







9.6 CONDUCTED SUPRIOUS EMISSION

9.6.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-247 5.5

9.6.2 Conformance Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted, provided the transmitter demonstrates compliance with the peak conducted power limits.

9.6.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.6.4 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 DSS channel center frequency.

Set Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel.

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 Maximum conduceted level.

Note that the channel found to contain the maximum conduceted 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.

Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

■ Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.(30MHz to 25GHz). Set RBW = 100 kHz Set VBW \geq RBW

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

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.



9.6.5 Test Results

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

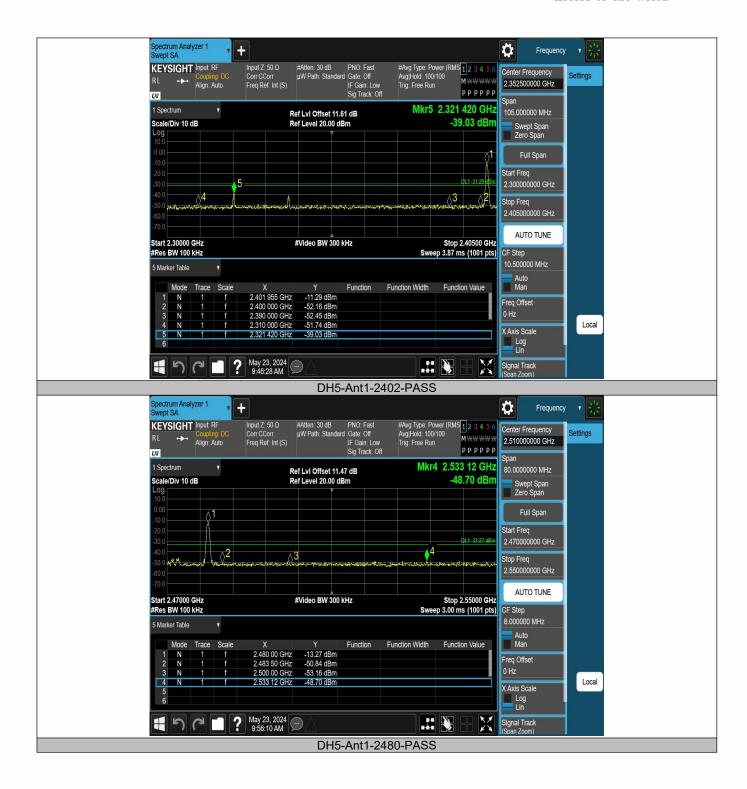
Note: N/A

All the antenna and modes mode have been tested, and the worst result recorded was report as below:

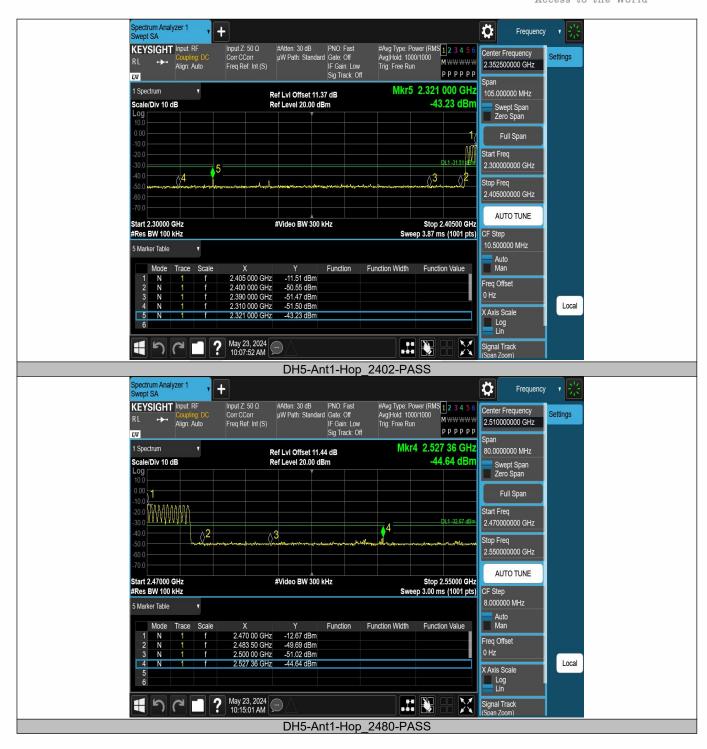
Band edge measurements

TestMode	Antenna	ChName	Frequency[MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-11.29	-39.03	≤-31.29	PASS
DH5	Ant1	High	2480	-13.27	-48.7	≤-33.27	PASS
DH5	Ant1	Low	Hop_2402	-11.51	-43.23	≤-31.51	PASS
DH5	Ant1	High	Hop_2480	-12.67	-44.64	≤-32.67	PASS









