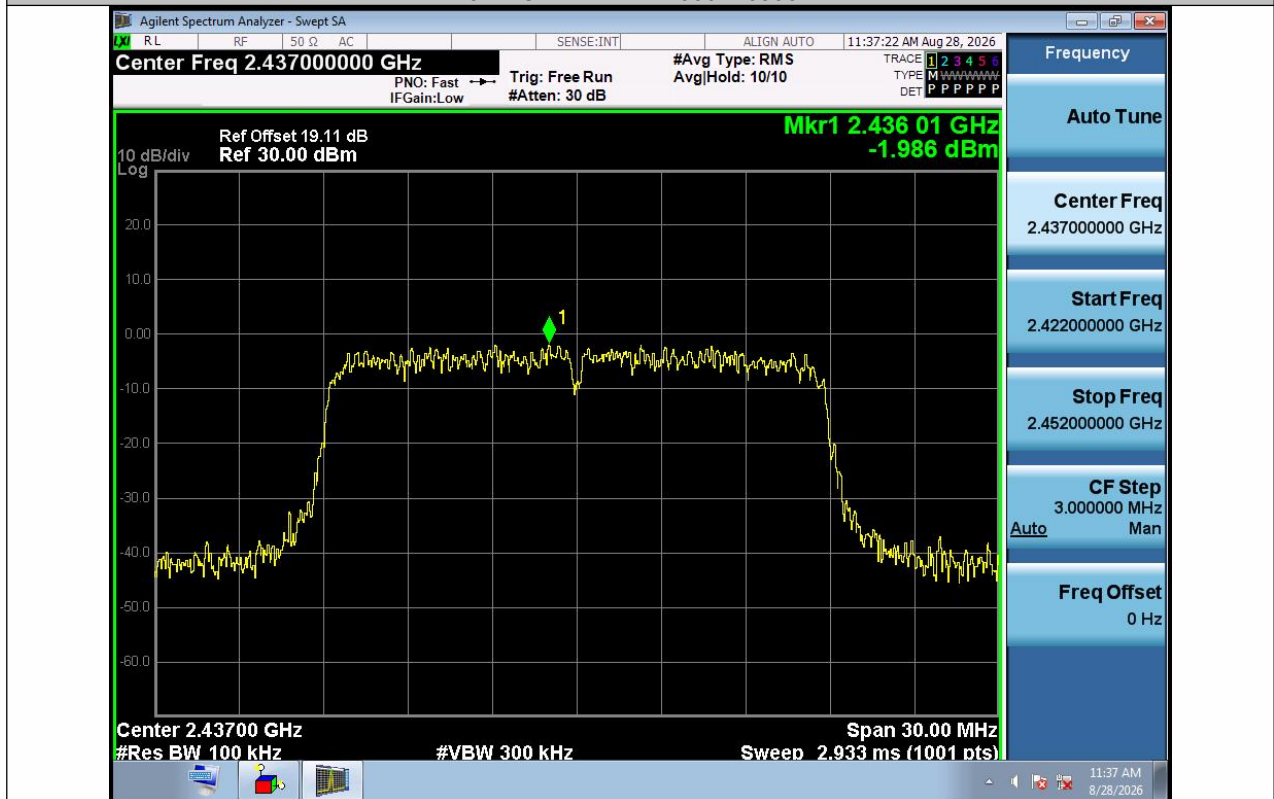
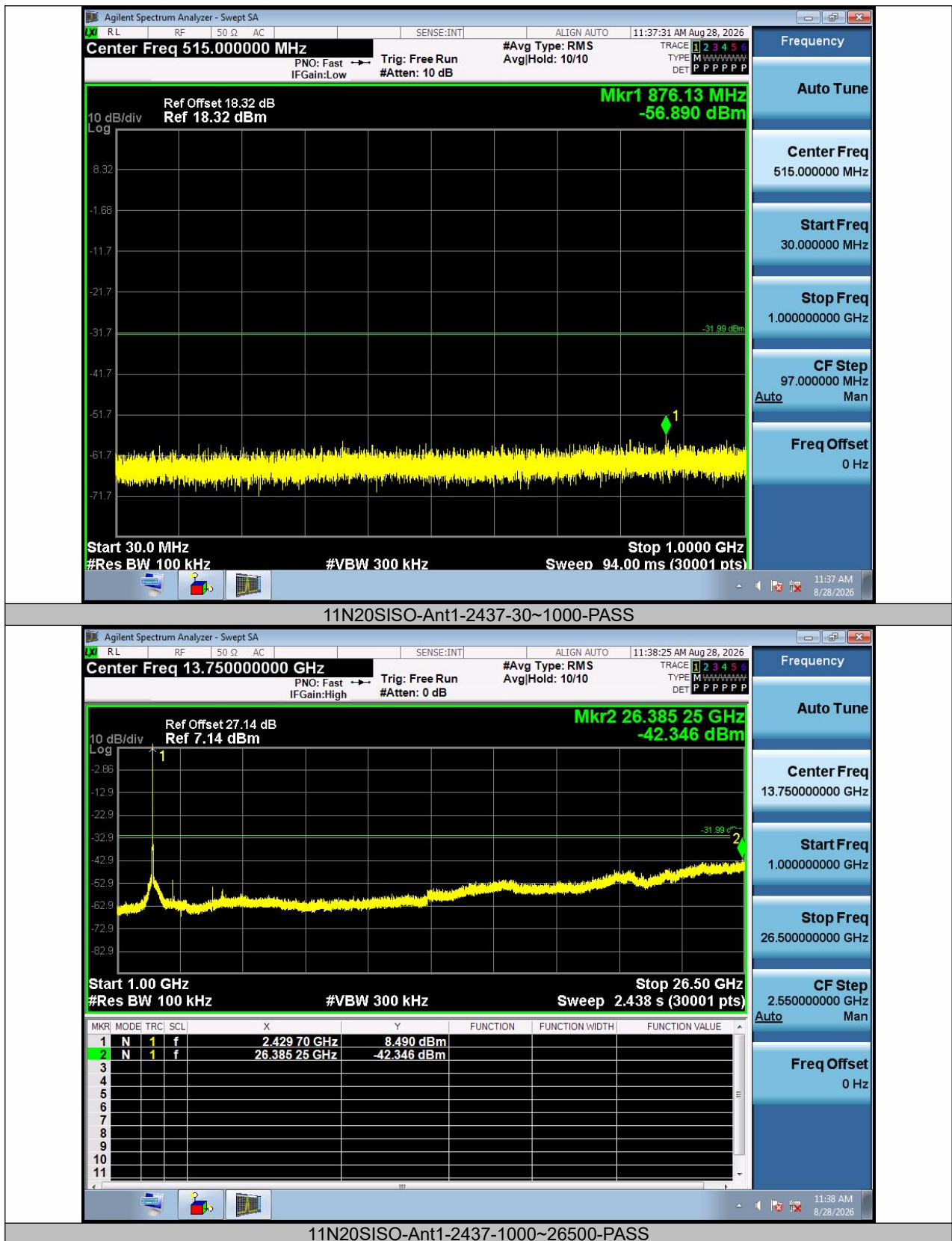


