

8.5 MAXIMUM POWER SPECTRAL DENSITY

8.5.1 Applicable Standard

According to FCC Part15.247(e)

According to RSS-247 5.2(b)

According to RSS-Gen 6.12

According to 558074 D01 15.247 Meas Guidance v05r02 Section 8.4

According to ANSI C63.10 Section 11.10.5

8.5.2 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. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

8.5.3 Test Configuration

Test according to clause 7.1 radio frequency test setup

8.5.4 Test Procedure

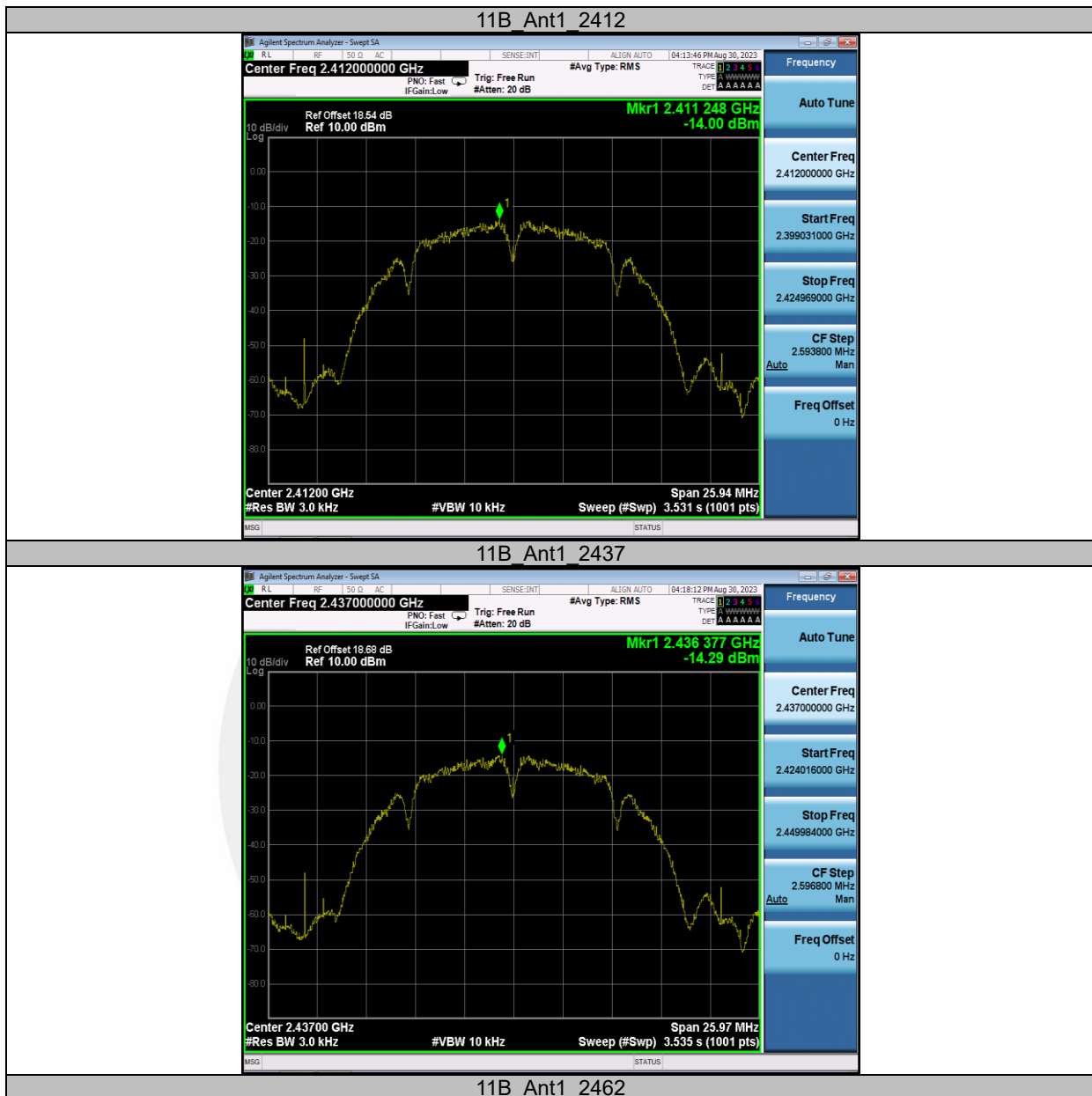
- Measure the duty cycle (D) of the transmitter output signal
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq [3 \times \text{RBW}]$.
- Detector = power averaging (rms) or sample detector (when rms not available).
- Ensure that the number of measurement points in the sweep $\geq [2 \times \text{span} / \text{RBW}]$.
- Sweep time = auto couple.
- Do not use sweep triggering; allow sweep to "free run."
- Employ trace averaging (rms) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- Add $[10 \log (1 / D)]$, where D is the duty cycle measured in step a), to the measured PSD to compute the average PSD during the actual transmission time.
- If measured value exceeds requirement specified by regulatory agency, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced).

8.5.5 Test Results

Temperature:	25 °C
Relative Humidity:	45%
ATM Pressure:	1011 mbar
Test Engineer:	XXH

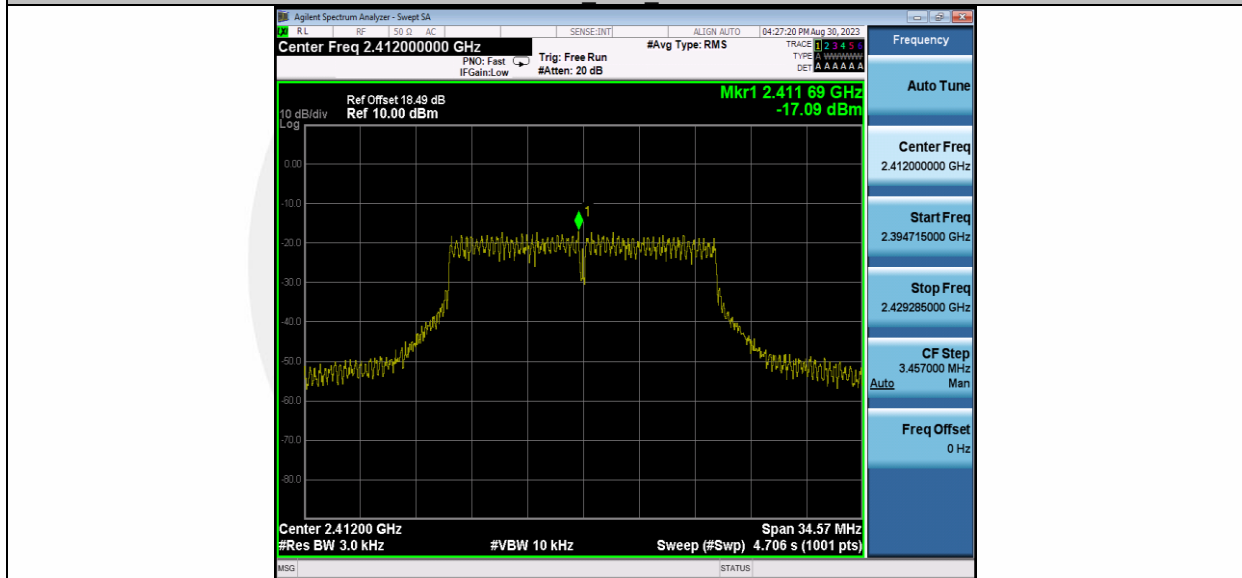
Note: N/A

TestMode	Antenna	Frequency[MHz]	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-14	≤8.00	PASS
		2437	-14.29	≤8.00	PASS
		2462	-14.09	≤8.00	PASS
11G	Ant1	2412	-17.09	≤8.00	PASS
		2437	-17.33	≤8.00	PASS
		2462	-17.38	≤8.00	PASS
11N20SISO	Ant1	2412	-18.28	≤8.00	PASS
		2437	-18.34	≤8.00	PASS
		2462	-18.4	≤8.00	PASS
11N40SISO	Ant1	2422	-22.26	≤8.00	PASS
		2437	-22.35	≤8.00	PASS
		2452	-22.07	≤8.00	PASS