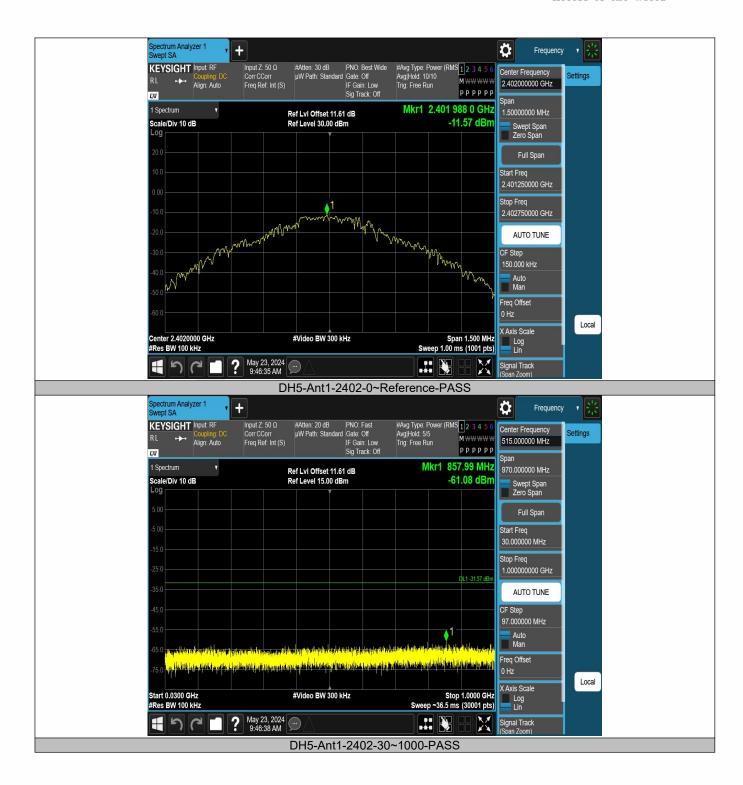


Conducted Spurious Emission

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	2402	0~Reference	-11.57	-11.57		PASS
DH5	Ant1	2402	30~1000	-11.57	-61.08	≤-31.57	PASS
DH5	Ant1	2402	1000~26500	-11.57	-44.06	≤-31.57	PASS
DH5	Ant1	2441	0~Reference	-12.36	-12.36		PASS
DH5	Ant1	2441	30~1000	-12.36	-62.36	≤-32.36	PASS
DH5	Ant1	2441	1000~26500	-12.36	-41.65	≤-32.36	PASS
DH5	Ant1	2480	0~Reference	-13.56	-13.56		PASS
DH5	Ant1	2480	30~1000	-13.56	-60.77	≤-33.56	PASS
DH5	Ant1	2480	1000~26500	-13.56	-43.09	≤-33.56	PASS



