SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

TEST REPORT

Application No.:	SZEM1910019608CR
Applicant:	Dakang Holding Co., Ltd
Address of Applicant:	No.695 Kangshan Road, Di pu street, Anji County, Zhejiang Province, China
Manufacturer:	Dakang Holding Co., Ltd
Address of Manufacturer:	No.695 Kangshan Road, Di pu street, Anji County, Zhejiang Province, China
Factory:	Dakang Holding Co., Ltd
Address of Factory:	No.695 Kangshan Road, Di pu street, Anji County, Zhejiang Province, China
Equipment Under Test (EUT):	
EUT Name:	X ROCKER GAMING CHAIR
Model No.:	ESLW21, (51XXXXX, 06XXXXX, 07XXXXX, 93XXXXX (X=0-9) ♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
FCC ID:	OVIES2141V
Standard(s) :	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2019-10-28
Date of Test:	2019-11-01 to 2019-11-05
Date of Issue:	2019-11-11
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch Testing Center EEC Laboratory.
No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86–755) 26012053 f (86–755) 26710594 www.sgsgroup.com.cn
中国・深圳・科技园中区M–10栋一号厂房 邮编: 518057 t (86–755) 26012053 f (86–755) 26710594 sgs.china@sgs.com

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2019-11-11		Original

Authorized for issue by:				
		Damon Su **Damon Su /Project Engineer**		
		Eric Fu **Eric Fu /Reviewer**		

2 Test Summary

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(1)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

Remark:

Model No: ESLW21, (51XXXXX, 06XXXXX, 07XXXXX, 93XXXXX (X=0-9)

This test report (Ref. No.: SZEM191001960802) is only valid with the original test report (Ref. No.: SZEM191001960702).

Compared with the original report, this report changed model No. and sofa speaker(ESLW2141 with 4.1 channel sofa speaker and ESLW21 with 2.1 channel sofa speaker, reduce one amplifier circuit and two horns from the ESLW2141 circuit).

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report Radiated Emissions which fall in the restricted bands and Radiated Spurious Emissions were fully retested on model ESLW21 and shown the data in this report, other tests please refer to original report(Ref. No.: SZEM191001960702)

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 12V from AC/DC adapter. Model No.: BI24-120200-AdU AC Input: 100-240V 50/60Hz 0.8A DC Output: DC 12V 2A
Cable:	AUX in cable: Unshielded, 100cm
Antenna Gain:	1.7dBi
Antenna Type:	PCB Antenna
Bluetooth Version:	V4.1
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channels:	79
Operation Frequency:	2402MHz to 2480MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Channel Spacing:	1MHz

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 10^{-8}
2	Duty cycle	± 0.37%
3	Occupied Bandwidth	± 3%
4	Conduction emission	± 3.0dB (150kHz to 30MHz)
5	RF conducted power	± 0.75dB
6	RF power density	± 2.84dB
7	Conducted Spurious emissions	± 0.75dB
8	RF Radiated power	± 4.5dB (Below 1GHz)
		± 4.8dB (Above 1GHz)
9	Radiated Spurious emission test	± 4.5dB (Below 1GHz)
		± 4.8dB (Above 1GHz)
10	Temperature test	± 1℃
11	Humidity test	± 3%
12	Supply voltages	± 1.5%
13	Time	± 3%

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Peak Output Power					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2019-09-24	2020-09-23
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2019-07-11	2020-07-10
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2019-09-24	2020-09-23
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2019-09-24	2020-09-23
Electric and Magnetic Field Analyzer	Narda	NBM-550/EHP-50F	EMC2143	2018-02-07	2020-02-06
Electric Field Probe (100KHz-3GHz)	WANDEL & GOLTERMANN	EMR-20	EMC0907	2019-05-21	2020-05-20
EMF Tester	Narda	ELT-400	SZE039-4	2019-07-08	2020-07-07

Radiated Emissions which fall in the restricted bands					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2019-07-11	2020-07-10
EXA Spectrum Analyzer	AgilentTechnologies Inc	N9010A	SEM004-12	2019-04-12	2020-04-11
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna(15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Pre-Amplifier(0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23
Pre-amplifier(18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2019-04-01	2020-03-31
Pre-amplifier(26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2019-04-01	2020-03-31
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21