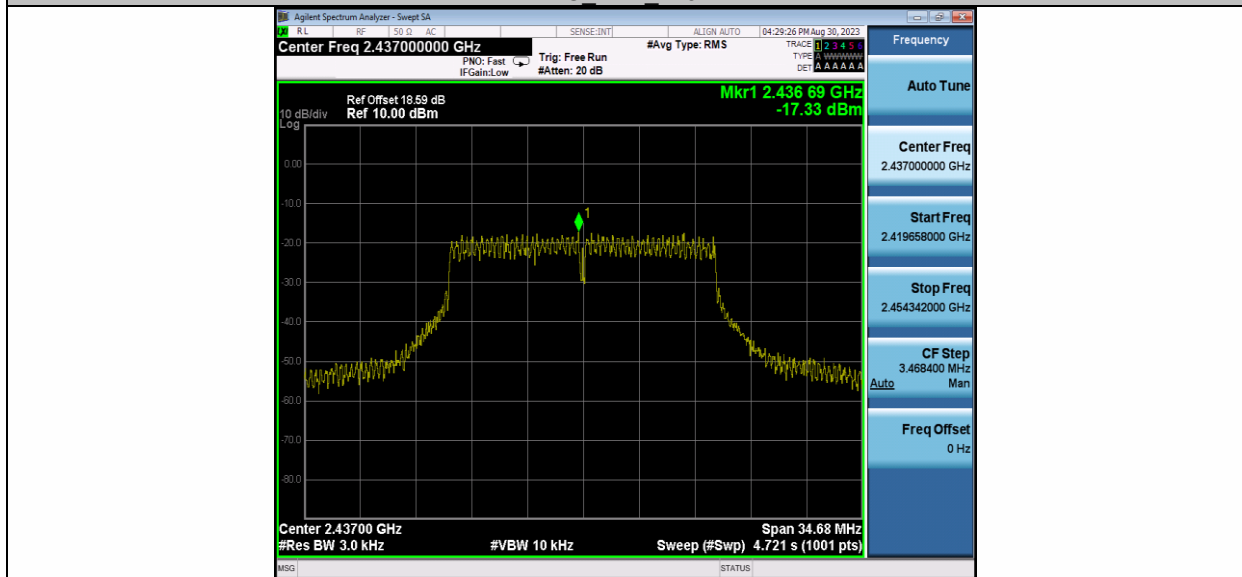


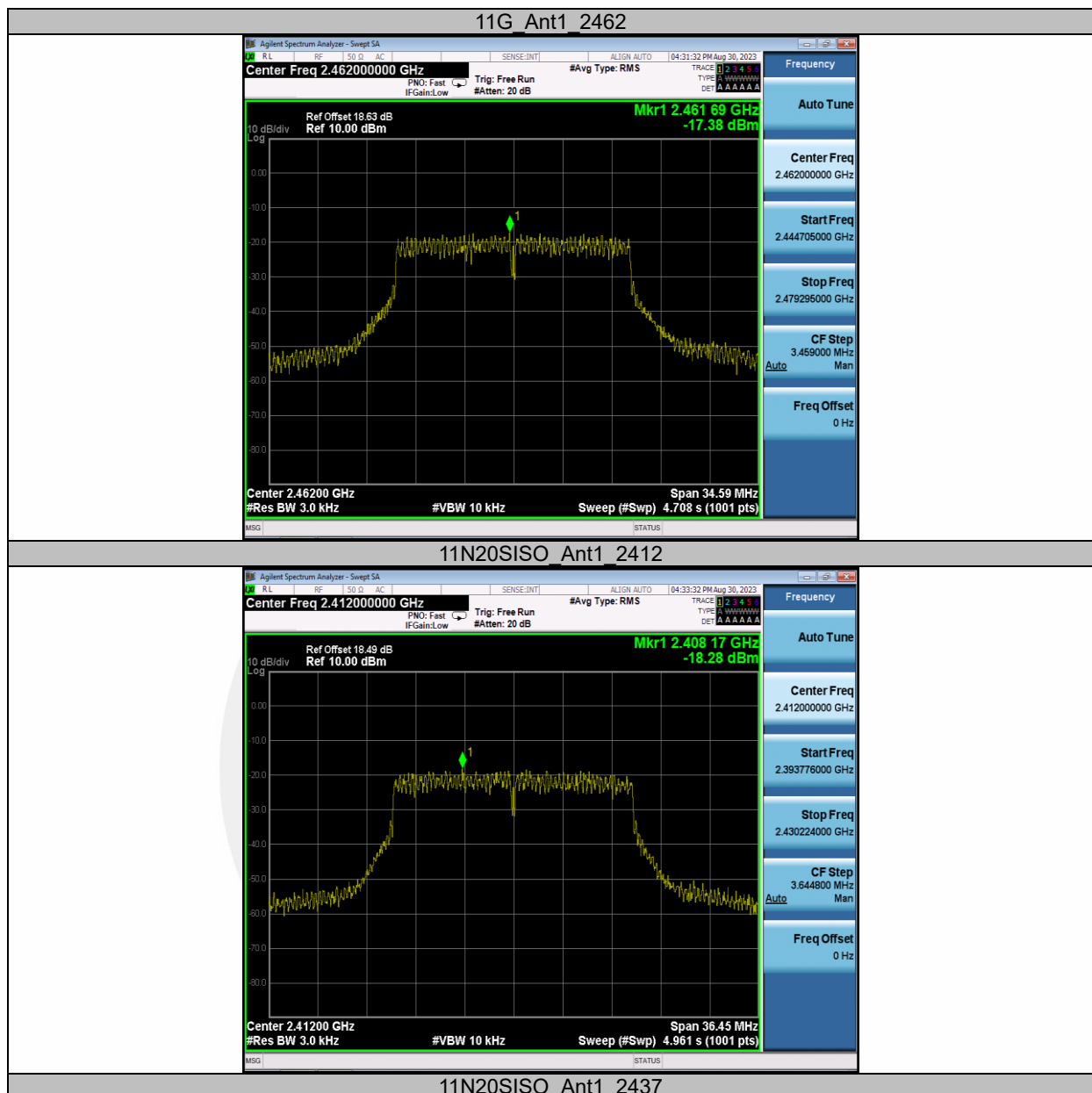


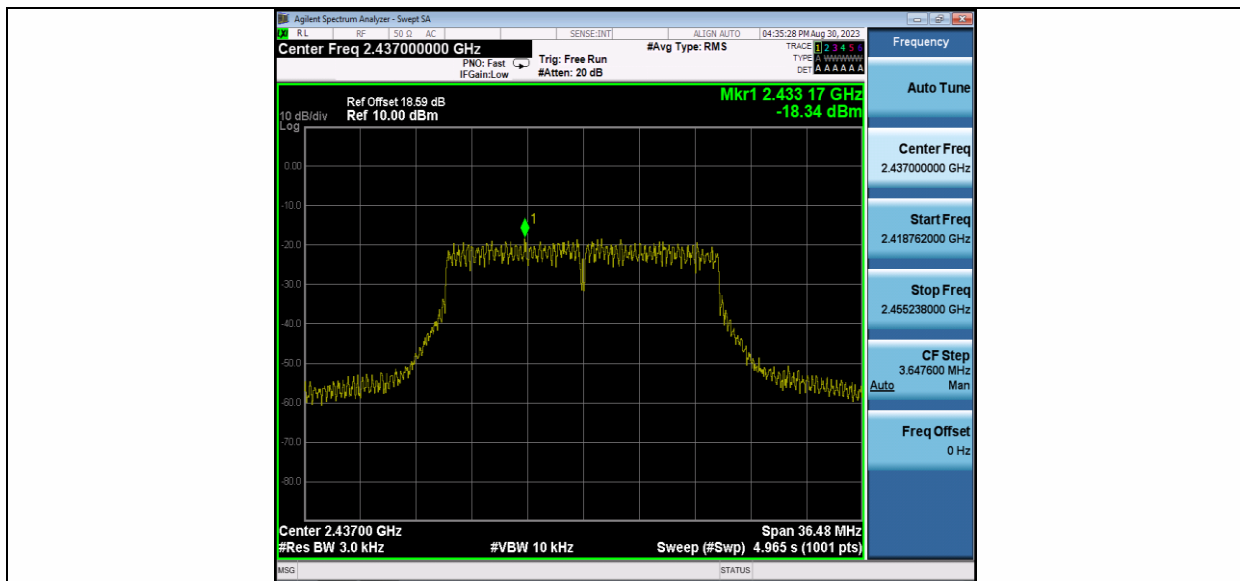
11G Ant1_2412



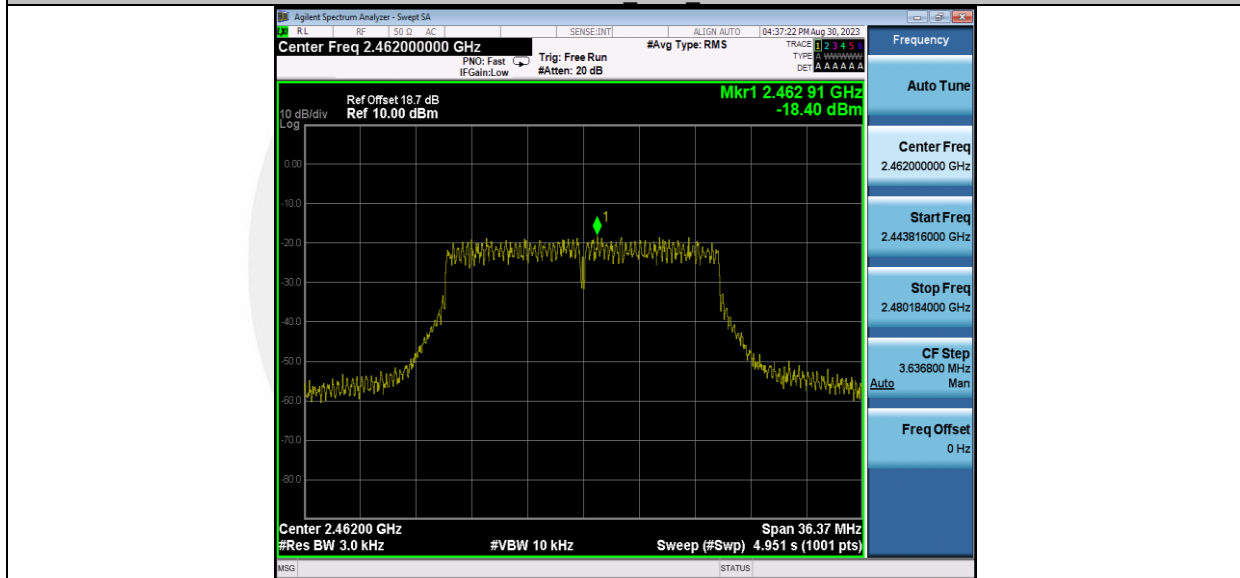
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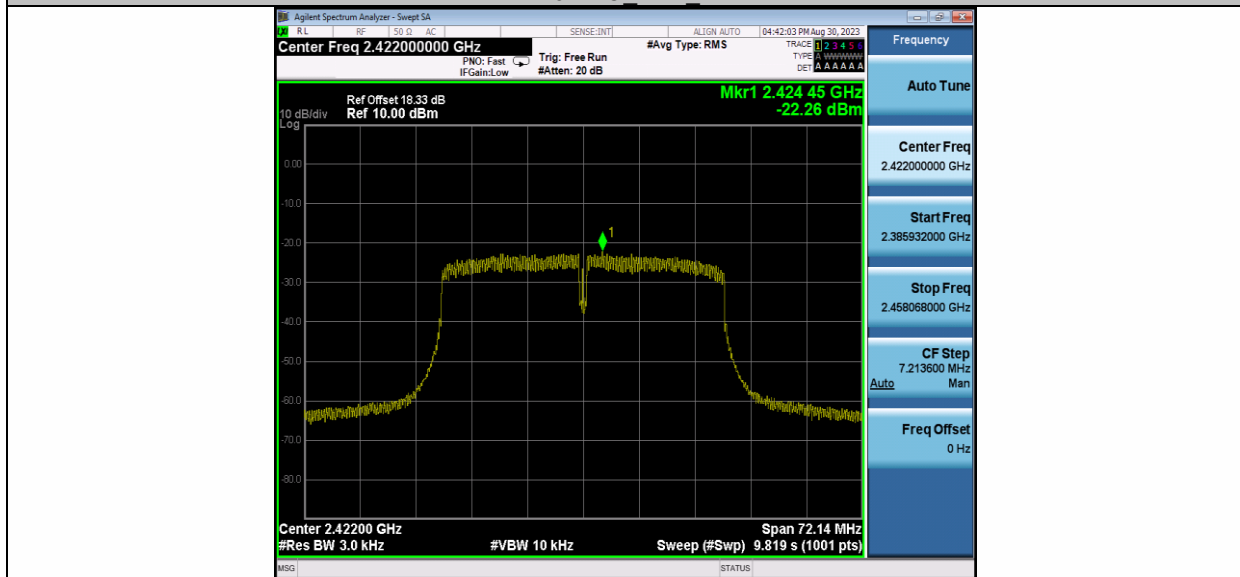