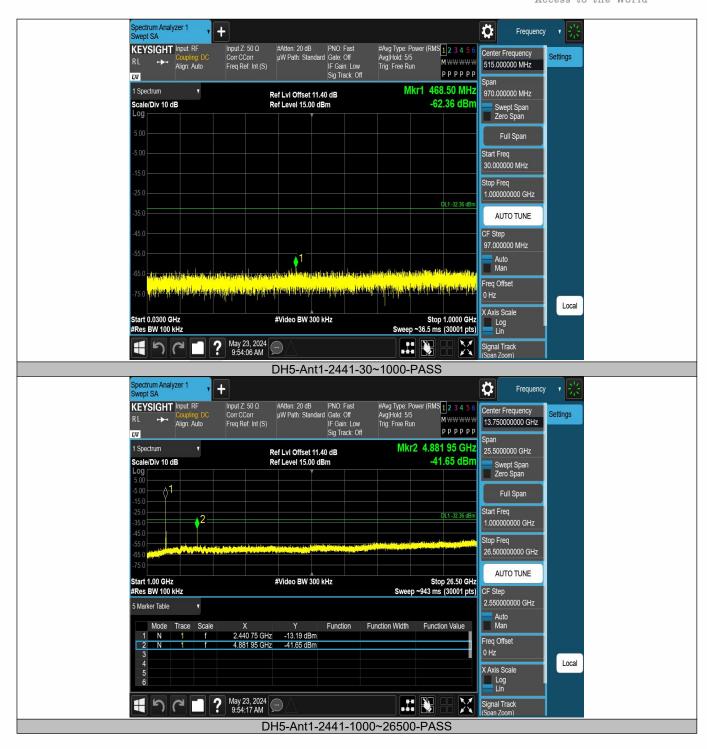




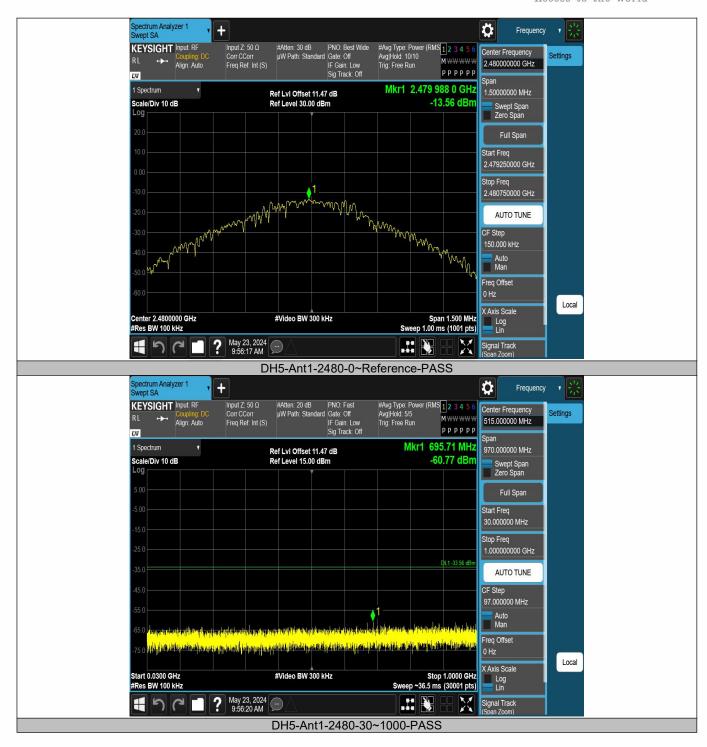




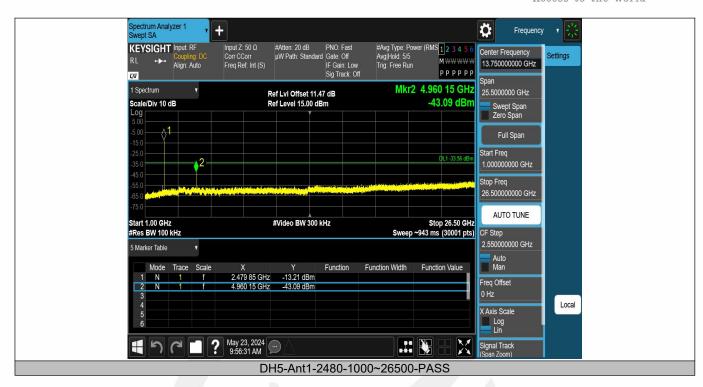














9.7 RADIATED SPURIOUS EMISSION

9.7.1 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

9.7.2 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 Part15.205, 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 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 Frequency(MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	24000/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

9.7.3 Test Configuration

Test according to clause 7.2 radio frequency test setup 2

9.7.4 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 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

 $VBW \ge RBW$

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

 $VBW \ge RBW$

Sweep = auto

Detector function = peak

Trace = max hold

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

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

Repeat above procedures until all frequency measured was complete.