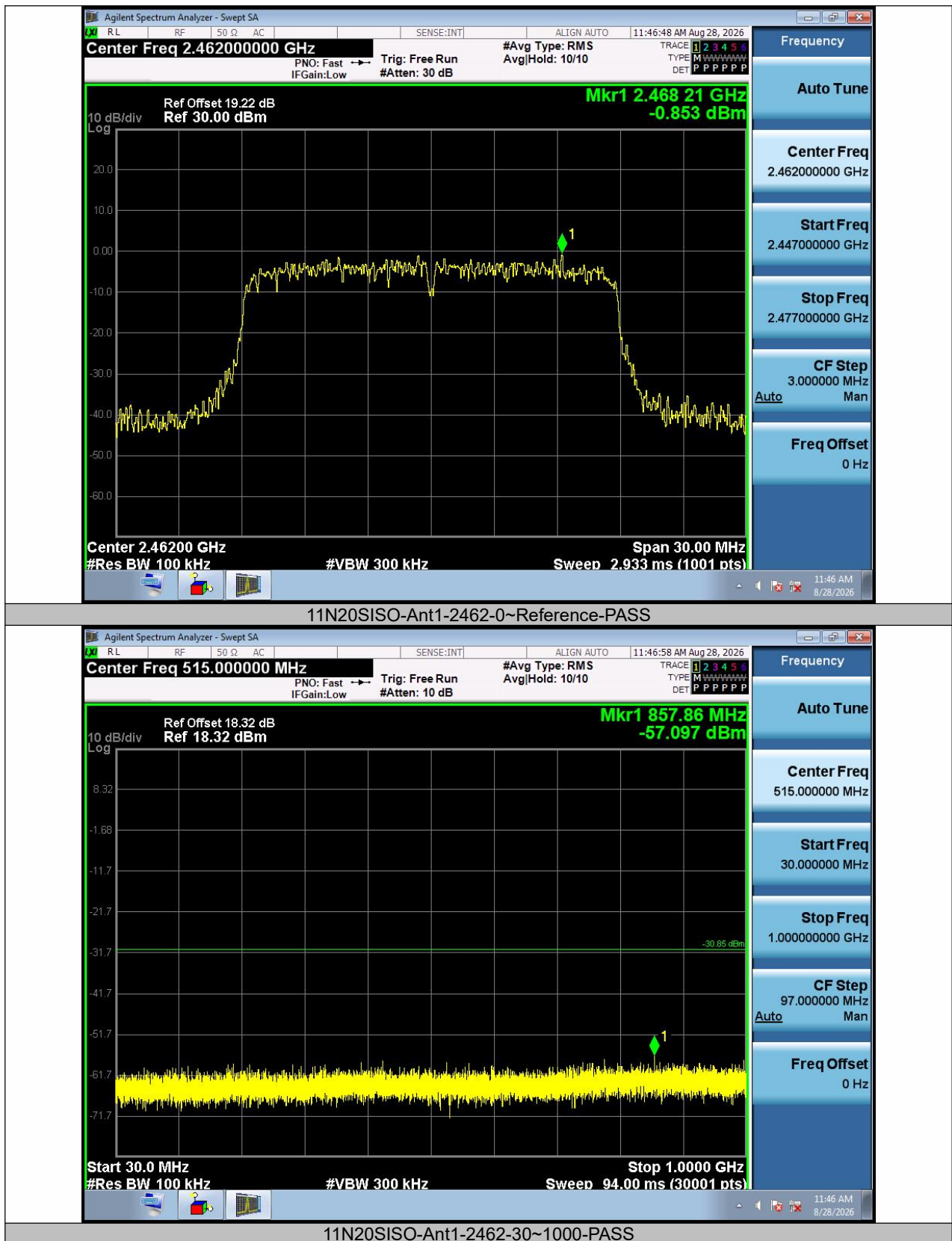


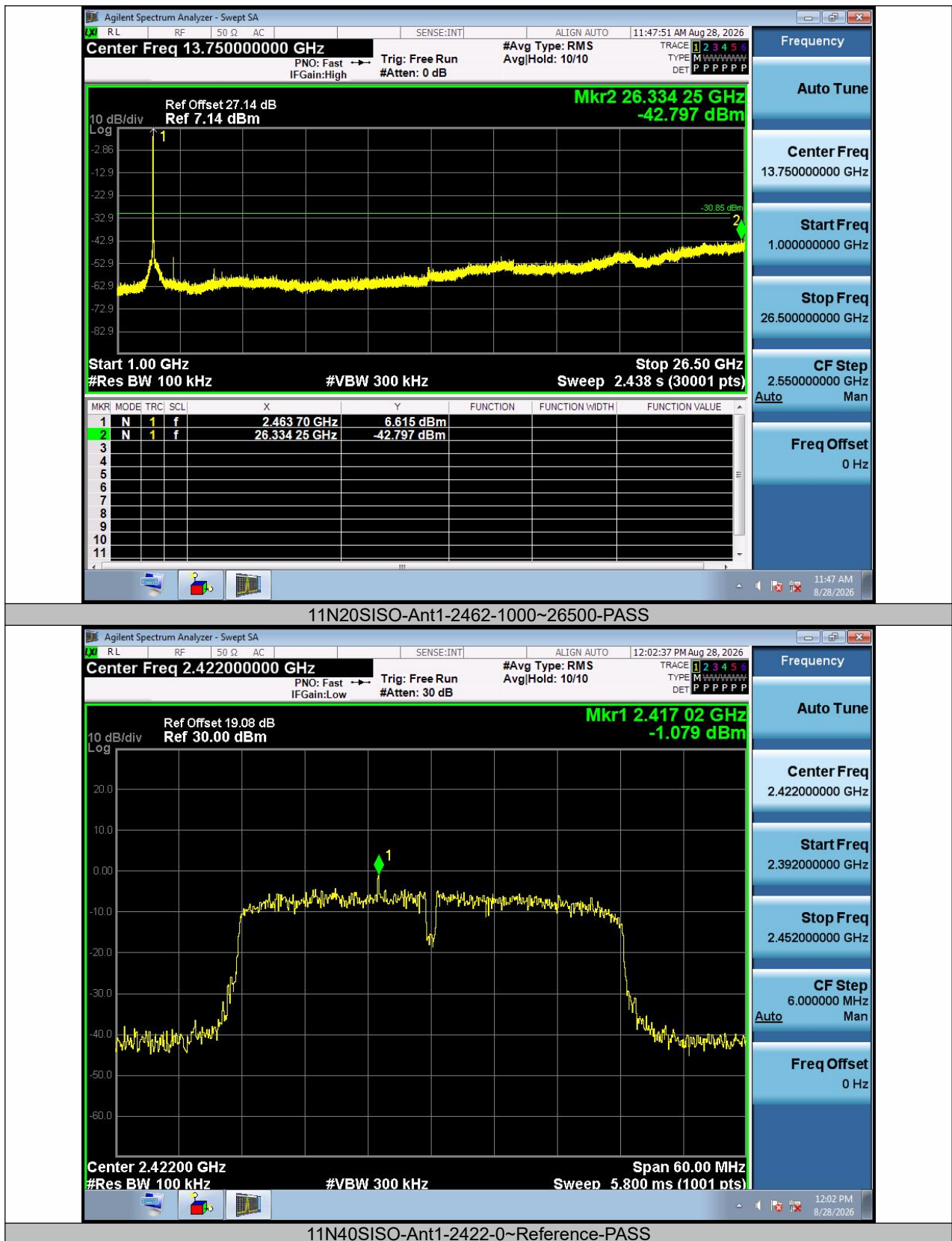
11N20SISO-Ant1-2412-1000~26500-PASS

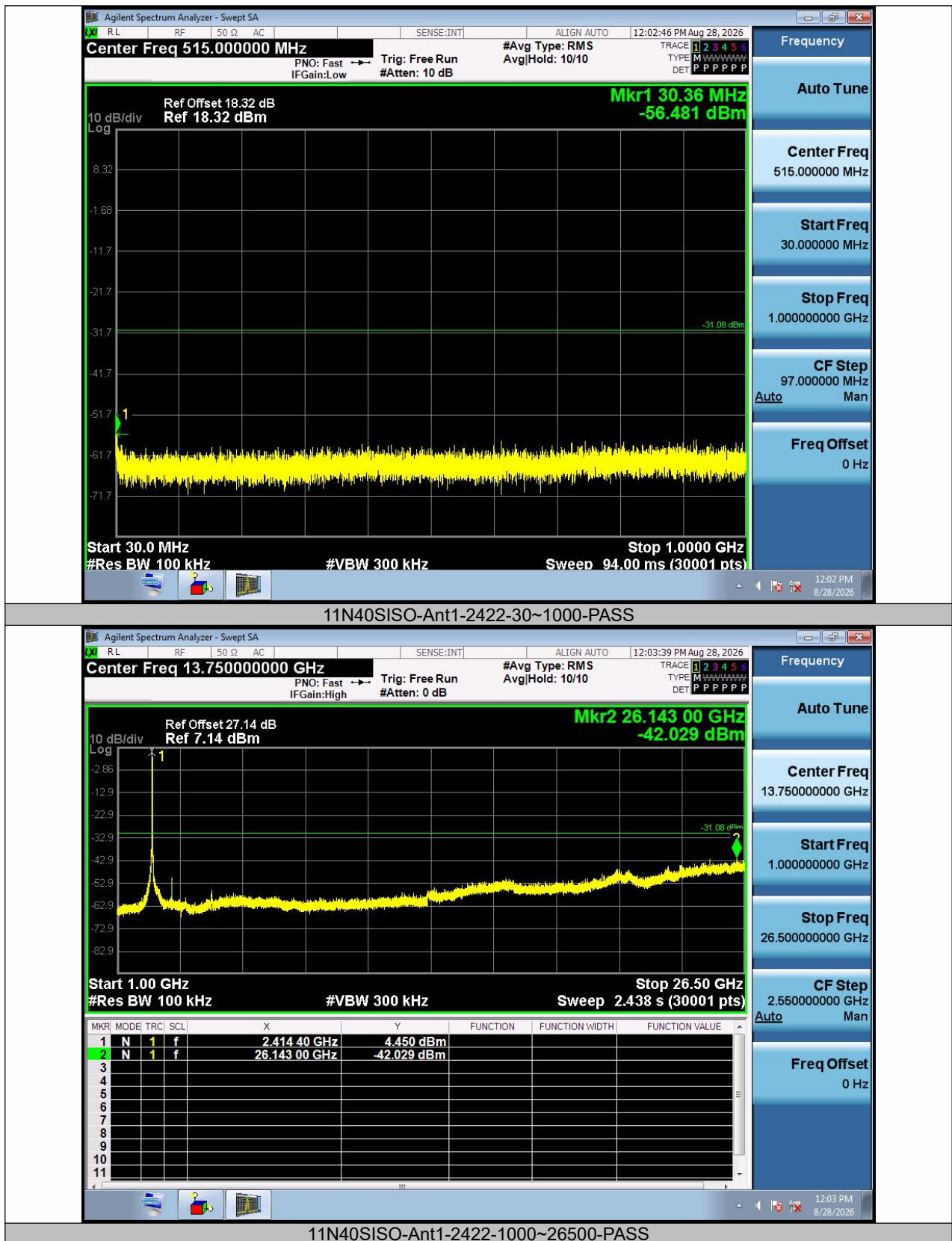


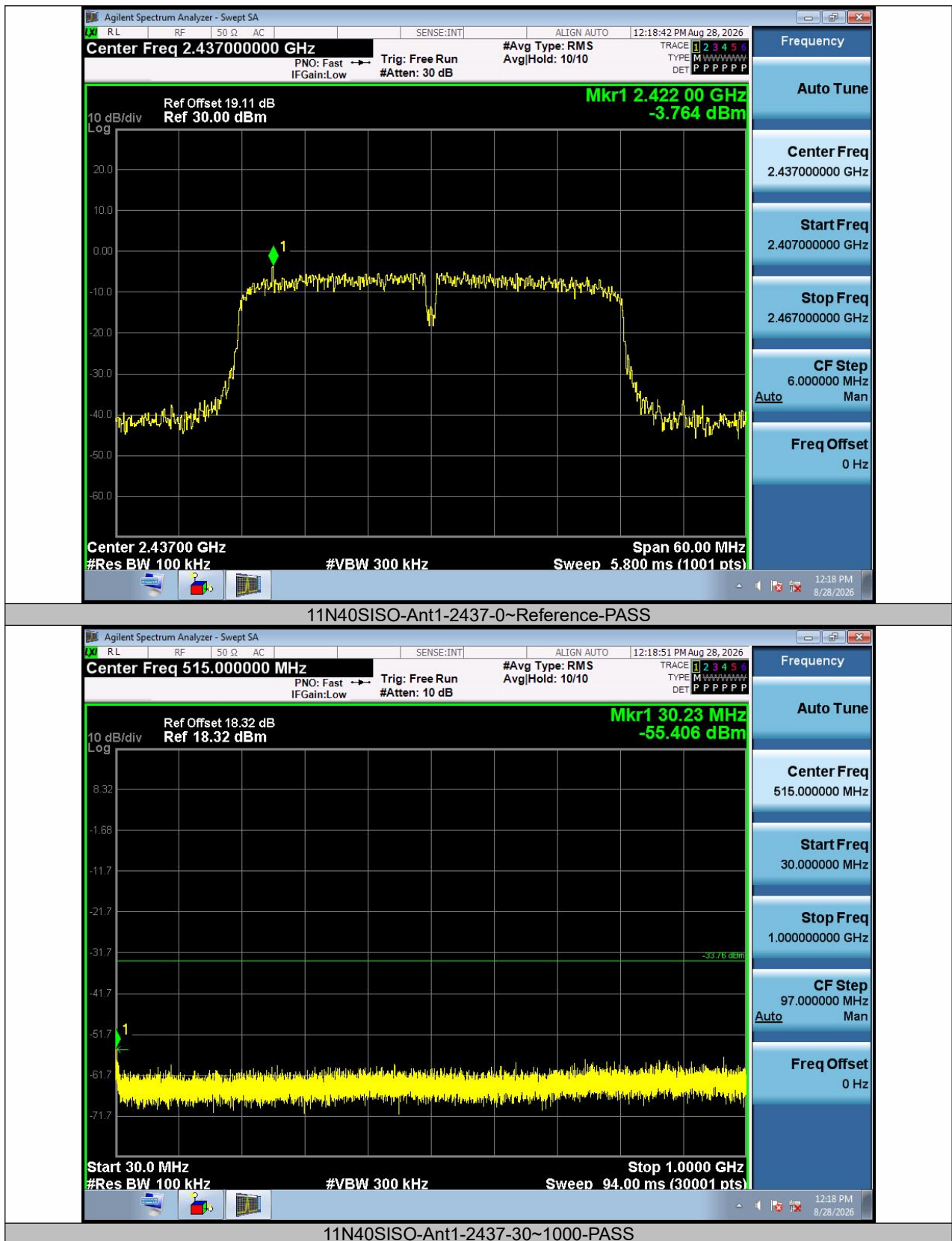
11N20SISO-Ant1-2437-0~Reference-PASS





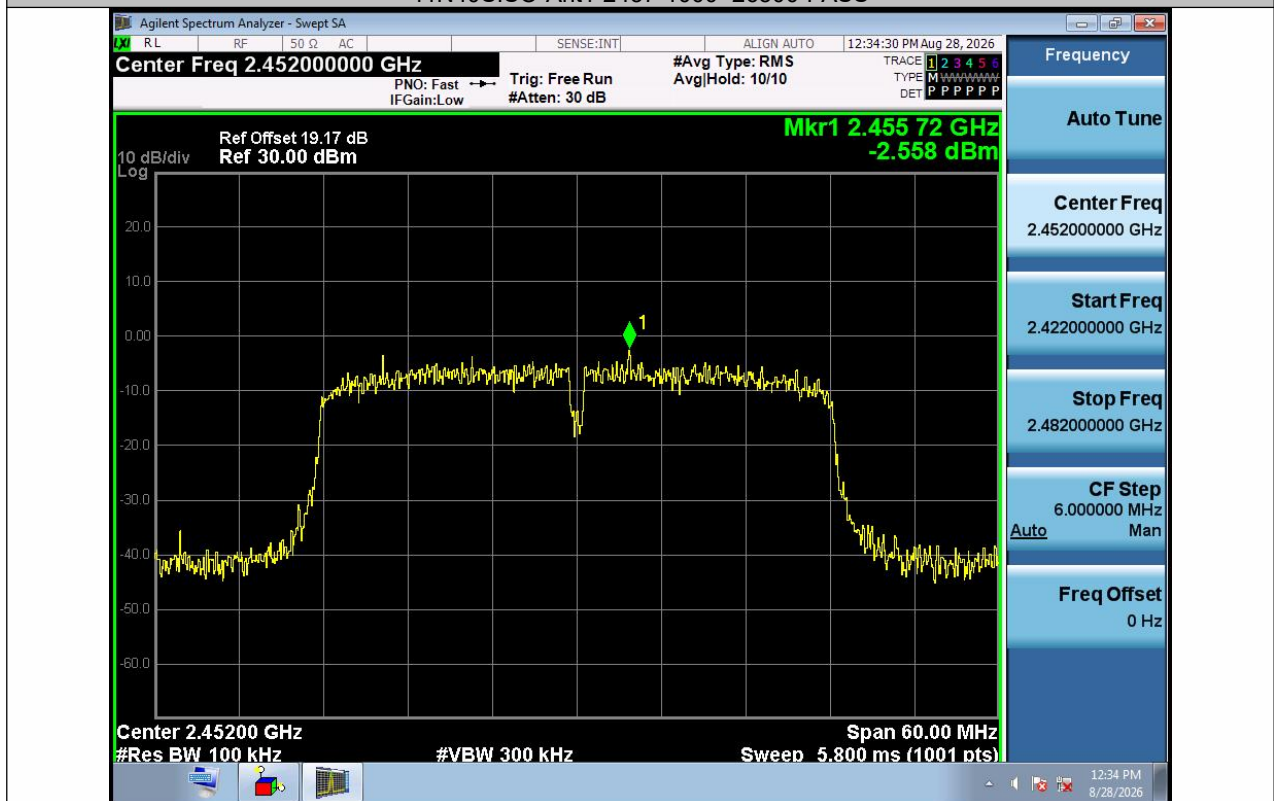




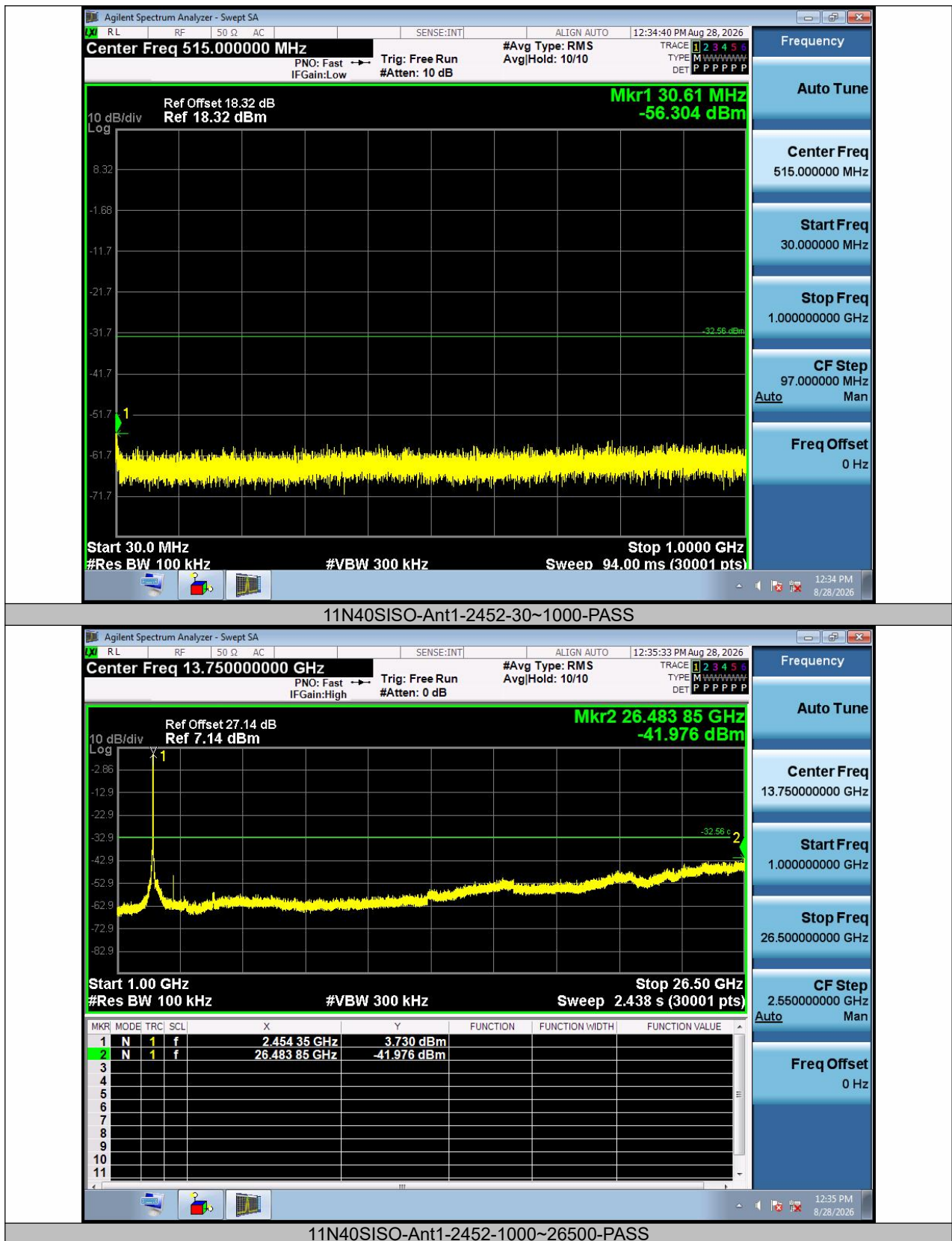




11N40SISO-Ant1-2437-1000~26500-PASS



11N40SISO-Ant1-2452-0~Reference-PASS



8.6 RADIATED SPURIOUS EMISSION

8.6.1 Applicable Standard

According to FCC Part 15.247(d), 15.205, 15.209 and KDB 558074 D01 15.247 Meas Guidance v05r02
According to IC RSS-Gen and RSS-247

8.6.2 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 ($\mu\text{V}/\text{m}$)	Field Strength ($\text{dB}\mu\text{V}/\text{m}$)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log ($\mu\text{V}/\text{m}$)	300
0.490-1.705	24000/F(KHz)	20 log ($\mu\text{V}/\text{m}$)	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

8.6.3 Test Configuration

Test according to clause 6.2 radio frequency test setup

8.6.4 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:

For Above 1GHz:

The EUT was placed on a turn table which is 1.5m 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

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For Below 1GHz:

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 = 100 kHz for

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For Below 30MHz:

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 = 9kHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For Below 150KHz:

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 = 200Hz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Follow the guidelines in ANSI C63.10 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. 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. 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 limit. Submit this data.

