



8.5 UNWANTED EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS

8.5.1 Applicable Standard

According to FCC Part15.247(d) and KDB 558074 D01 15.247 Meas Guidance v05r02 According to RSS-247 5.5

8.5.2 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 undersection 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.

8.5.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.5.4 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 x 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 x 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.



8.5.5 Test Results

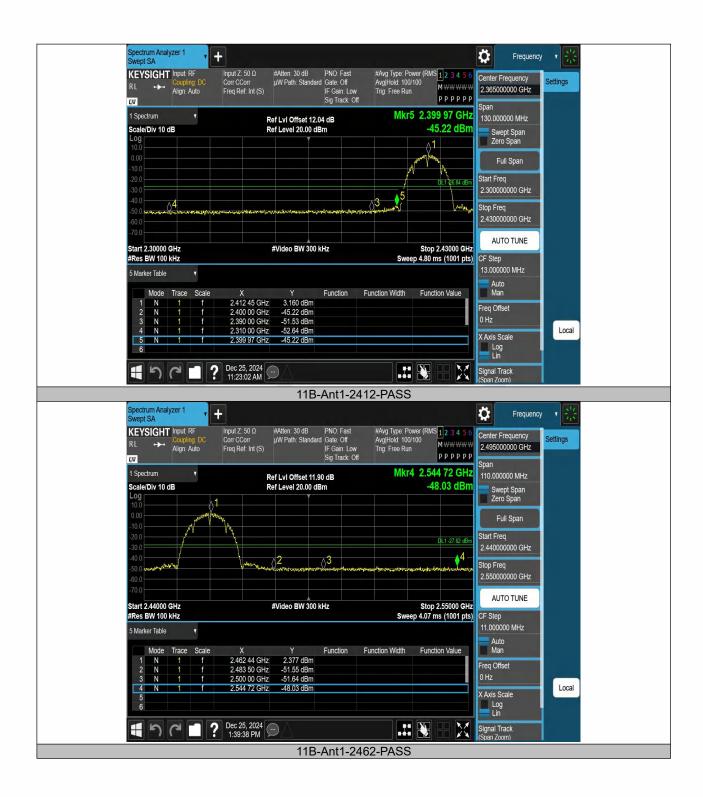
Temperature:	25 °C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

Band edge measurements

	Bana eage measurements								
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict		
11B	Ant1	Low	2412	3.16	-45.22	≤-26.84	PASS		
11B	Ant1	High	2462	2.38	-48.03	≤-27.62	PASS		
11G	Ant1	Low	2412	-2.35	-32.35	≤-32.35	PASS		
11G	Ant1	High	2462	-3.58	-45.23	≤-33.58	PASS		
11N20SIS	O Ant1	Low	2412	-1.40	-31.55	≤-31.4	PASS		
11N20SIS	O Ant1	High	2462	-3.00	-42.54	≤-33	PASS		











