

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:	22.5° C
Relative Humidity:	45%
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 802.11g recorded was report as below:

DRFM12-RGB

Test mode: 802.11 g 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
4823.682	V	57.25	43.51	74.00	54.00	-16.75	-10.49
11080.30	V	56.98	42.51	74.00	54.00	-17.02	-11.49
13921.29	V	60.00	45.81	74.00	54.00	-14.00	-8.19
4823.682	H	50.71	36.72	74.00	54.00	-23.29	-17.28
11071.80	H	56.78	42.57	74.00	54.00	-17.22	-11.43
15735.37	H	59.78	45.37	74.00	54.00	-14.22	-8.63

Test mode: 802.11 g 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
4874.687	V	57.93	43.67	74.00	54.00	-16.07	-10.33
11061.60	V	55.97	41.87	74.00	54.00	-18.03	-12.13
15769.37	V	58.61	45.37	74.00	54.00	-15.39	-8.63
4874.687	H	52.05	38.61	74.00	54.00	-21.95	-15.39
11027.60	H	56.11	41.67	74.00	54.00	-17.89	-12.33
14943.09	H	59.18	46.84	74.00	54.00	-14.82	-7.16

Test mode: 802.11 g 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
4923.992	V	53.40	40.15	74.00	54.00	-20.60	-13.85
11022.50	V	55.47	41.37	74.00	54.00	-18.53	-12.63
14988.99	V	57.02	43.57	74.00	54.00	-16.98	-10.43
5692.469	H	51.13	38.67	74.00	54.00	-22.87	-15.33
10830.38	H	55.49	40.81	74.00	54.00	-18.51	-13.19
14278.32	H	57.91	42.34	74.00	54.00	-16.09	-11.66

DRFM14-RGB

Test mode: 802.11 g

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
4823.682	V	57.92	42.81	74.00	54.00	-16.08	-11.19
10806.58	V	56.99	42.61	74.00	54.00	-17.01	-11.39
14220.52	V	61.23	45.97	74.00	54.00	-12.77	-8.03
4823.682	H	52.07	39.66	74.00	54.00	-21.93	-14.34
11102.41	H	56.97	40.81	74.00	54.00	-17.03	-13.19
14684.66	H	60.69	47.51	74.00	54.00	-13.31	-6.49

Test mode: 802.11 g

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
4874.687	V	59.10	46.37	74.00	54.00	-14.90	-7.63
10816.78	V	56.77	42.33	74.00	54.00	-17.23	-11.67
14229.02	V	61.10	48.37	74.00	54.00	-12.90	-5.63
4874.687	H	54.41	39.84	74.00	54.00	-19.59	-14.16
10860.98	H	57.05	44.37	74.00	54.00	-16.95	-9.63
14698.27	H	61.31	46.37	74.00	54.00	-12.69	-7.63

Test mode: 802.11 g

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
4923.992	V	54.72	40.81	74.00	54.00	-19.28	-13.19
11080.30	V	56.97	42.64	74.00	54.00	-17.03	-11.36
14688.06	V	60.76	45.97	74.00	54.00	-13.24	-8.03
5197.720	H	51.92	38.51	74.00	54.00	-22.08	-15.49
11321.73	H	56.38	42.97	74.00	54.00	-17.62	-11.03
14460.24	H	60.19	47.31	74.00	54.00	-13.81	-6.69

DRFM16-RGB

Test mode: 802.11 g

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
4823.682	V	57.88	42.62	74.00	54.00	-16.12	-11.38
11099.01	V	56.66	41.94	74.00	54.00	-17.34	-12.06
14645.56	V	60.94	45.70	74.00	54.00	-13.06	-8.30
4823.682	H	52.92	37.81	74.00	54.00	-21.08	-16.19
10617.86	H	57.07	46.37	74.00	54.00	-16.93	-7.63
15162.41	H	61.43	47.59	74.00	54.00	-12.57	-6.41

Test mode: 802.11 g

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
4874.687	V	59.31	44.91	74.00	54.00	-14.69	-9.09
11029.30	V	56.80	41.67	74.00	54.00	-17.20	-12.33
14677.86	V	60.50	45.91	74.00	54.00	-13.50	-8.09
4874.687	H	53.84	37.67	74.00	54.00	-20.16	-16.33
10811.68	H	56.87	42.37	74.00	54.00	-17.13	-11.63
15198.12	H	60.29	46.67	74.00	54.00	-13.71	-7.33

Test mode: 802.11 g

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
4923.992	V	54.32	40.67	74.00	54.00	-19.68	-13.33
11029.30	V	56.49	42.81	74.00	54.00	-17.51	-11.19
16019.30	V	61.96	47.61	74.00	54.00	-12.04	-6.39
7183.518	H	52.88	39.54	74.00	54.00	-21.12	-14.46
10798.08	H	56.67	41.90	74.00	54.00	-17.33	-12.10
14757.77	H	60.62	46.90	74.00	54.00	-13.38	-7.10

- 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:

DRFM12-RGB

Test mode: 802.11 g 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)
2362.725	H	51.24	74.00	38.67	54.00
2382.783	V	52.48	74.00	40.37	54.00

Test mode: 802.11 g 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)
2486.157	H	52.13	74.00	39.71	54.00
2487.594	V	56.99	74.00	42.57	54.00

DRFM14-RGB

Test mode: 802.11 g 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)
2389.888	H	51.52	74.00	36.57	54.00
2359.421	V	54.25	74.00	40.37	54.00

Test mode: 802.11 g 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)
2484.315	H	55.72	74.00	40.87	54.00
2496.437	V	62.70	74.00	46.27	54.00

DRFM16-RGB

Test mode: 802.11 g 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)
2343.283	H	50.64	74.00	36.67	54.00
2345.396	V	50.65	74.00	38.70	54.00

Test mode: 802.11 g 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)
2491.297	H	50.58	74.00	46.27	54.00
2496.363	H	56.83	74.00	40.67	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.

