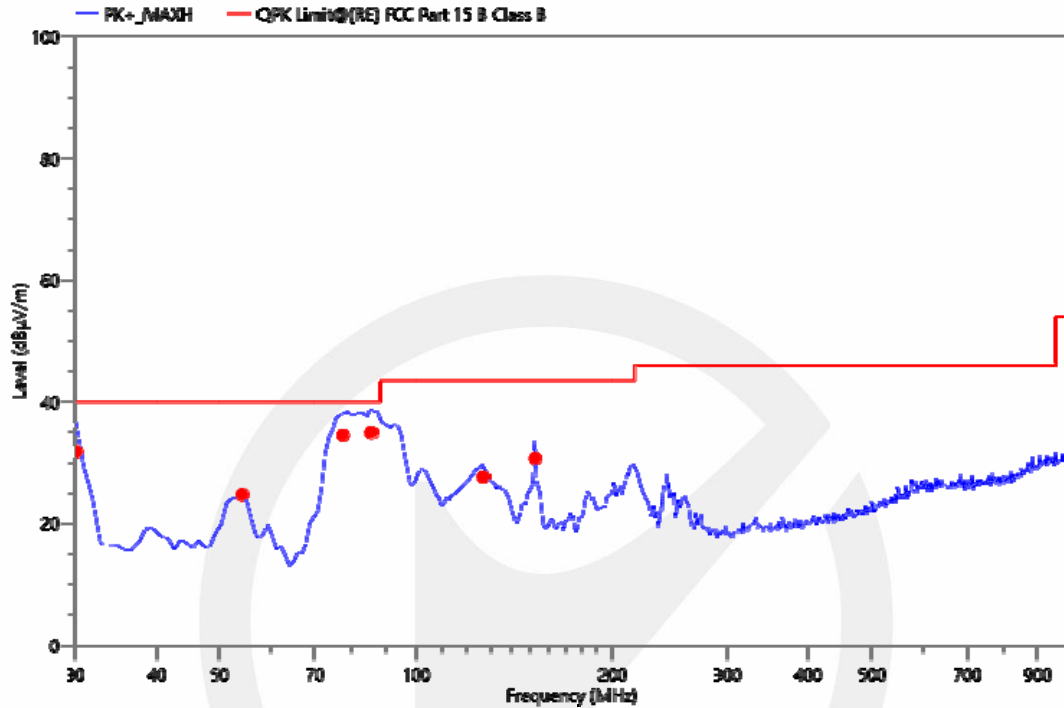
Freq. (MHz)	Reading (dBµV)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
30.000	51.34	32.90	40.00	7.10	QPK	200	H	104.9	-18.44	PASS
54.250	40.74	22.81	40.00	17.19	QPK	100	H	284.3	-17.93	PASS
82.790	54.38	35.97	40.00	4.03	QPK	200	H	147.4	-18.41	PASS
85.416	53.92	34.90	40.00	5.10	QPK	200	H	150.1	-19.02	PASS
127.000	41.92	23.48	43.50	20.02	QPK	100	H	281.5	-18.44	PASS
152.220	42.93	23.86	43.50	19.64	QPK	100	H	135.7	-19.07	PASS

Project Information			
Mode:	TX2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