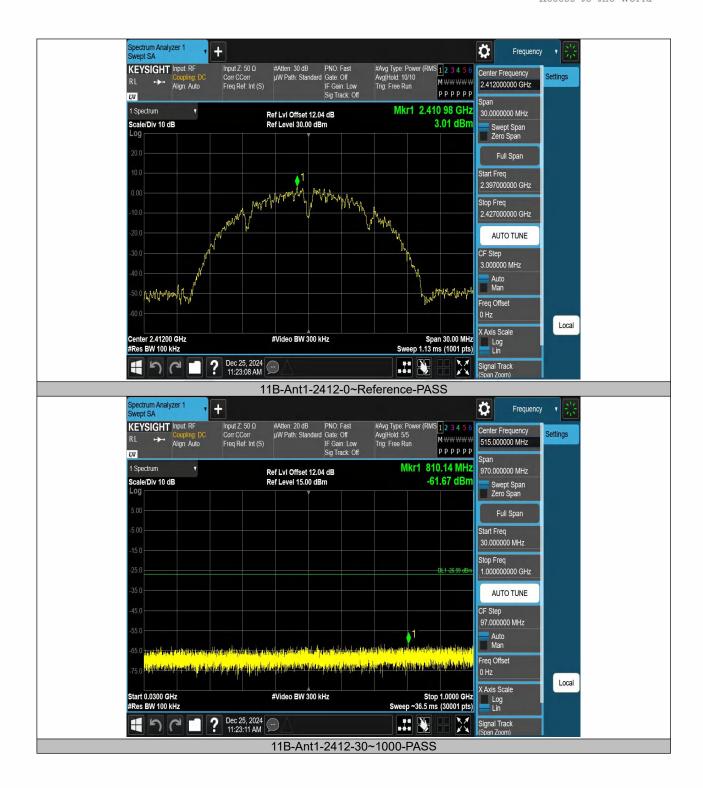




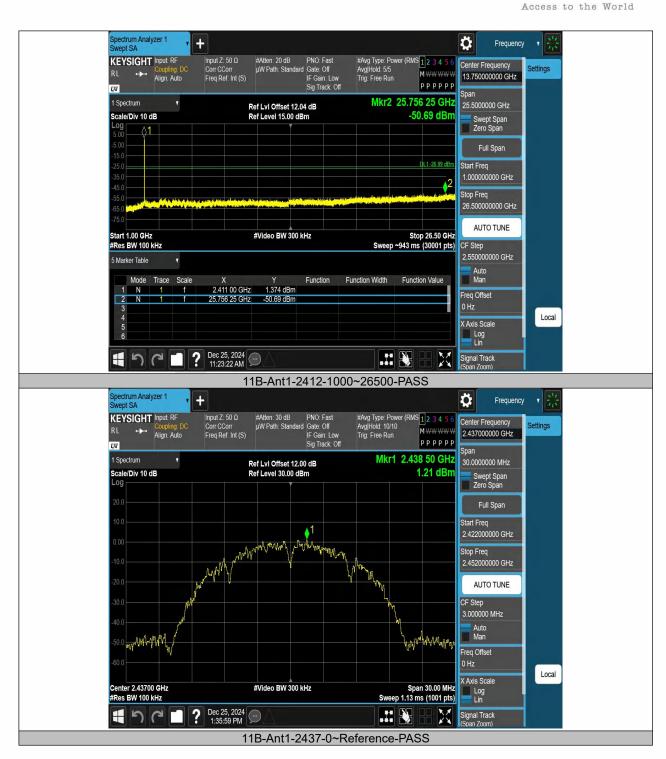
Conducted Spurious Emission

Conducted S	Conducted Spurious Emission								
TestMode	Antenna	Frequency[MHz]	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict		
11B	Ant1	2412	0~Reference	3.01	3.01		PASS		
11B	Ant1	2412	30~1000	3.01	-61.67	≤-26.99	PASS		
11B	Ant1	2412	1000~26500	3.01	-50.69	≤-26.99	PASS		
11B	Ant1	2437	0~Reference	1.21	1.21		PASS		
11B	Ant1	2437	30~1000	1.21	-61.51	≤-28.79	PASS		
11B	Ant1	2437	1000~26500	1.21	-46.79	≤-28.79	PASS		
11B	Ant1	2462	0~Reference	1.55	1.55		PASS		
11B	Ant1	2462	30~1000	1.55	-61.51	≤-28.45	PASS		
11B	Ant1	2462	1000~26500	1.55	-49.76	≤-28.45	PASS		
11G	Ant1	2412	0~Reference	-3.09	-3.09		PASS		
11G	Ant1	2412	30~1000	-3.09	-60.86	≤-33.09	PASS		
11G	Ant1	2412	1000~26500	-3.09	-50.57	≤-33.09	PASS		
11G	Ant1	2437	0~Reference	-3.14	-3.14		PASS		
11G	Ant1	2437	30~1000	-3.14	-61.32	≤-33.14	PASS		
11G	Ant1	2437	1000~26500	-3.14	-50.2	≤-33.14	PASS		
11G	Ant1	2462	0~Reference	-3.70	-3.70		PASS		
11G	Ant1	2462	30~1000	-3.70	-60.82	≤-33.7	PASS		
11G	Ant1	2462	1000~26500	-3.70	-49.31	≤-33.7	PASS		
11N20SISO	Ant1	2412	0~Reference	-2.56	-2.56		PASS		
11N20SISO	Ant1	2412	30~1000	-2.56	-61.02	≤-32.56	PASS		
11N20SISO	Ant1	2412	1000~26500	-2.56	-51.02	≤-32.56	PASS		
11N20SISO	Ant1	2437	0~Reference	-3.30	-3.30		PASS		
11N20SISO	Ant1	2437	30~1000	-3.30	-61.06	≤-33.3	PASS		
11N20SISO	Ant1	2437	1000~26500	-3.30	-49.6	≤-33.3	PASS		
11N20SISO	Ant1	2462	0~Reference	-3.96	-3.96		PASS		
11N20SISO	Ant1	2462	30~1000	-3.96	-61.22	≤-33.96	PASS		
11N20SISO	Ant1	2462	1000~26500	-3.96	-50.39	≤-33.96	PASS		