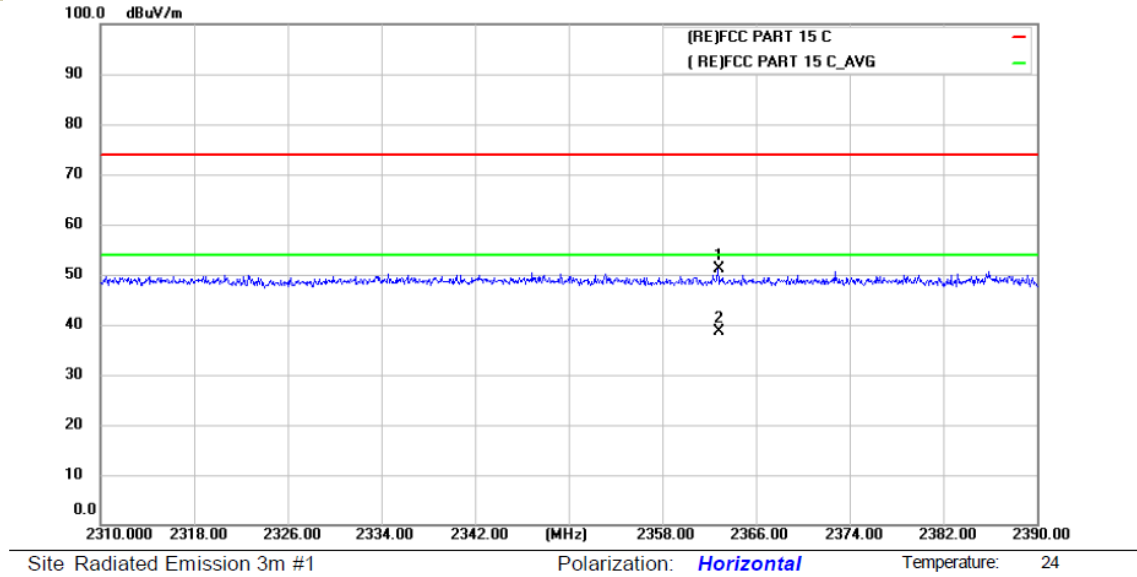
DRFM12-RGB

Spurious Emission in Restricted Band 2310-2390MHz
802.11g

Test Model

Channel 1: 2412MHz

Polarity: H

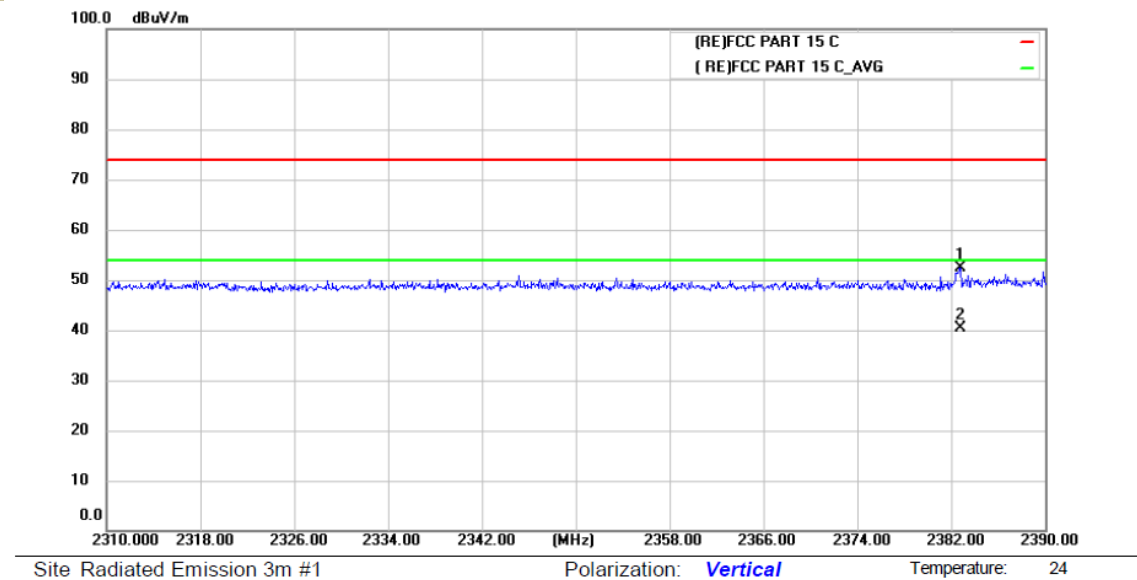


Spurious Emission in Restricted Band 2310-2390MHz
802.11g

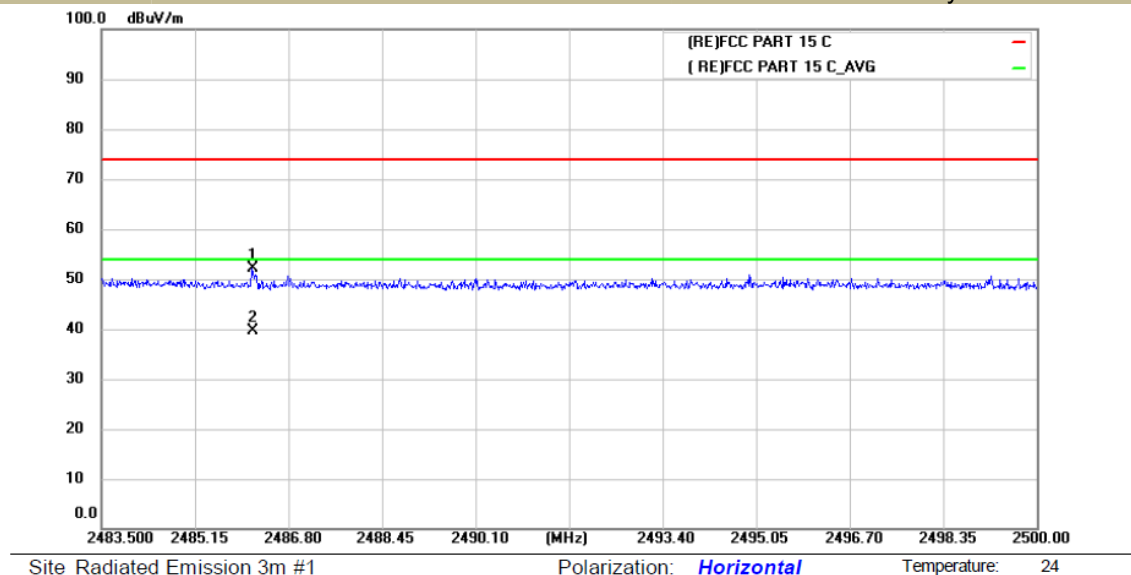
Test Model

Channel 1: 2412MHz

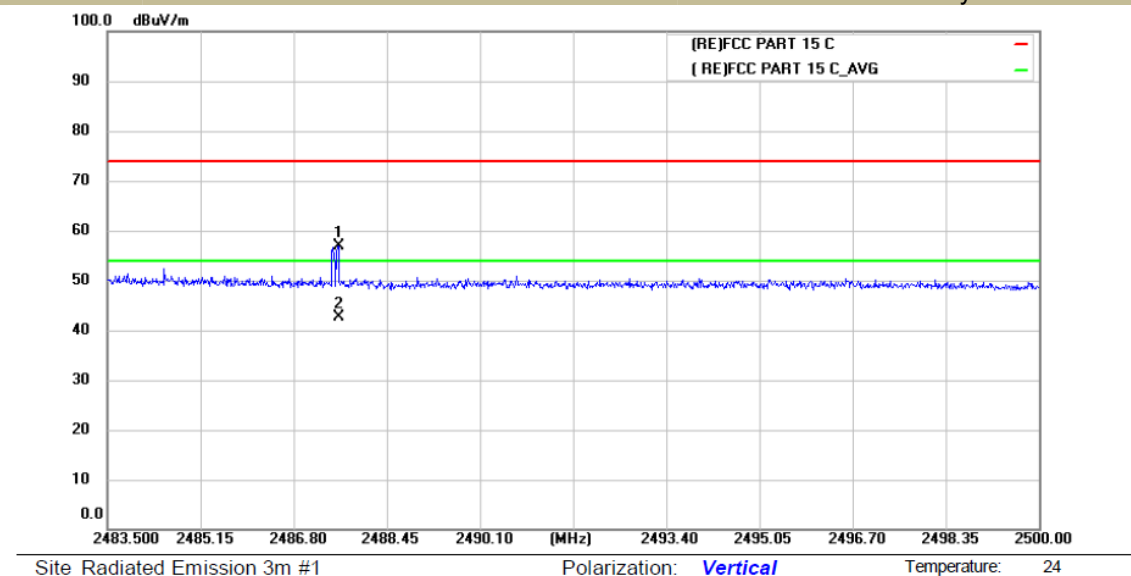
Polarity: V



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



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



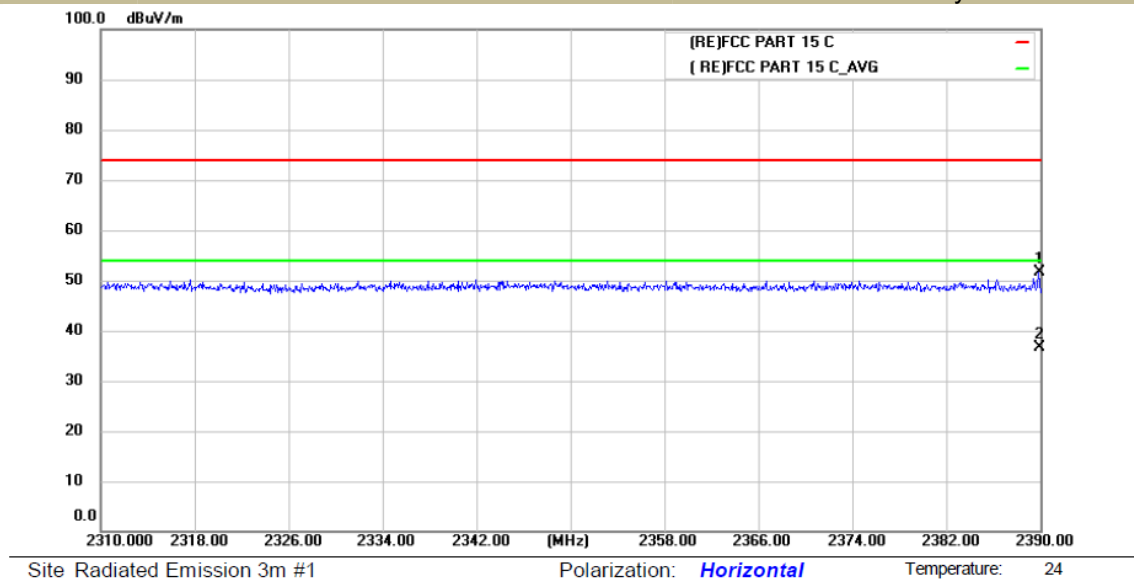
DRFM14-RGB

Spurious Emission in Restricted Band 2310-2390MHz
802.11g

Test Model

Channel 1: 2412MHz

Polarity: H

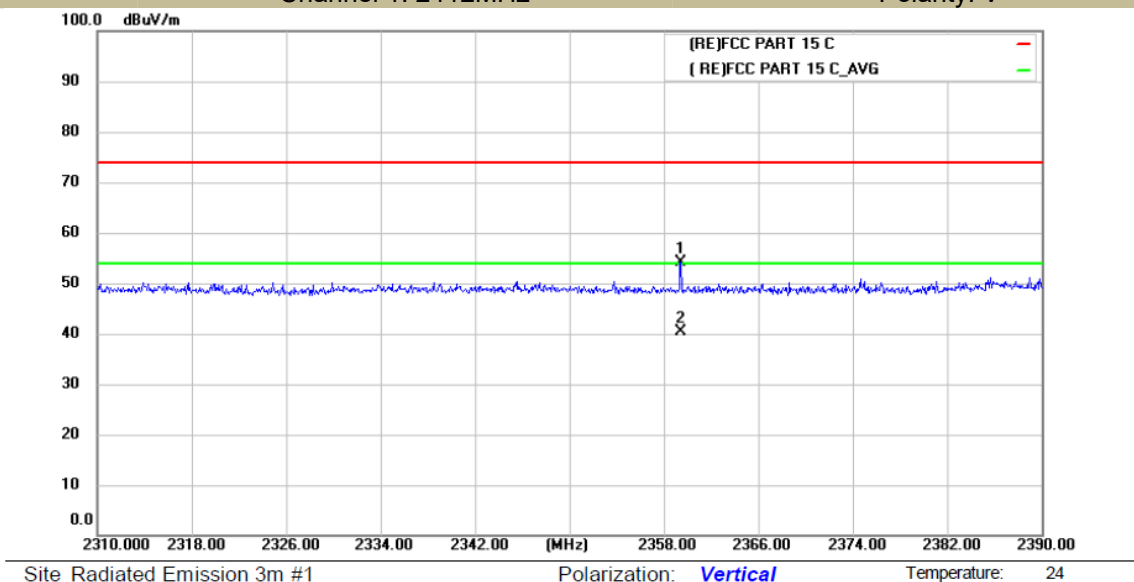


Spurious Emission in Restricted Band 2310-2390MHz
802.11g

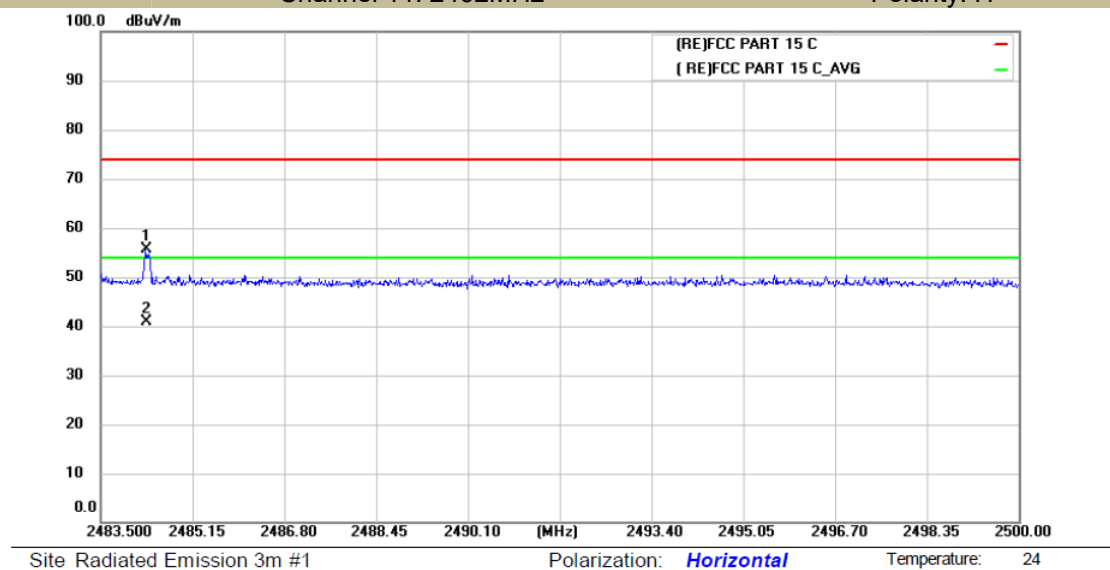