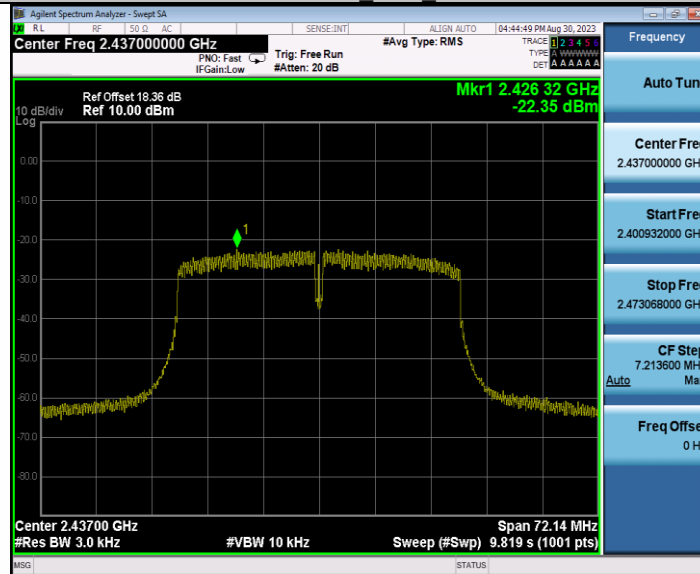
11N20SISO Ant1 2462



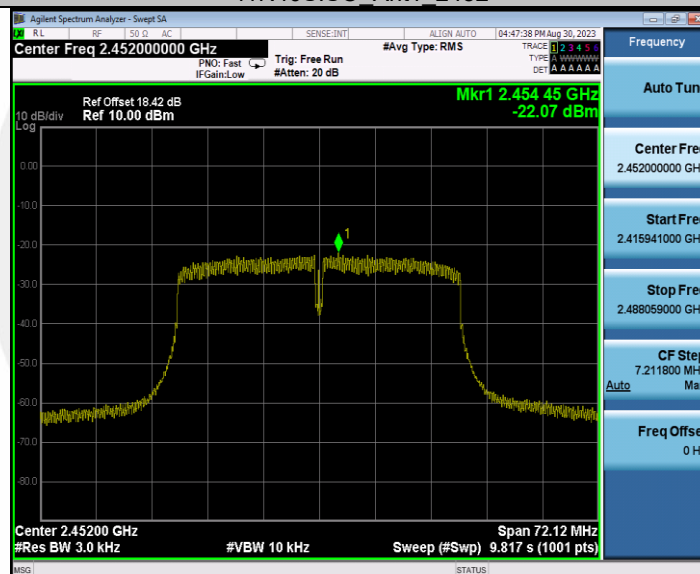
11N40SISO Ant1 2422



11N40SISO Ant1 2437



11N40SISO Ant1 2452



8.6 UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

8.6.1 Applicable Standard

According to FCC Part15.247(d)

According to RSS-247 5.5

According to 558074 D01 15.247 Meas Guidance v05r02 Section 8.5

According to ANSI C63.10 Section 11.11

8.6.2 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 device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

8.6.3 Test Configuration

Test according to clause 7.1 radio frequency test setup

8.6.4 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.

■ Band-edge measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation

Set RBW $\geq 1\%$ of the span=100kHz Set VBW $\geq 3 \times$ RBW

Set Sweep = auto Set Detector function = peak Set Trace = max hold

Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.

■ 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.

8.6.5 Test Results

Temperature:	25 °C
Relative Humidity:	45%
ATM Pressure:	1011 mbar
Test Engineer:	XXH

Note: N/A

Reference level measurement

TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
11B	Ant1	2412	2410.96	8.98
		2437	2435.99	8.58
		2462	2462.96	8.90

Band-edge measurement

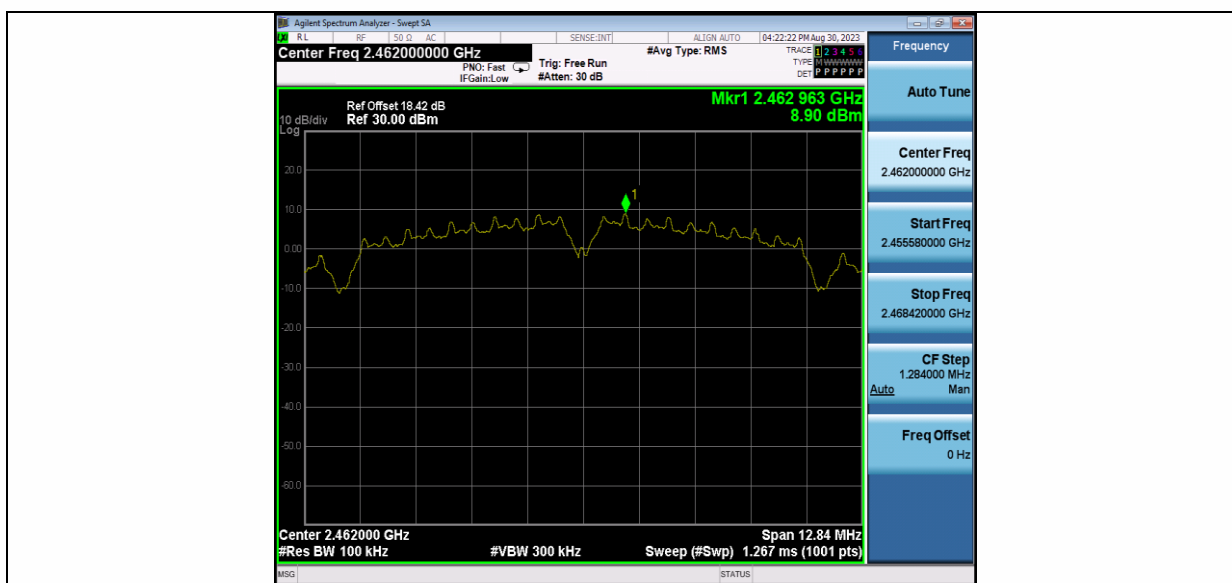
Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	Low	2412	8.98	-30.69	≤-21.02	PASS
		High	2462	8.90	-37.14	≤-21.1	PASS

Emission level measurement

TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	30~1000	8.98	-67.26	≤-21.02	PASS
			1000~26500	8.98	-45.15	≤-21.02	PASS
		2437	30~1000	8.58	-66.7	≤-21.42	PASS
			1000~26500	8.58	-45.69	≤-21.42	PASS
		2462	30~1000	8.90	-66.31	≤-21.1	PASS
			1000~26500	8.90	-46.38	≤-21.1	PASS