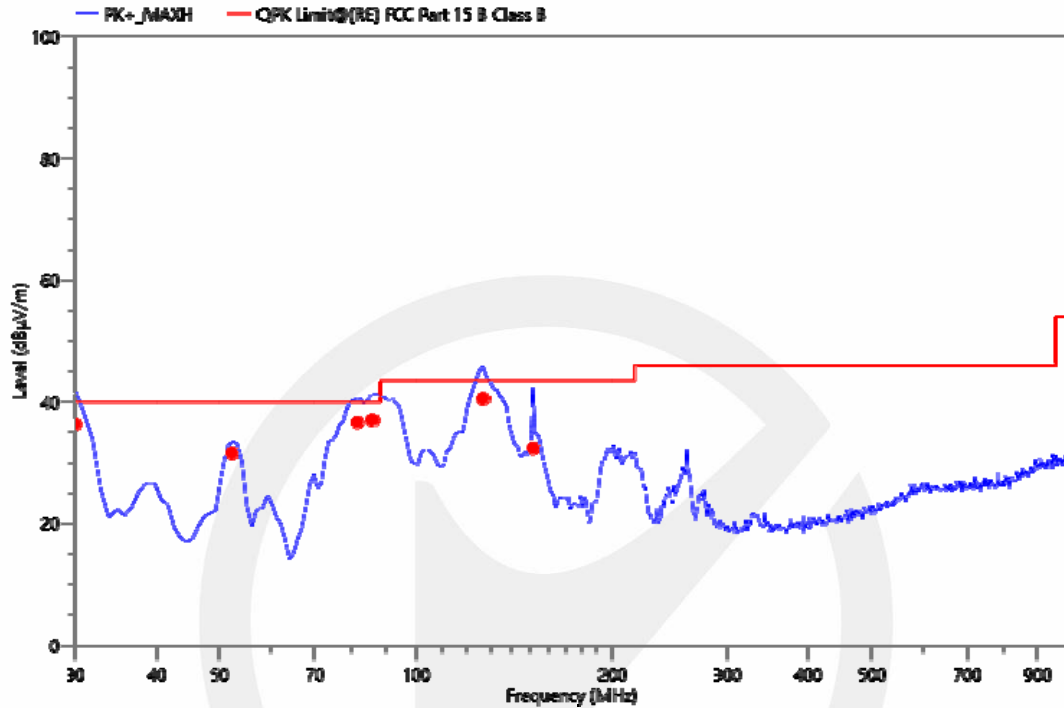
Freq. (MHz)	Reading (dBµV)	Meas. (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
30.126	54.59	36.17	40.00	3.83	QPK	100	V	159.1	-18.42	PASS
53.280	52.00	34.41	40.00	5.59	QPK	100	V	271.9	-17.59	PASS
80.898	53.75	35.81	40.00	4.19	QPK	100	V	182.7	-17.94	PASS
92.801	57.12	37.16	43.50	6.34	QPK	100	V	188.1	-19.96	PASS
127.000	54.88	36.44	43.50	7.06	QPK	100	V	166.9	-18.44	PASS
152.220	50.75	31.68	43.50	11.82	QPK	100	V	145.9	-19.07	PASS

Project Information			
Mode:	TX2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



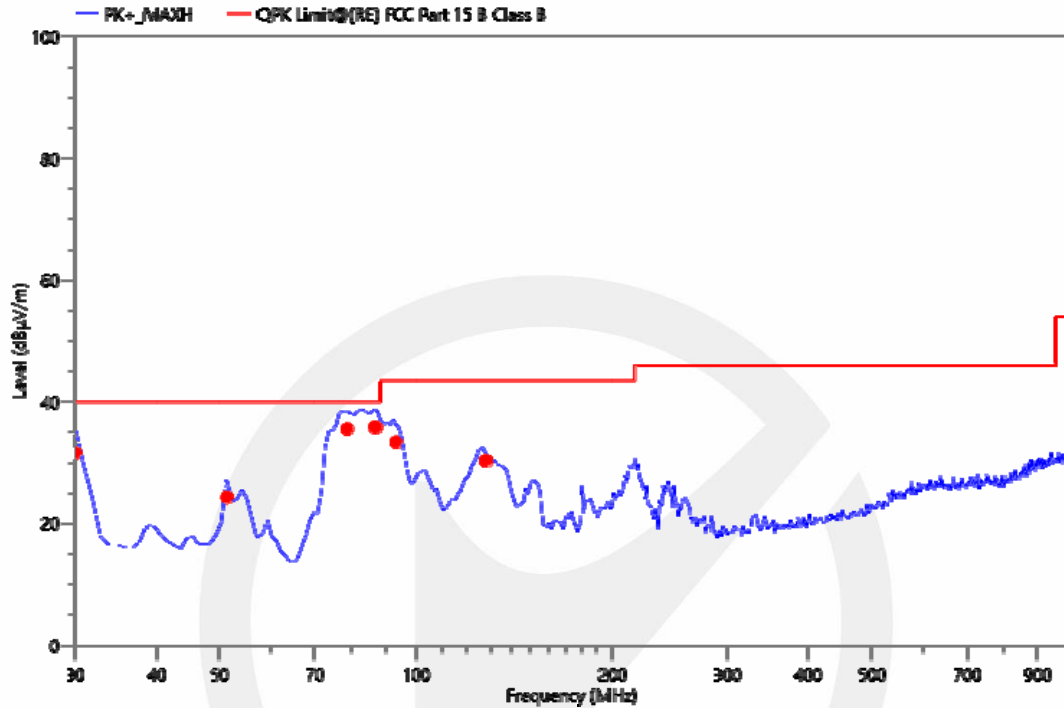
Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
30.135	50.18	31.77	40.00	8.23	QPK	200	H	112.1	-18.41	PASS
54.250	42.69	24.76	40.00	15.24	QPK	200	H	262.2	-17.93	PASS
77.304	52.14	34.55	40.00	5.45	QPK	200	H	254.4	-17.59	PASS
85.455	53.98	34.96	40.00	5.04	QPK	200	H	154.6	-19.02	PASS
127.000	46.13	27.69	43.50	15.81	QPK	200	H	241.2	-18.44	PASS
152.220	49.76	30.69	43.50	12.81	QPK	100	H	149.9	-19.07	PASS