Test Model

Channel 1: 2412MHz

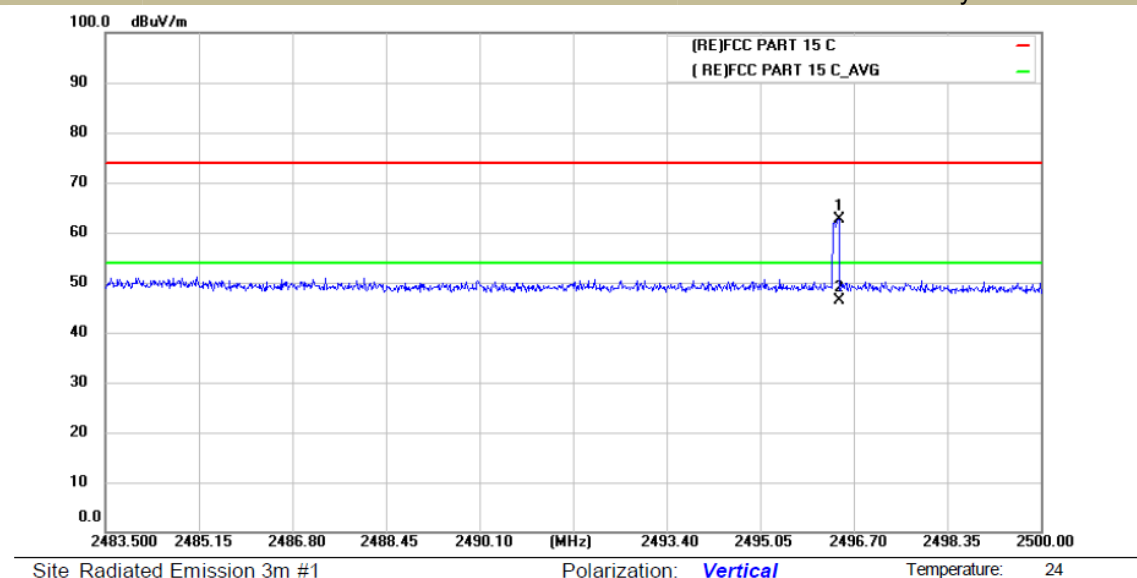
Polarity: V



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



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



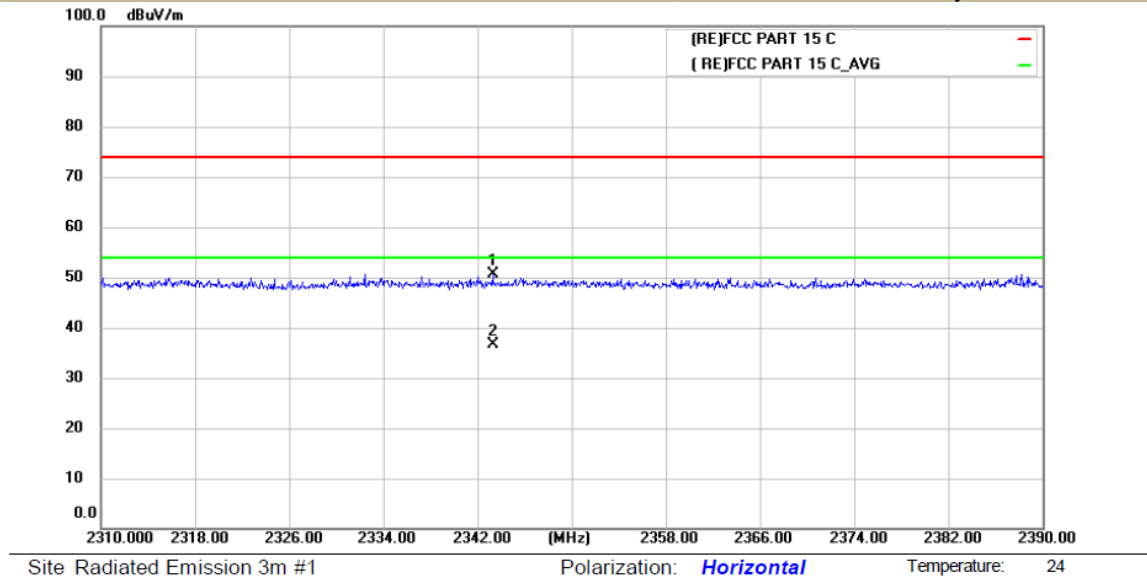
DRFM16-RGB

Spurious Emission in Restricted Band 2310-2390MHz
802.11g

Test Model

Channel 1: 2412MHz

Polarity: H

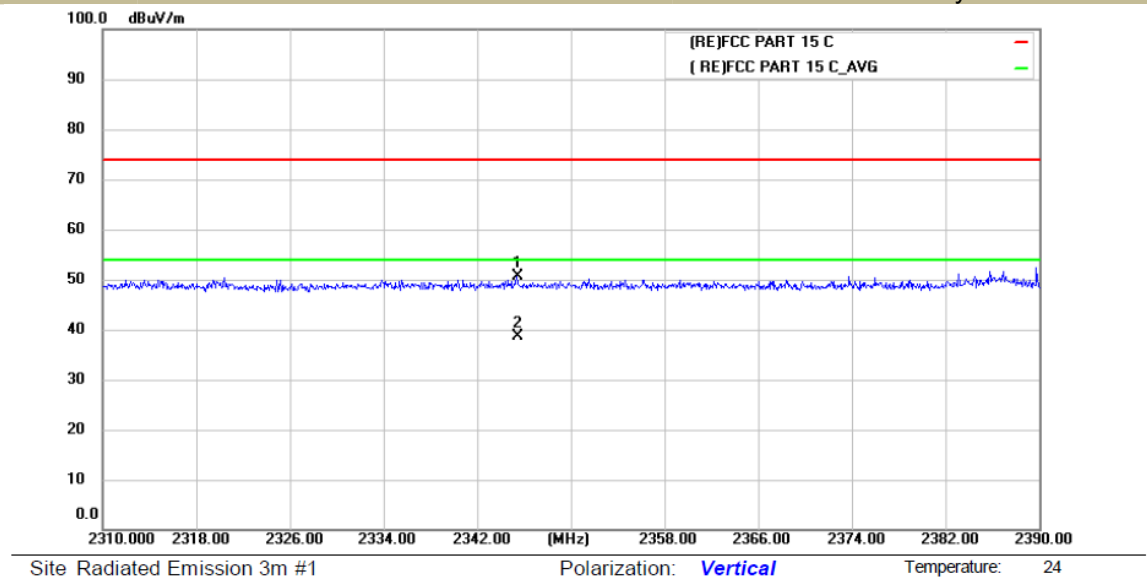


Spurious Emission in Restricted Band 2310-2390MHz
802.11g

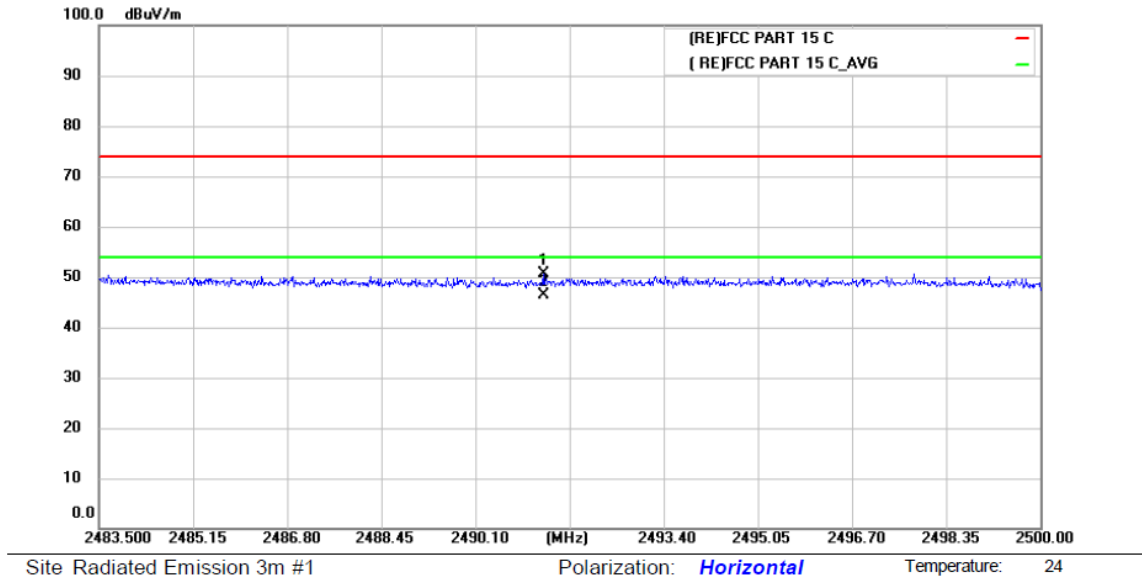
Test Model

Channel 1: 2412MHz

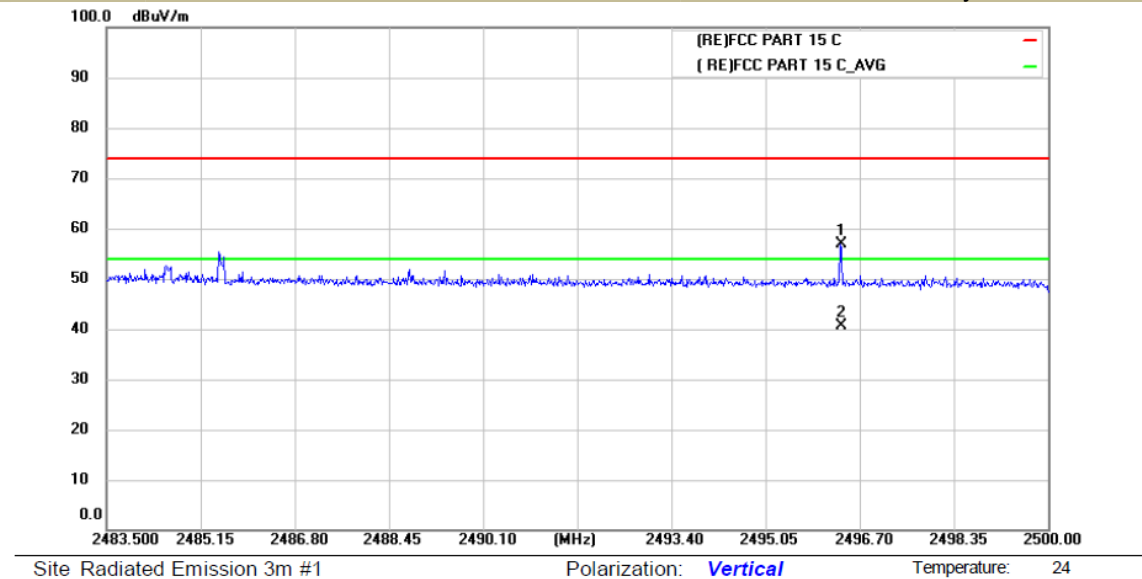
Polarity: V



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

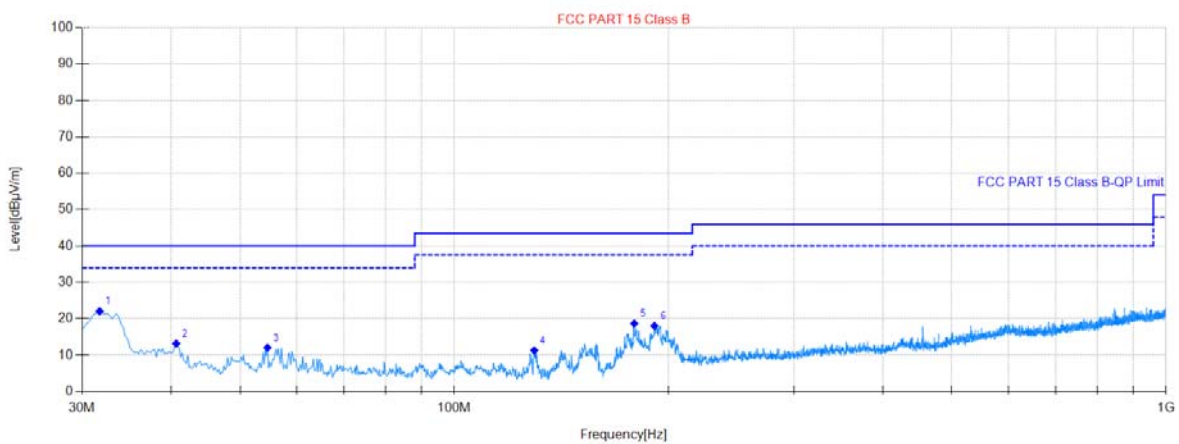


Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz		
	802.11g		
	Channel 11: 2462MHz	Polarity: V	