9.7.5 Test Results

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

Temperature:	22° C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Freq.	Ant.Pol.		Emission Level(dBuV/m)		(dBuV/m)	Over(dB)	
(MHz)	H/V	PK `	ΑÝ	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(GFSK, π/4-DQPSK, 8DPSK) mode have been tested, and the worst(Antenna 1, GFSK) result recorded was report as below:

Test mode:	GFS	K	Freque	ency:	y: Channel 0: 2402MHz			
Freq. (MHz)	Ant.Pol.		ssion BuV/m)	Limit 3m((dBuV/m)	Ove	r(dB)	
(IVII IZ)	H/V	PK	AV	PK	AV	PK	AV	
9112.884	V	58.20	44.96	74.00	54.00	-15.80	-9.04	
9903.933	V	58.33	45.12	74.00	54.00	-15.67	-8.88	
15090.4	V	57.92	44.85	74.00	54.00	-16.08	-9.15	
8363.234	Н	58.86	45.23	74.00	54.00	-15.14	-8.77	
9901.07	Н	59.26	45.93	74.00	54.00	-14.74	-8.07	
10942.45	Н	58.88	45.97	74.00	54.00	-15.12	-8.03	

Test mode:	GFS	K Frequen		псу:	cy: Channel 39: 2441MHz		
Freq.	Ant.Pol.	Emission Lev	vel(dBuV/m) Limit 3m(d		(dBuV/m)	Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
8728.754	V	58.13	45.67	74.00	54.00	-15.87	-8.33
12527.41	V	59.00	45.54	74.00	54.00	-15.00	-8.46
15059.9	V	58.21	45.02	74.00	54.00	-15.79	-8.98
8494.791	Н	58.28	44.43	74.00	54.00	-15.72	-9.57
10484.23	Н	58.88	46.15	74.00	54.00	-15.12	-7.85
13512.92	Н	58.04	45.27	74.00	54.00	-15.96	-8.73

Test mode:	GFS	K Frequen		cy: Channel 78: 2480MHz			
Freq.	Ant.Pol.	Emission Lev	rel(dBuV/m)	Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
9906.796	V	58.87	45.00	74.00	54.00	-15.13	-9.00
12255.22	V	58.88	45.96	74.00	54.00	-15.12	-8.04
13725.49	V	58.92	45.81	74.00	54.00	-15.08	-8.19
8172.069	Н	58.99	46.31	74.00	54.00	-15.01	-7.69
9478.236	Н	59.11	46.26	74.00	54.00	-14.89	-7.74
14095.36	Н	59.48	46.06	74.00	54.00	-14.52	-7.94

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(GFSK, π/4-DQPSK, 8DPSK, Hopping) mode have been tested, and the worst(Antenna 1, GFSK, Hopping) result recorded was report as below:

Test mode:	GFSK	Frequency: Ch		annel 0: 2402MHz	7
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2322.880	Н	43.54	74.00	30.62	54.00
2331.192	V	42.98	74.00	30.20	54.00

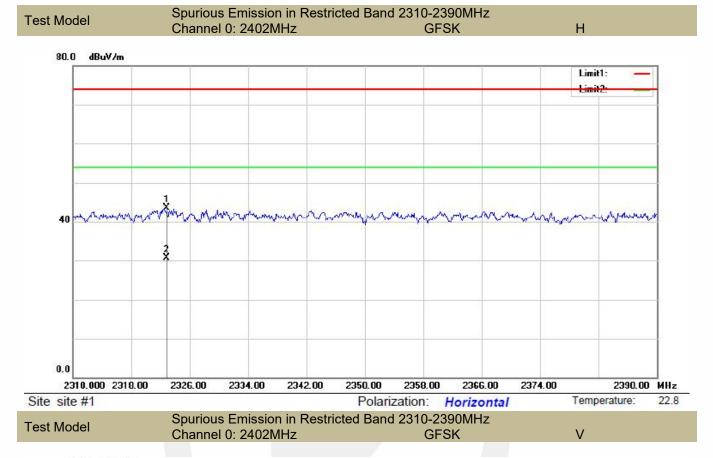
Test mode:	GFSK	Frequenc	cy: Ch	annel 78: 2480MH	-lz
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2496.667	Н	43.59	74.00	29.84	54.00
2485.794	V	42.61	74.00	28.97	54.00