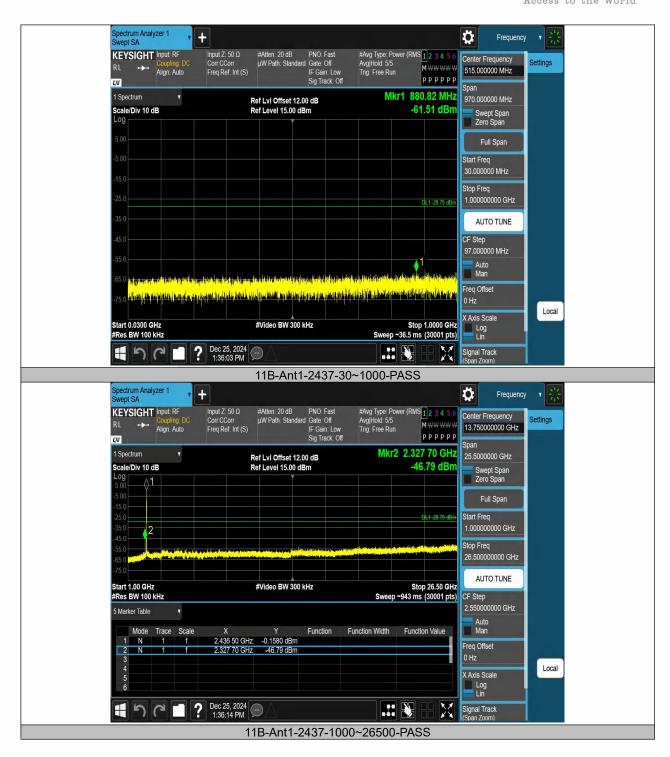




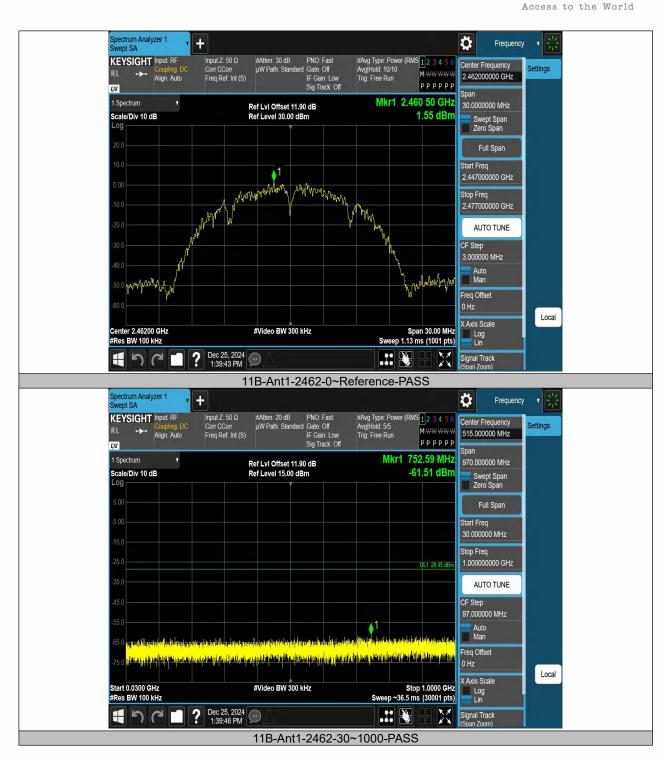




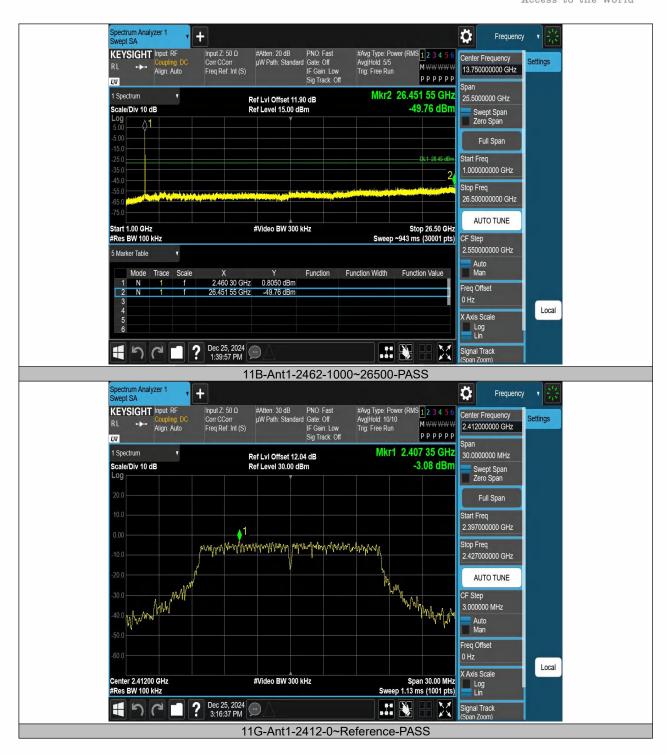




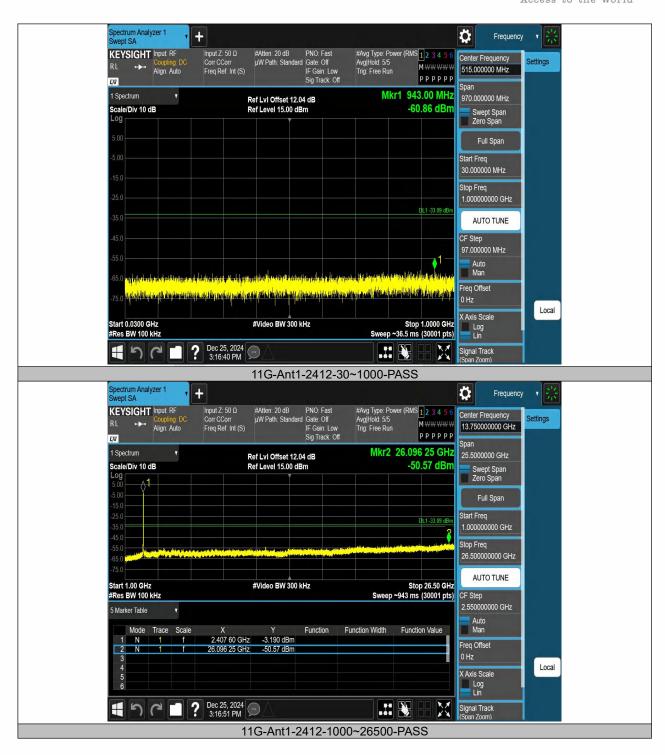




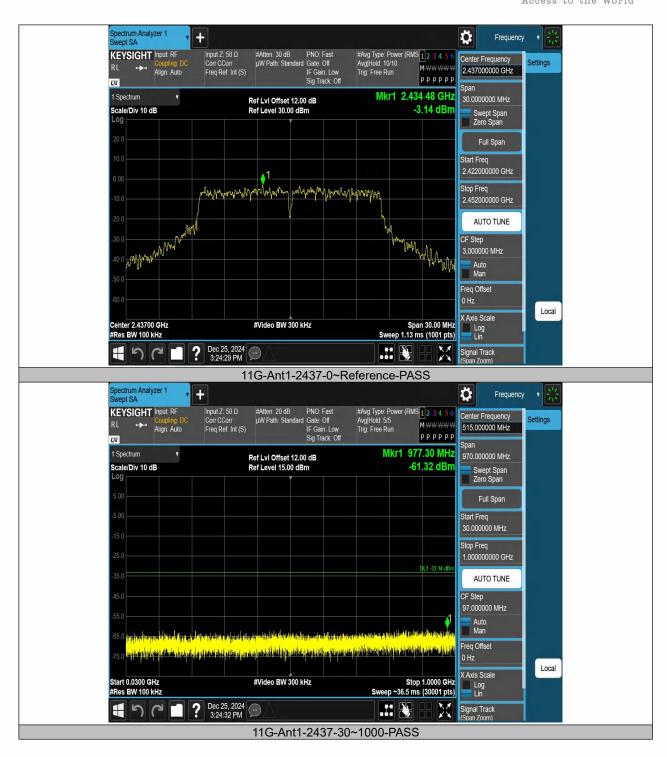










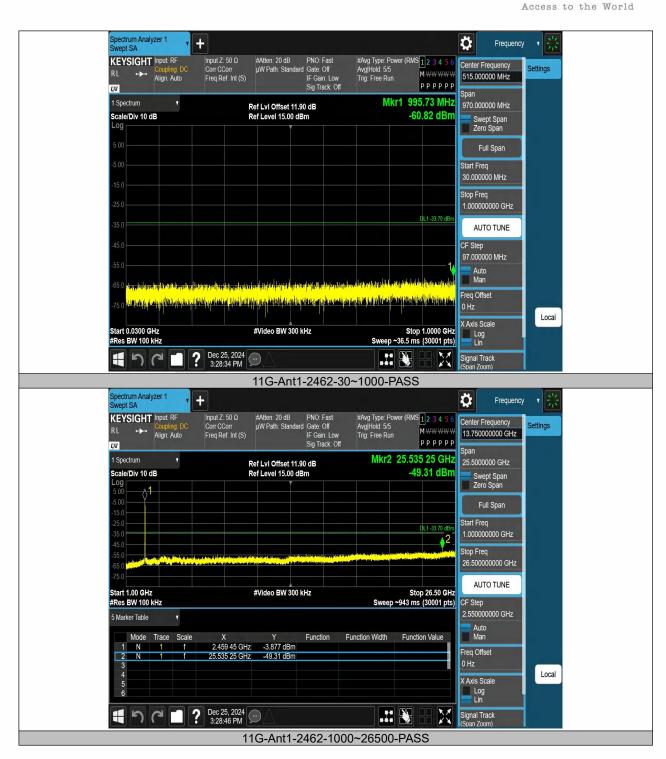






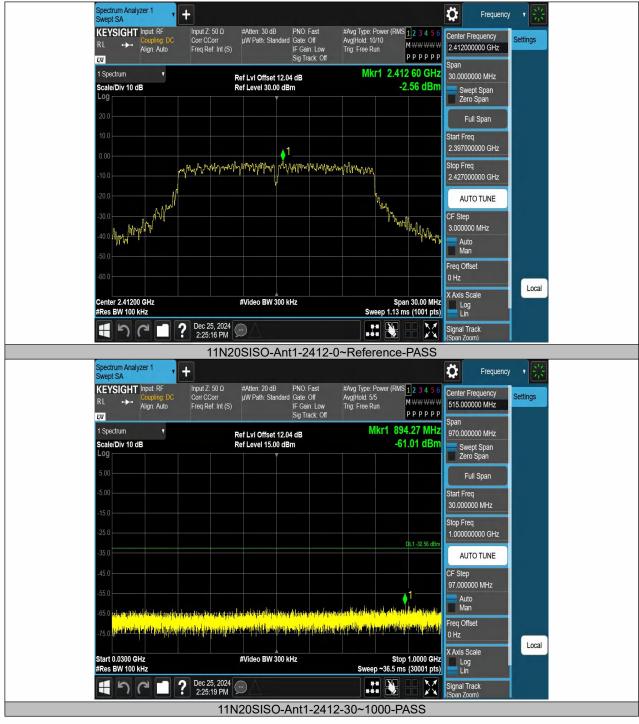




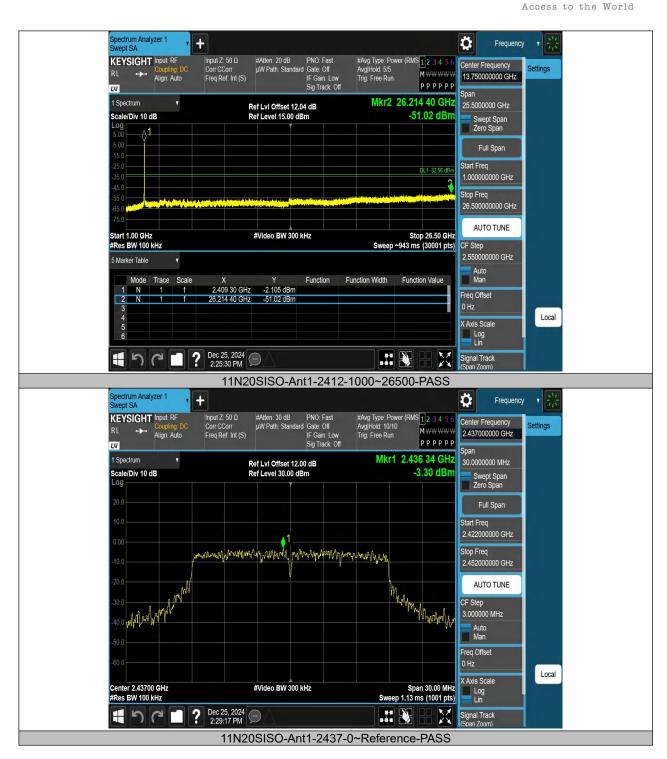




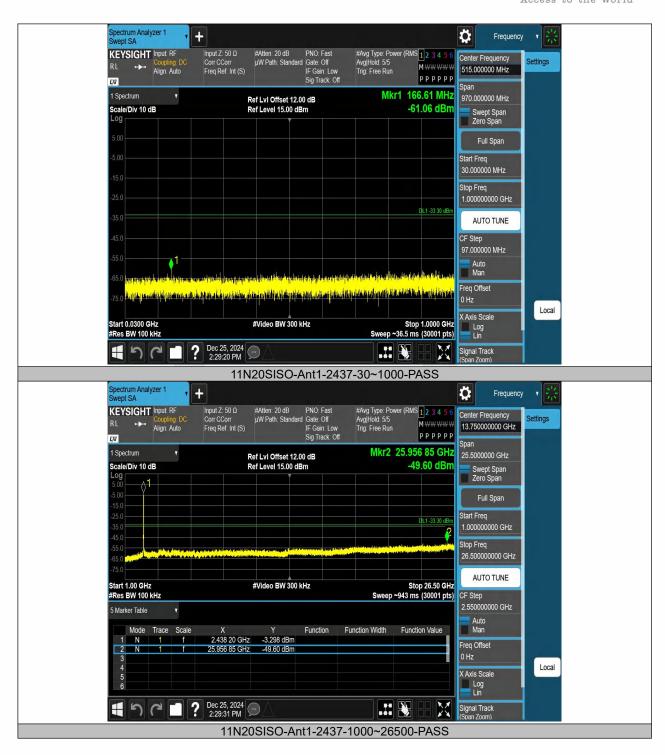




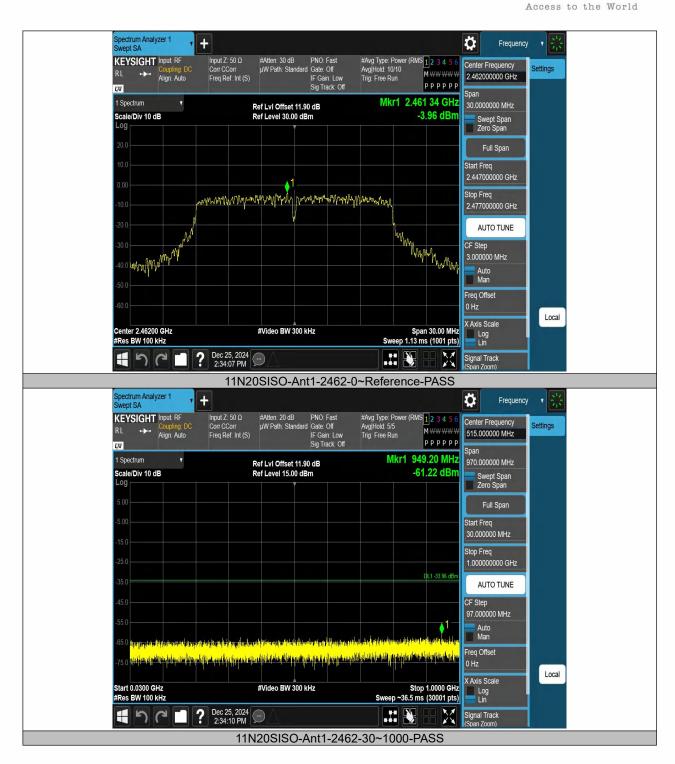




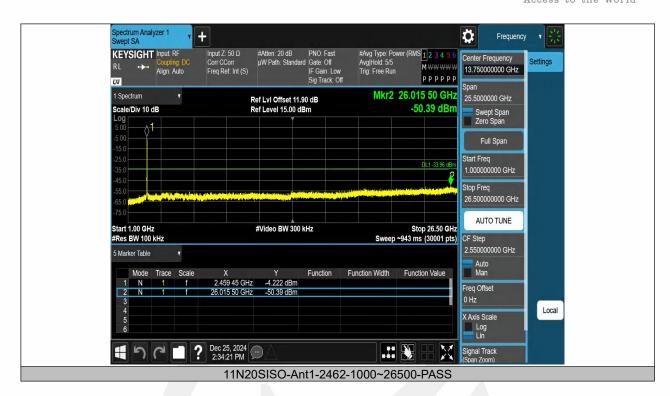














8.6 RADIATED SPURIOUS EMISSION

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

According to 1 CC Fart 13.203, Nestricted bands								
MHz MHz		GHz						
16.42-16.423	399.9-410	4.5-5.15						
16.69475-16.69525	608-614	5.35-5.46						
16.80425-16.80475	960-1240	7.25-7.75						
25.5-25.67	1300-1427	8.025-8.5						
37.5-38.25	1435-1626.5	9.0-9.2						
73-74.6	1645.5-1646.5	9.3-9.5						
74.8-75.2	1660-1710	10.6-12.7						
123-138	2200-2300	14.47-14.5						
149.9-150.05	2310-2390	15.35-16.2						
156.52475-156.52525	2483.5-2500	17.7-21.4						
156.7-156.9	2690-2900	22.01-23.12						
162.0125-167.17	3260-3267	23.6-24.0						
167.72-173.2	3332-3339	31.2-31.8						
240-285	3345.8-3358	36.43-36.5						