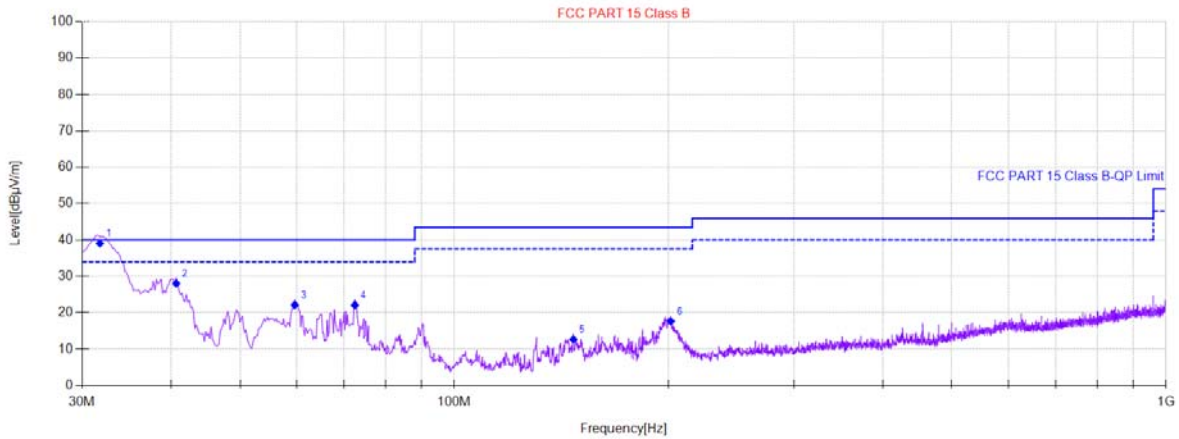
- Spurious Emission below 1GHz (30MHz to 1GHz)
- All modes 2.4G 802.11b/g/n have been tested, and the worst result 802.11g recorded was report as below:

Project Information(DRFM12-RGB)			
Mode:	2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



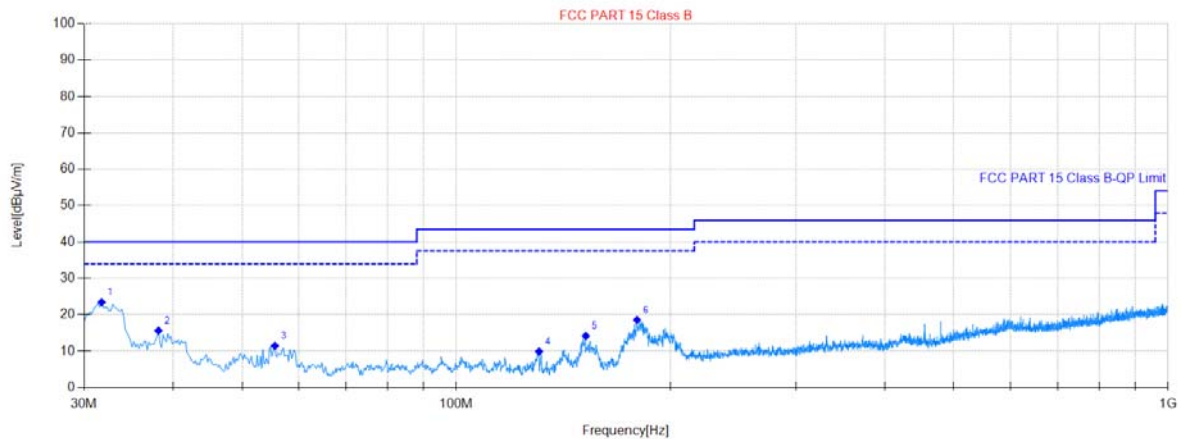
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.746	53.33	-31.26	22.07	40.00	17.93	100	195	Horizontal	Pass
2	40.672	43.70	-30.52	13.18	40.00	26.82	100	171	Horizontal	Pass
3	54.643	43.04	-30.99	12.05	40.00	27.95	100	44	Horizontal	Pass
4	129.541	44.95	-33.67	11.28	43.50	32.22	200	270	Horizontal	Pass
5	179.021	50.64	-31.98	18.66	43.50	24.84	100	259	Horizontal	Pass
6	191.052	49.53	-31.48	18.05	43.50	25.45	200	216	Horizontal	Pass

Project Information(DRFM12-RGB)			
Mode:	2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



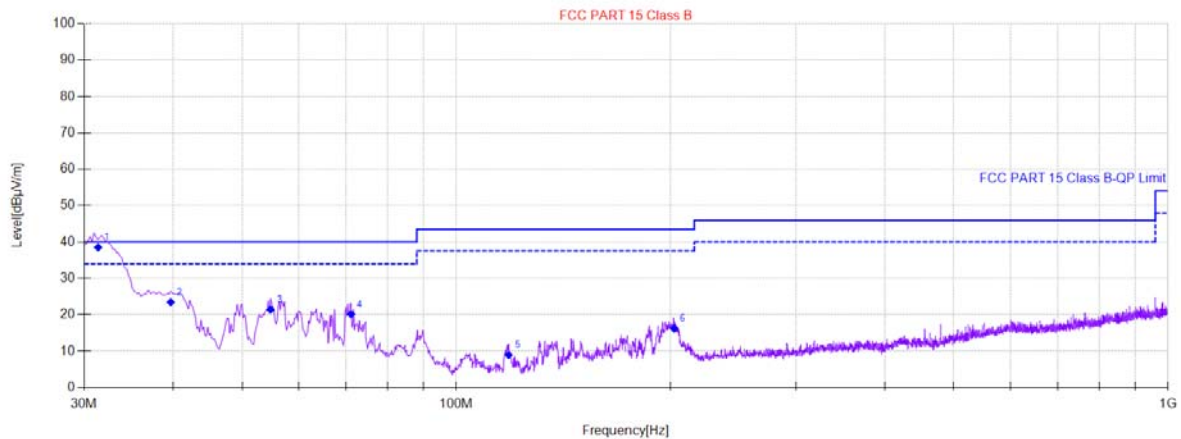
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.768	70.33	-31.28	39.05	40.00	0.95	100	189	Vertical	Pass
2	40.672	58.57	-30.52	28.05	40.00	11.95	100	281	Vertical	Pass
3	59.688	54.04	-31.86	22.18	40.00	17.82	100	92	Vertical	Pass
4	72.495	55.16	-33.05	22.11	40.00	17.89	100	189	Vertical	Pass
5	147.005	46.01	-33.31	12.70	43.50	30.80	100	124	Vertical	Pass
6	201.530	48.29	-30.68	17.61	43.50	25.89	100	79	Vertical	Pass

Project Information(DRFM12-RGB)			
Mode:	2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



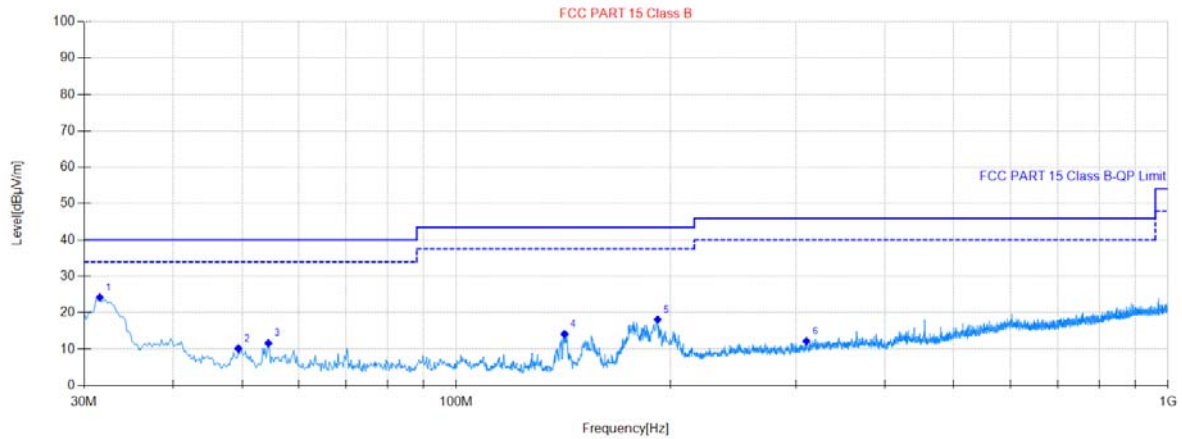
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.746	54.72	-31.26	23.46	40.00	16.54	100	5	Horizontal	Pass
2	38.150	46.37	-30.74	15.63	40.00	24.37	100	214	Horizontal	Pass
3	55.613	42.62	-31.16	11.46	40.00	28.54	200	212	Horizontal	Pass
4	130.706	43.62	-33.73	9.89	43.50	33.61	200	207	Horizontal	Pass
5	152.050	47.14	-32.98	14.16	43.50	29.34	200	99	Horizontal	Pass
6	179.409	50.50	-31.95	18.55	43.50	24.95	200	52	Horizontal	Pass

Project Information(DRFM12-RGB)			
Mode:	2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



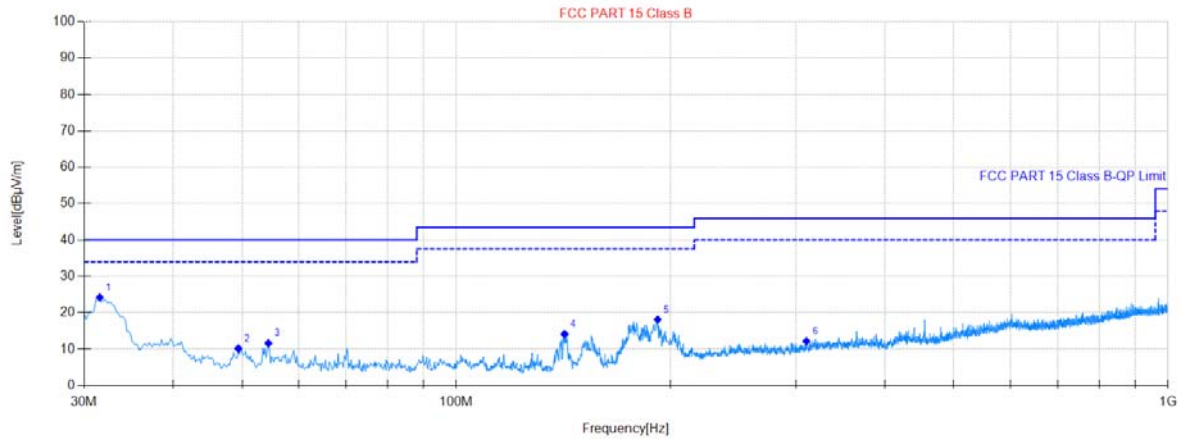
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.386	69.84	-31.32	38.52	40.00	1.48	100	300	Vertical	Pass
2	39.702	54.07	-30.61	23.46	40.00	16.54	100	345	Vertical	Pass
3	54.837	52.47	-31.02	21.45	40.00	18.55	100	131	Vertical	Pass
4	71.136	53.24	-33.07	20.17	40.00	19.83	100	240	Vertical	Pass
5	118.481	41.93	-32.99	8.94	43.50	34.56	100	181	Vertical	Pass
6	202.306	46.88	-30.66	16.22	43.50	27.28	100	196	Vertical	Pass

Project Information(DRFM12-RGB)			
Mode:	2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