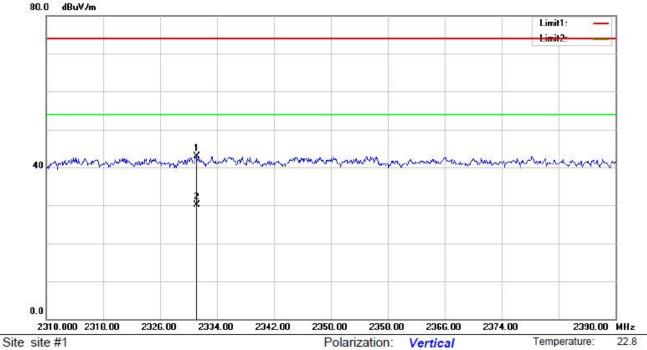
Test mode:	GFSK	Frequenc	cy: Ho	pping	
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2399.110	Н	46.39	74.00	33.25	54.00
2400.000	Н	44.77	74.00	32.30	54.00
2483.500	Н	41.96	74.00	29.68	54.00
2398.540	V	46.41	74.00	33.22	54.00
2400.000	V	45.47	74.00	31.73	54.00
2483.500	V	44.84	74.00	32.46	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.

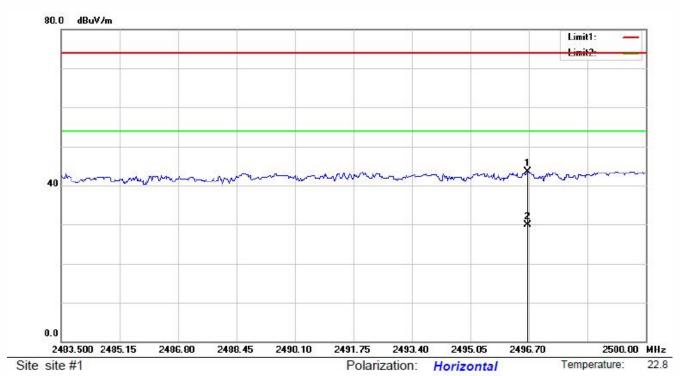




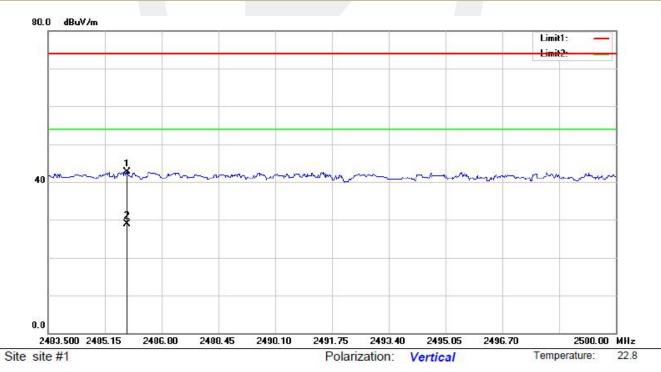




Test Model Spurious Emission in Restricted Band 2483.5-2500MHz
Channel 78: 2480MHz GFSK H

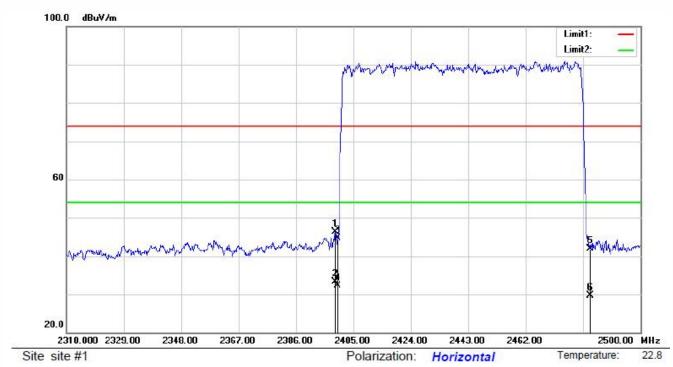


Test Model Spurious Emission in Restricted Band 2483.5-2500MHz
Channel 78: 2480MHz GFSK V