Repeat above procedures until all frequency measured was complete.

8.6.5 Test Results

Temperature:	25° C
Relative Humidity:	60%
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
--	--	--	--	--	--	--	--

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 the antenna(Antenna 1)and modes(802.11b/g/n)have been tested and the worst(Antenna 1,802.11b) result recorded was report as below:

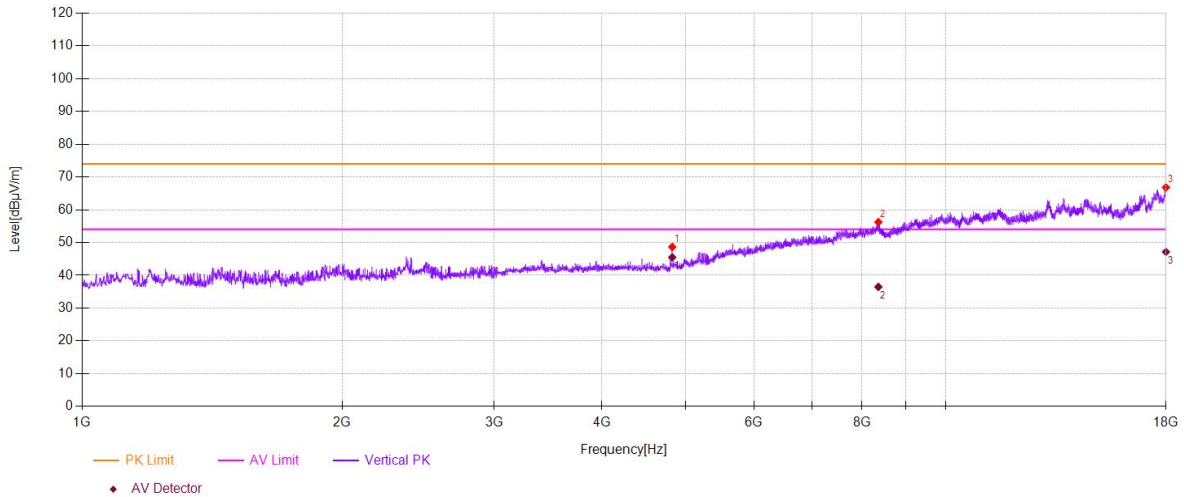
no any obvious emission were detected from 18 GHz to 25 GHz, so below finaltest was performed with frequency range from 1GHz to 18 GHz.

Module1:RBT-AM9421-3IN1_V1

Test mode: 802.11b

Frequency:

Channel 1: 2412MHz

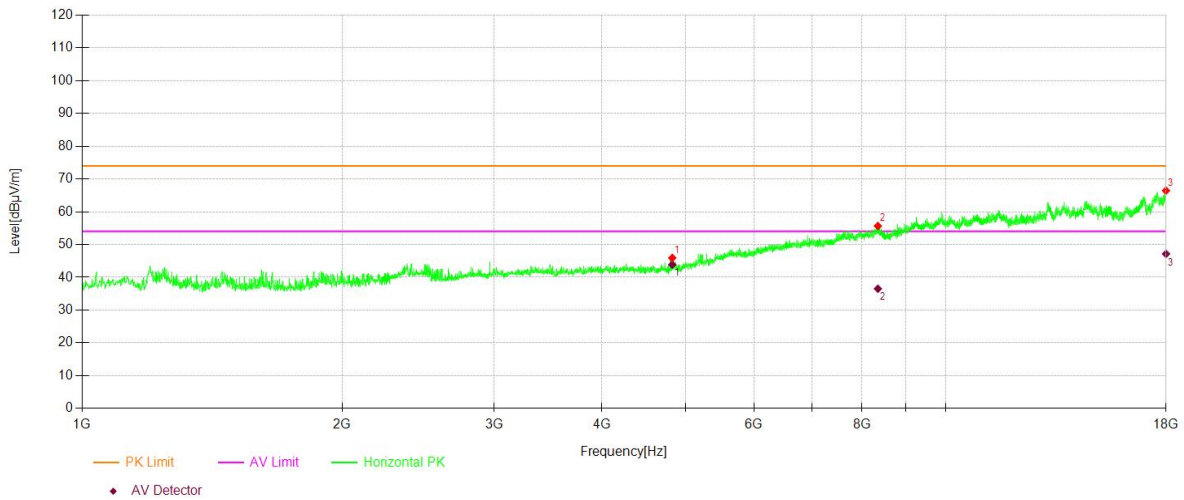


Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4824.375	48.65	-12.34	74.00	25.35	PK	Vertical
2	8358.75	56.24	-2.07	74.00	17.76	PK	Vertical
3	17996.25	66.80	11.92	74.00	7.20	PK	Vertical

AV Final Data List

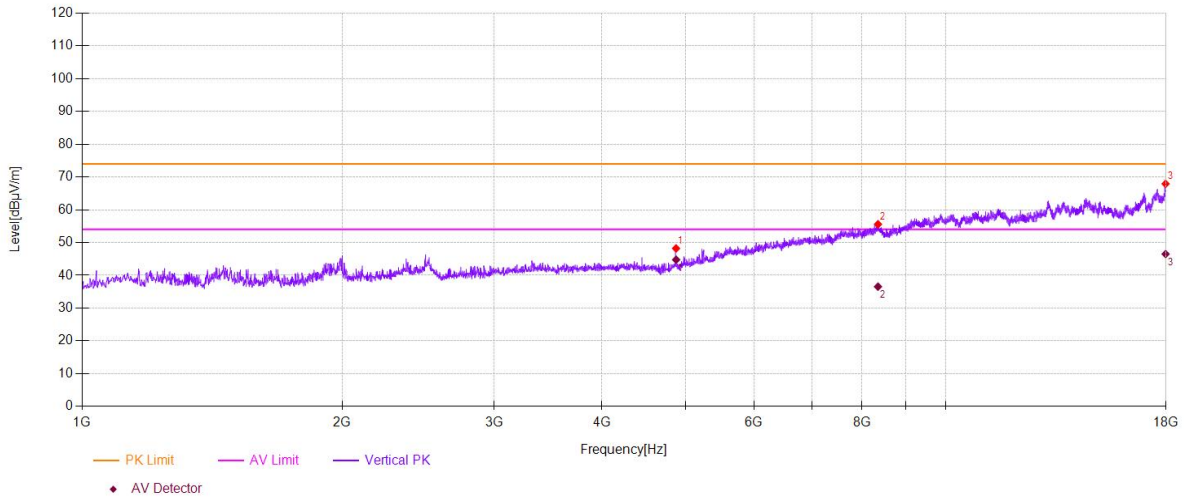
NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4824.0004	45.48	54.00	8.52	AV	Vertical
2	8358.75	36.47	54.00	17.53	AV	Vertical
3	17996.25	47.15	54.00	6.85	AV	Vertical



Suspected Data List							
NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4824.375	45.92	-12.34	74.00	28.08	PK	Horizontal
2	8347.5	55.65	-2.08	74.00	18.35	PK	Horizontal
3	17998.125	66.43	12.00	74.00	7.57	PK	Horizontal

AV Final Data List						
NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4824.375	43.87	54.00	10.13	AV	Horizontal
2	8347.5	36.52	54.00	17.48	AV	Horizontal
3	17998.125	47.14	54.00	6.86	AV	Horizontal

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

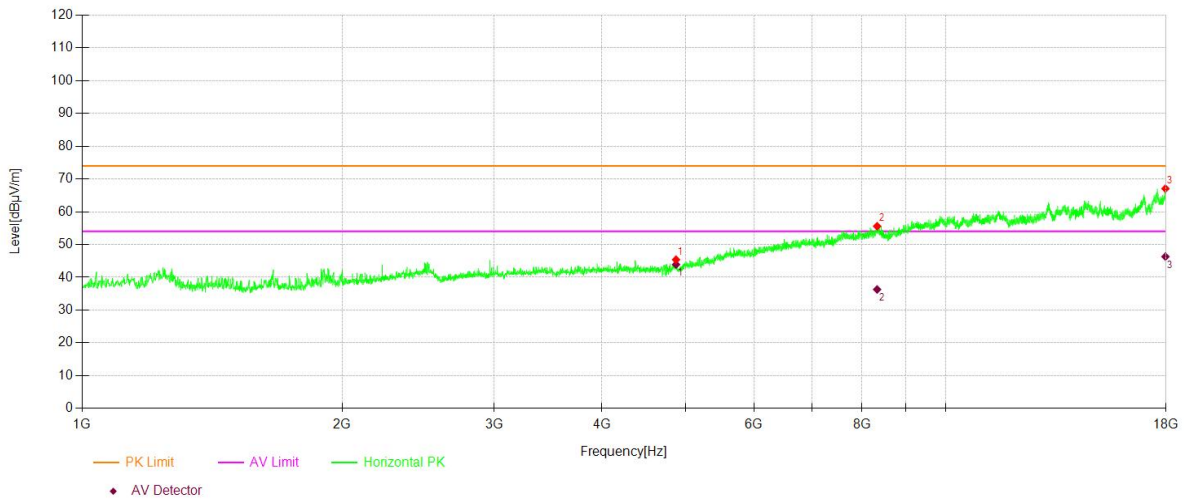


Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4873.125	48.22	-12.34	74.00	25.78	PK	Vertical
2	8349.375	55.57	-2.08	74.00	18.43	PK	Vertical
3	17979.375	67.91	11.24	74.00	6.09	PK	Vertical

AV Final Data List

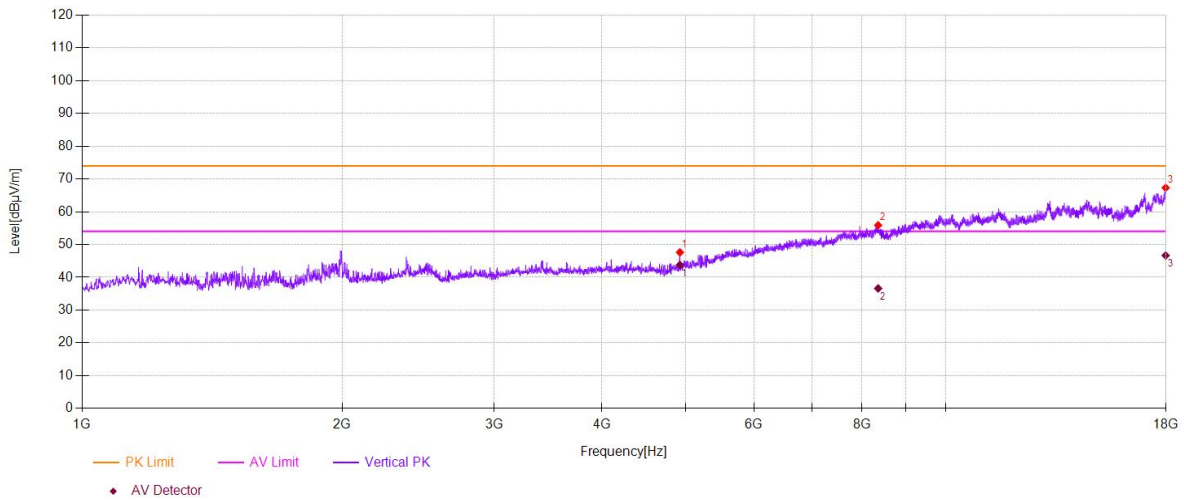
NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4874.0191	44.75	54.00	9.25	AV	Vertical
2	8349.375	36.55	54.00	17.45	AV	Vertical
3	17979.375	46.50	54.00	7.50	AV	Vertical



Suspected Data List							
NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4873.125	45.39	-12.34	74.00	28.61	PK	Horizontal
2	8330.625	55.59	-2.12	74.00	18.41	PK	Horizontal
3	17971.875	67.06	10.94	74.00	6.94	PK	Horizontal

AV Final Data List						
NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4873.125	43.90	54.00	10.10	AV	Horizontal
2	8330.625	36.30	54.00	17.70	AV	Horizontal
3	17971.875	46.30	54.00	7.70	AV	Horizontal

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

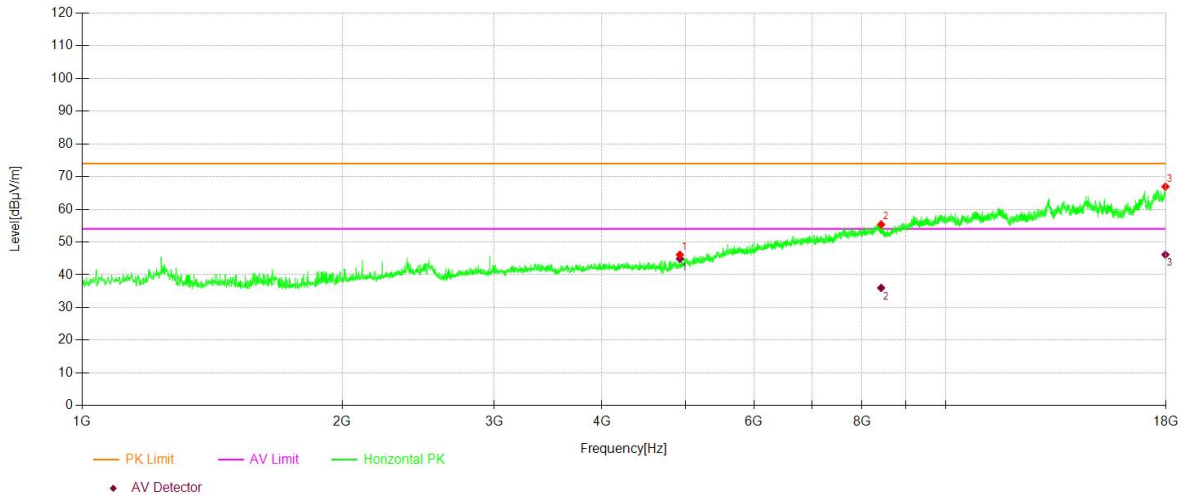


Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4923.75	47.61	-12.29	74.00	26.39	PK	Vertical
2	8353.125	55.89	-2.07	74.00	18.11	PK	Vertical
3	17983.125	67.32	11.39	74.00	6.68	PK	Vertical

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4923.9948	43.78	54.00	10.22	AV	Vertical
2	8353.125	36.62	54.00	17.38	AV	Vertical
3	17983.125	46.66	54.00	7.34	AV	Vertical



Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4923.75	46.09	-12.29	74.00	27.91	PK	Horizontal
2	8420.625	55.36	-2.26	74.00	18.64	PK	Horizontal
3	17971.875	66.93	10.94	74.00	7.07	PK	Horizontal