Reference level measurement

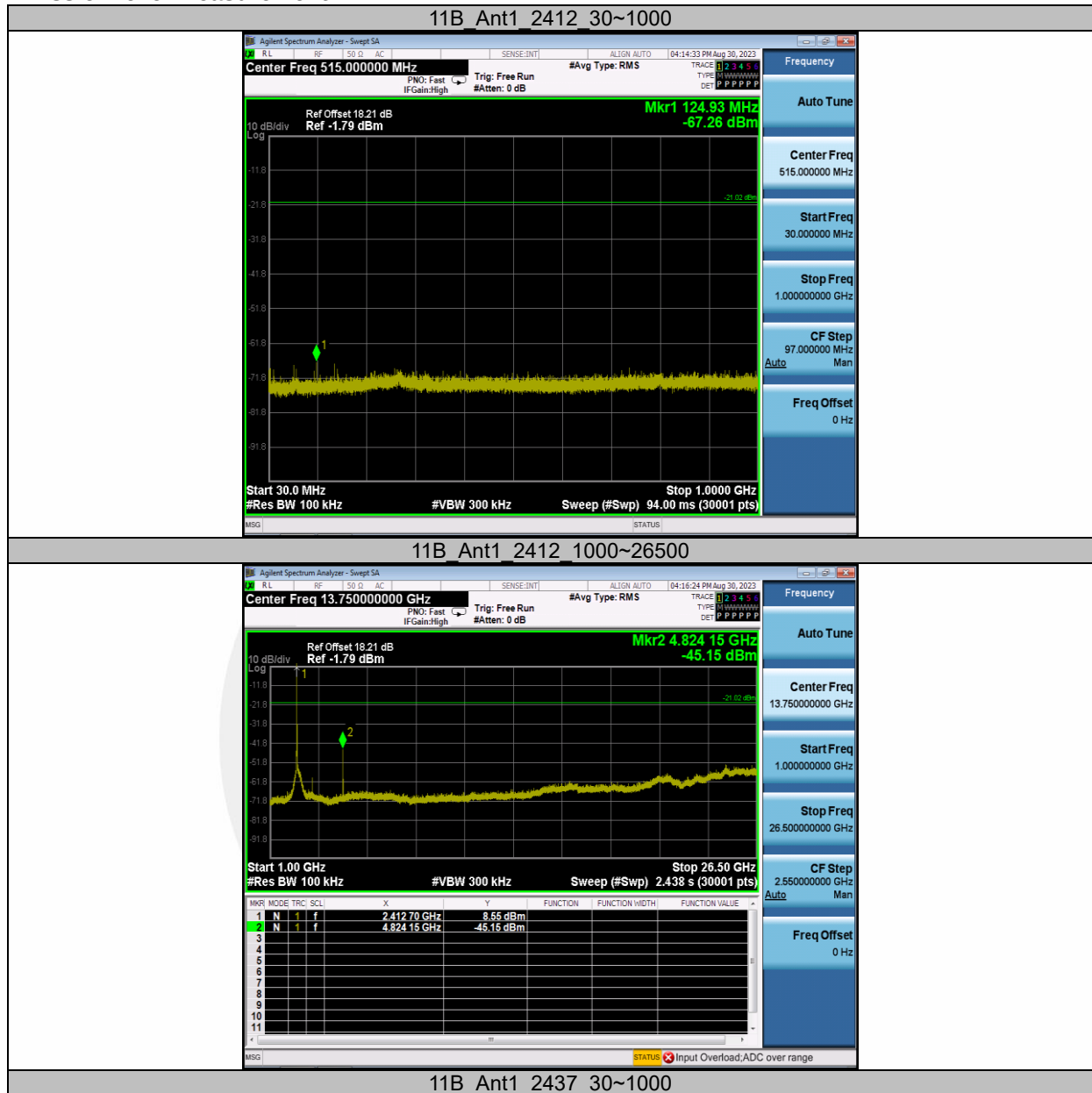


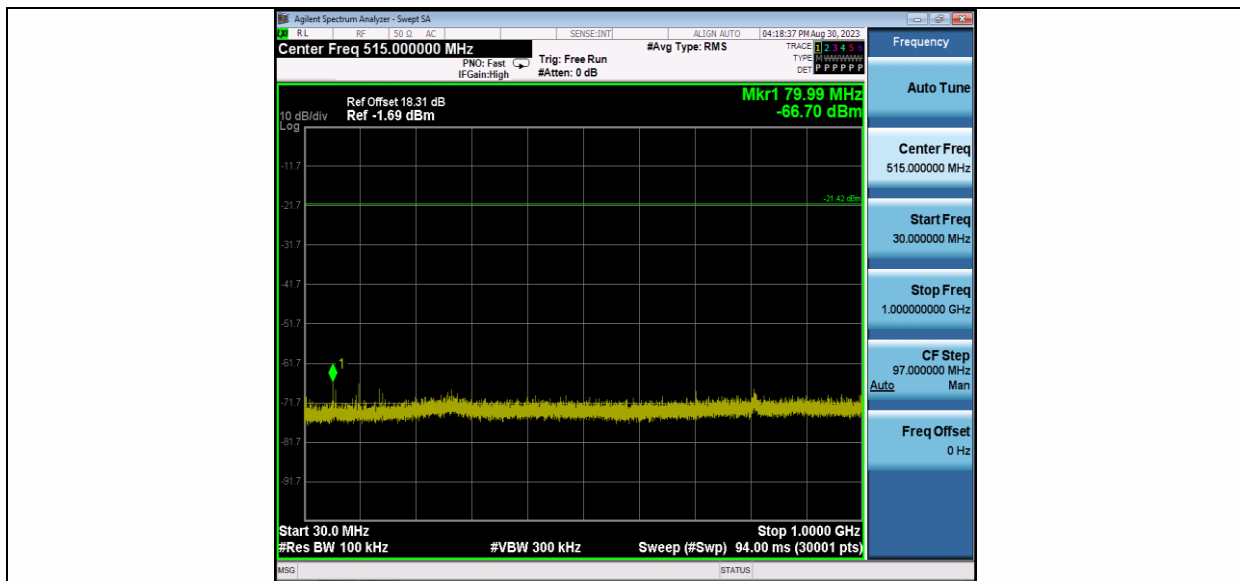


Band-edge measurement



Emission level measurement

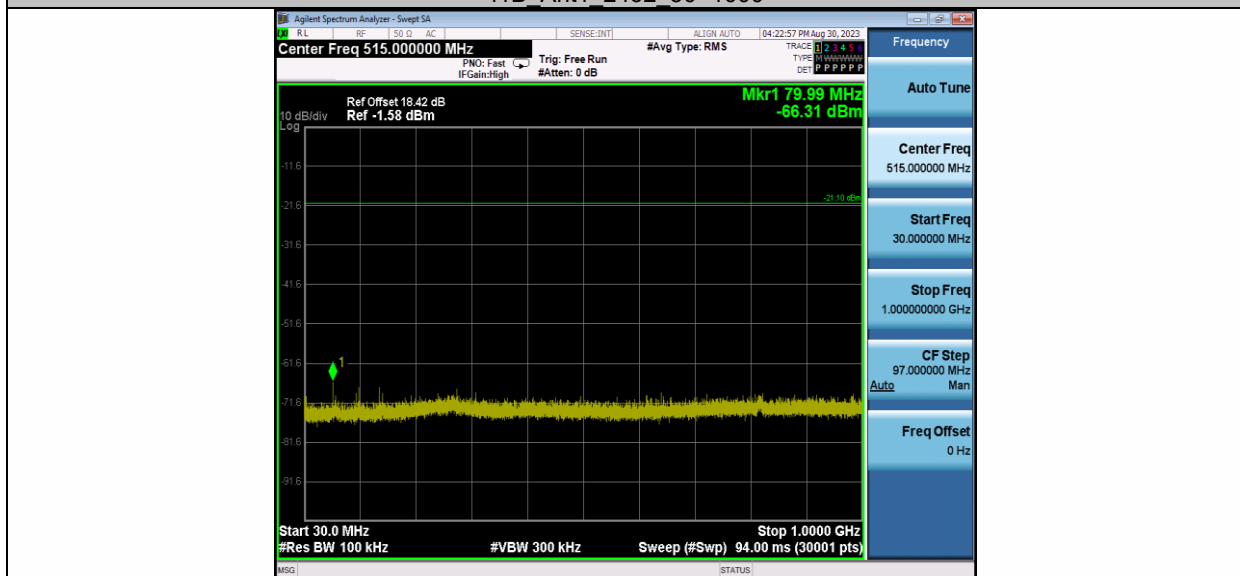


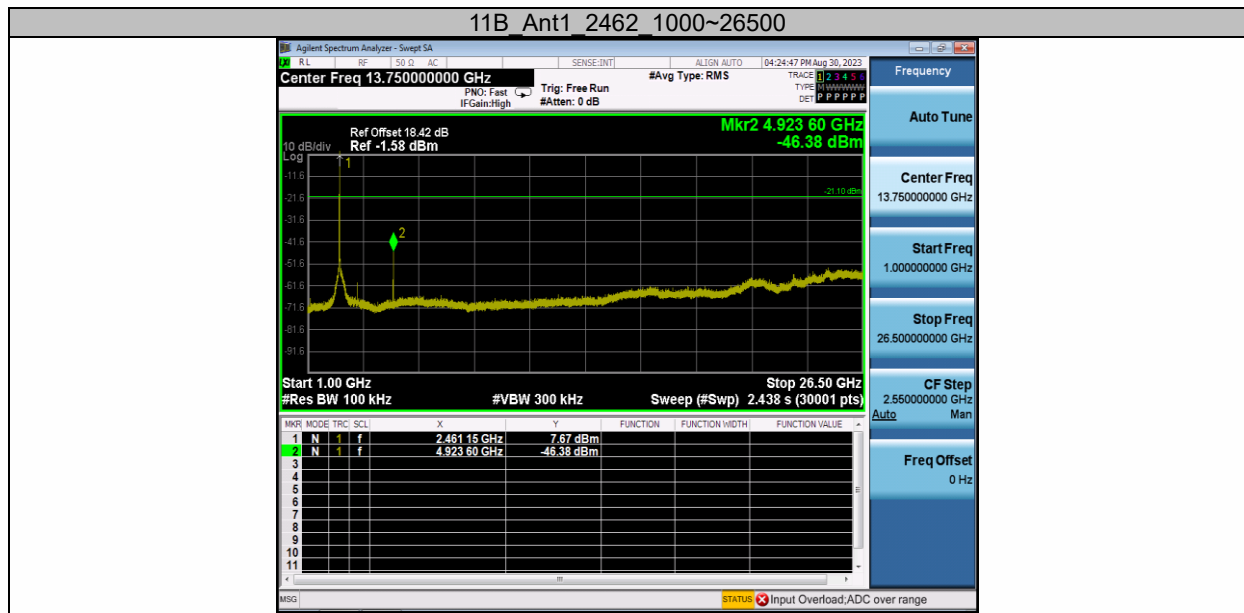


11B Ant1 2437 1000~26500



11B Ant1 2462 30~1000





8.7 RADIATED SPURIOUS EMISSION

8.7.1 Applicable Standard

According to FCC Part 15.247(d), 15.205, 15.209

According to RSS-Gen and RSS-247

According to 558074 D01 15.247 Meas Guidance v05r02 Section 8.6

According to ANSI C63.10 Section 11.12

8.7.2 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
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	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	Above 38.6
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 (μV/m)	300
0.490-1.705	24000/F(KHz)	20 log (μV/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