Radiated Spurious Emissions

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2019-07-11	2020-07-10
EXA Spectrum Analyzer	AgilentTechnologies Inc	N9010A	SEM004-12	2019-04-12	2020-04-11
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna (15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2017-10-17	2020-10-16
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23
Pre-amplifier (18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2019-04-01	2020-03-31
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2019-04-01	2020-03-31
DC Power Supply	Zhao Xin	KXN-6020D	SEM011-08	2019-09-24	2020-09-23
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21

RE in Chamber					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date**	**Cal. Due date**
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2019-09-24	2020-09-23
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2017-06-27	2020-06-26
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2019-04-01	2020-03-31
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2019-07-11	2020-07-10

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2019-04-04	2020-04-03

6 Radio Spectrum Matter Test Results

6.1 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(1)
Test Method: ANSI C63.10 (2013) Section 7.8.5
Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥50 hopping channels
	0.25 for 25≤ hopping channels <50
	1 for digital modulation
2400-2483.5	1 for ≥75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

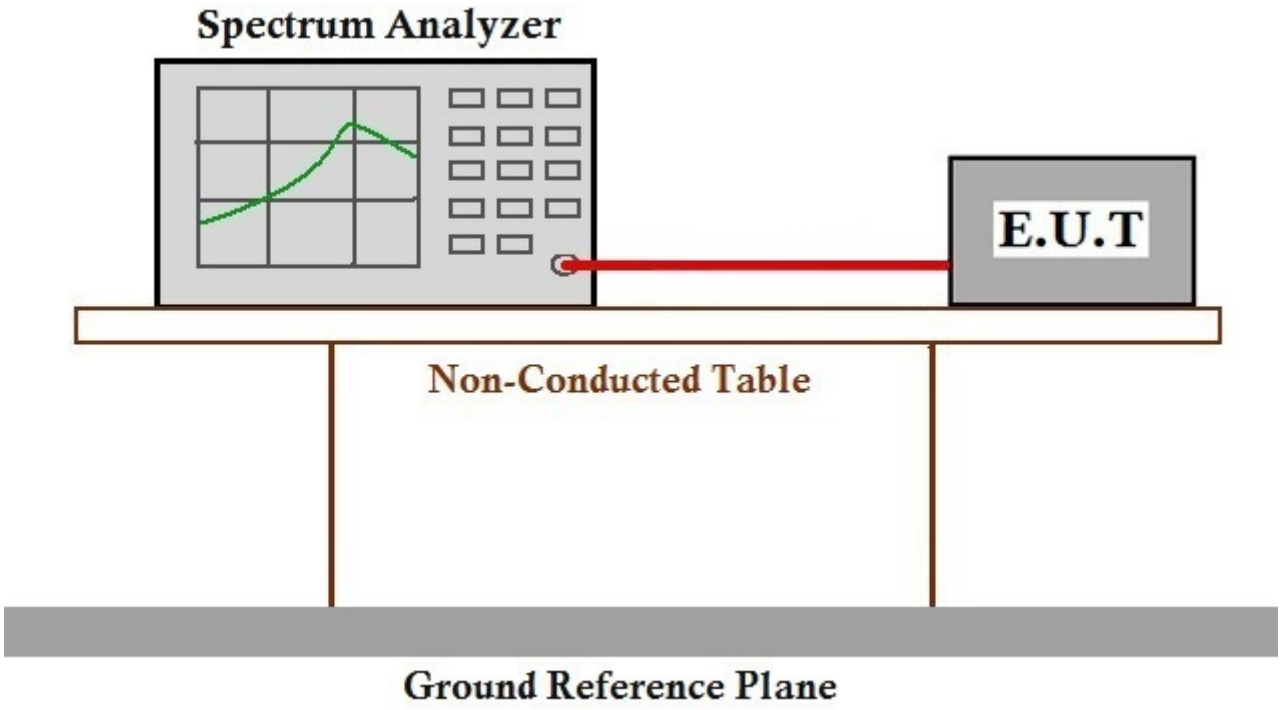
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C Humidity: 53.9 % RH Atmospheric Pressure: 1015 mbar