AV Final Data List

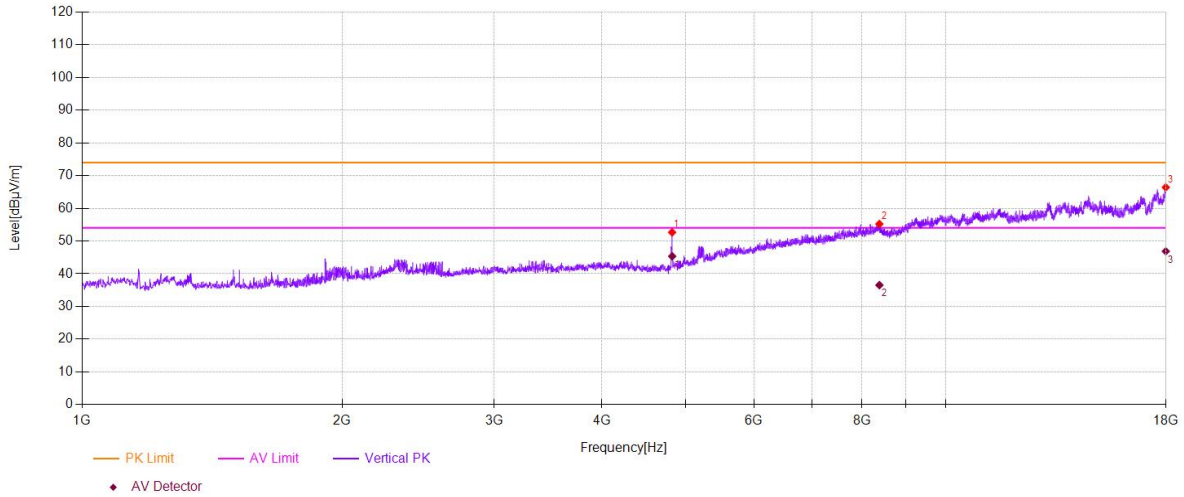
NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4923.75	44.86	54.00	9.14	AV	Horizontal
2	8420.625	35.98	54.00	18.02	AV	Horizontal
3	17971.875	46.16	54.00	7.84	AV	Horizontal

Module 2: ESP32-S3

Test mode: 802.11b

Frequency:

Channel 1: 2412MHz

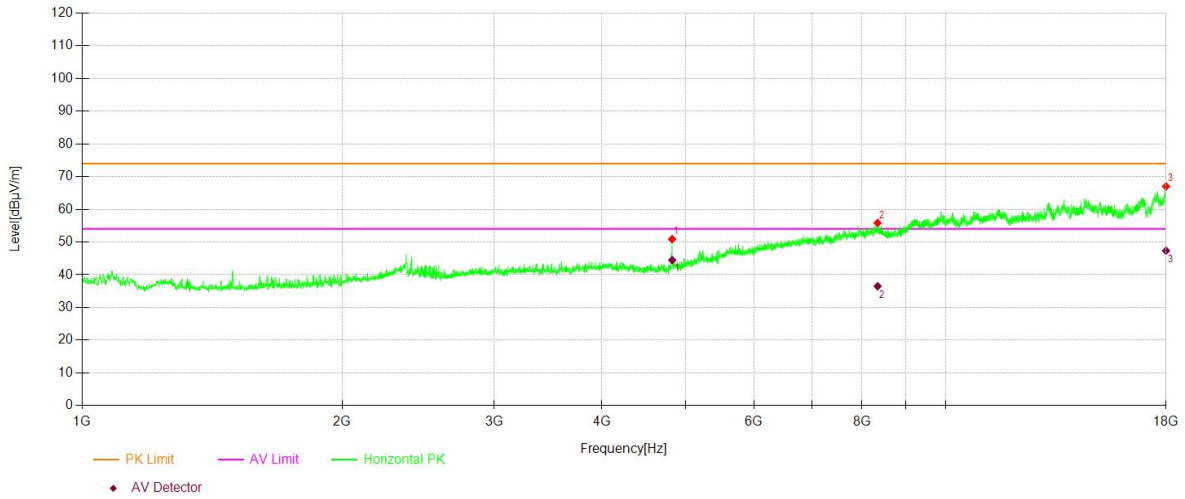


Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4822.5	52.66	-12.34	74.00	21.34	PK	Vertical
2	8381.25	55.21	-2.07	74.00	18.79	PK	Vertical
3	17988.75	66.41	11.62	74.00	7.59	PK	Vertical

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4824.0185	45.34	54.00	8.66	AV	Vertical
2	8381.25	36.54	54.00	17.46	AV	Vertical
3	17988.75	46.88	54.00	7.12	AV	Vertical



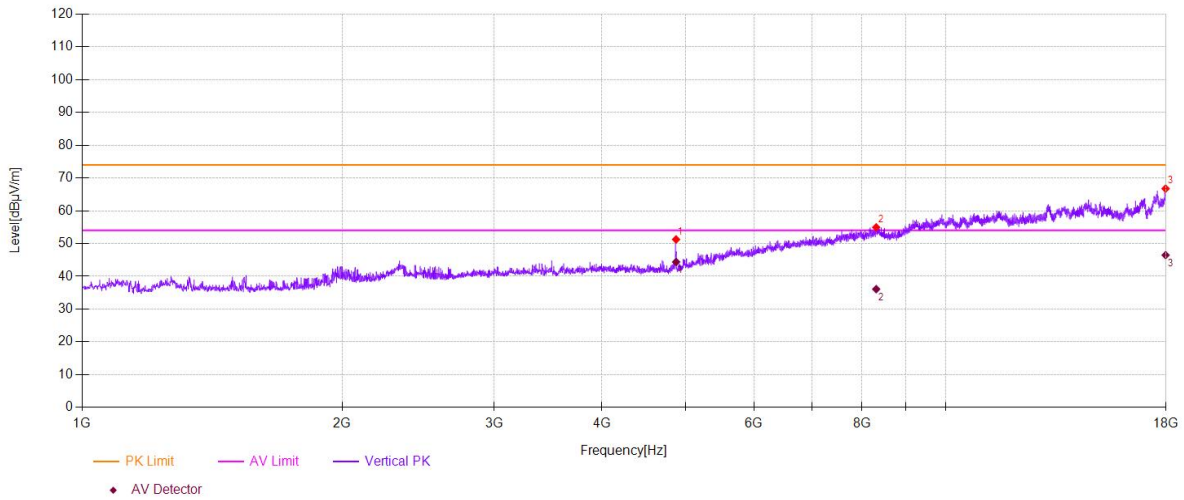
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4822.5	50.88	-12.34	74.00	23.12	PK	Horizontal
2	8341.875	55.83	-2.10	74.00	18.17	PK	Horizontal
3	18000	66.99	12.07	74.00	7.01	PK	Horizontal

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4824.0385	44.48	54.00	9.52	AV	Horizontal
2	8341.875	36.51	54.00	17.49	AV	Horizontal
3	18000	47.33	54.00	6.67	AV	Horizontal

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

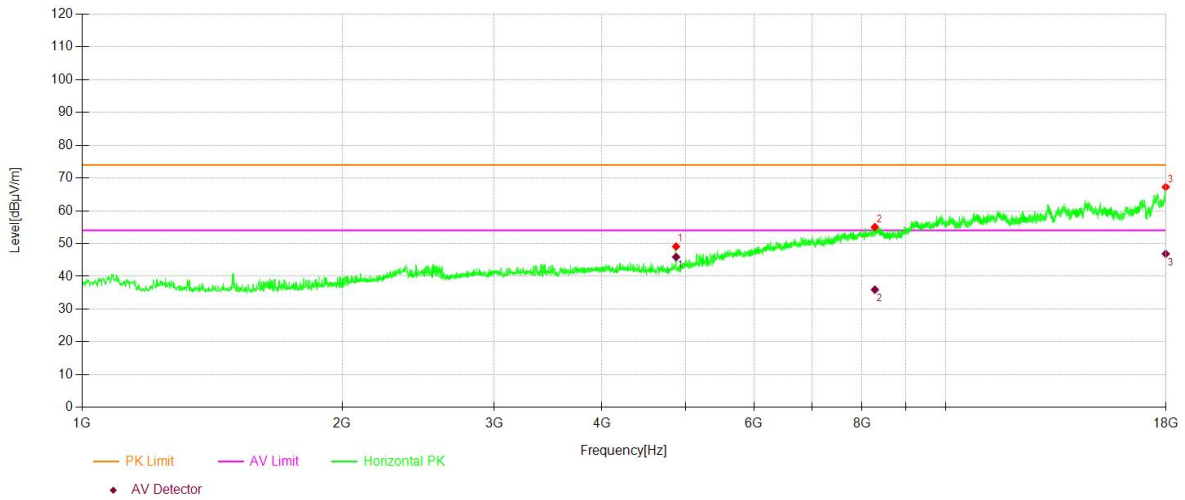


Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4873.125	51.26	-12.34	74.00	22.74	PK	Vertical
2	8310	54.94	-2.16	74.00	19.06	PK	Vertical
3	17979.375	66.75	11.24	74.00	7.25	PK	Vertical

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4874.0541	44.38	54.00	9.62	AV	Vertical
2	8310	36.10	54.00	17.90	AV	Vertical
3	17979.375	46.46	54.00	7.54	AV	Vertical



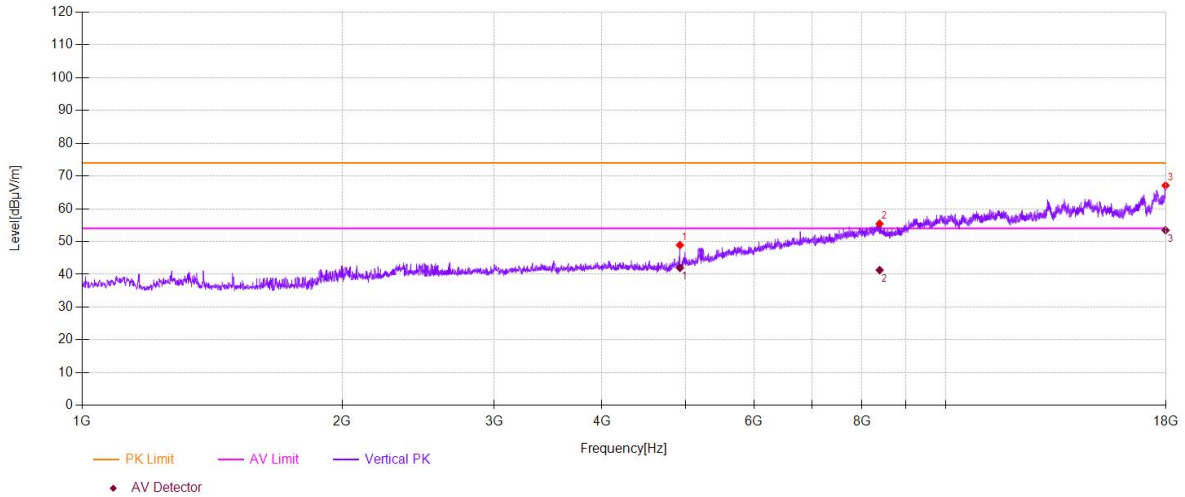
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4873.125	49.09	-12.34	74.00	24.91	PK	Horizontal
2	8280	55.03	-2.37	74.00	18.97	PK	Horizontal
3	17986.875	67.23	11.54	74.00	6.77	PK	Horizontal

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4874.0141	45.90	54.00	8.10	AV	Horizontal
2	8280	35.92	54.00	18.08	AV	Horizontal
3	17986.875	46.85	54.00	7.15	AV	Horizontal

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

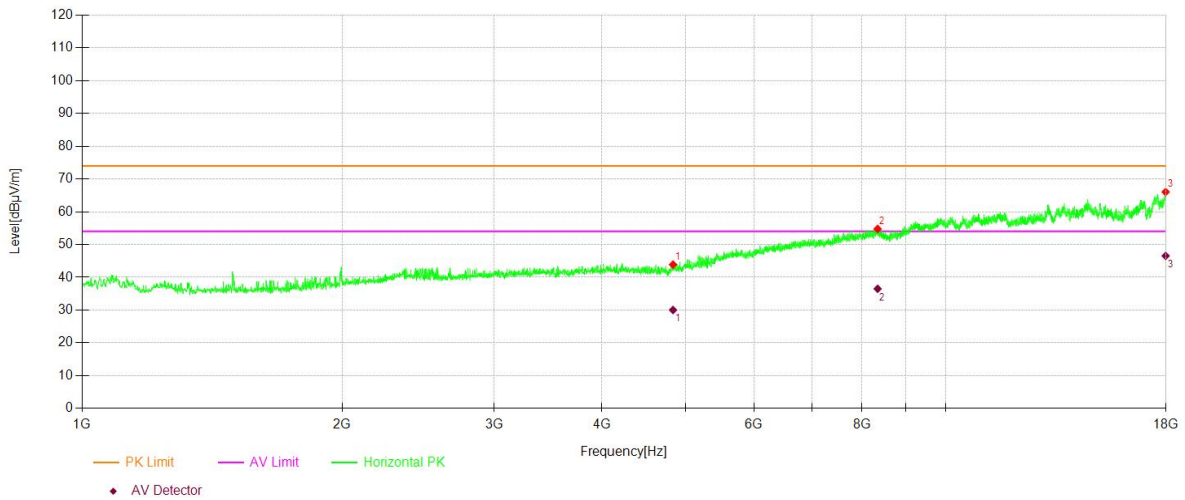


Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4923.75	48.91	-12.29	74.00	25.09	PK	Vertical
2	8385	55.42	-2.07	74.00	18.58	PK	Vertical
3	17979.375	67.10	11.24	74.00	6.90	PK	Vertical

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4924.0697	41.98	54.00	12.02	AV	Vertical
2	8387.2677	41.29	54.00	12.71	AV	Vertical
3	17977.5568	53.44	54.00	0.56	AV	Vertical



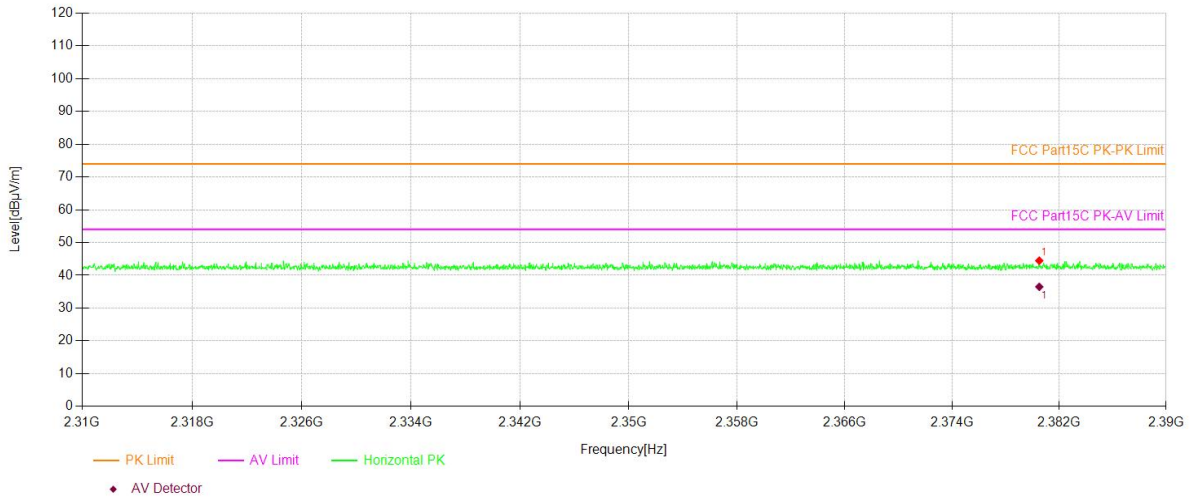
Suspected Data List							
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4833.75	43.88	-12.33	74.00	30.12	PK	Horizontal
2	8341.875	54.77	-2.10	74.00	19.23	PK	Horizontal
3	17981.25	66.04	11.32	74.00	7.96	PK	Horizontal