Project Information			
Mode:	TX2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
30.000	54.75	36.31	40.00	3.69	QPK	100	V	107.6	-18.44	PASS
52.310	48.81	31.57	40.00	8.43	QPK	100	V	277.0	-17.24	PASS
81.410	54.71	36.64	40.00	3.36	QPK	100	V	192.8	-18.07	PASS
85.771	56.09	37.01	40.00	2.99	QPK	100	V	195.4	-19.08	PASS
126.916	58.97	40.53	43.50	2.97	QPK	100	V	171.5	-18.44	PASS
151.250	51.45	32.38	43.50	11.12	QPK	100	V	155.5	-19.07	PASS

Project Information			
Mode:	TX2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 19°C; Humi:72%	Engineer:	Jackson Xue



Freq. (MHz)	Reading (dBμV)	Meas. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Det.	Height (cm)	Pol.	Azimuth (deg)	Corr. (dB)	Verdict
30.008	50.04	31.60	40.00	8.40	QPK	200	H	81.1	-18.44	PASS
51.340	41.24	24.34	40.00	15.66	QPK	200	H	296.0	-16.9	PASS
78.500	53.21	35.56	40.00	4.44	QPK	200	H	249.8	-17.65	PASS
86.632	55.06	35.84	40.00	4.16	QPK	200	H	152.0	-19.22	PASS
93.050	53.38	33.40	43.50	10.10	QPK	200	H	146.4	-19.98	PASS
127.970	48.82	30.34	43.50	13.16	QPK	100	H	252.0	-18.48	PASS

8.6 CONDUCTED EMISSIONS TEST

8.6.1 Applicable Standard

According to FCC Part 15.207(a)

8.6.2 Conformance Limit

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

8.6.3 Test Configuration

Test according to clause 7.3conducted emission test setup

8.6.4 Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Repeat above procedures until all frequency measured were complete.