322-335.4	3600-4400	(2)						
	/-							
	MHz 16.42-16.423 16.69475-16.69525 16.80425-16.80475 25.5-25.67 37.5-38.25 73-74.6 74.8-75.2 123-138 149.9-150.05 156.52475-156.52525 156.7-156.9 162.0125-167.17 167.72-173.2 240-285	MHz MHz 16.42-16.423 399.9-410 16.69475-16.69525 608-614 16.80425-16.80475 960-1240 25.5-25.67 1300-1427 37.5-38.25 1435-1626.5 73-74.6 1645.5-1646.5 74.8-75.2 1660-1710 123-138 2200-2300 149.9-150.05 2310-2390 156.52475-156.52525 2483.5-2500 156.7-156.9 2690-2900 162.0125-167.17 3260-3267 167.72-173.2 3332-3339 240-285 3345.8-3358 322-335.4 3600-4400						

According to FCC Part15.205 the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted	Field Strength (µV/m)	Field Strength	Measurement
Frequency(MHz)		(dBµV/m)	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

8.6.3 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

 $VBW \ge RBW$

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 ≥ 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

 $VBW \ge RBW$

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 ≥ 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 20log(dwell time/100 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:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

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

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(Limit 3m(dBuV/m)		Over(dB)	
(IVITZ)	H/V	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 =40log(Specific distance/ 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:

Test mode:	802.	11b	Freque	ency:	Channel 1: 2412MHz		
Freq. (MHz)	Ant.Pol.	Emis Level(d	ssion BuV/m)	Limit 3m((dBuV/m)	Over	(dB)
(IVII IZ)	H/V	PK	AV	PK	AV	PK	AV
8516.92	V	56.56	44.02	74.00	54.00	-17.44	-9.98
9807.08	V	56.77	44.09	74.00	54.00	-17.23	-9.91
11988.95	V	56.90	43.72	74.00	54.00	-17.10	-10.28
9160.42	Н	57.24	44.38	74.00	54.00	-16.76	-9.62
11015.43	Н	57.76	45.10	74.00	54.00	-16.24	-8.90
13650.32	Н	57.21	44.66	74.00	54.00	-16.79	-9.34

Test mode:	802.	11b	Freque	ency:	Channel 6: 2437MHz		
Freq. (MHz)	Ant Pal		ssion IBuV/m) Limit 3m(d		(dBuV/m)	Over(dB)	
(IVITZ)	H/V	PK	AV	PK	AV	PK	AV
7728.68	V	57.34	44.52	74.00	54.00	-16.66	-9.48
10854.25	V	57.15	44.04	74.00	54.00	-16.85	-9.96
13037.19	V	57.33	44.45	74.00	54.00	-16.67	-9.55
8219.45	Н	57.28	44.69	74.00	54.00	-16.72	-9.31
10854.25	Н	56.98	43.80	74.00	54.00	-17.02	-10.20
11752.21	Н	57.59	44.44	74.00	54.00	-16.41	-9.56