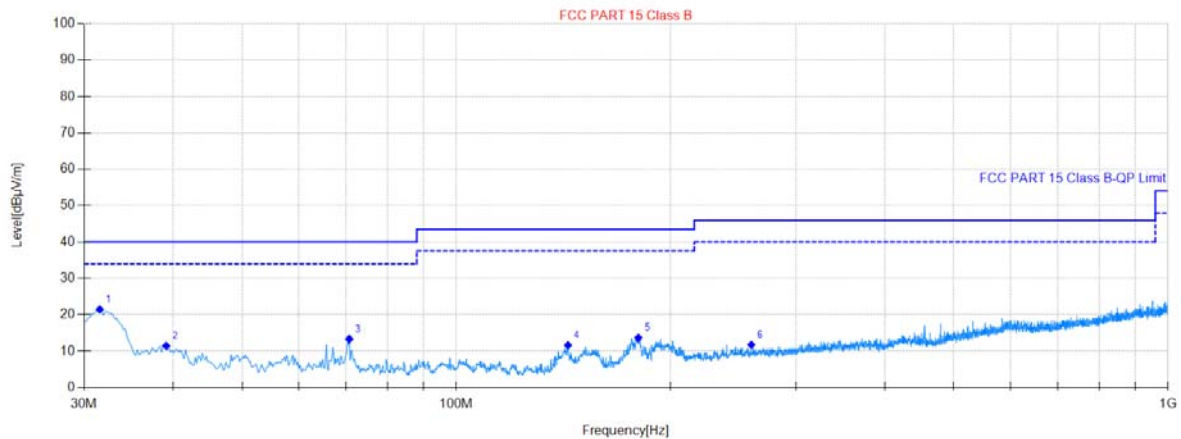
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.552	55.49	-31.27	24.22	40.00	15.78	200	111	Horizontal	Pass
2	49.404	40.39	-30.18	10.21	40.00	29.79	100	227	Horizontal	Pass
3	54.449	42.60	-30.96	11.64	40.00	28.36	100	227	Horizontal	Pass
4	141.960	48.04	-33.91	14.13	43.50	29.37	200	51	Horizontal	Pass
5	191.828	49.55	-31.41	18.14	43.50	25.36	100	239	Horizontal	Pass
6	310.386	40.04	-27.88	12.16	46.00	33.84	100	202	Horizontal	Pass

Project Information(DRFM12-RGB)			
Mode:	2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



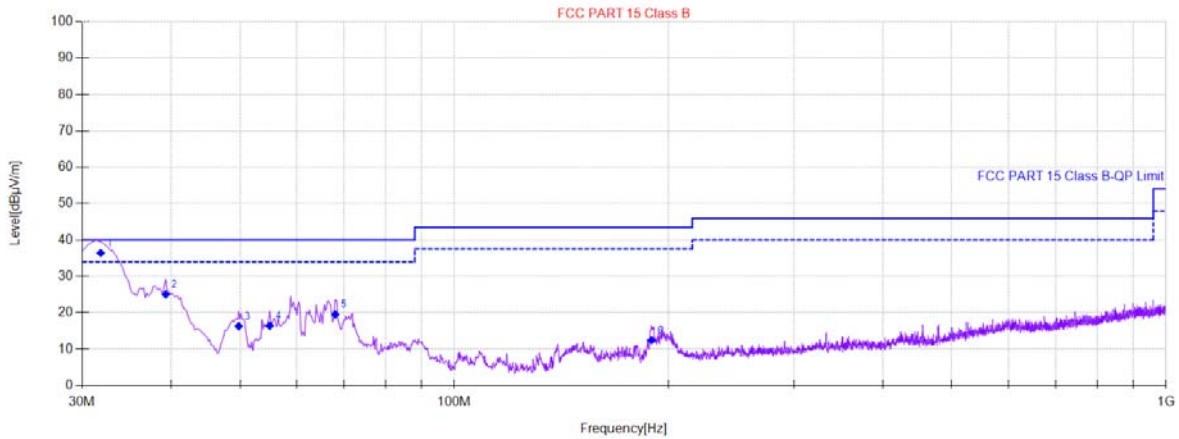
Final Data List										
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1	31.632	69.98	-31.29	38.69	40.00	1.31	100	172	Vertical	Pass
2	40.284	51.74	-30.56	21.18	40.00	18.82	100	198	Vertical	Pass
3	59.106	50.43	-31.76	18.67	40.00	21.33	100	315	Vertical	Pass
4	71.330	44.58	-33.06	11.52	40.00	28.48	100	137	Vertical	Pass
5	132.064	41.48	-33.79	7.69	43.50	35.81	100	204	Vertical	Pass
6	201.142	44.90	-30.69	14.21	43.50	29.29	100	169	Vertical	Pass

Project Information(DRFM14-RGB)			
Mode:	2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



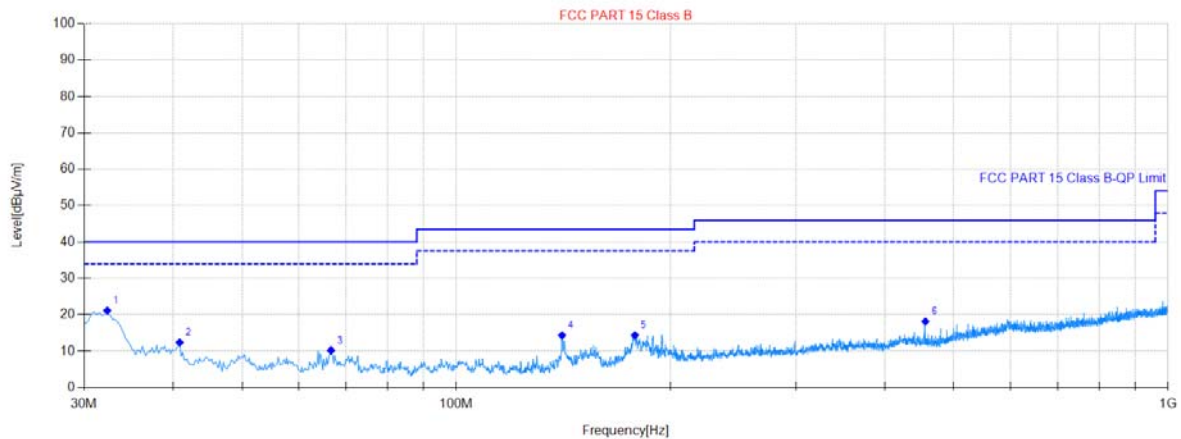
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1	31.5523	52.76	-31.27	21.49	40.00	18.51	100	97	Horizontal	Pass
2	39.1198	42.13	-30.66	11.47	40.00	28.53	100	347	Horizontal	Pass
3	70.7482	46.42	-33.07	13.35	40.00	26.65	100	112	Horizontal	Pass
4	143.5127	45.37	-33.73	11.64	43.50	31.86	100	235	Horizontal	Pass
5	180.186	45.53	-31.89	13.64	43.50	29.86	100	239	Horizontal	Pass
6	259.7419	40.61	-28.83	11.78	46.00	34.22	200	22	Horizontal	Pass

Project Information(DRFM14-RGB)			
Mode:	2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



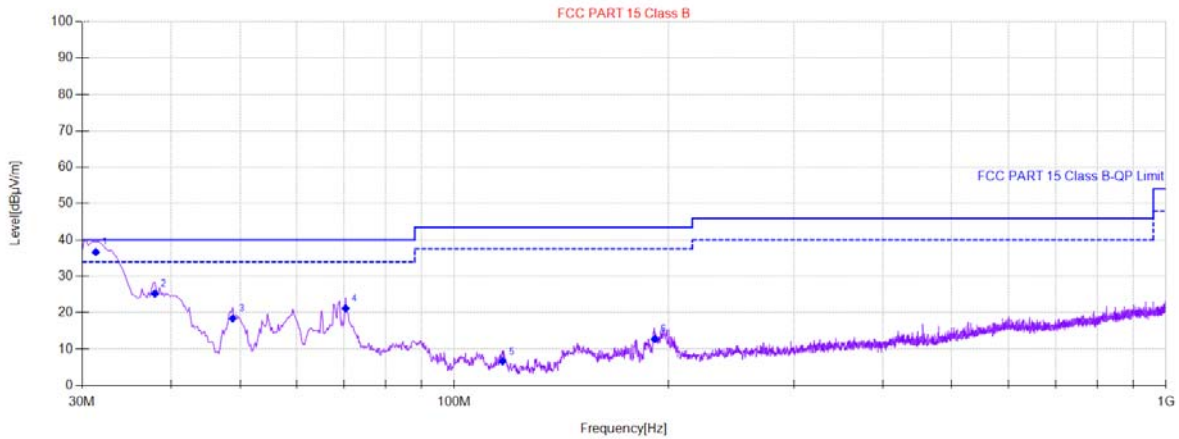
Final Data List										
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1	31.8583	67.72	-31.29	36.43	40.00	3.57	100	97	Vertical	Pass
2	39.3139	55.71	-30.65	25.06	40.00	14.94	100	156	Vertical	Pass
3	49.792	46.50	-30.19	16.31	40.00	23.69	100	22	Vertical	Pass
4	55.031	47.50	-31.06	16.44	40.00	23.56	100	132	Vertical	Pass
5	68.0316	52.40	-32.85	19.55	40.00	20.45	100	215	Vertical	Pass
6	189.3059	44.04	-31.59	12.45	43.50	31.05	100	192	Vertical	Pass

Project Information(DRFM14-RGB)			
Mode:	2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



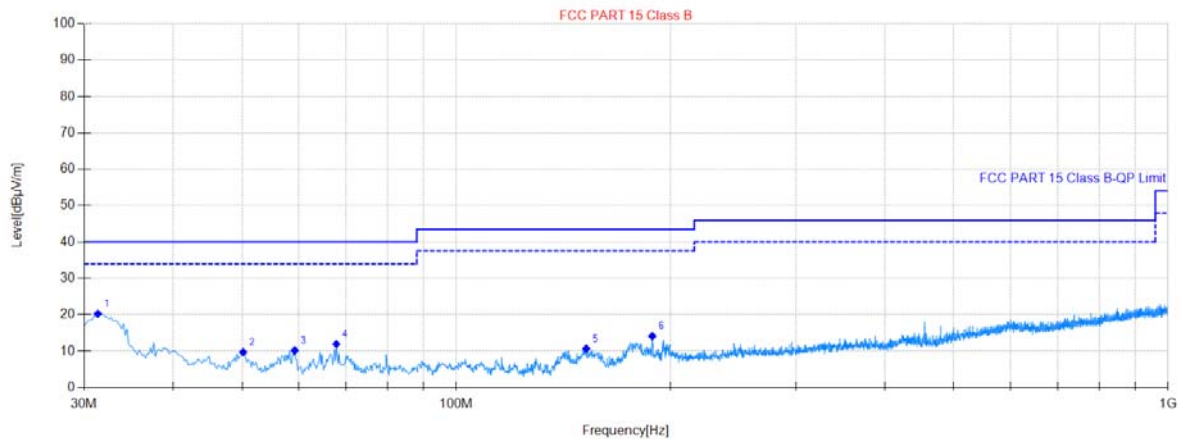
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	32.3285	52.35	-31.21	21.14	40.00	18.86	100	29	Horizontal	Pass
2	40.8662	42.88	-30.50	12.38	40.00	27.62	100	88	Horizontal	Pass
3	66.6733	42.92	-32.69	10.23	40.00	29.77	100	344	Horizontal	Pass
4	140.7962	48.38	-34.05	14.33	43.50	29.17	200	243	Horizontal	Pass
5	178.2456	46.40	-32.05	14.35	43.50	29.15	200	240	Horizontal	Pass
6	456.1092	43.60	-25.44	18.16	46.00	27.84	200	108	Horizontal	Pass

Project Information(DRFM14-RGB)			
Mode:	2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