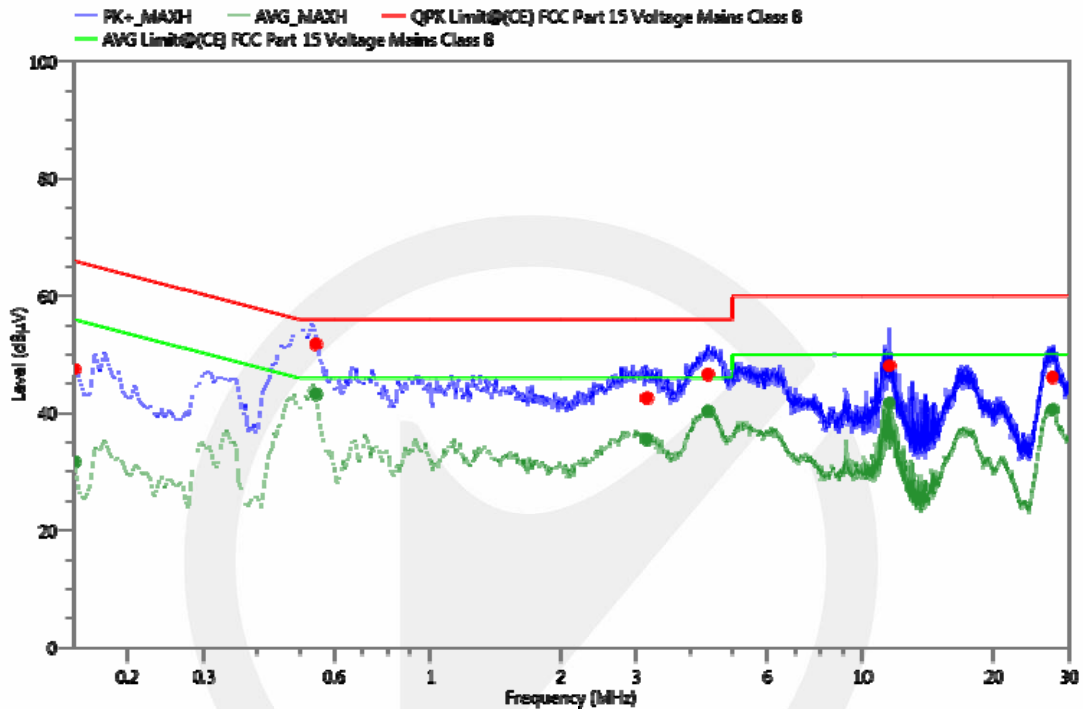
8.6.5 Test Results

Pass

- All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11b recorded was report as below:

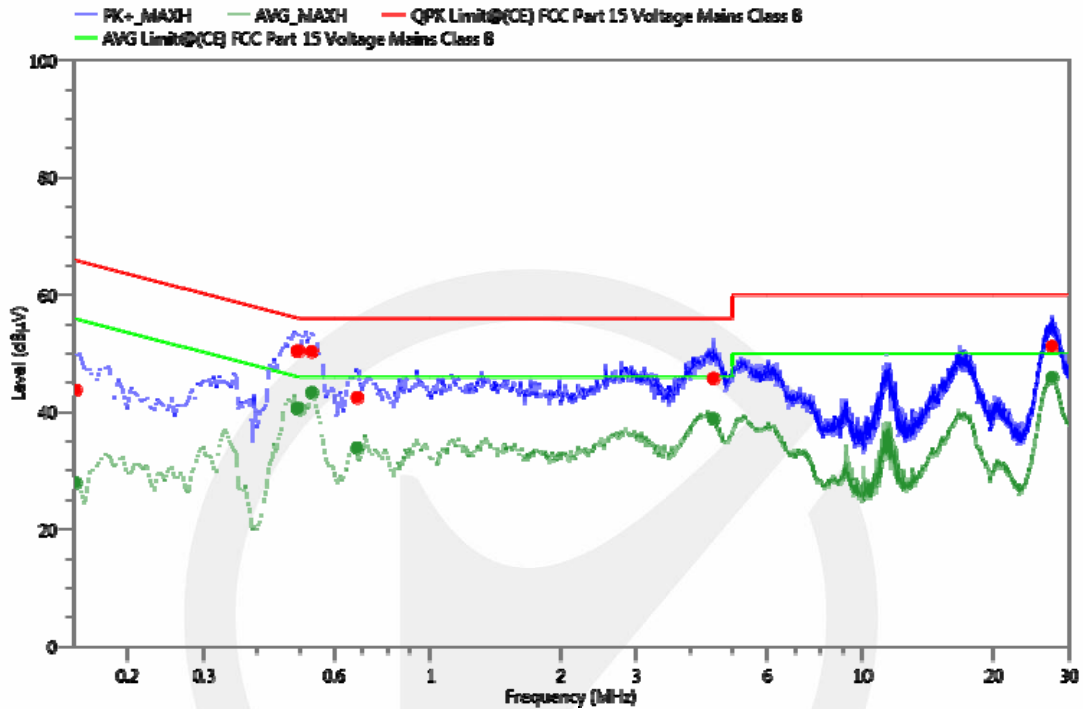
LEX2-S

Project Information			
Mode:	TX2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 23°C; Humi:75%	Engineer:	Allen Tang