AV Final Data List						
NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	4833.75	30.03	54.00	23.97	AV	Horizontal
2	8341.875	36.51	54.00	17.49	AV	Horizontal
3	17981.25	46.54	54.00	7.46	AV	Horizontal

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz
All the antenna(Antenna 1) and modes(802.11b/g/n) have been tested and the worst(Antenna 1,802.11n(HT20)) result recorded was report as below:

Module 1:RBT-AM9421-3IN1_V1

Test Model	802.11n(HT20)	Spurious Emission in Restricted Band 2310-2390MHz	Channel 1: 2412MHz	VBW=3MHz	Polarity: H
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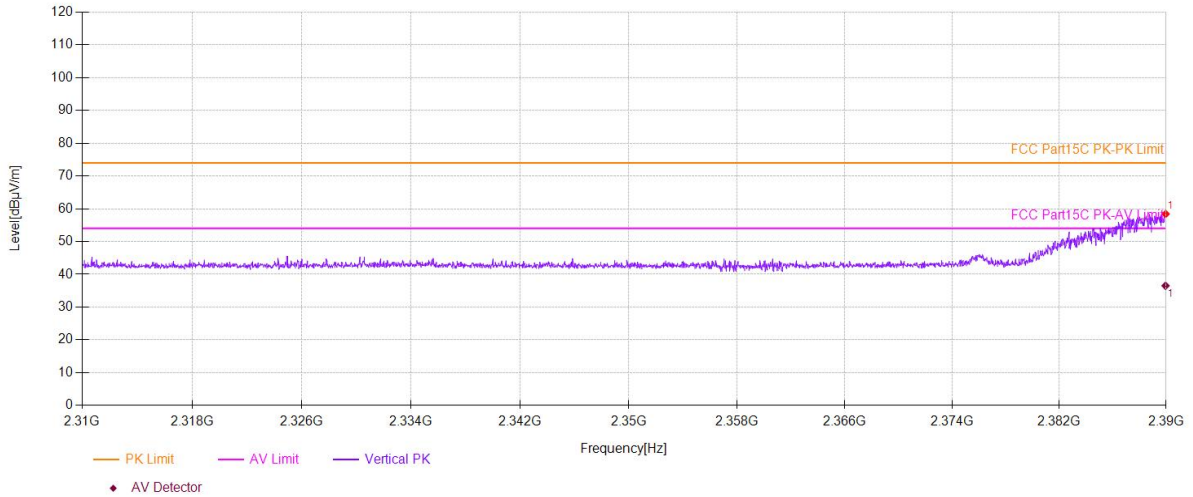
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2380.5035	44.47	30.29	74.00	29.53	PK	Horizontal

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2380.5035	36.50	54.00	17.50	AV	Horizontal

Test Model 802.11n(HT20) Spurious Emission in Restricted Band 2310-2390MHz
Channel 1: 2412MHz VBW=3MHz Polarity: V



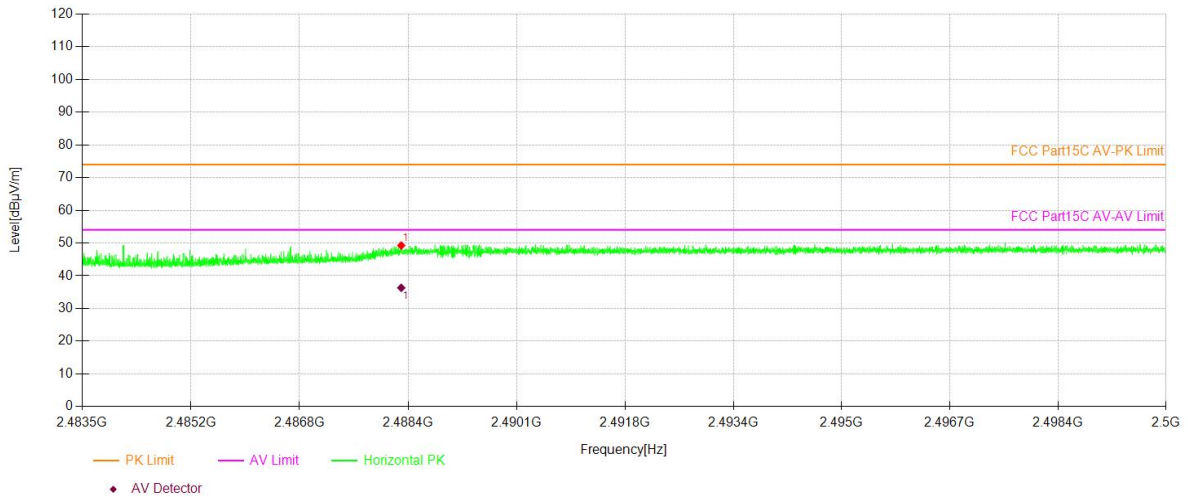
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2389.9733	58.40	30.29	74.00	15.60	PK	Vertical

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2389.9624	36.52	54.00	17.48	AV	Vertical

Test Model 802.11n(HT20) Spurious Emission in Restricted Band 2483.5-2500MHz
Channel 11: 2462MHz VBW=3MHz Polarity: H



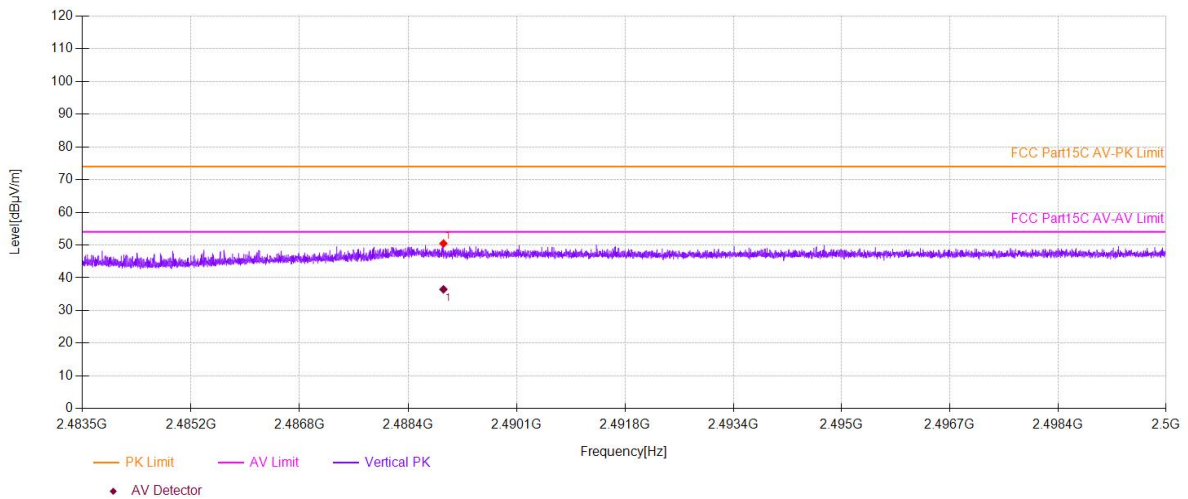
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2488.346	49.24	30.11	74.00	24.76	PK	Horizontal

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2488.346	36.32	54.00	17.68	AV	Horizontal

Test Model 802.11n(HT20) Spurious Emission in Restricted Band 2483.5-2500MHz
Channel 11: 2462MHz VBW=3MHz Polarity: V



Suspected Data List

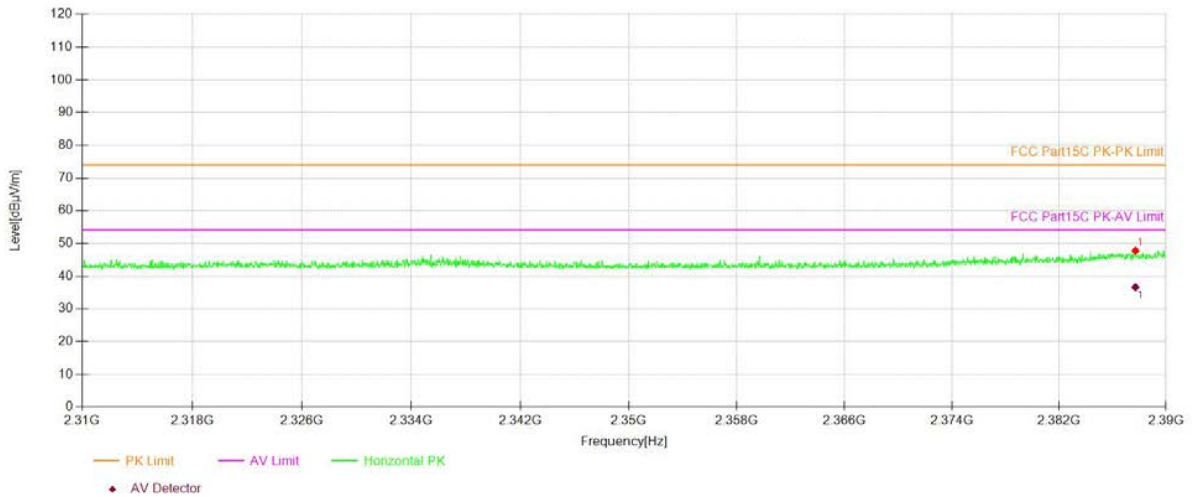
NO.	Freq. [MHz]	Level [dBμV/m]	Factor[dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2488.9879	50.47	30.12	74.00	23.53	PK	Vertical

AV Final Data List

NO.	Freq. [MHz]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2488.9879	36.47	54.00	17.53	AV	Vertical

Module 2:ESP32-S3

Test Model	802.11n(HT20)	Spurious Emission in Restricted Band 2310-2390MHz	Channel 1: 2412MHz	VBW=3MHz	Polarity: H
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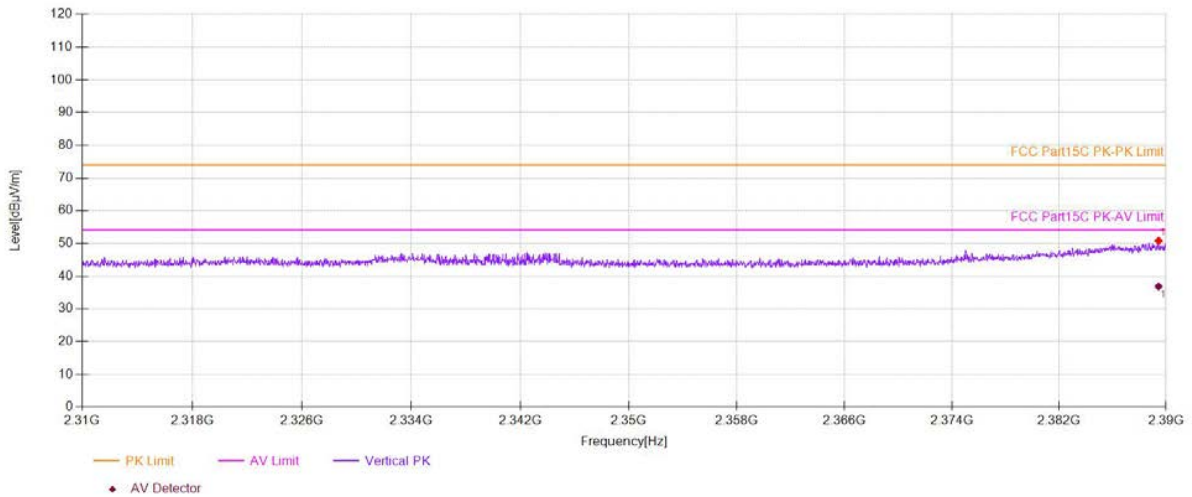
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2387.7059	47.78	30.29	74.00	26.22	PK	Horizontal

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2387.7059	30.29	36.63	54.00	17.37	AV	Horizontal

Test Model 802.11n(HT20) Spurious Emission in Restricted Band 2310-2390MHz
Channel 1: 2412MHz VBW=3MHz Polarity: V



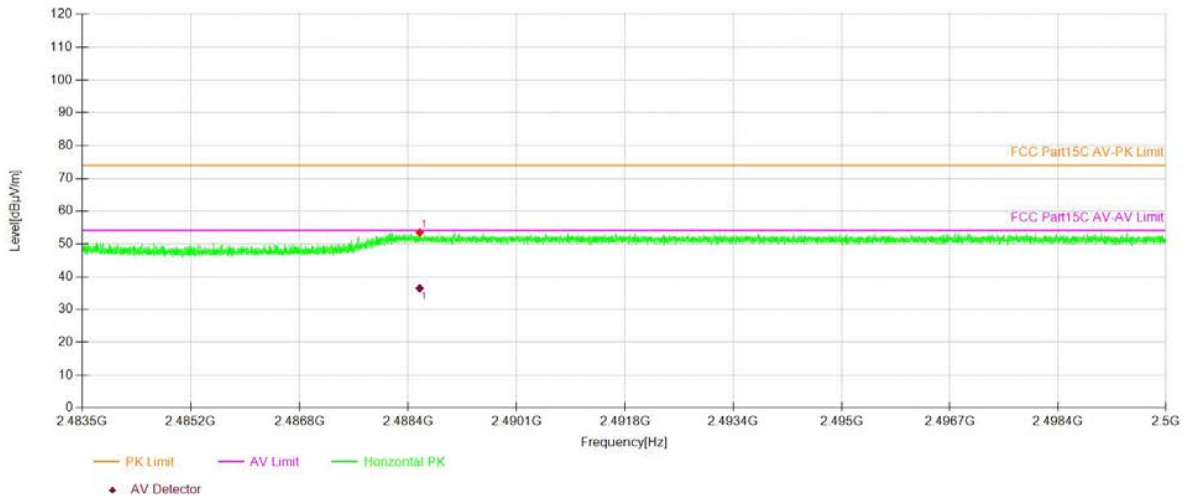
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2389.4398	50.82	30.29	74.00	23.18	PK	Vertical

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2389.4398	30.29	36.83	54.00	17.17	AV	Vertical

Test Model 802.11n(HT20) Spurious Emission in Restricted Band 2483.5-2500MHz
Channel 11: 2462MHz VBW=3MHz Polarity: H