Test mode b:TX_non-Hop mode_Keep the EUT in continuously transmitting mode with GFSK modulation, π/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

6.1.2 Test Setup Diagram



6.1.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

6.2 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.10.5
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

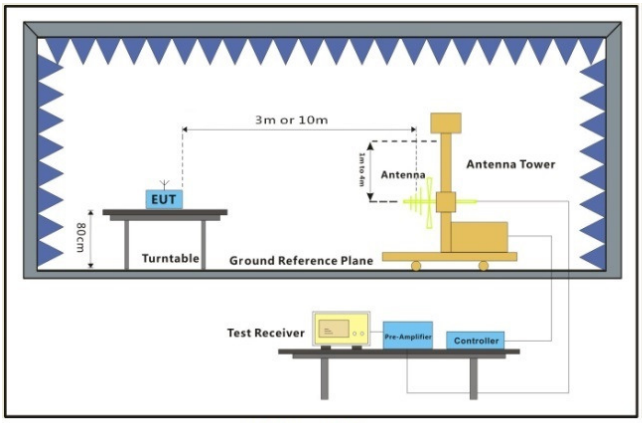
6.2.1 E.U.T. Operation

Operating Environment:

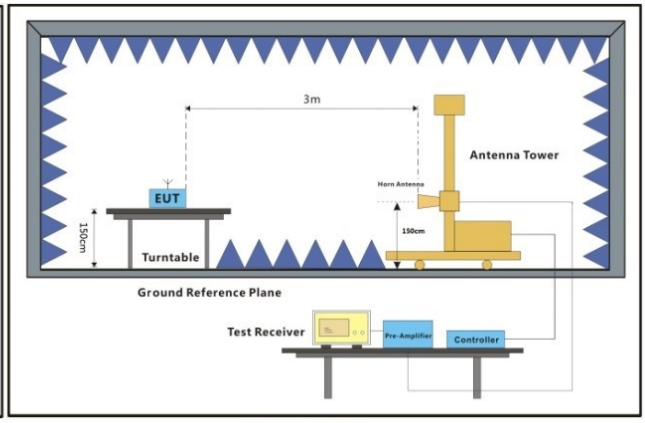
Temperature: 20.1 °C Humidity: 56.4 % RH Atmospheric Pressure: 1015 mbar

Test mode b:TX_non-Hop mode_Keep the EUT in continuously transmitting mode with GFSK modulation, π/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

6.2.2 Test Setup Diagram



30MHz-1GHz



Above 1GHz

6.2.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

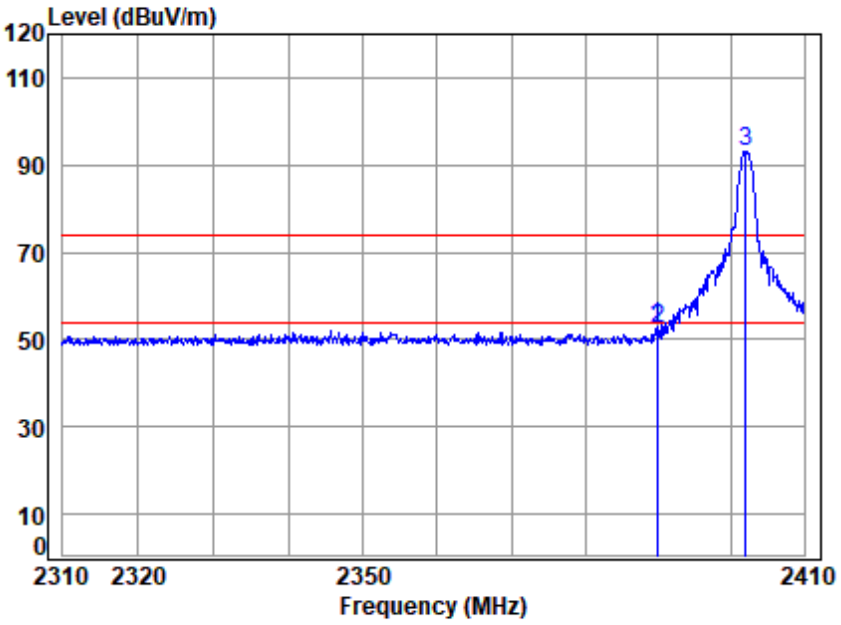
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