Freq. (MHz)	Reading (dBμV)	Meas. (dBμV)	Limit (dBμV)	Margin (dB)	Det.	Line	Corr. (dB)	Verdict
0.150	37.77	47.44	66.00	18.56	QPK	L1	9.67	PASS
0.150	22.01	31.68	56.00	24.32	AVG	L1	9.67	PASS
0.543	42.04	51.75	56.00	4.25	QPK	L1	9.71	PASS
0.543	33.54	43.25	46.00	2.75	AVG	L1	9.71	PASS
3.158	32.83	42.57	56.00	13.43	QPK	L1	9.74	PASS
3.158	25.76	35.50	46.00	10.50	AVG	L1	9.74	PASS
4.385	36.83	46.58	56.00	9.42	QPK	L1	9.75	PASS
4.385	30.57	40.32	46.00	5.68	AVG	L1	9.75	PASS
11.478	38.19	48.00	60.00	12.00	QPK	L1	9.81	PASS
11.478	31.85	41.66	50.00	8.34	AVG	L1	9.81	PASS
27.444	36.02	46.10	60.00	13.90	QPK	L1	10.08	PASS
27.444	30.50	40.58	50.00	9.42	AVG	L1	10.08	PASS

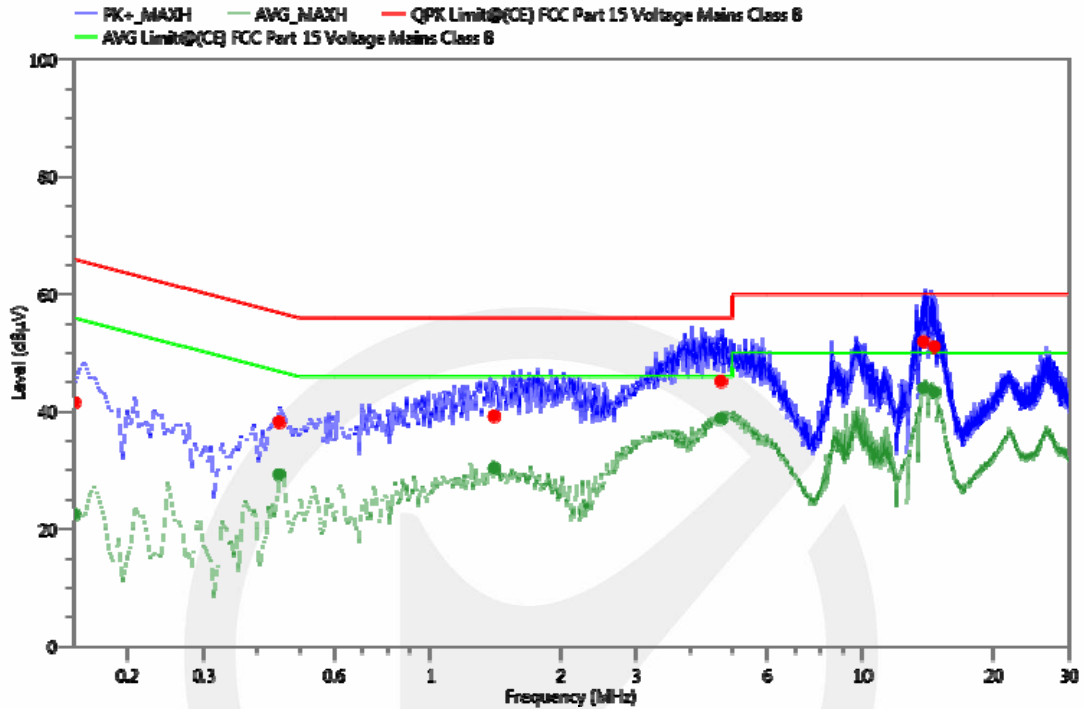
Project Information			
Mode:	TX2412	Voltage:	AC120V/60Hz
Environment:	Temp: 23°C; Humi:75%	Engineer:	Allen Tang