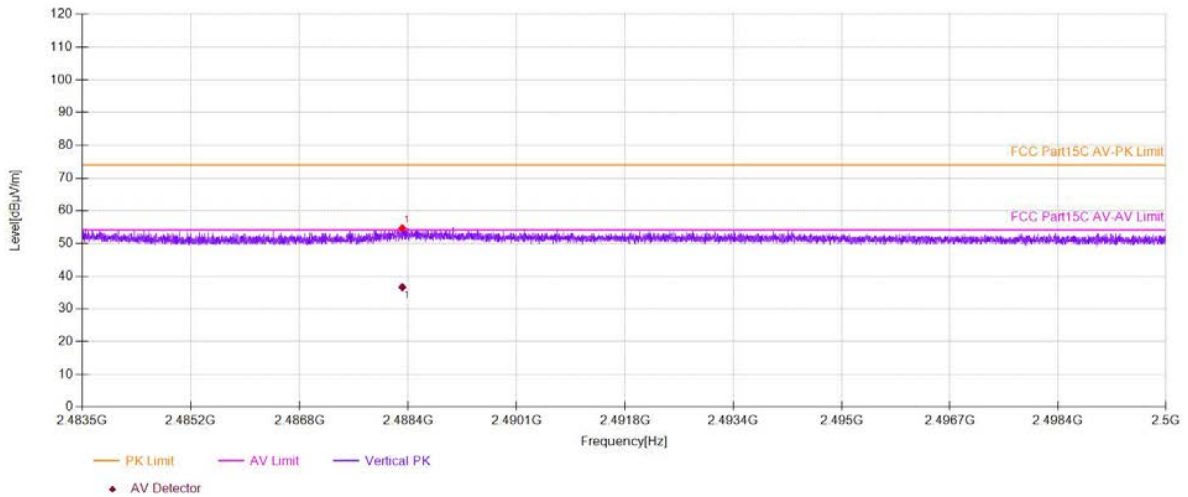
Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2488.6266	53.44	30.11	74.00	20.56	PK	Horizontal

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2488.6266	30.11	36.45	54.00	17.55	AV	Horizontal

Test Model 802.11n(HT20) Spurious Emission in Restricted Band 2483.5-2500MHz
Channel 11: 2462MHz VBW=3MHz Polarity: V



Suspected Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	2488.3626	54.65	30.11	74.00	19.35	PK	Vertical

Final Data List

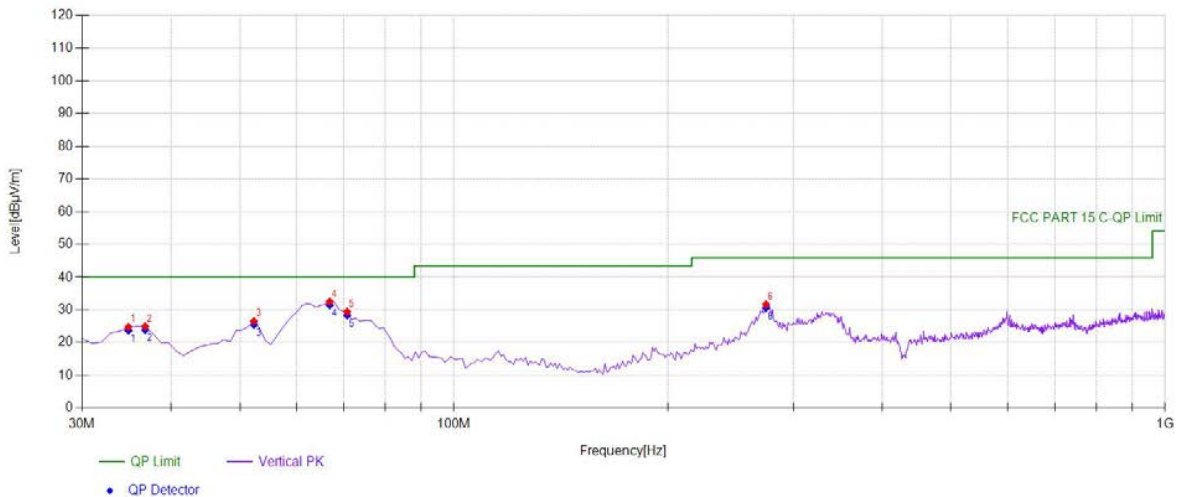
NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Detector	Polarity
1	2488.3626	30.11	36.63	54.00	17.37	AV	Vertical

■ Spurious Emission below 1GHz (30MHz to 1GHz)

All the antenna(Antenna 1) and modes(802.11b/g/n) have been tested and the worst(Antenna 1,802.11b) result recorded was report as below:

Module1:RBT-AM9421-3IN1_V1

Mode:	11B 2412
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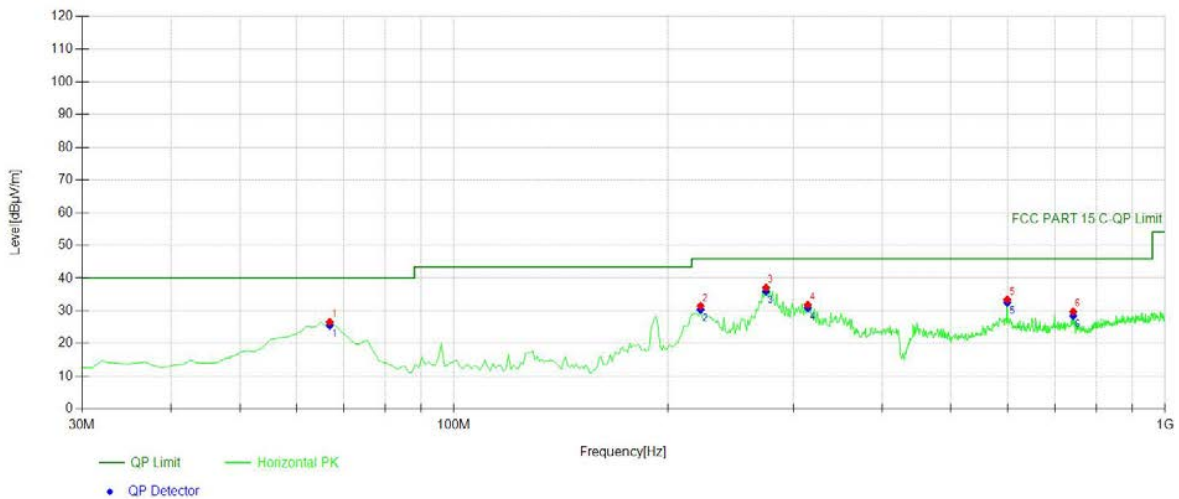
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	34.8549	37.44	-12.72	24.72	PK	40.00	15.28	Vertical
2	36.7968	37.33	-12.42	24.91	PK	40.00	15.09	Vertical
3	52.3323	37.29	-10.77	26.52	PK	40.00	13.48	Vertical
4	66.8969	45.33	-12.83	32.50	PK	40.00	7.50	Vertical
5	70.7808	42.80	-13.40	29.40	PK	40.00	10.60	Vertical
6	274.684	40.69	-9.03	31.66	PK	46.00	14.34	Vertical

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	34.8549	-12.72	23.68	40.00	16.32
2	36.7968	-12.42	23.87	40.00	16.13
3	52.3323	-10.77	25.48	40.00	14.52
4	66.8969	-12.83	31.46	40.00	8.54
5	70.7808	-13.40	28.36	40.00	11.64
6	274.6847	-9.03	30.62	46.00	15.38

Mode:	11B 2412
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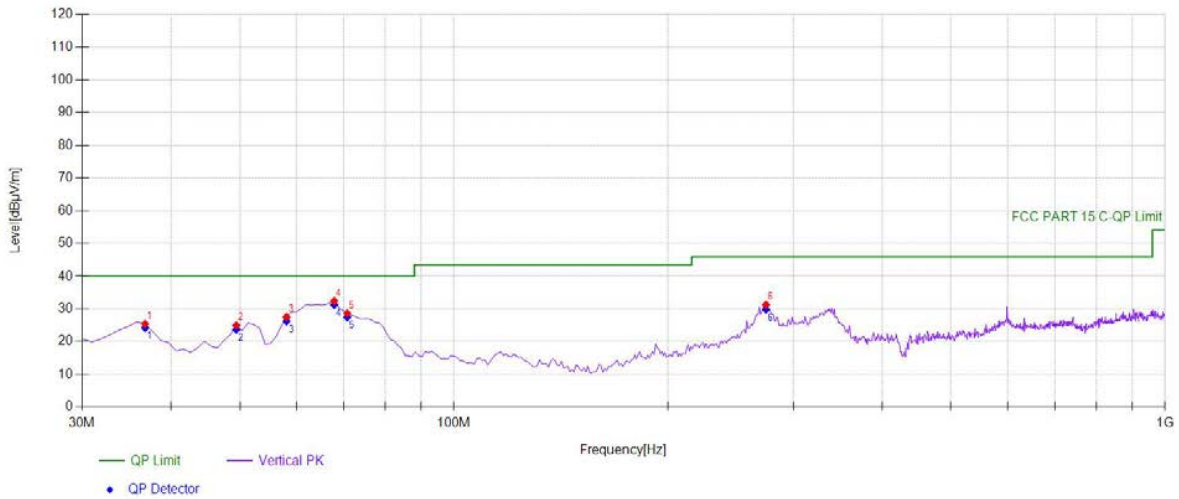
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	66.8969	39.42	-12.83	26.59	PK	40.00	13.41	Horizontal
2	222.252	41.99	-10.49	31.50	PK	46.00	14.50	Horizontal
3	274.684	46.16	-9.03	37.13	PK	46.00	8.87	Horizontal
4	314.494	39.51	-7.65	31.86	PK	46.00	14.14	Horizontal
5	599.96	33.32	0.16	33.48	PK	46.00	12.52	Horizontal
6	742.692	29.01	0.79	29.80	PK	46.00	16.20	Horizontal

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	66.8969	-12.83	25.50	40.00	14.50
2	222.2523	-10.49	30.33	46.00	15.67
3	274.6847	-9.03	35.96	46.00	10.04
4	314.4945	-7.65	30.86	46.00	15.14
5	599.96	0.16	32.48	46.00	13.52
6	742.6927	0.79	28.48	46.00	17.52

Mode:	11B 2437
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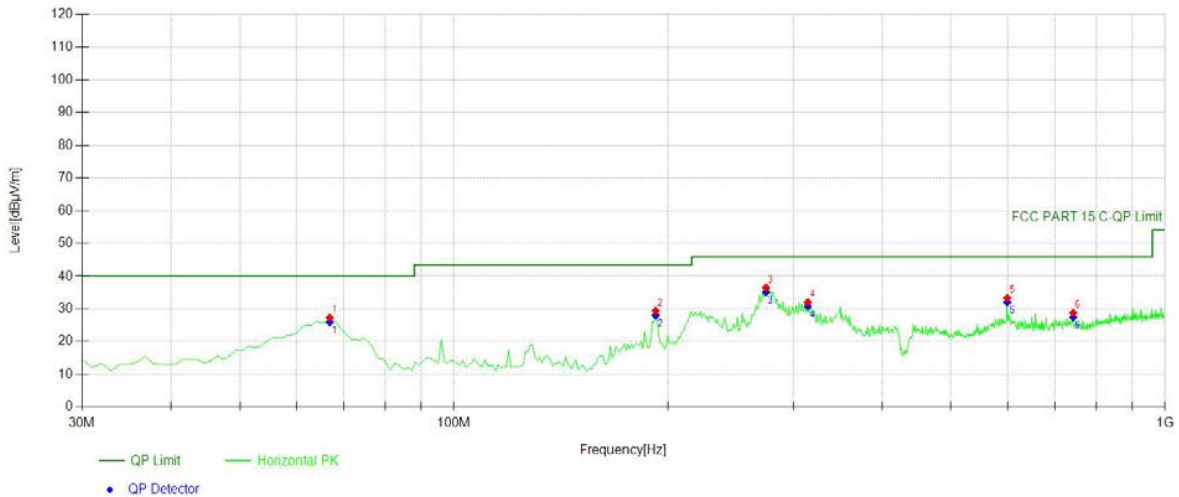
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	36.7968	37.79	-12.42	25.37	PK	40.00	14.63	Vertical
2	49.4194	35.47	-10.53	24.94	PK	40.00	15.06	Vertical
3	58.1582	39.09	-11.58	27.51	PK	40.00	12.49	Vertical
4	67.8679	45.35	-12.98	32.37	PK	40.00	7.63	Vertical
5	70.7808	41.98	-13.40	28.58	PK	40.00	11.42	Vertical
6	274.684	40.32	-9.03	31.29	PK	46.00	14.71	Vertical

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	36.7968	-12.42	24.14	40.00	15.86
2	49.4194	-10.53	23.63	40.00	16.37
3	58.1582	-11.58	26.20	40.00	13.80
4	67.8679	-12.98	31.24	40.00	8.76
5	70.7808	-13.40	27.45	40.00	12.55
6	274.6847	-9.03	29.84	46.00	16.16

Mode:	11B 2437
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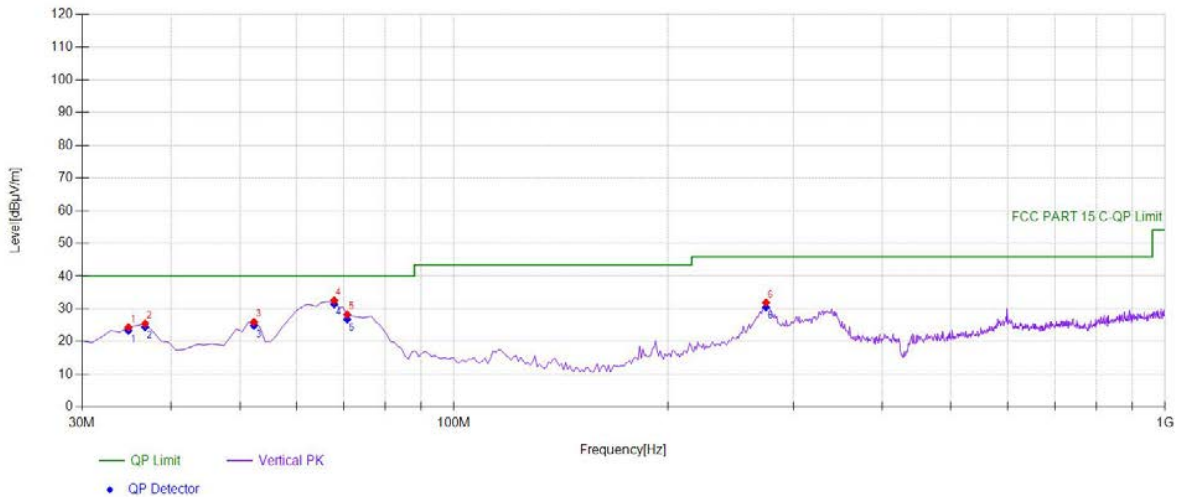
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	66.8969	40.11	-12.83	27.28	PK	40.00	12.72	Horizontal
2	192.152	41.69	-12.31	29.38	PK	43.50	14.12	Horizontal
3	274.684	45.58	-9.03	36.55	PK	46.00	9.45	Horizontal
4	314.494	39.69	-7.65	32.04	PK	46.00	13.96	Horizontal
5	599.96	33.14	0.16	33.30	PK	46.00	12.70	Horizontal
6	742.692	27.96	0.79	28.75	PK	46.00	17.25	Horizontal