Test mode:	802.	11b	Freque	ency:	Channel 11: 2462MHz		
Freq. (MHz)	Ant.Pol.	nt.Pol. Emission Level(dBuV/		Limit 3m(dBuV/m)		Over(dB)	
(IVITZ)	H/V	PK	AV	PK	AV	PK	AV
8914.89	V	57.65	44.79	74.00	54.00	-16.35	-9.21
10532.82	V	57.44	44.60	74.00	54.00	-16.56	-9.40
13957.52	V	56.56	43.58	74.00	54.00	-17.44	-10.42
8179.16	Н	57.31	44.60	74.00	54.00	-16.69	-9.40
8789.52	Н	57.82	44.70	74.00	54.00	-16.18	-9.30
9683.15	Н	56.87	44.19	74.00	54.00	-17.13	-9.81

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 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	802.11b Frequency: Channel 1: 2412N		Channel 1: 2412Ml	l z
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2343.75	Н	44.01	74.00	30.89	54.00
2378.16	V	43.70	74.00	30.79	54.00

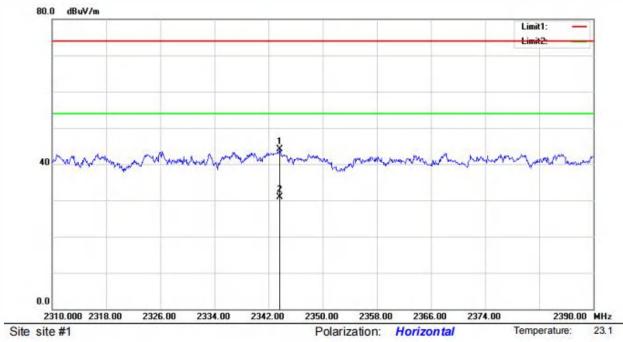
lest mode:	802.11b	Frequency: Channel 11: 2462MHz				
Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	
2486.32	Н	44.40	74.00	31.55	54.00	
2496.91	V	43.58	74.00	30.17	54.00	

Note:

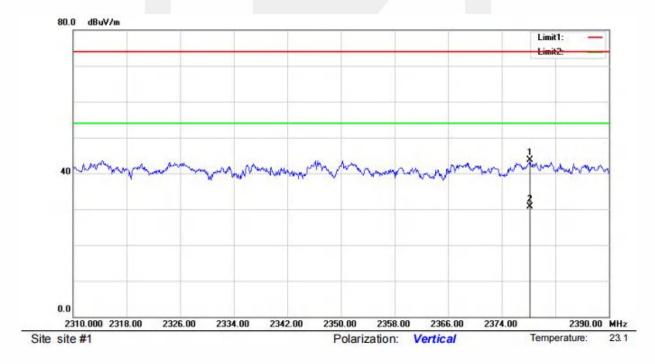
- (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).
- (2) Emission Level= Reading Level+Correct Factor.
- (3) Correct Factor= Ant_F + Cab_L Preamp
- (4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be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



Spurious Emission in Restricted Band 2310-2390MHz Test Model 802.11b Channel 1: 2412MHz VBW=3MHz Polarity: H

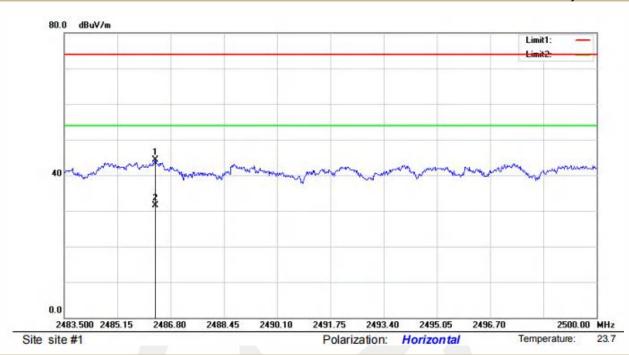


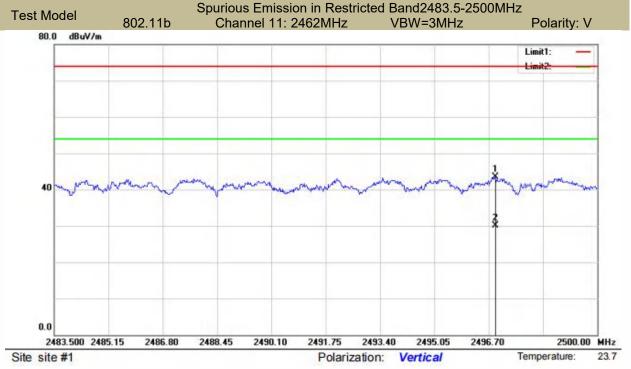
Spurious Emission in Restricted Band 2310-2390MHz **Test Model** 802.11b Channel 1: 2412MHz VBW=3MHz Polarity: V





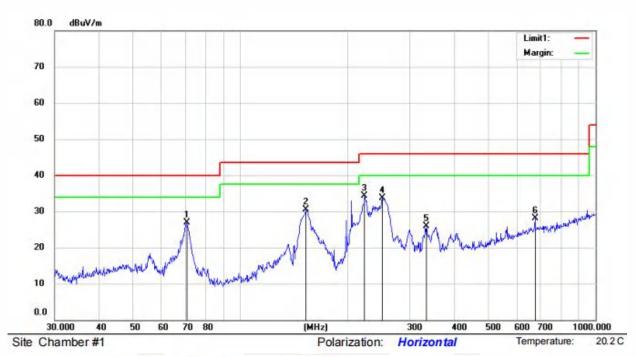
Spurious Emission in Restricted Band 2483.5-2500MHz **Test Model** 802.11b Channel 11: 2462MHz VBW=3MHz Polarity: H