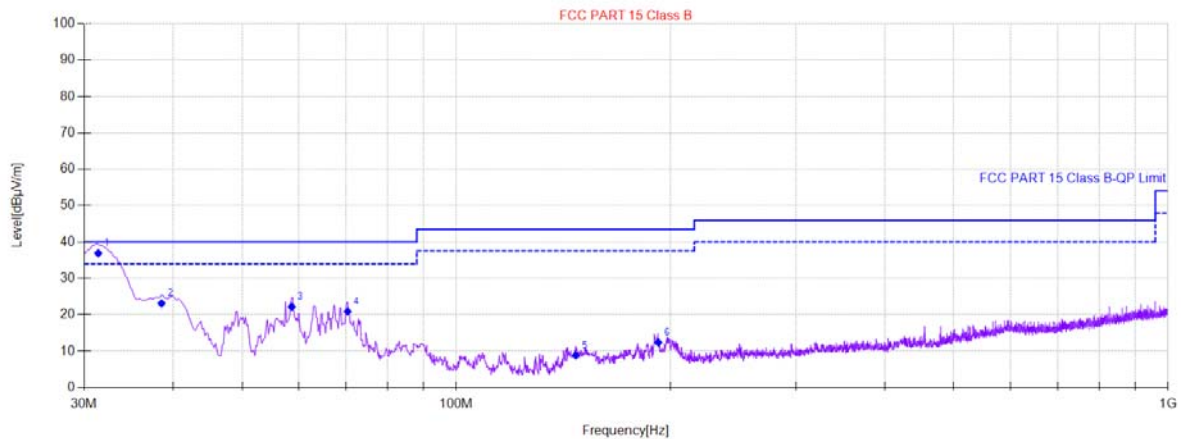
Final Data List										
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1	31.3599	67.99	-31.31	36.68	40.00	3.32	100	126	Vertical	Pass
2	37.9556	56.04	-30.76	25.28	40.00	14.72	100	114	Vertical	Pass
3	48.8218	48.57	-30.17	18.40	40.00	21.60	100	281	Vertical	Pass
4	70.3601	54.28	-33.08	21.20	40.00	18.80	100	126	Vertical	Pass
5	116.9294	39.45	-32.82	6.63	43.50	36.87	100	228	Vertical	Pass
6	191.2462	44.23	-31.46	12.77	43.50	30.73	100	153	Vertical	Pass

Project Information(DRFM14-RGB)			
Mode:	2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



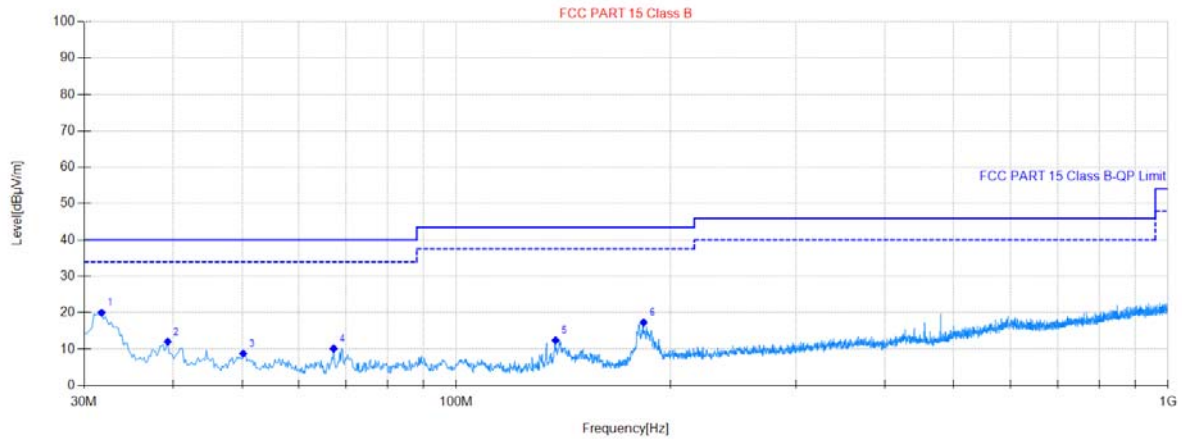
Final Data List										
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1	31.3583	51.56	-31.29	20.27	40.00	19.73	100	107	Horizontal	Pass
2	50.1800	39.95	-30.22	9.73	40.00	30.27	200	193	Horizontal	Pass
3	59.2999	42.01	-31.79	10.22	40.00	29.78	100	60	Horizontal	Pass
4	67.8376	44.78	-32.83	11.95	40.00	28.05	100	52	Horizontal	Pass
5	152.2444	43.66	-32.98	10.68	43.50	32.82	200	234	Horizontal	Pass
6	188.5297	45.73	-31.62	14.11	43.50	29.39	100	215	Horizontal	Pass

Project Information(DRFM14-RGB)			
Mode:	2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



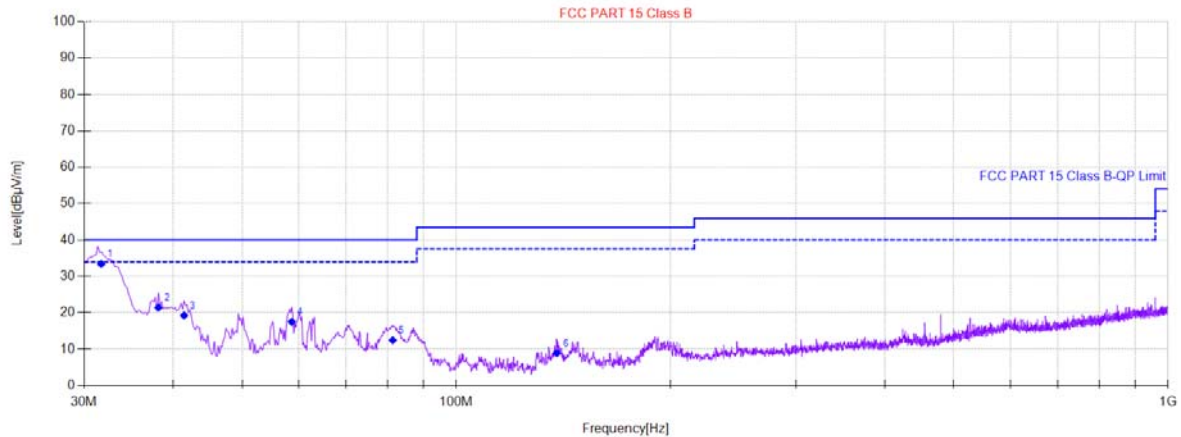
Final Data List										
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1	31.3974	68.20	-31.29	36.91	40.00	3.09	100	193	Vertical	Pass
2	38.5377	53.83	-30.71	23.12	40.00	16.88	100	144	Vertical	Pass
3	58.7177	53.92	-31.69	22.23	40.00	17.77	100	262	Vertical	Pass
4	70.3601	53.98	-33.08	20.90	40.00	19.10	100	286	Vertical	Pass
5	147.1994	42.11	-33.29	8.82	43.50	34.68	100	246	Vertical	Pass
6	192.2164	43.76	-31.38	12.38	43.50	31.12	100	216	Vertical	Pass

Project Information(DRFM16-RGB)			
Mode:	2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



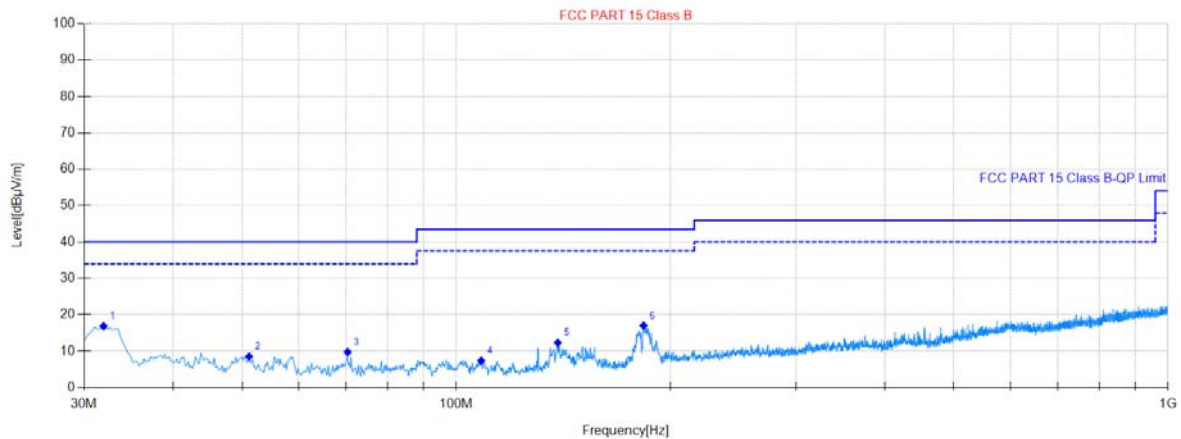
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.7463	51.28	-31.26	20.02	40.00	19.98	100	118	Horizontal	Pass
2	39.3139	42.70	-30.65	12.05	40.00	27.95	100	188	Horizontal	Pass
3	50.18	39.01	-30.22	8.79	40.00	31.21	100	237	Horizontal	Pass
4	67.2555	42.93	-32.76	10.17	40.00	29.83	100	82	Horizontal	Pass
5	137.8856	46.46	-34.05	12.41	43.50	31.09	200	46	Horizontal	Pass
6	183.2907	49.09	-31.79	17.30	43.50	26.20	100	248	Horizontal	Pass

Project Information(DRFM16-RGB)			
Mode:	2412 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



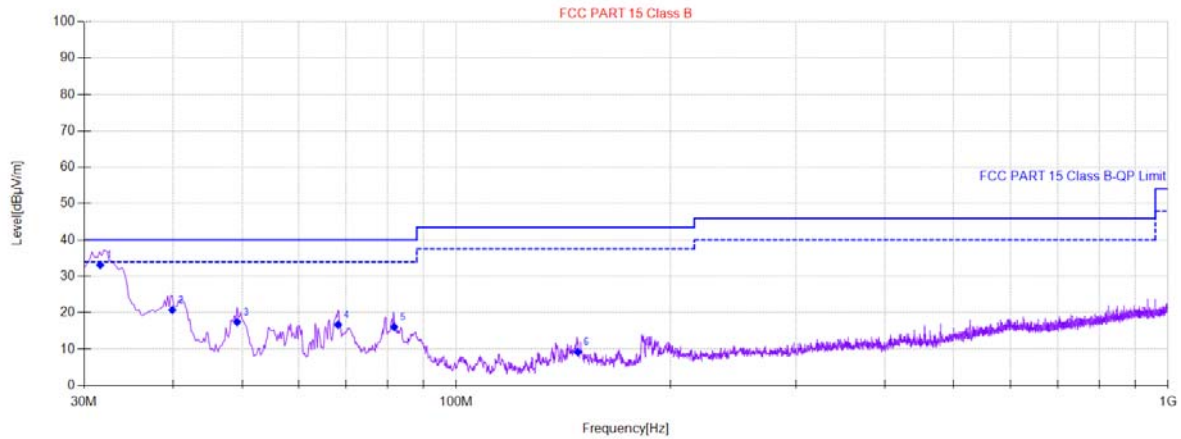
Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.7061	64.71	-31.29	33.42	40.00	6.58	100	79	Vertical	Pass
2	38.1496	52.20	-30.74	21.46	40.00	18.54	100	171	Vertical	Pass
3	41.4483	49.70	-30.45	19.25	40.00	20.75	100	67	Vertical	Pass
4	58.7177	49.18	-31.69	17.49	40.00	22.51	100	123	Vertical	Pass
5	81.4203	45.28	-32.84	12.44	40.00	27.56	100	286	Vertical	Pass
6	138.4677	42.96	-34.07	8.89	43.50	34.61	100	150	Vertical	Pass

Project Information(DRFM16-RGB)			
Mode:	2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