8.7.3 Test Configuration

Test according to clause 7.2 radio frequency test setup

8.7.4 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 ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

For average measurements the resolution bandwidth of spectrum analyzer is 1 MHz with the video bandwidth is $\geq 1/T$ with peak detector.

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.

8.7.5 Test Results

Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar
Test Engineer:	XXH

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

For Spurious Emission below 30MHz (9KHz to 30MHz), was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

■ 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:

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

Freq. (MHz)	Ant.Pol.	Reading Level (dBuV/m)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit 3m (dBuV/m)	Margin (dB)	Remark
4822.5	V	60.75	-13.41	47.34	74.00	26.66	Peak
14555.6	V	54.38	9.86	64.24	74.00	9.76	Peak
17611.8	V	53.88	15.76	69.64	74.00	4.36	Peak
4822.5	V	55.23	-13.41	41.82	54.00	12.18	Avg
14555.62	V	37.54	9.86	47.40	54.00	6.60	Avg
17611.87	V	34.25	15.76	50.01	54.00	3.99	Avg
4822.5	H	64.94	-13.41	51.53	74.00	22.47	Peak
14559.3	H	53.56	9.98	63.54	74.00	10.46	Peak
17606.2	H	54.00	15.93	69.93	74.00	4.07	Peak
4822.5	H	55.25	-13.41	41.84	54.00	12.16	Avg
14559.37	H	37.25	9.98	47.23	54.00	6.77	Avg
17606.25	H	34.23	15.93	50.16	54.00	3.84	Avg

Note: (1) Peak RBW = 1 MHz, VBW $\geq 3 \times$ RBW, Detector = Peak;
(2) Avg RBW = 1 MHz, VBW = 1/T_{on}, Detector = Peak, where: T_{on} is transmit duration;
(3) Corrected Reading = Reading Level + Correct Factor;
(4) Correct Factor = Ant_F + Cab_L - Preamp;
(5) Margin = Limit - Corrected Reading;

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

Freq. (MHz)	Ant.Pol.	Reading Level (dBuV/m)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit 3m (dBuV/m)	Margin (dB)	Remark
4873.12	V	61.06	-13.43	47.63	74.00	26.37	Peak
14613.7	V	53.20	10.94	64.14	74.00	9.86	Peak
17962.5	V	56.61	13.37	69.98	74.00	4.02	Peak
4873.125	V	55.21	-13.43	41.78	54.00	12.22	Avg
14613.75	V	37.23	10.94	48.17	54.00	5.83	Avg
17962.5	V	34.21	13.37	47.58	54.00	6.42	Avg
4873.12	H	65.46	-13.43	52.03	74.00	21.97	Peak
14651.25	H	53.25	10.12	63.37	74.00	10.63	Peak
17941.87	H	57.10	13.12	70.22	74.00	3.78	Peak
4873.125	H	55.01	-13.43	41.58	54.00	12.42	Avg
14651.25	H	37.25	10.12	47.37	54.00	6.63	Avg
17941.87	H	34.23	13.12	47.35	54.00	6.65	Avg
Note: (1) Peak RBW = 1 MHz, VBW $\geq 3 \times$ RBW, Detector = Peak; (2) Avg RBW = 1 MHz, VBW = $1/T_{on}$, Detector = Peak, where: T_{on} is transmit duration; (3) Corrected Reading = Reading Level + Correct Factor; (4) Correct Factor = Ant_F + Cab_L - Preamp; (5) Margin = Limit - Corrected Reading;							

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

Freq. (MHz)	Ant.Pol.	Reading Level (dBuV/m)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit 3m (dBuV/m)	Margin (dB)	Remark
4923.75	V	62.78	-13.31	49.47	74.00	24.53	Peak
14604.3	V	52.21	11.14	63.35	74.00	10.65	Peak
17610	V	54.03	15.81	69.84	74.00	4.16	Peak
4923.75	V	55.12	-13.31	41.81	54.00	12.19	Avg
14604.37	V	37.45	11.14	48.59	54.00	5.41	Avg
17610	V	34.16	15.81	49.97	54.00	4.03	Avg
4923.75	H	67.05	-13.31	53.74	74.00	20.26	Peak
14641.8	H	53.30	10.32	63.62	74.00	10.38	Peak
17617.5	H	54.79	15.57	70.36	74.00	3.64	Peak
4923.75	H	55.35	-13.31	42.04	54.00	11.96	Avg
14641.87	H	37.54	10.32	47.86	54.00	6.14	Avg
17617.5	H	34.58	15.57	50.15	54.00	3.85	Avg
Note: (1) Peak RBW = 1 MHz, VBW $\geq 3 \times$ RBW, Detector = Peak; (2) Avg RBW = 1 MHz, VBW = $1/T_{on}$, Detector = Peak, where: T_{on} is transmit duration; (3) Corrected Reading = Reading Level + Correct Factor; (4) Correct Factor = Ant_F + Cab_L - Preamp; (5) Margin = Limit - Corrected Reading;							

■ 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, 802.11b) result recorded was report as below:

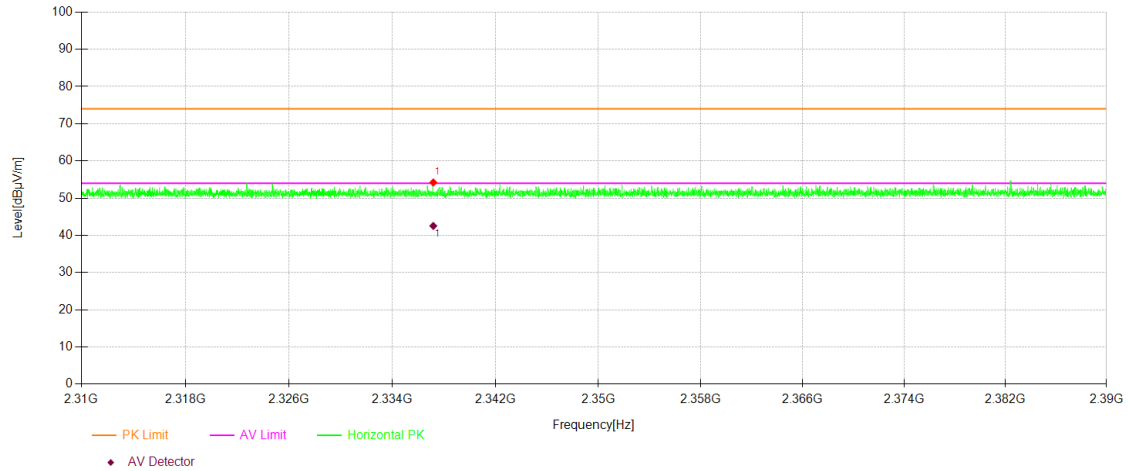
Test mode: 802.11b Frequency: Channel 1: 2412MHz

Freq. (MHz)	Ant.Pol.	Reading Level (dBuV/m)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit 3m (dBuV/m)	Margin (dB)	Remark
2334.52	V	22.71	30.99	53.70	74.00	20.30	peak
2334.52	V	11.24	30.99	42.23	54.00	11.77	AVG
2337.16	H	23.22	30.99	54.21	74.00	19.79	peak
2337.16	H	11.54	30.99	42.53	54.00	11.47	AVG
Note: (1) Peak RBW = 1 MHz, VBW $\geq 3 \times$ RBW, Detector = Peak; (2) Avg RBW = 1 MHz, VBW $\geq 3 \times$ RBW, Detector = RMS; (3) Corrected Reading = Reading Level + Correct Factor; (4) Correct Factor = Ant_F + Cab_L - Preamp; (5) Margin = Limit - Corrected Reading;							