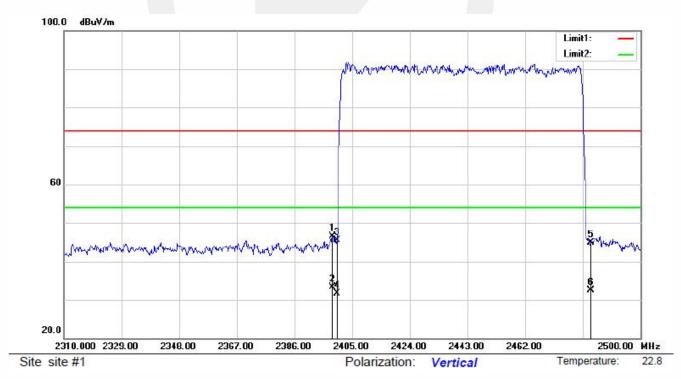






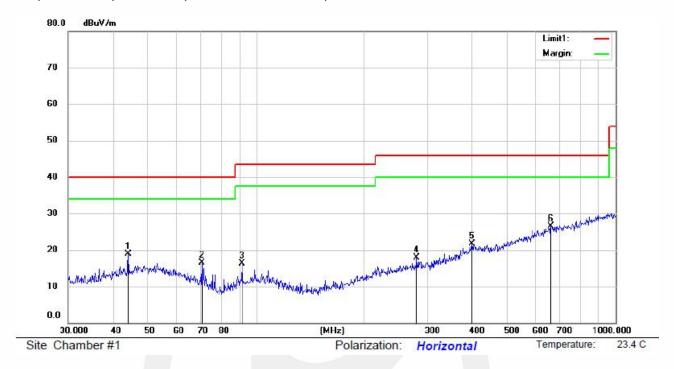


Test Model Spurious Emission in Restricted Band 2310-2390MHz and 2400-2483.5MHz
Hopping GFSK V





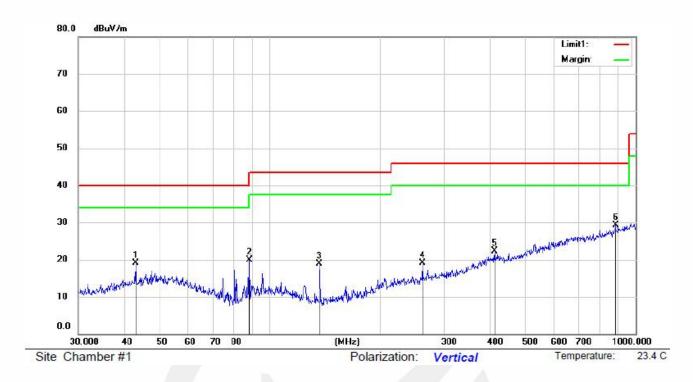
■ Spurious Emission below 1GHz (30MHz to 1GHz) All the antenna(Antenna 1) and modes(GFSK, π/4-DQPSK, 8DPSK) mode have been tested, and the worst(Antenna 1, pi/4-DQPSK) result recorded was report as below:



Mk.	Freq.	Reading Level	Ant. Factor	Pre Amp Gain	Cable loss	Measure- ment	Limit	Over		HI	Degree	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Detector	cm	deg.	Comment
	44.1202	35.15	13.64	30.51	0.69	18.97	40.00	-21.03	QP			
	70.5836	36.24	9.74	30.56	1.11	16.53	40.00	-23.47	QP			
	91.4950	35.84	10.17	30.76	1.07	16.32	43.50	-27.18	QP			
	280.0237	32.07	13.54	29.94	2.15	17.82	46.00	-28.18	QP			
,	399.0302	31.56	16.27	29.82	3.67	21.68	46.00	-24.32	QP			
*	661.1505	32.07	21.1	30.05	3.47	26.59	46.00	-19.41	QP			
		MHz 44.1202 70.5836 91.4950 280.0237 399.0302	Mk. Freq. Level MHz dBuV 44.1202 35.15 70.5836 36.24 91.4950 35.84 280.0237 32.07 399.0302 31.56	Mk. Freq. Level Factor MHz dBuV dB/m 44.1202 35.15 13.64 70.5836 36.24 9.74 91.4950 35.84 10.17 280.0237 32.07 13.54 399.0302 31.56 16.27	Mk. Freq. Level Factor Gain MHz dBuV dB/m dB 44.1202 35.15 13.64 30.51 70.5836 36.24 9.74 30.56 91.4950 35.84 10.17 30.76 280.0237 32.07 13.54 29.94 399.0302 31.56 16.27 29.82	Mk. Freq. Level Factor Gain loss MHz dBuV dB/m dB dB 44.1202 35.15 13.64 30.51 0.69 70.5836 36.24 9.74 30.56 1.11 91.4950 35.84 10.17 30.76 1.07 280.0237 32.07 13.54 29.94 2.15 399.0302 31.56 16.27 29.82 3.67	Mk. Freq. Level Factor Gain loss ment MHz dBuV dB/m dB dB dBuV/m 44.1202 35.15 13.64 30.51 0.69 18.97 70.5836 36.24 9.74 30.56 1.11 16.53 91.4950 35.84 10.17 30.76 1.07 16.32 280.0237 32.07 13.54 29.94 2.15 17.82 399.0302 31.56 16.27 29.82 3.67 21.68	Mk. Freq. Level Factor Gain loss ment Limit MHz dBuV dB/m dB dB dBuV/m dBuV/m dBuV/m 44.1202 35.15 13.64 30.51 0.69 18.97 40.00 70.5836 36.24 9.74 30.56 1.11 16.53 40.00 91.4950 35.84 10.17 30.76 1.07 16.32 43.50 280.0237 32.07 13.54 29.94 2.15 17.82 46.00 399.0302 31.56 16.27 29.82 3.67 21.68 46.00	Mk. Freq. Level Factor Gain loss ment Limit Over MHz dBuV dB/m dB dB dBuV/m dBuV/m dB 44.1202 35.15 13.64 30.51 0.69 18.97 40.00 -21.03 70.5836 36.24 9.74 30.56 1.11 16.53 40.00 -23.47 91.4950 35.84 10.17 30.76 1.07 16.32 43.50 -27.18 280.0237 32.07 13.54 29.94 2.15 17.82 46.00 -28.18 399.0302 31.56 16.27 29.82 3.67 21.68 46.00 -24.32	Mk. Freq. Level Factor Gain loss ment Limit Over MHz dBuV dB/m dB dB dBuV/m dBuV/m dB Detector 44.1202 35.15 13.64 30.51 0.69 18.97 40.00 -21.03 QP 70.5836 36.24 9.74 30.56 1.11 16.53 40.00 -23.47 QP 91.4950 35.84 10.17 30.76 1.07 16.32 43.50 -27.18 QP 280.0237 32.07 13.54 29.94 2.15 17.82 46.00 -28.18 QP 399.0302 31.56 16.27 29.82 3.67 21.68 46.00 -24.32 QP	Mk. Freq. Level Factor Gain loss ment Limit Over HI MHz dBuV dB/m dB dB dBuV/m dBuV/m dB Detector cm 44.1202 35.15 13.64 30.51 0.69 18.97 40.00 -21.03 QP 70.5836 36.24 9.74 30.56 1.11 16.53 40.00 -23.47 QP 91.4950 35.84 10.17 30.76 1.07 16.32 43.50 -27.18 QP 280.0237 32.07 13.54 29.94 2.15 17.82 46.00 -28.18 QP 399.0302 31.56 16.27 29.82 3.67 21.68 46.00 -24.32 QP	Mk. Freq. Level Factor Gain loss ment Limit Over HI Degree MHz dBuV dB/m dB dB dBuV/m dBuV/m dB Detector cm deg. 44.1202 35.15 13.64 30.51 0.69 18.97 40.00 -21.03 QP 70.5836 36.24 9.74 30.56 1.11 16.53 40.00 -23.47 QP 91.4950 35.84 10.17 30.76 1.07 16.32 43.50 -27.18 QP 280.0237 32.07 13.54 29.94 2.15 17.82 46.00 -28.18 QP 399.0302 31.56 16.27 29.82 3.67 21.68 46.00 -24.32 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		43.0504	35.40	13.45	30.51	0.67	19.01	40.00	-20.99	QP			
2		88.0330	40.25	9.39	30.71	1.07	20.00	43.50	-23.50	QP			
3		136.9391	40.02	8.16	30.69	1.35	18.84	43.50	-24.66	QP			
4		261.9752	33.87	13.22	30.03	2.14	19.20	46.00	-26.80	QP			
5		411.8240	32.20	16.44	29.82	3.46	22.28	46.00	-23.72	QP			
6	*	881.4067	32.61	22.68	29.9	3.95	29.34	46.00	-16.66	QP			

Remark:

- 1. Measurement $(dB\mu V/m)$ = Antenna Factor(dB) -Amp Factor(dB) +Cable Loss(dB) + Reading $(dB\mu V/m)$
- 2. Over (dB) = Measurement (dB μ V/m) Limit (dB μ V/m)

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



9.8 CONDUCTED EMISSION TEST

9.8.1 Applicable Standard

According to FCC Part 15.207 According to IC RSS-Gen 8.8

9.8.2 Conformance Limit

Conducted Emission Limit								
Frequency(MHz) Quasi-peak Av								
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

9.8.3 Test Configuration

Test according to clause 7.3 conducted emission test setup

9.8.4 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.