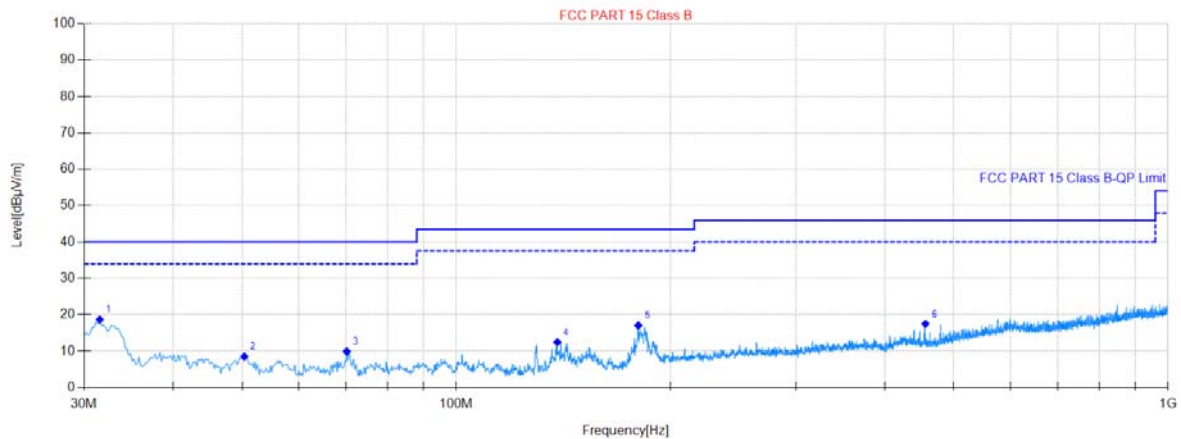
Final Data List										
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1	31.9404	48.07	-31.24	16.83	40.00	23.17	100	145	Horizontal	Pass
2	51.1502	38.93	-30.39	8.54	40.00	31.46	200	348	Horizontal	Pass
3	70.3601	42.84	-33.08	9.76	40.00	30.24	100	23	Horizontal	Pass
4	108.3917	39.28	-31.96	7.32	43.50	36.18	100	12	Horizontal	Pass
5	138.8558	46.39	-34.09	12.30	43.50	31.20	200	281	Horizontal	Pass
6	183.2907	48.78	-31.79	16.99	43.50	26.51	200	242	Horizontal	Pass

Project Information(DRFM16-RGB)			
Mode:	2437 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



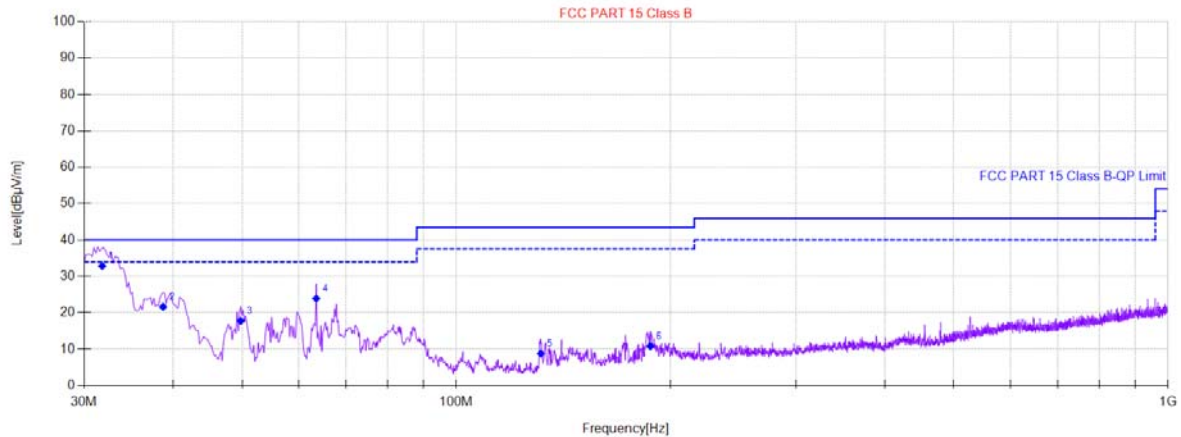
Final Data List										
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1	31.6056	64.36	-31.24	33.12	40.00	6.88	100	282	Vertical	Pass
2	39.896	51.38	-30.60	20.78	40.00	19.22	100	30	Vertical	Pass
3	49.2098	47.60	-30.17	17.43	40.00	22.57	100	189	Vertical	Pass
4	68.2256	49.58	-32.87	16.71	40.00	23.29	100	204	Vertical	Pass
5	81.8084	48.88	-32.81	16.07	40.00	23.93	100	324	Vertical	Pass
6	148.1696	42.37	-33.18	9.19	43.50	34.31	100	150	Vertical	Pass

Project Information(DRFM16-RGB)			
Mode:	2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.5523	49.93	-31.27	18.66	40.00	21.34	200	202	Horizontal	Pass
2	50.3741	38.78	-30.25	8.53	40.00	31.47	200	29	Horizontal	Pass
3	70.166	42.99	-33.08	9.91	40.00	30.09	100	28	Horizontal	Pass
4	138.6617	46.55	-34.08	12.47	43.50	31.03	200	29	Horizontal	Pass
5	180.186	48.93	-31.89	17.04	43.50	26.46	200	270	Horizontal	Pass
6	456.1092	42.91	-25.44	17.47	46.00	28.53	200	44	Horizontal	Pass

Project Information(DRFM16-RGB)			
Mode:	2462 MHz	Voltage:	AC 120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



Final Data List										
NO.	Freq. [MHz]	QP Reading [dBμV/m]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	31.8047	64.16	-31.29	32.87	40.00	7.13	100	138	Vertical	Pass
2	38.7317	52.33	-30.69	21.64	40.00	18.36	100	176	Vertical	Pass
3	49.792	47.96	-30.19	17.77	40.00	22.23	100	184	Vertical	Pass
4	63.5687	56.25	-32.33	23.92	40.00	16.08	100	243	Vertical	Pass
5	131.4823	42.56	-33.77	8.79	43.50	34.71	100	120	Vertical	Pass
6	187.3655	42.50	-31.66	10.84	43.50	32.66	100	349	Vertical	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

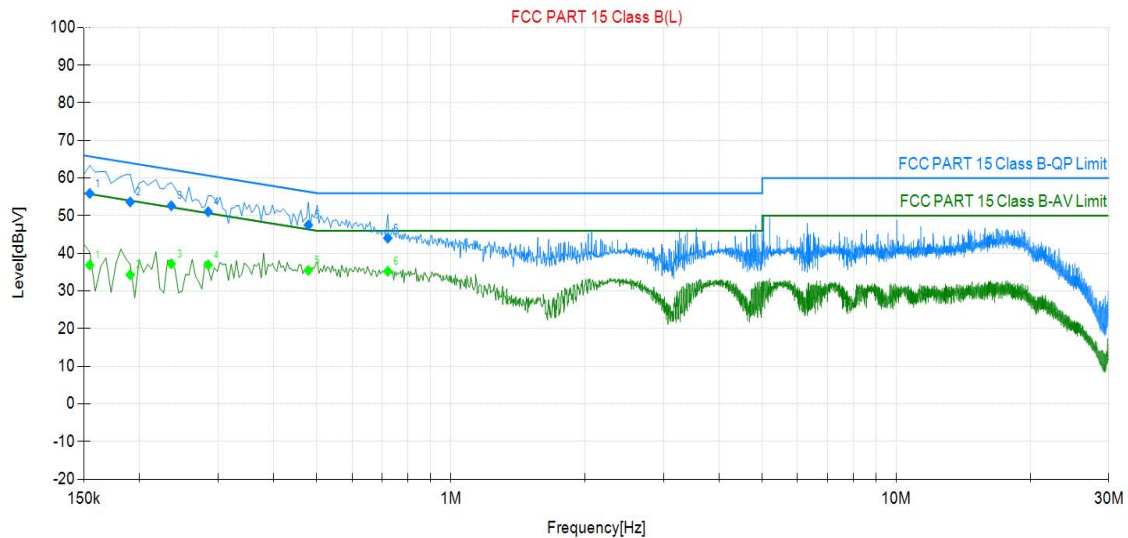
8.6.4 Test Procedure

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

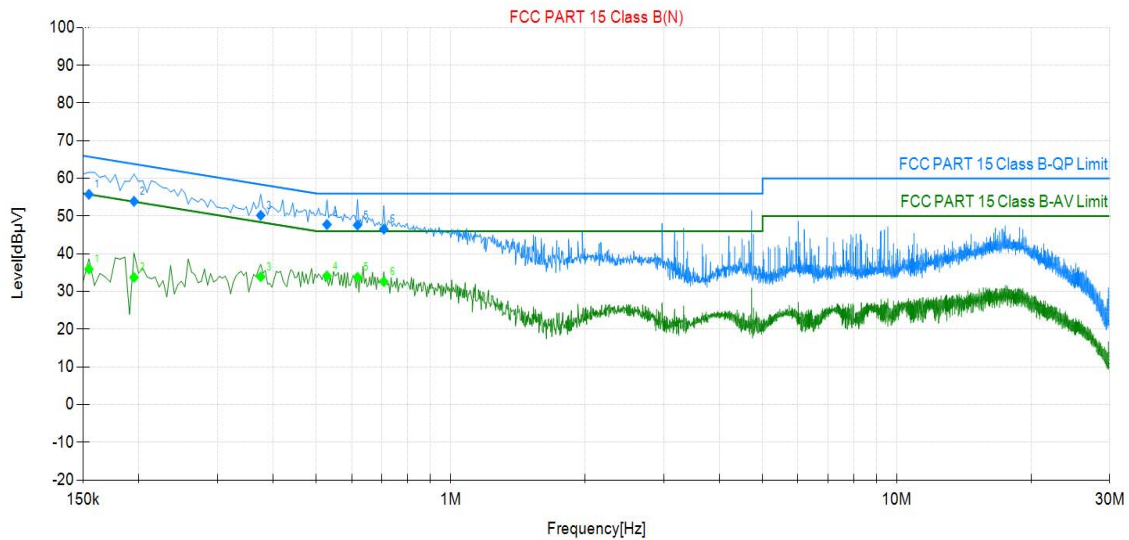
Pass

Project Information(DRFM12-RGB)			
Mode:	TX	Voltage:	AC120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