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	66.8969	-12.83	25.93	40.00	14.07
2	192.1522	-12.31	27.95	43.50	15.55
3	274.6847	-9.03	35.12	46.00	10.88
4	314.4945	-7.65	30.79	46.00	15.21
5	599.96	0.16	32.05	46.00	13.95
6	742.6927	0.79	27.42	46.00	18.58

Mode:	11B 2462
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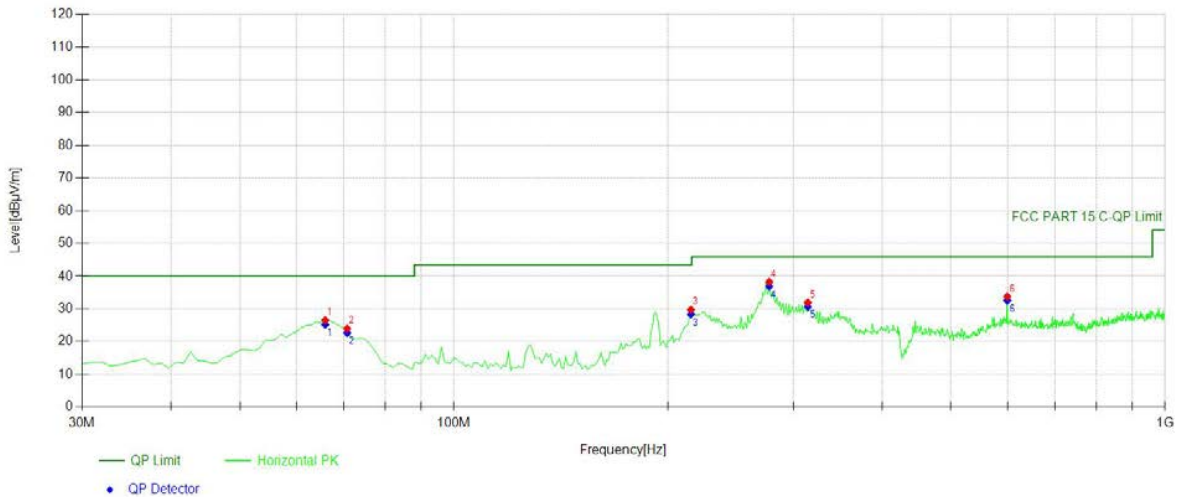
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	34.8549	37.06	-12.72	24.34	PK	40.00	15.66	Vertical
2	36.7968	37.88	-12.42	25.46	PK	40.00	14.54	Vertical
3	52.3323	36.73	-10.77	25.96	PK	40.00	14.04	Vertical
4	67.8679	45.55	-12.98	32.57	PK	40.00	7.43	Vertical
5	70.7808	41.66	-13.40	28.26	PK	40.00	11.74	Vertical
6	274.684	40.95	-9.03	31.92	PK	46.00	14.08	Vertical

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	34.8549	-12.72	23.30	40.00	16.70
2	36.7968	-12.42	24.42	40.00	15.58
3	52.3323	-10.77	24.84	40.00	15.16
4	67.8679	-12.98	31.45	40.00	8.55
5	70.7808	-13.40	26.82	40.00	13.18
6	274.6847	-9.03	30.48	46.00	15.52

Mode:	11B 2462
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Suspected Data List

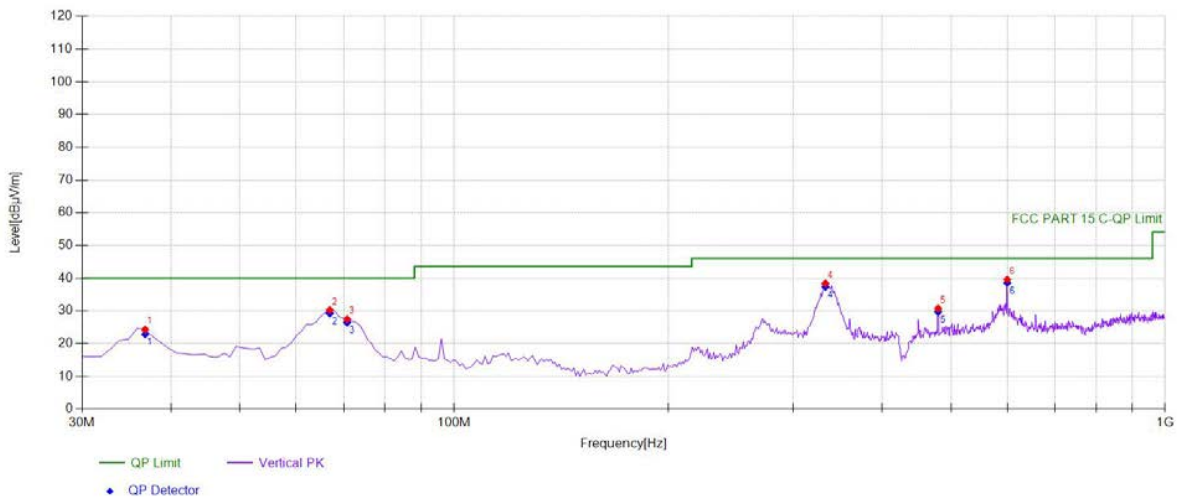
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	65.9259	39.20	-12.70	26.50	PK	40.00	13.50	Horizontal
2	70.7808	37.32	-13.40	23.92	PK	40.00	16.08	Horizontal
3	215.455	40.63	-10.86	29.77	PK	43.50	13.73	Horizontal
4	277.597	47.20	-8.91	38.29	PK	46.00	7.71	Horizontal
5	314.494	39.57	-7.65	31.92	PK	46.00	14.08	Horizontal
6	599.96	33.62	0.16	33.78	PK	46.00	12.22	Horizontal

Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	65.9259	-12.70	25.17	40.00	14.83
2	70.7808	-13.40	22.59	40.00	17.41
3	215.4555	-10.86	28.36	43.50	15.14
4	277.5976	-8.91	36.88	46.00	9.12
5	314.4945	-7.65	30.69	46.00	15.31
6	599.96	0.16	32.55	46.00	13.45

Module 2:ESP32-S3

Mode:	11B 2412
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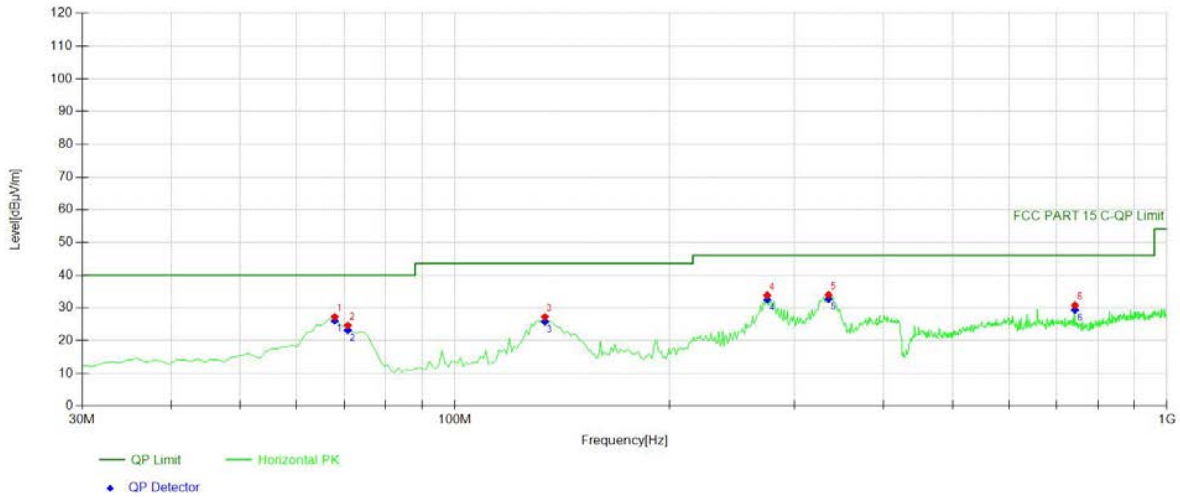
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	36.7968	36.70	-12.42	24.28	PK	40.00	15.72	Vertical
2	66.8969	43.07	-12.83	30.24	PK	40.00	9.76	Vertical
3	70.7808	40.85	-13.40	27.45	PK	40.00	12.55	Vertical
4	332.942	44.90	-6.56	38.34	PK	46.00	7.66	Vertical
5	479.559	33.82	-3.09	30.73	PK	46.00	15.27	Vertical
6	599.96	39.43	0.16	39.59	PK	46.00	6.41	Vertical

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	36.7968	35.26	-12.42	22.84	40.00	17.16
2	66.8969	42.05	-12.83	29.22	40.00	10.78
3	70.7808	39.83	-13.40	26.43	40.00	13.57
4	332.9429	43.88	-6.56	37.32	46.00	8.68
5	479.5596	32.8	-3.09	29.71	46.00	16.29
6	599.96	38.41	0.16	38.57	46.00	7.43

Mode:	11B 2412
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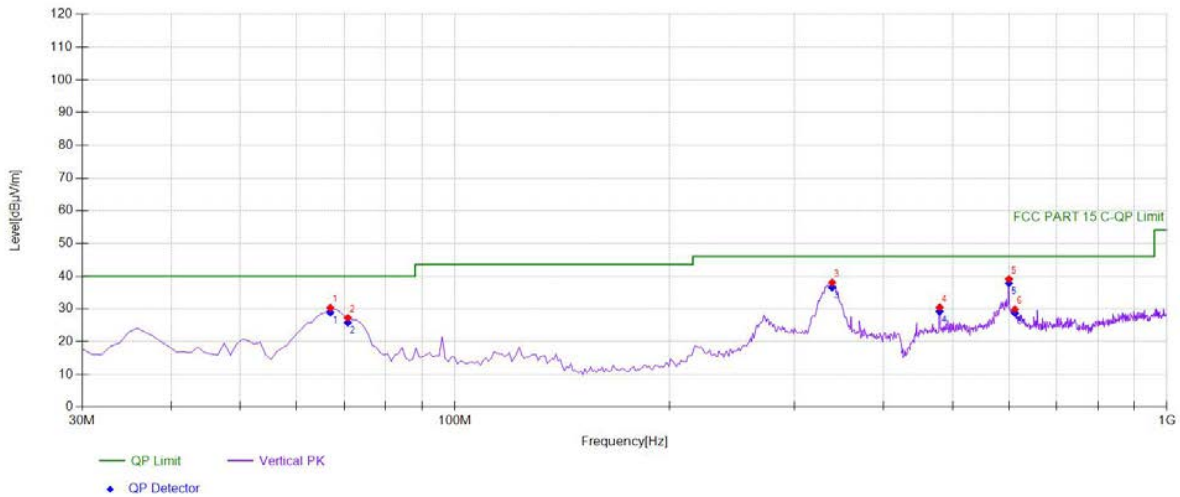
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	67.8679	40.23	-12.98	27.25	PK	40.00	12.75	Horizontal
2	70.7808	38.02	-13.40	24.62	PK	40.00	15.38	Horizontal
3	133.893	41.09	-13.86	27.23	PK	43.50	16.27	Horizontal
4	274.684	42.86	-9.03	33.83	PK	46.00	12.17	Horizontal
5	334.884	40.40	-6.43	33.97	PK	46.00	12.03	Horizontal
6	742.692	30.00	0.79	30.79	PK	46.00	15.21	Horizontal

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	67.8679	39.06	-12.98	26.08	40.00	13.92
2	70.7808	36.53	-13.40	23.13	40.00	16.87
3	133.8939	39.6	-13.86	25.74	43.50	17.76
4	274.6847	41.55	-9.03	32.52	46.00	13.48
5	334.8849	39.09	-6.43	32.66	46.00	13.34
6	742.6927	28.6	0.79	29.39	46.00	16.61

Mode:	11B 2437
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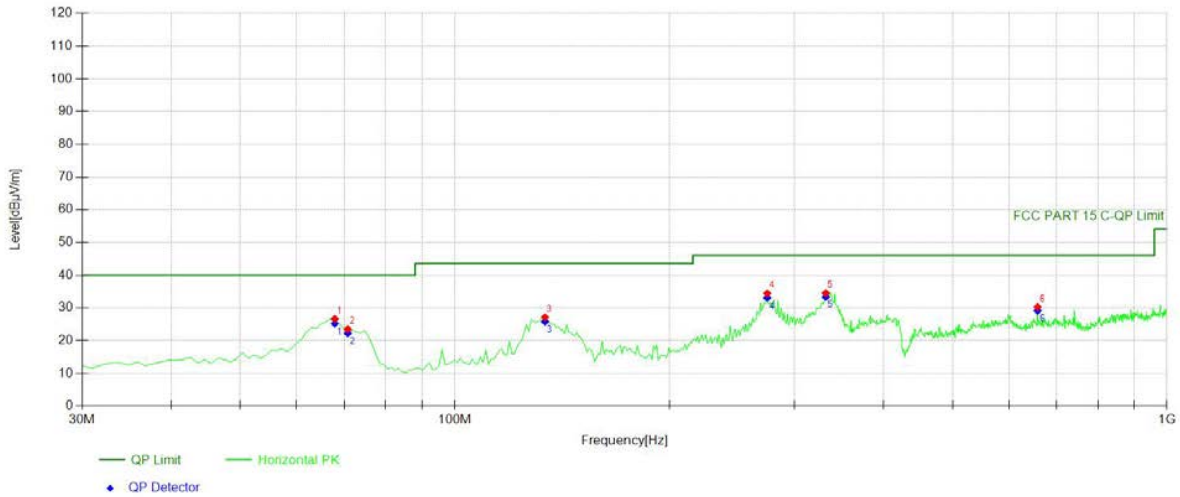
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	66.8969	43.13	-12.83	30.30	PK	40.00	9.70	Vertical
2	70.7808	40.65	-13.40	27.25	PK	40.00	12.75	Vertical
3	338.768	44.17	-6.15	38.02	PK	46.00	7.98	Vertical
4	479.559	33.58	-3.09	30.49	PK	46.00	15.51	Vertical
5	599.96	38.96	0.16	39.12	PK	46.00	6.88	Vertical
6	611.611	30.18	-0.31	29.87	PK	46.00	16.13	Vertical

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	66.8969	41.72	-12.83	28.89	40.00	11.11
2	70.7808	39.16	-13.40	25.76	40.00	14.24
3	338.7688	42.68	-6.15	36.53	46.00	9.47
4	479.5596	32.27	-3.09	29.18	46.00	16.82
5	599.96	37.65	0.16	37.81	46.00	8.19
6	611.6116	29.05	-0.31	28.74	46.00	17.26