Freq. (MHz)	Reading (dBμV)	Meas. (dBμV)	Limit (dBμV)	Margin (dB)	Det.	Line	Corr. (dB)	Verdict
0.151	33.97	43.76	65.94	22.18	QPK	N	9.79	PASS
0.151	18.13	27.92	55.94	28.02	AVG	N	9.79	PASS
0.494	40.77	50.42	56.10	5.68	QPK	N	9.65	PASS
0.494	30.99	40.64	46.10	5.46	AVG	N	9.65	PASS
0.531	40.66	50.34	56.00	5.66	QPK	N	9.68	PASS
0.531	33.66	43.34	46.00	2.66	AVG	N	9.68	PASS
0.678	32.69	42.48	56.00	13.52	QPK	N	9.79	PASS
0.678	24.08	33.87	46.00	12.13	AVG	N	9.79	PASS
4.515	35.97	45.76	56.00	10.24	QPK	N	9.79	PASS
4.515	29.04	38.83	46.00	7.17	AVG	N	9.79	PASS
27.351	41.07	51.22	60.00	8.78	QPK	N	10.15	PASS
27.351	35.73	45.88	50.00	4.12	AVG	N	10.15	PASS

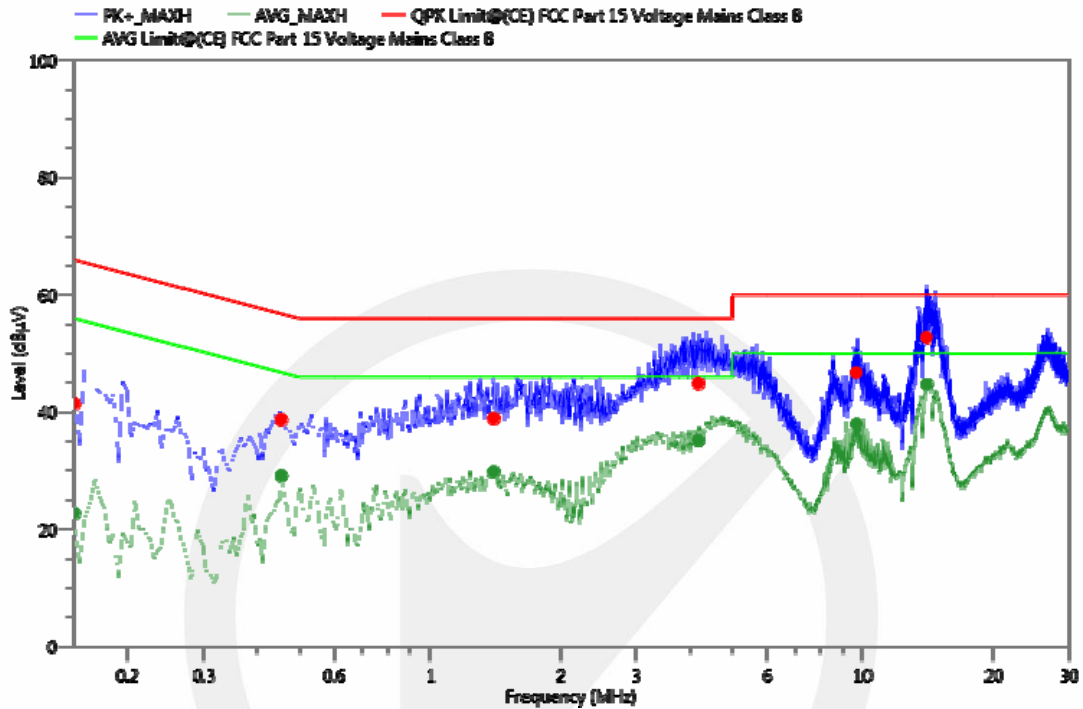
LEX5-S

Project Information			
Mode:	TX2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 23°C; Humi:75%	Engineer:	Allen Tang