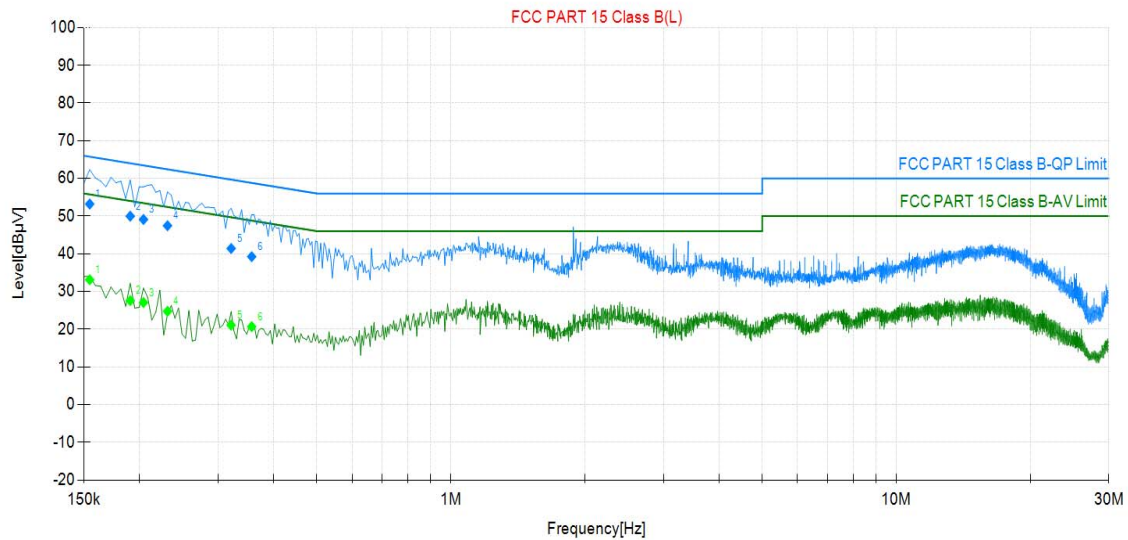
Final Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.155	9.85	46.05	55.90	65.75	9.85	27.04	36.89	55.75	18.86	PASS
2	0.191	9.75	43.91	53.66	64.01	10.35	24.56	34.31	54.01	19.70	PASS
3	0.236	9.76	42.89	52.65	62.25	9.60	27.45	37.21	52.25	15.04	PASS
4	0.285	9.84	41.22	51.06	60.67	9.61	27.10	36.94	50.67	13.73	PASS
5	0.479	9.68	37.82	47.50	56.37	8.87	25.81	35.49	46.37	10.88	PASS
6	0.722	9.76	34.28	44.04	56.00	11.96	25.48	35.24	46.00	10.76	PASS

Project Information(DRFM12-RGB)			
Mode:	TX	Voltage:	AC120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



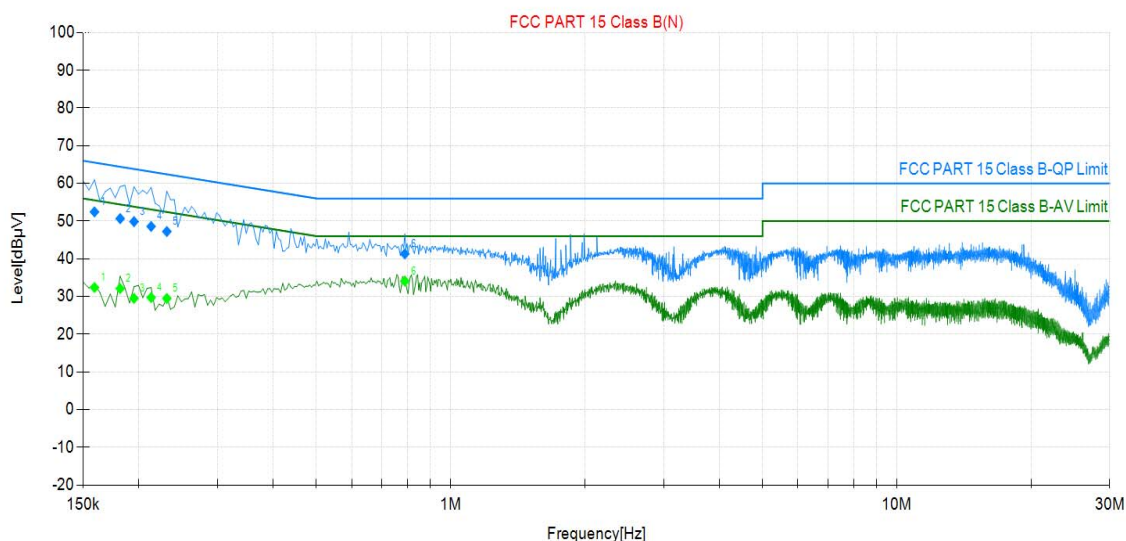
Final Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.155	9.75	46.02	55.77	65.75	9.98	26.18	35.93	55.75	19.82	PASS
2	0.195	9.88	44.03	53.91	63.82	9.91	23.85	33.73	53.82	20.09	PASS
3	0.375	9.71	40.48	50.19	58.39	8.20	24.21	33.92	48.39	14.47	PASS
4	0.528	9.73	38.03	47.76	56.00	8.24	24.40	34.13	46.00	11.87	PASS
5	0.618	9.66	37.95	47.61	56.00	8.39	24.12	33.78	46.00	12.22	PASS
6	0.708	9.61	36.93	46.54	56.00	9.46	23.01	32.62	46.00	13.38	PASS

Project Information(DRFM14-RGB)			
Mode:	TX	Voltage:	AC120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



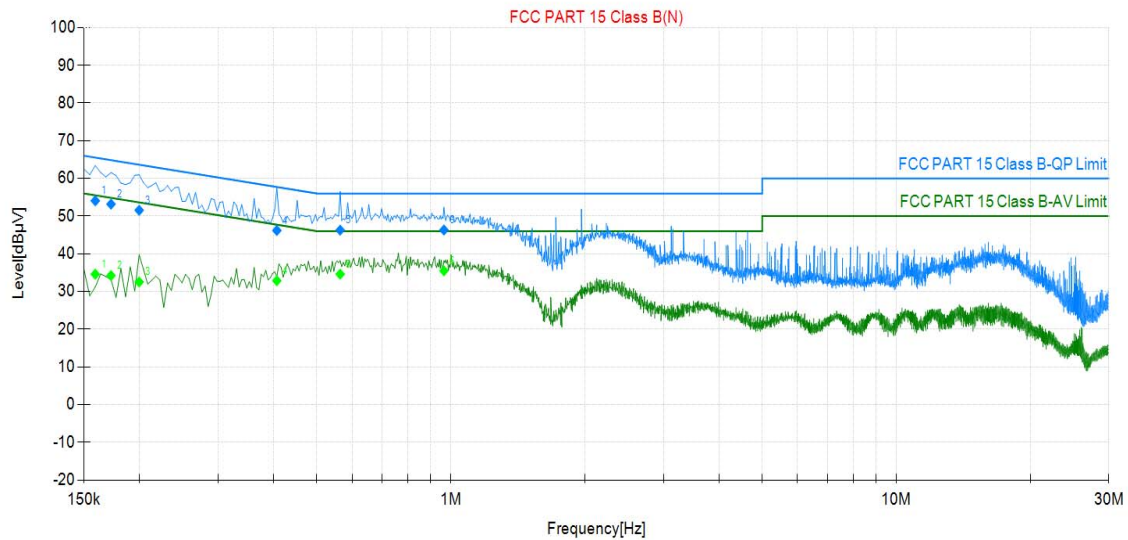
Final Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.155	9.85	43.35	53.20	65.75	12.55	23.28	33.13	55.75	22.62	PASS
2	0.191	9.75	40.23	49.98	64.01	14.03	17.84	27.59	54.01	26.42	PASS
3	0.204	9.72	39.39	49.11	63.45	14.34	17.35	27.07	53.45	26.38	PASS
4	0.231	9.76	37.69	47.45	62.41	14.96	15.00	24.76	52.41	27.65	PASS
5	0.321	9.86	31.55	41.41	59.68	18.27	11.20	21.06	49.68	28.62	PASS
6	0.357	9.82	29.43	39.25	58.80	19.55	10.85	20.67	48.80	28.13	PASS

Project Information(DRFM14-RGB)			
Mode:	TX	Voltage:	AC120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



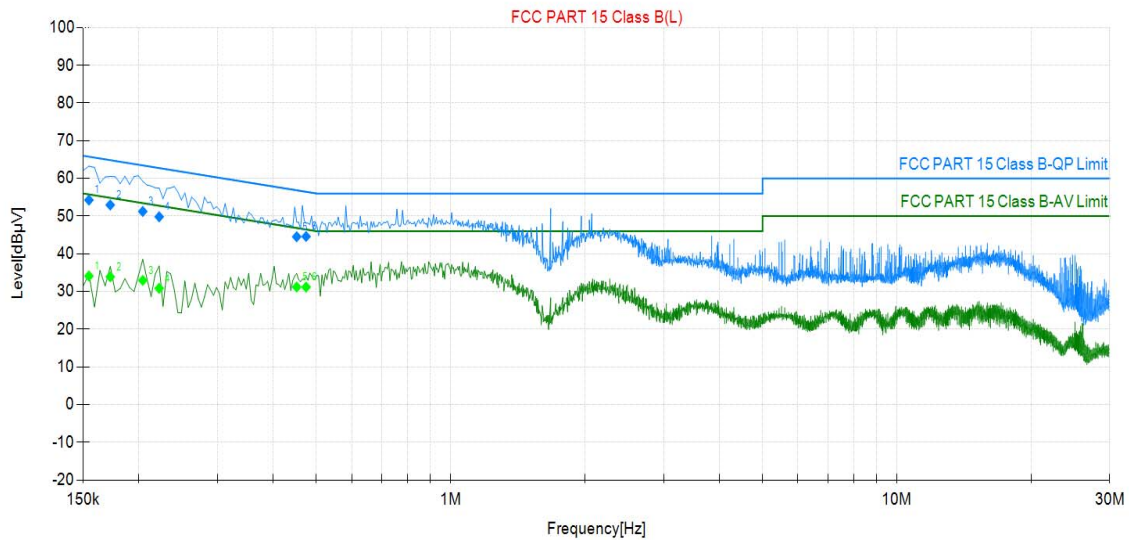
Final Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.159	9.78	42.66	52.44	65.52	13.08	22.61	32.39	55.52	23.13	PASS
2	0.182	9.87	40.79	50.66	64.42	13.76	22.23	32.10	54.42	22.32	PASS
3	0.195	9.88	39.99	49.87	63.82	13.95	19.63	29.51	53.82	24.31	PASS
4	0.213	9.90	38.68	48.58	63.09	14.51	19.81	29.71	53.09	23.38	PASS
5	0.231	9.92	37.31	47.23	62.41	15.18	19.56	29.48	52.41	22.93	PASS
6	0.789	9.57	31.73	41.30	56.00	14.70	24.53	34.10	46.00	11.90	PASS

Project Information(DRFM16-RGB)			
Mode:	TX	Voltage:	AC120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



Final Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.159	9.78	44.28	54.06	65.52	11.46	24.81	34.59	55.52	20.93	PASS
2	0.173	9.86	43.32	53.18	64.84	11.66	24.36	34.22	54.84	20.62	PASS
3	0.200	9.88	41.67	51.55	63.63	12.08	22.65	32.53	53.63	21.10	PASS
4	0.407	9.74	36.44	46.18	57.72	11.54	23.10	32.84	47.72	14.88	PASS
5	0.564	9.70	36.57	46.27	56.00	9.73	24.90	34.60	46.00	11.40	PASS
6	0.965	9.69	36.61	46.30	56.00	9.70	25.78	35.47	46.00	10.53	PASS

Project Information(DRFM16-RGB)			
Mode:	TX	Voltage:	AC120V/60Hz
Environment:	Temp: 25℃; Humi:60%	Engineer:	Allen Tang



Final Data List											
NO.	Freq. [MHz]	Factor [dB]	QP Reading [dBμV]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Reading [dBμV]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Verdict
1	0.155	9.85	44.40	54.25	65.75	11.50	24.25	34.10	55.75	21.65	PASS
2	0.173	9.79	43.16	52.95	64.84	11.89	24.11	33.90	54.84	20.94	PASS
3	0.204	9.72	41.52	51.24	63.45	12.21	23.21	32.93	53.45	20.52	PASS
4	0.222	9.75	40.07	49.82	62.74	12.92	21.09	30.84	52.74	21.90	PASS
5	0.452	9.69	34.83	44.52	56.85	12.33	21.49	31.18	46.85	15.67	PASS
6	0.474	9.68	34.91	44.59	56.44	11.85	21.49	31.17	46.44	15.27	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 2.21 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 ***

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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.