Mode:	11B 2437
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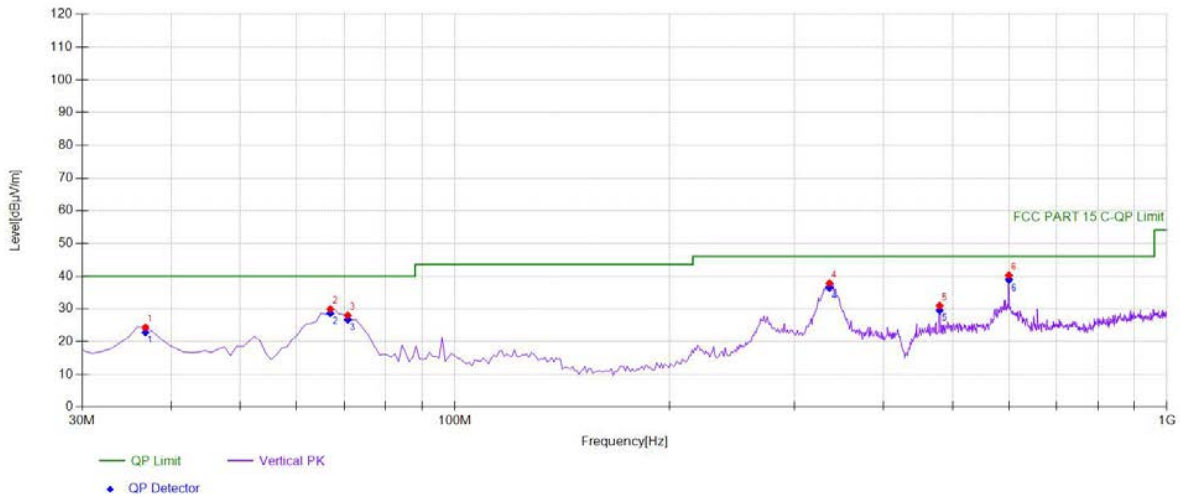
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	67.8679	39.58	-12.98	26.60	PK	40.00	13.40	Horizontal
2	70.7808	36.90	-13.40	23.50	PK	40.00	16.50	Horizontal
3	133.893	40.95	-13.86	27.09	PK	43.50	16.41	Horizontal
4	274.684	43.43	-9.03	34.40	PK	46.00	11.60	Horizontal
5	331.972	41.14	-6.63	34.51	PK	46.00	11.49	Horizontal
6	658.218	30.47	-0.20	30.27	PK	46.00	15.73	Horizontal

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	67.8679	38.16	-12.98	25.18	40.00	14.82
2	70.7808	35.66	-13.40	22.26	40.00	17.74
3	133.8939	39.63	-13.86	25.77	43.50	17.73
4	274.6847	42.11	-9.03	33.08	46.00	12.92
5	331.972	40	-6.63	33.37	46.00	12.63
6	658.2182	29.33	-0.20	29.13	46.00	16.87

Mode:	11B 2462
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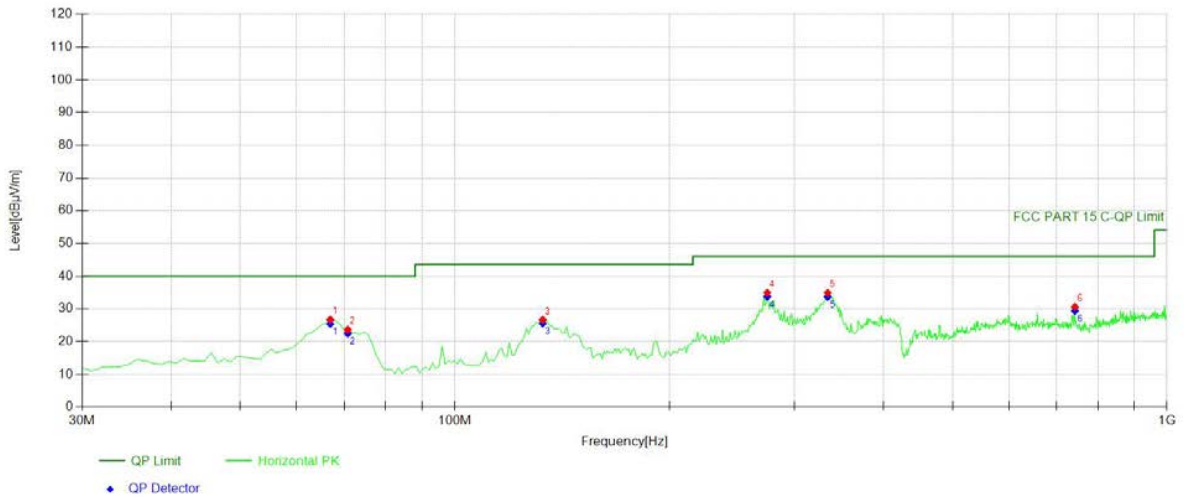
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	36.7968	36.71	-12.42	24.29	PK	40.00	15.71	Vertical
2	66.8969	42.78	-12.83	29.95	PK	40.00	10.05	Vertical
3	70.7808	41.39	-13.40	27.99	PK	40.00	12.01	Vertical
4	335.855	44.17	-6.36	37.81	PK	46.00	8.19	Vertical
5	479.559	34.03	-3.09	30.94	PK	46.00	15.06	Vertical
6	599.96	40.09	0.16	40.25	PK	46.00	5.75	Vertical

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	36.7968	35.23	-12.42	22.81	40.00	17.19
2	66.8969	41.48	-12.83	28.65	40.00	11.35
3	70.7808	40.09	-13.40	26.69	40.00	13.31
4	335.8559	42.79	-6.36	36.43	46.00	9.57
5	479.5596	32.65	-3.09	29.56	46.00	16.44
6	599.96	38.71	0.16	38.87	46.00	7.13

Mode:	11B 2462
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Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	66.8969	39.53	-12.83	26.70	PK	40.00	13.30	Horizontal
2	70.7808	37.01	-13.40	23.61	PK	40.00	16.39	Horizontal
3	132.922	40.45	-13.79	26.66	PK	43.50	16.84	Horizontal
4	274.684	43.96	-9.03	34.93	PK	46.00	11.07	Horizontal
5	333.913	41.39	-6.50	34.89	PK	46.00	11.11	Horizontal
6	742.692	29.83	0.79	30.62	PK	46.00	15.38	Horizontal

Final Data List

NO.	Freq. [MHz]	QP Reading [dBμV]	Factor [dB/m]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]
1	66.8969	38.22	-12.83	25.39	40.00	14.61
2	70.7808	35.88	-13.40	22.48	40.00	17.52
3	132.9229	39.32	-13.79	25.53	43.50	17.97
4	274.6847	42.74	-9.03	33.71	46.00	12.29
5	333.9139	40.17	-6.50	33.67	46.00	12.33
6	742.6927	28.61	0.79	29.40	46.00	16.60

8.7 CONDUCTED EMISSION TEST

8.7.1 Applicable Standard

According to FCC Part 15.207(a)

According to IC RSS-Gen 8.8

8.7.2 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.

8.7.3 Test Configuration

Test according to clause 6.3conducted emission test setup

8.7.4 Test Procedure

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

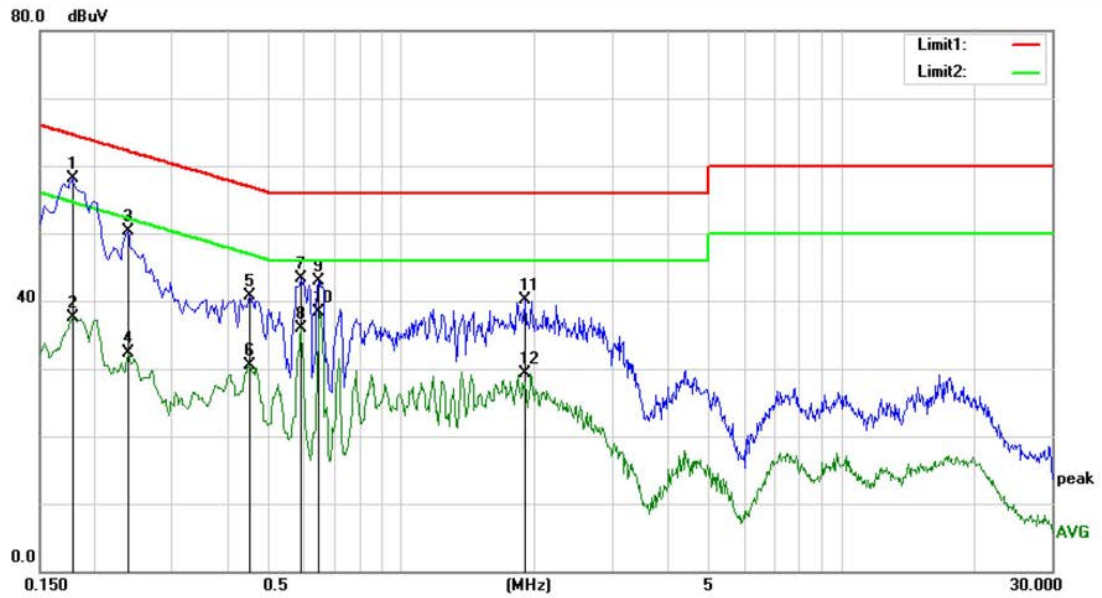
Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Repeat above procedures until all frequency measured were complete.

8.7.5 Test Results

Pass

The AC120V &240V voltage have been tested, and the worst result recorded was report as below:



Site Conduction #1

Phase: **N**

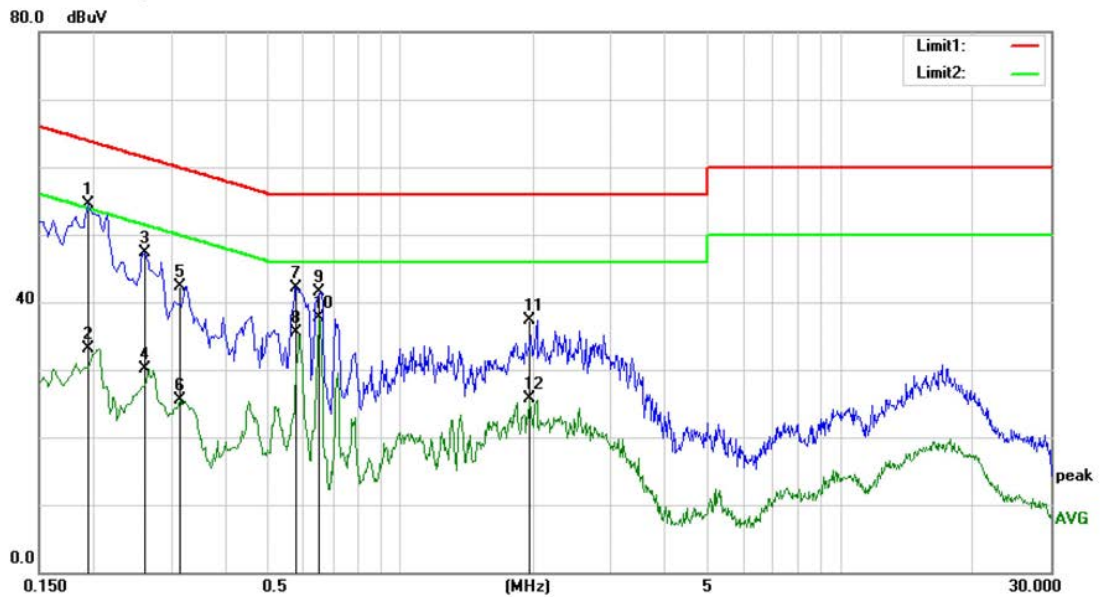
Temperature: 21.9

Limit: (CE)FCC PART 15 class B_QP

Power: AC 120V/60Hz

Humidity: 65 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1780	48.37	9.70	58.07	64.58	-6.51	QP	
2		0.1780	27.85	9.70	37.55	54.58	-17.03	AVG	
3		0.2380	40.58	9.67	50.25	62.17	-11.92	QP	
4		0.2380	22.69	9.67	32.36	52.17	-19.81	AVG	
5		0.4500	31.03	9.65	40.68	56.88	-16.20	QP	
6		0.4500	20.85	9.65	30.50	46.88	-16.38	AVG	
7		0.5900	33.59	9.70	43.29	56.00	-12.71	QP	
8		0.5900	26.28	9.70	35.98	46.00	-10.02	AVG	
9		0.6460	33.20	9.74	42.94	56.00	-13.06	QP	
10		0.6460	28.65	9.74	38.39	46.00	-7.61	AVG	
11		1.8980	30.28	9.82	40.10	56.00	-15.90	QP	
12		1.8980	19.50	9.82	29.32	46.00	-16.68	AVG	



Site Conduction #1 Phase: **L1** Temperature: 21.9
 Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 65 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1940	44.72	9.74	54.46	63.86	-9.40	QP	
2		0.1940	23.31	9.74	33.05	53.86	-20.81	AVG	
3		0.2620	37.63	9.61	47.24	61.37	-14.13	QP	
4		0.2620	20.56	9.61	30.17	51.37	-21.20	AVG	
5		0.3140	32.71	9.53	42.24	59.86	-17.62	QP	
6		0.3140	16.01	9.53	25.54	49.86	-24.32	AVG	
7		0.5780	32.51	9.69	42.20	56.00	-13.80	QP	
8		0.5780	25.75	9.69	35.44	46.00	-10.56	AVG	
9		0.6540	31.71	9.75	41.46	56.00	-14.54	QP	
10	*	0.6540	27.86	9.75	37.61	46.00	-8.39	AVG	
11		1.9620	27.55	9.83	37.38	56.00	-18.62	QP	
12		1.9620	15.92	9.83	25.75	46.00	-20.25	AVG	

8.8 ANTENNA APPLICATION

8.8.1 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.
FCC 47 CFR Part 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.
RSS-Gen Section 6.8	The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.
RSS-247 Section 5.4	If the transmitter employs an antenna system that emits multiple directional beams, but does not emit multiple directional beams simultaneously, the total output power conducted to the array or arrays that comprise the device (i.e. the sum of the power supplied to all antennas, antenna elements, staves, etc., and summed across all carriers or frequency channels) shall not exceed the applicable output power limit. However, the total conducted output power shall be reduced by 1 dB below the specified limits for each 3 dB that the directional gain of the antenna/antenna array exceeds 6 dBi. The directional antenna gain shall be computed as the sum of 10 log (number of array elements or staves) plus the directional gain of the element or stave having the highest gain.

8.8.2 Result

PASS.

- Note:
- ☒ Antenna use 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)

Please refer to the attached documentInternal Photos to show the antenna connector.

*** End of Report ***

9 APPENDIX PHOTOGRAPHS OF EUT

Please refer to the file of External Photo and Internal Photo.



10 APPENDIX PHOTOGRAPHS OF TEST SETUP

Please refer to the file of Test Setup Photo.



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 is invalid without the signature of the authorized approver and the "special seal for testing".

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