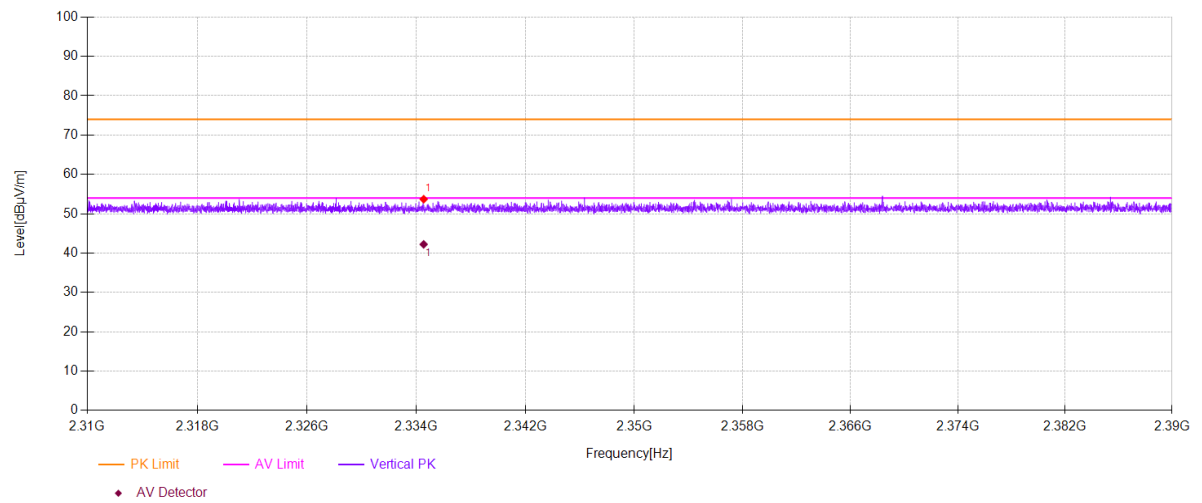
Test mode: 802.11b Frequency: Channel 11: 2462MHz

Freq. (MHz)	Ant.Pol.	Reading Level (dBuV/m)	Correct Factor (dB/m)	Corrected Reading (dBuV/m)	Limit 3m (dBuV/m)	Margin (dB)	Remark
2487.03	V	23.82	30.98	54.80	74.00	19.20	peak
2487.037	V	12.11	30.98	43.09	54.00	10.91	AVG
2488.80	H	23.60	30.98	54.58	74.00	19.42	peak
2488.80	H	12.21	30.98	43.19	54.00	10.81	AVG
Note: (1) Peak RBW = 1 MHz, VBW $\geq 3 \times$ RBW, Detector = Peak; (2) Avg RBW = 1 MHz, VBW = $1/T_{on}$, Detector = Peak, where: T_{on} is transmit duration; (3) Corrected Reading = Reading Level + Correct Factor; (4) Correct Factor = Ant_F + Cab_L - Preamp; (5) Margin = Limit - Corrected Reading;							

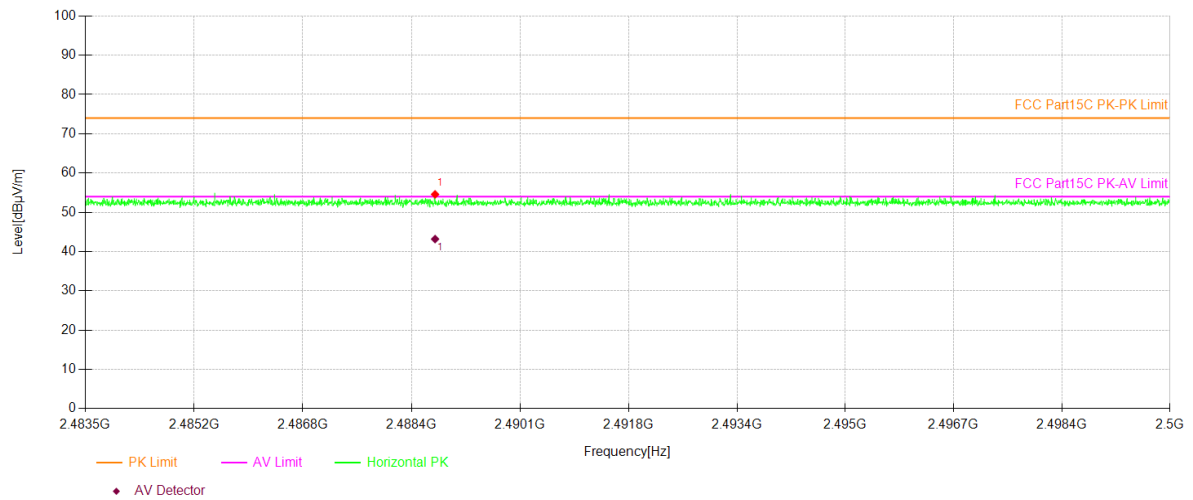
Test Model 802.11b Spurious Emission in Restricted Band 2310-2390MHz
Channel 1: 2412MHz Polarity: H



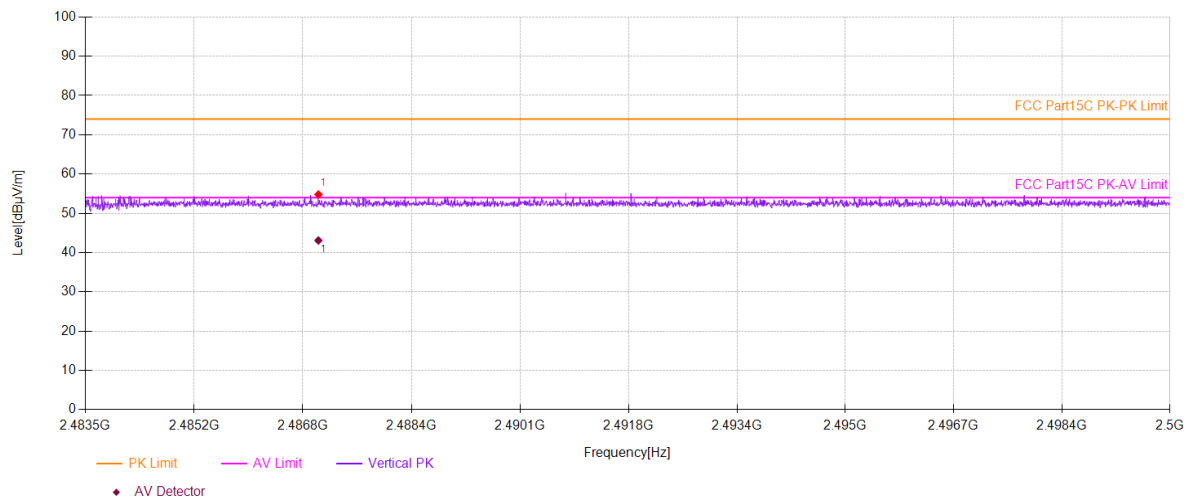
Test Model 802.11b Spurious Emission in Restricted Band 2310-2390MHz
Channel 1: 2412MHz Polarity: V



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



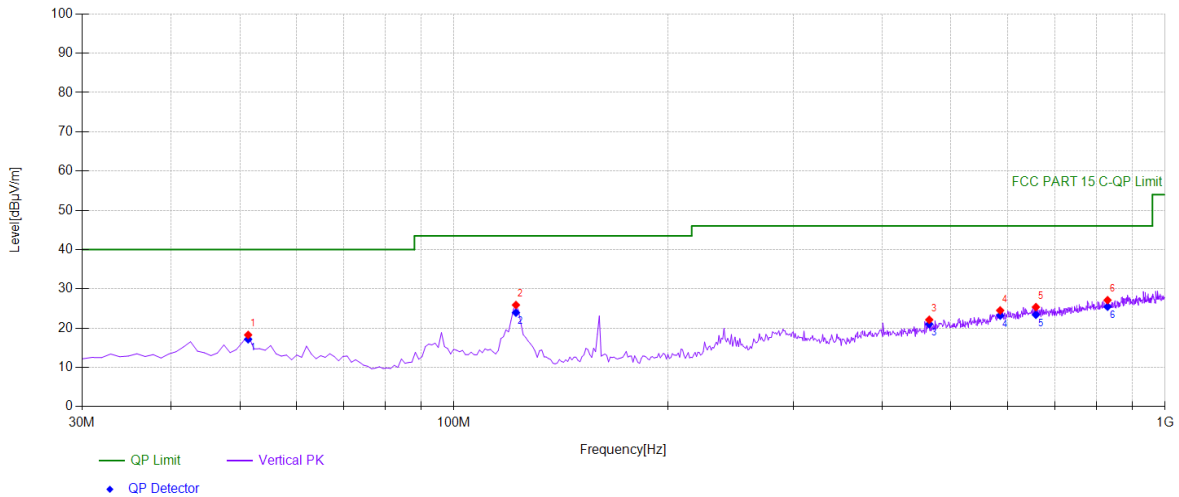
Test Model 802.11b Spurious Emission in Restricted Band 2483.5-2500MHz
Channel 11: 2462MHz Polarity: V



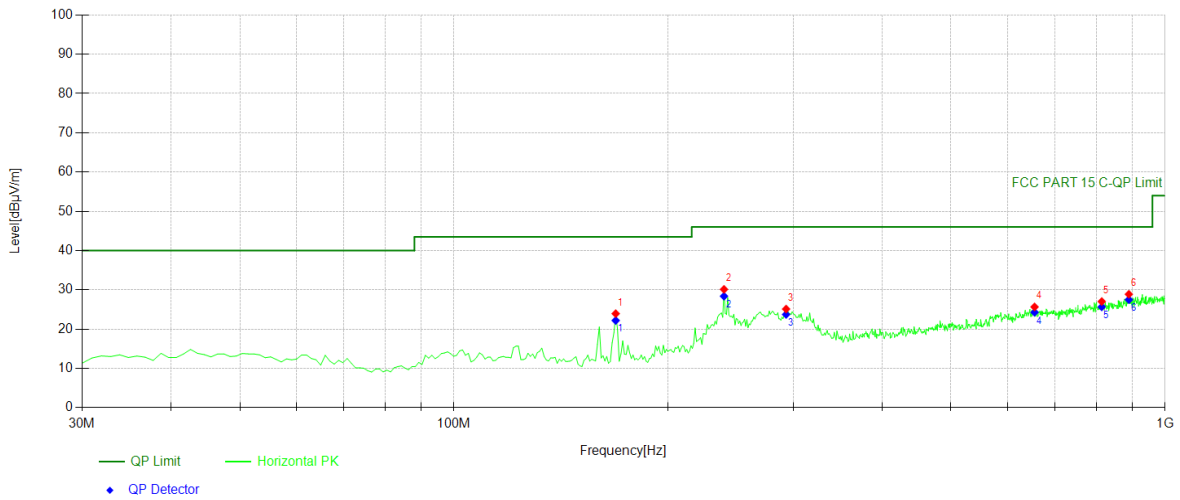
■ Spurious Emission below 1GHz (30MHz to 1GHz)