Freq. (MHz)	Reading (dBµV)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	Corr. (dB)	Verdict
0.150	31.78	41.57	66.00	24.43	QPK	N	9.79	PASS
0.150	12.68	22.47	56.00	33.53	AVG	N	9.79	PASS
0.449	28.54	38.23	56.89	18.66	QPK	N	9.69	PASS
0.449	19.58	29.27	46.89	17.62	AVG	N	9.69	PASS
1.407	29.48	39.24	56.00	16.76	QPK	N	9.76	PASS
1.407	20.59	30.35	46.00	15.65	AVG	N	9.76	PASS
4.703	35.37	45.16	56.00	10.84	QPK	N	9.79	PASS
4.703	29.03	38.82	46.00	7.18	AVG	N	9.79	PASS
13.792	42.06	51.87	60.00	8.13	QPK	N	9.81	PASS
13.792	34.14	43.95	50.00	6.05	AVG	N	9.81	PASS
14.648	41.21	51.02	60.00	8.98	QPK	N	9.81	PASS
14.648	33.45	43.26	50.00	6.74	AVG	N	9.81	PASS

Project Information			
Mode:	TX2412	Voltage:	AC120V/60Hz
Environment:	Temp: 23°C; Humi:75%	Engineer:	Allen Tang



Freq. (MHz)	Reading (dBµV)	Meas. (dBµV)	Limit (dBµV)	Margin (dB)	Det.	Line	Corr. (dB)	Verdict
0.150	31.74	41.41	66.00	24.59	QPK	L1	9.67	PASS
0.150	13.02	22.69	56.00	33.31	AVG	L1	9.67	PASS
0.454	28.99	38.69	56.80	18.11	QPK	L1	9.7	PASS
0.454	19.43	29.13	46.80	17.67	AVG	L1	9.7	PASS
1.403	29.18	38.91	56.00	17.09	QPK	L1	9.73	PASS
1.403	20.08	29.81	46.00	16.19	AVG	L1	9.73	PASS
4.161	35.13	44.87	56.00	11.13	QPK	L1	9.74	PASS
4.161	25.45	35.19	46.00	10.81	AVG	L1	9.74	PASS
9.686	36.88	46.67	60.00	13.33	QPK	L1	9.79	PASS
9.686	28.16	37.95	50.00	12.05	AVG	L1	9.79	PASS
14.026	42.86	52.68	60.00	7.32	QPK	L1	9.82	PASS
14.026	34.93	44.75	50.00	5.25	AVG	L1	9.82	PASS

8.7 ANTENNA APPLICATION

8.7.1 Antenna Requirement

Standard	Requirement
FCC CRF Part15.203	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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

8.7.2 Result

PASS.

- The EUT has 1 antenna: one an PCB antenna for WIFI 2.4G, the gain is 2.54 dBi,
Note: ☒ Antenna uses a permanently attached antenna which is not replaceable.
☐ Not using a standard antenna jack or electrical connector for antenna replacement
☐ The antenna has to be professionally installed (please provide method of installation)

Which in accordance to section 15.203, please refer to the internal photos.

*** End of Report ***

声 明 Statement

1. 本报告无授权批准人签字及“检验检测专用章”无效;
This report will be void without authorized signature or special seal for testing report.
2. 未经许可本报告不得部分复制;
This report shall not be copied partly without authorization.
3. 本报告的检测结果仅对送测样品有效, 委托方对样品的代表性和资料的真实性负责;
The test results or observations are applicable only to tested sample. Client shall be responsible for representativeness of the sample and authenticity of the material.
4. 本检测报告中检测项目标注有特殊符号则该项目不在资质认定范围内, 仅作为客户委托、科研、教学或内部质量控制等目的使用;
The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
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The test results or observations are provided in accordance with measured value, without taking risks caused by uncertainty into account. Without explicit stipulation in special agreements, standards or regulations, EMTEK shall not assume any responsibility.
6. 对本检测报告若有异议, 请于收到报告之日起 20 日内提出;
Objections shall be raised within 20 days from the date receiving the report.