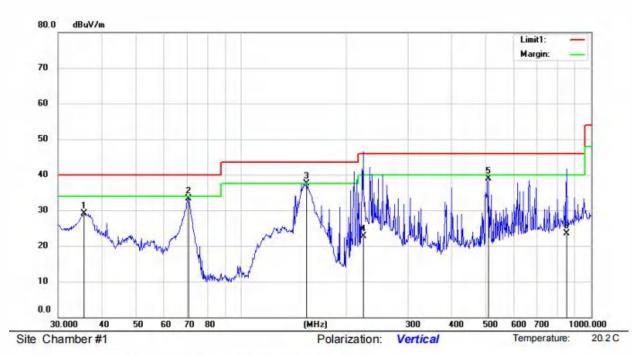
Spurious Emission below 1GHz (30MHz to 1GHz) All the antenna(Antenna 1) and modes(802.11b/g/n) have been tested and the worst(Antenna 1, 802.11b) result recorded was report as below:



No.	Mk.	Freq.	Reading Level	Ant. Factor	Pre Amp Gain	Cable loss	Measure- ment	Limit	Over		н	Degree	
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Detector	cm	deg.	Comment
1		70.5836	46.60	9.74	30.56	1.11	26.89	40.00	-13.11	QP			
2		153.2004	51.01	8.63	30.61	1.46	30.49	43.50	-13.01	QP			
3	*	223.7334	50.33	12.26	30.23	1.9	34.26	46.00	-11.74	QP			
4		251.1804	48.57	13.02	30.09	2.13	33.63	46.00	-12.37	QP			
5		333.6867	38.89	14.64	29.83	2.3	26.00	46.00	-20.00	QP			
6		675.2080	33.34	21.35	30.07	3.48	28.10	46.00	-17.90	QP			

^{*:} Maximum data x:Over limit !:over margin Operator: Ccyf





No.	Mk.	Freq.	Reading Level	Ant. Factor	Pre Amp Gain	Cable	Measure- ment	Limit	Over		н	Degree	
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Detector	cm	deg.	Comment
1		35.6240	47.34	11.67	30.54	0.6	29.07	40.00	-10.93	QP			
2		70.5835	52.93	9.74	30.56	1.11	33.22	40.00	-6.78	QP			
3	*	153.7385	57.92	8.65	30.61	1.46	37.42	43.50	-6.08	QP			
4		222.9502	38.90	12.24	30.24	1.9	22.80	46.00	-23.20	QP			
5		508.2582	47.85	17.98	29.82	2.9	38.91	46.00	-7.09	QP			
6		851.0353	27.42	22.31	30.03	3.9	23.60	46.00	-22.40	QP			

*:Maximum data x:Over limit !:over margin Operator: Ccyf



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

Conducted Emission Limit

Frequency(MHz)	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 6.3 conducted 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.

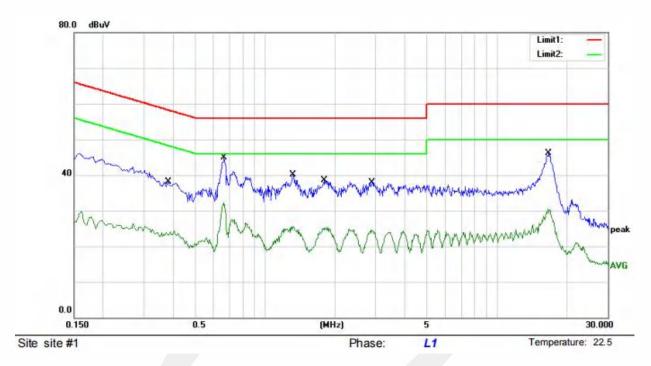
Repeat above procedures until all frequency measured were complete.

8.7.5 Test Results

Pass

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

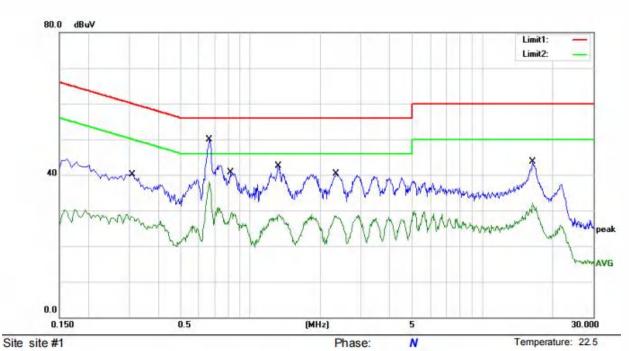




No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.3820	21.07	17.04	38.11	58.24	-20.13	QP	
2		0.3820	7.16	17.04	24.20	48.24	-24.04	AVG	
3	*	0.6660	27.89	17.03	44.92	56.00	-11.08	QP	
4		0.6660	15.33	17.03	32.36	46.00	-13.64	AVG	
5		1.3180	23.11	17.06	40.17	56.00	-15.83	QP	
6		1.3180	8.44	17.06	25.50	46.00	-20.50	AVG	
7		1.8060	21.39	17.09	38.48	56.00	-17.52	QP	
8		1.8060	8.28	17.09	25.37	46.00	-20.63	AVG	
9		2.8980	20.81	17.03	37.84	56.00	-18.16	QP	
10		2.8980	7.59	17.03	24.62	46.00	-21.38	AVG	
11		16.6820	29.31	16.87	46.18	60.00	-13.82	QP	
12		16.6820	13.54	16.87	30.41	50.00	-19.59	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Jian





Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
	0.3100	23.04	17.10	40.14	59.97	-19.83	QP	
	0.3100	11.80	17.10	28.90	49.97	-21.07	AVG	
*	0.6660	32.95	17.03	49.98	56.00	-6.02	QP	
	0.6660	21.00	17.03	38.03	46.00	-7.97	AVG	
	0.8340	23.59	17.02	40.61	56.00	-15.39	QP	
	0.8340	12.44	17.02	29.46	46.00	-16.54	AVG	
	1.3180	25.37	17.06	42.43	56.00	-13.57	QP	
	1.3180	11.93	17.06	28.99	46.00	-17.01	AVG	
	2.3340	23.28	17.08	40.36	56.00	-15.64	QP	
	2.3340	11.47	17.08	28.55	46.00	-17.45	AVG	
	16.4820	26.74	16.88	43.62	60.00	-16.38	QP	
	16.4820	15.13	16.88	32.01	50.00	-17.99	AVG	
		MHz 0.3100 0.3100 * 0.6660 0.6660 0.8340 0.8340 1.3180 1.3180 2.3340 2.3340 16.4820	Mk. Freq. Level MHz dBuV 0.3100 23.04 0.3100 11.80 * 0.6660 32.95 0.6660 21.00 0.8340 23.59 0.8340 12.44 1.3180 25.37 1.3180 11.93 2.3340 23.28 2.3340 11.47 16.4820 26.74	Mk. Freq. Level Factor MHz dBuV dB 0.3100 23.04 17.10 0.3100 11.80 17.10 * 0.6660 32.95 17.03 0.6660 21.00 17.03 0.8340 23.59 17.02 0.8340 12.44 17.02 1.3180 25.37 17.06 1.3180 11.93 17.06 2.3340 23.28 17.08 2.3340 11.47 17.08 16.4820 26.74 16.88	Mk. Freq. Level Factor ment MHz dBuV dB dBuV 0.3100 23.04 17.10 40.14 0.3100 11.80 17.10 28.90 * 0.6660 32.95 17.03 49.98 0.6660 21.00 17.03 38.03 0.8340 23.59 17.02 40.61 0.8340 12.44 17.02 29.46 1.3180 25.37 17.06 42.43 1.3180 11.93 17.06 28.99 2.3340 23.28 17.08 40.36 2.3340 11.47 17.08 28.55 16.4820 26.74 16.88 43.62	Mk. Freq. Level Factor ment Limit MHz dBuV dB dBuV dBuV dBuV 0.3100 23.04 17.10 40.14 59.97 0.3100 11.80 17.10 28.90 49.97 * 0.6660 32.95 17.03 49.98 56.00 0.8340 23.59 17.02 40.61 56.00 0.8340 12.44 17.02 29.46 46.00 1.3180 25.37 17.06 42.43 56.00 2.3340 23.28 17.08 40.36 56.00 2.3340 11.47 17.08 28.55 46.00 16.4820 26.74 16.88 43.62 60.00	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB 0.3100 23.04 17.10 40.14 59.97 -19.83 0.3100 11.80 17.10 28.90 49.97 -21.07 * 0.6660 32.95 17.03 49.98 56.00 -6.02 0.6660 21.00 17.03 38.03 46.00 -7.97 0.8340 23.59 17.02 40.61 56.00 -15.39 0.8340 12.44 17.02 29.46 46.00 -16.54 1.3180 25.37 17.06 42.43 56.00 -13.57 1.3180 11.93 17.06 28.99 46.00 -17.01 2.3340 23.28 17.08 40.36 56.00 -15.64 2.3340 11.47 17.08 28.55 46.00 -17.45 16.4820 26.74 16.88 43.62 <td< td=""><td>Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB Detector 0.3100 23.04 17.10 40.14 59.97 -19.83 QP 0.3100 11.80 17.10 28.90 49.97 -21.07 AVG * 0.6660 32.95 17.03 49.98 56.00 -6.02 QP 0.6660 21.00 17.03 38.03 46.00 -7.97 AVG 0.8340 23.59 17.02 40.61 56.00 -15.39 QP 0.8340 12.44 17.02 29.46 46.00 -16.54 AVG 1.3180 25.37 17.06 42.43 56.00 -13.57 QP 1.3180 11.93 17.06 28.99 46.00 -17.01 AVG 2.3340 23.28 17.08 40.36 56.00 -15.64 QP 2.3340 11.47</td></td<>	Mk. Freq. Level Factor ment Limit Over MHz dBuV dB dBuV dBuV dB Detector 0.3100 23.04 17.10 40.14 59.97 -19.83 QP 0.3100 11.80 17.10 28.90 49.97 -21.07 AVG * 0.6660 32.95 17.03 49.98 56.00 -6.02 QP 0.6660 21.00 17.03 38.03 46.00 -7.97 AVG 0.8340 23.59 17.02 40.61 56.00 -15.39 QP 0.8340 12.44 17.02 29.46 46.00 -16.54 AVG 1.3180 25.37 17.06 42.43 56.00 -13.57 QP 1.3180 11.93 17.06 28.99 46.00 -17.01 AVG 2.3340 23.28 17.08 40.36 56.00 -15.64 QP 2.3340 11.47

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Jian



8.8 ANTENNA APPLICATION

8.8.1 **Antenna Requirement**

Standard Requirement 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 FCC CRF Part 15.203 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. If transmitting antennas of directional gain greater than 6dBi are used, FCC 47 CFR Part 15.247 the power shall be reduced by the amount in dB that the directional gain (b) of the antenna exceeds 6dBi. 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 RSS-Gen Section 6.8 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. 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 RSS-247 Section 5.4 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. Result PASS. \checkmark 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)

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Please refer to the attached document Internal Photos to show the antenna connector.

8.8.2

Note:



Detail of factor for radiated emission

Frequency(MHz)	Ant_F(dB)	Cab_L(dB)	Preamp(dB)	Correct Factor(dB)
0.009	20.6	0.03	/	20.63
0.15	20.7	0.1	1	20.8
1	20.9	0.15	1	21.05
10	20.1	0.28	1	20.38
30	18.8	0.45	1	19.25
30	11.7	0.62	27.9	-15.58
100	12.5	1.02	27.8	-14.28
300	12.9	1.91	27.5	-12.69
600	19.2	2.92	27	-4.88
800	21.1	3.54	26.6	-1.96
1000	22.3	4.17	26.2	0.27
1000	25.6	1.76	41.4	-14.04
3000	28.9	3.27	43.2	-11.03
5000	31.1	4.2	44.6	-9.3
8000	36.2	5.95	44.7	-2.55
10000	38.4	6.3	43.9	0.8
12000	38.5	7.14	42.3	3.34
15000	40.2	8.15	41.4	6.95
18000	45.4	9.02	41.3	13.12
18000	37.9	1.81	47.9	-8.19
21000	37.9	1.95	48.7	-8.85
25000	39.3	2.01	42.8	-1.49
28000	39.6	2.16	46.0	-4.24
31000	41.2	2.24	44.5	-1.06
34000	41.5	2.29	46.6	-2.81
37000	43.8	2.30	46.4	-0.3
40000	43.2	2.50	42.2	3.5

*** End of Report ***