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:

2412



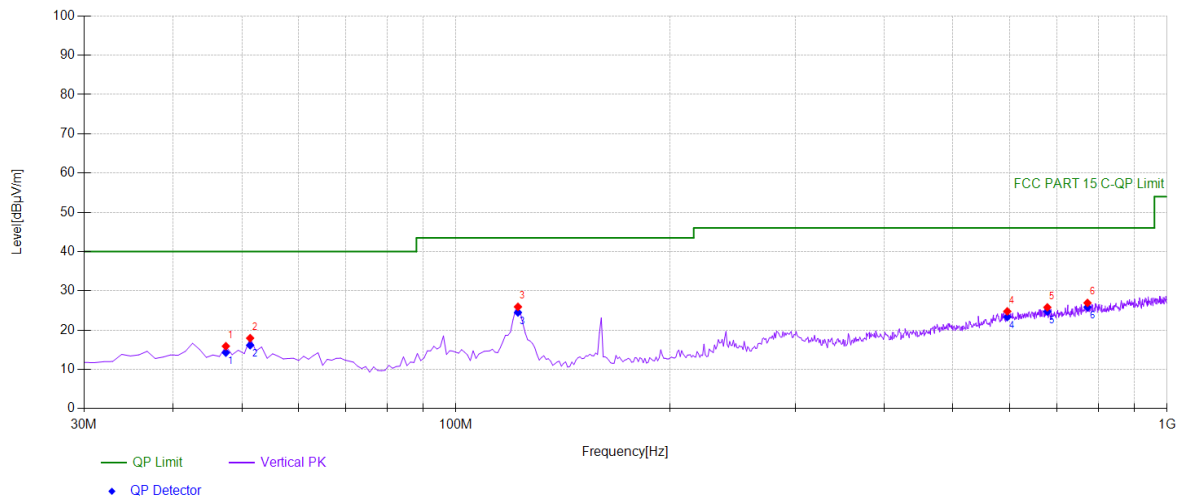
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	51.3614	35.66	-17.39	18.27	PK	40.00	21.73	Vertical
2	122.242	44.05	-18.16	25.89	PK	43.50	17.61	Vertical
3	465.966	32.80	-10.67	22.13	PK	46.00	23.87	Vertical
4	586.366	31.65	-7.14	24.51	PK	46.00	21.49	Vertical
5	658.218	31.51	-6.15	25.36	PK	46.00	20.64	Vertical
6	830.080	31.24	-4.12	27.12	PK	46.00	18.88	Vertical



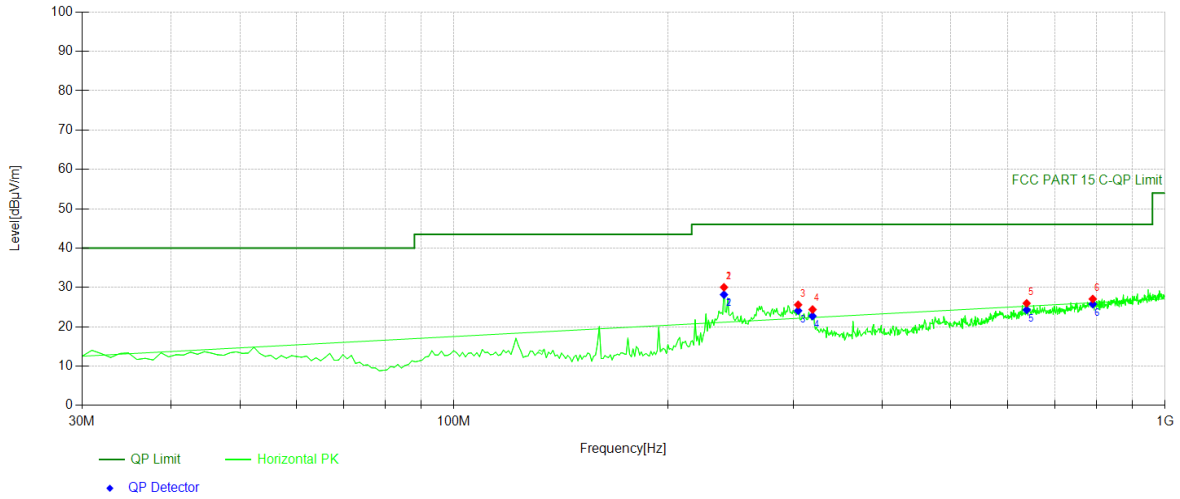
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	168.848	42.97	-19.03	23.94	PK	43.50	19.56	Horizontal
2	239.729	45.34	-15.21	30.13	PK	46.00	15.87	Horizontal
3	293.133	39.27	-14.15	25.12	PK	46.00	20.88	Horizontal
4	655.305	31.83	-6.17	25.66	PK	46.00	20.34	Horizontal
5	814.544	31.36	-4.32	27.04	PK	46.00	18.96	Horizontal
6	889.309	31.78	-2.89	28.89	PK	46.00	17.11	Horizontal

2437



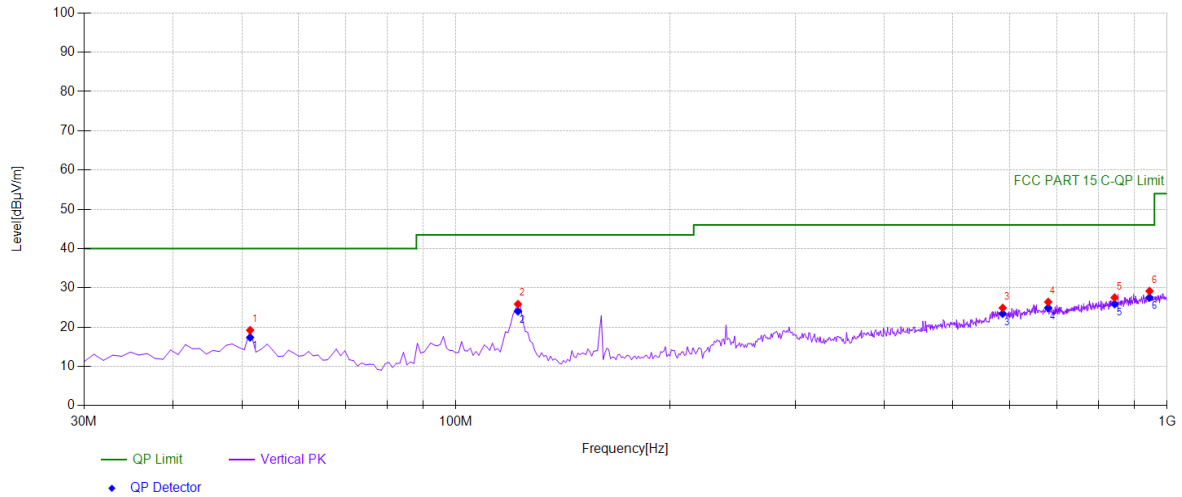
Suspected Data List								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	47.4775	33.30	-17.39	15.91	PK	40.00	24.09	Vertical
2	51.3614	35.35	-17.39	17.96	PK	40.00	22.04	Vertical
3	122.242	44.10	-18.16	25.94	PK	43.50	17.56	Vertical
4	596.076	31.92	-7.14	24.78	PK	46.00	21.22	Vertical
5	678.608	31.90	-6.10	25.80	PK	46.00	20.20	Vertical
6	772.792	31.83	-4.90	26.93	PK	46.00	19.07	Vertical



Suspected Data List

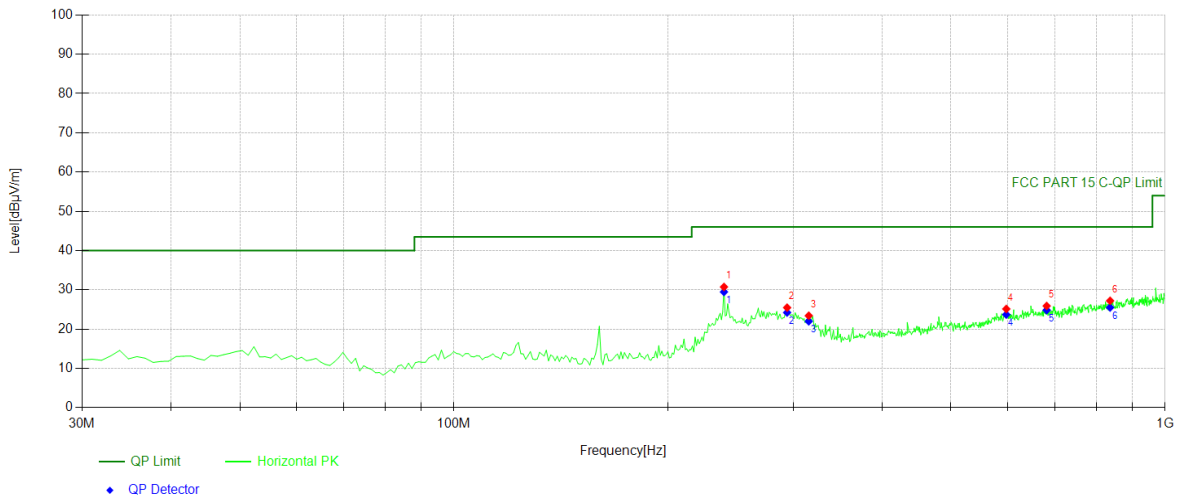
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	239.729	45.25	-15.21	30.04	PK	46.00	15.96	Horizontal
2	239.729	45.25	-15.21	30.04	PK	46.00	15.96	Horizontal
3	304.784	39.73	-14.14	25.59	PK	46.00	20.41	Horizontal
4	319.349	38.52	-14.13	24.39	PK	46.00	21.61	Horizontal
5	638.798	32.28	-6.31	25.97	PK	46.00	20.03	Horizontal
6	791.241	31.58	-4.51	27.07	PK	46.00	18.93	Horizontal