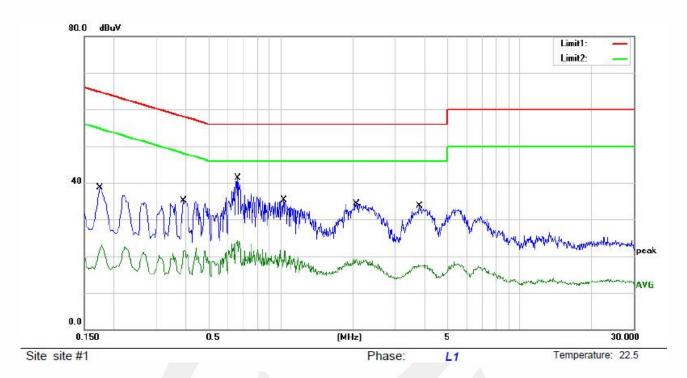
9.8.5 Test Results

Pass

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

The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

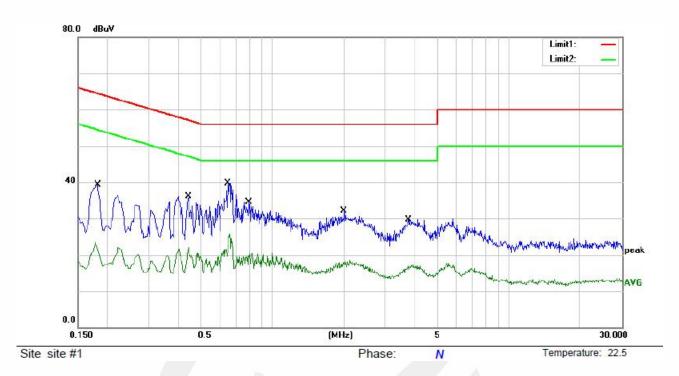




No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1740	21.65	17.05	38.70	64.77	-26.07	QP	
2		0.1740	6.12	17.05	23.17	54.77	-31.60	AVG	
3		0.3900	18.12	17.04	35.16	58.06	-22.90	QP	
4		0.3900	4.70	17.04	21.74	48.06	-26.32	AVG	
5	*	0.6580	24.35	17.03	41.38	56.00	-14.62	QP	
6		0.6580	7.33	17.03	24.36	46.00	-21.64	AVG	
7		1.0300	18.26	17.03	35.29	56.00	-20.71	QP	
8		1.0300	4.40	17.03	21.43	46.00	-24.57	AVG	
9		2.0740	17.27	17.10	34.37	56.00	-21.63	QP	
10		2.0740	2.17	17.10	19.27	46.00	-26.73	AVG	
11		3.8060	16.61	16.99	33.60	56.00	-22.40	QP	
12		3.8060	0.77	16.99	17.76	46.00	-28.24	AVG	

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





No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1820	22.17	17.04	39.21	64.39	-25.18	QP	
2		0.1820	6.40	17.04	23.44	54.39	-30.95	AVG	
3		0.4420	19.04	17.06	36.10	57.02	-20.92	QP	
4		0.4420	5.01	17.06	22.07	47.02	-24.95	AVG	
5	*	0.6460	22.71	17.04	39.75	56.00	-16.25	QP	
6		0.6460	8.62	17.04	25.66	46.00	-20.34	AVG	
7		0.7940	17.44	17.02	34.46	56.00	-21.54	QP	
8		0.7940	3.26	17.02	20.28	46.00	-25.72	AVG	
9		2.0060	14.89	17.11	32.00	56.00	-24.00	QP	
10		2.0060	1.09	17.11	18.20	46.00	-27.80	AVG	
11		3.7540	12.78	16.99	29.77	56.00	-26.23	QP	
12		3.7540	0.28	16.99	17.27	46.00	-28.73	AVG	

Remark:

- 1. Measurement (dB μ V) = AMN Factor (dB) + Cable Loss (dB) + Reading (dB μ V)
- 2. Over (dB) = Measurement (dB μ V) Limit (dB μ V)

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



9.9 ANTENNA APPLICATION

9.9.1 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. 9.9.2 Result PASS. Note: Antenna use a permanently attached antenna which is not replaceable. $\overline{\mathbf{V}}$ 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.



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 ***



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