2462



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	51.3614	36.61	-17.39	19.22	PK	40.00	20.78	Vertical
2	122.242	44.03	-18.16	25.87	PK	43.50	17.63	Vertical
3	587.337	32.04	-7.14	24.90	PK	46.00	21.10	Vertical
4	680.550	32.51	-6.10	26.41	PK	46.00	19.59	Vertical
5	843.673	31.36	-3.84	27.52	PK	46.00	18.48	Vertical
6	944.654	31.57	-2.39	29.18	PK	46.00	16.82	Vertical



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Detector	Limit [dBμV/m]	Margin [dB]	Polarity
1	239.729	45.95	-15.21	30.74	PK	46.00	15.26	Horizontal
2	294.104	39.63	-14.15	25.48	PK	46.00	20.52	Horizontal
3	315.465	37.56	-14.14	23.42	PK	46.00	22.58	Horizontal
4	598.018	32.28	-7.14	25.14	PK	46.00	20.86	Horizontal
5	681.521	32.00	-6.09	25.91	PK	46.00	20.09	Horizontal
6	836.876	31.16	-3.94	27.22	PK	46.00	18.78	Horizontal

8.8 CONDUCTED EMISSION TEST

8.8.1 Applicable Standard

According to FCC Part 15.207(a)

According to RSS-Gen 8.8

8.8.2 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.

8.8.3 Test Configuration

Test according to clause 7.3 conducted emission test setup

8.8.4 Test Procedure

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

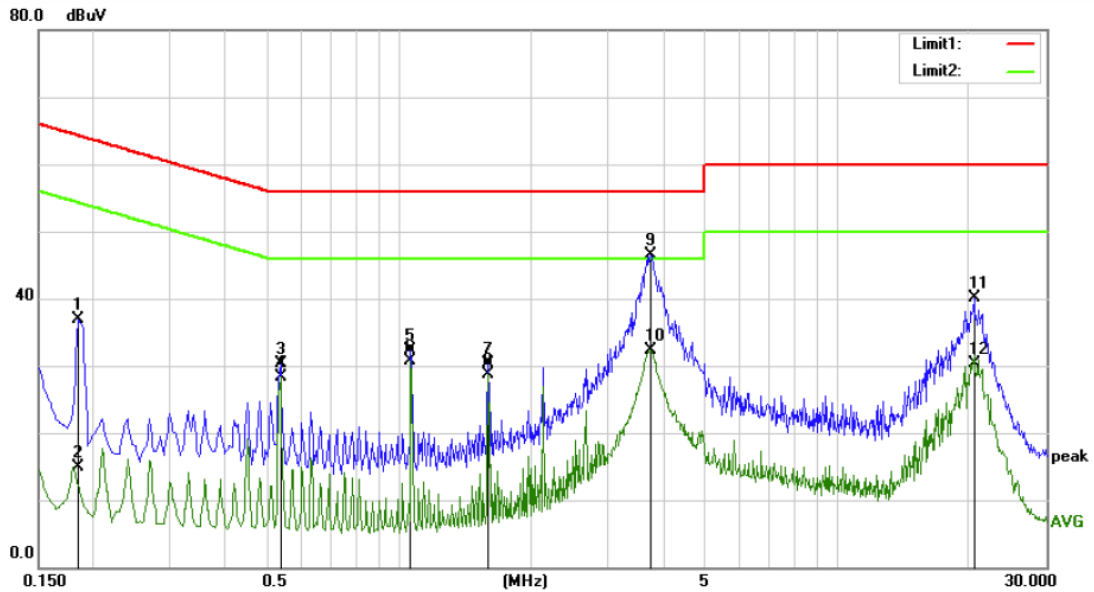
Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Repeat above procedures until all frequency measured were complete.

8.8.5 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

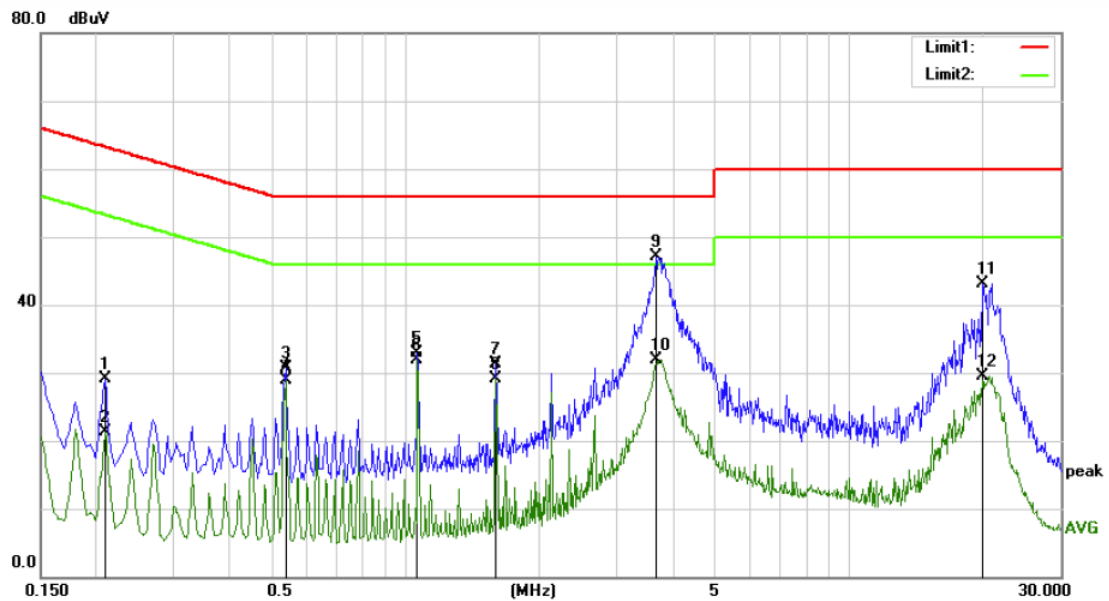
Power: AC 120V/60Hz

Humidity: 58 %

Mode: WIFI MODE

Note: CHUANGLIAN

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1850	27.07	9.92	36.99	64.26	-27.27	QP	
2		0.1850	4.91	9.92	14.83	54.26	-39.43	AVG	
3		0.5350	20.67	9.67	30.34	56.00	-25.66	QP	
4		0.5350	18.67	9.67	28.34	46.00	-17.66	AVG	
5		1.0650	22.41	9.84	32.25	56.00	-23.75	QP	
6		1.0650	20.91	9.84	30.75	46.00	-15.25	AVG	
7		1.6000	20.62	9.76	30.38	56.00	-25.62	QP	
8		1.6000	18.93	9.76	28.69	46.00	-17.31	AVG	
9	*	3.7400	36.73	9.81	46.54	56.00	-9.46	QP	
10		3.7400	22.53	9.81	32.34	46.00	-13.66	AVG	
11		20.5300	29.77	10.29	40.06	60.00	-19.94	QP	
12		20.5300	20.08	10.29	30.37	50.00	-19.63	AVG	



Site Conduction #1

Phase: **L1**

Temperature: 21.9

Limit: (CE)FCC PART 15 class B_QP

Power: AC 120V/60Hz

Humidity: 58 %

Mode: WIFI MODE

Note: CHUANGLIAN

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2100	18.98	10.09	29.07	63.21	-34.14	QP	
2		0.2100	11.29	10.09	21.38	53.21	-31.83	AVG	
3		0.5350	21.07	9.67	30.74	56.00	-25.26	QP	
4		0.5350	19.19	9.67	28.86	46.00	-17.14	AVG	
5		1.0650	23.13	9.84	32.97	56.00	-23.03	QP	
6		1.0650	22.02	9.84	31.86	46.00	-14.14	AVG	
7		1.6000	21.61	9.76	31.37	56.00	-24.63	QP	
8		1.6000	19.38	9.76	29.14	46.00	-16.86	AVG	
9	*	3.6800	37.30	9.80	47.10	56.00	-8.90	QP	
10		3.6800	22.15	9.80	31.95	46.00	-14.05	AVG	
11		20.0550	32.83	10.35	43.18	60.00	-16.82	QP	
12		20.0550	19.24	10.35	29.59	50.00	-20.41	AVG	

8.9 ANTENNA APPLICATION

8.9.1 Antenna Requirement

Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
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.

8.9.2 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 document Internal Photos to show the antenna connector.

----- END OF REPORT -----