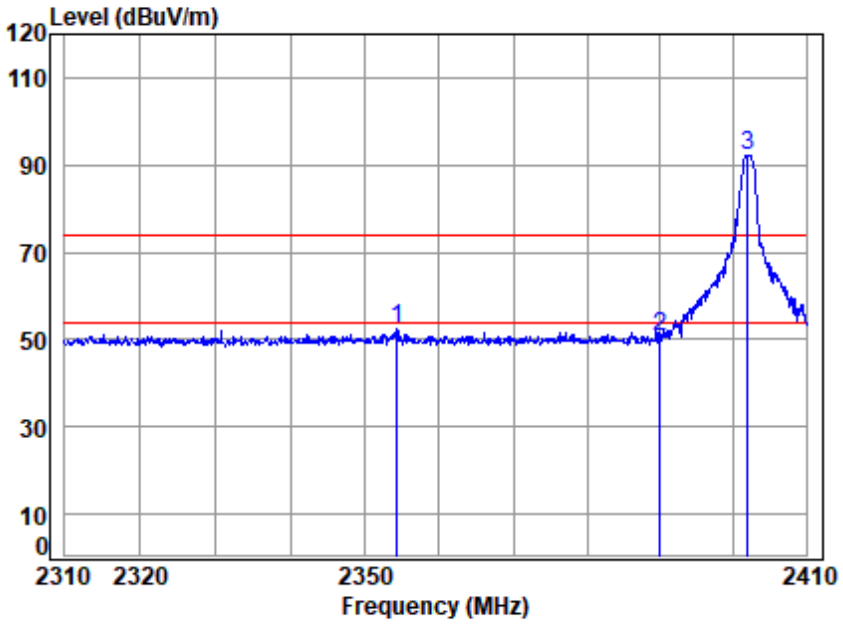
Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 19608CR
Mode : 2402 Band edge
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2389.862	5.47	28.52	40.97	60.03	53.05	74.00	-20.95	peak
2	2390.000	5.47	28.52	40.97	59.32	52.34	74.00	-21.66	peak
3 *	2402.000	5.49	28.54	40.98	99.90	92.95	74.00	18.95	peak

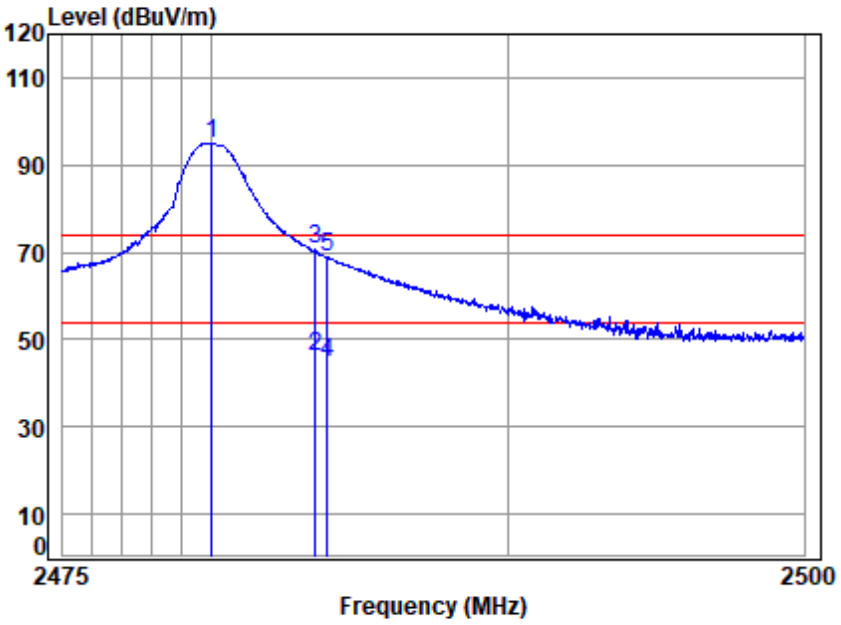
Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 19608CR
Mode : 2402 Band edge
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	2354.276	5.43	28.46	40.96	59.68	52.61	74.00	-21.39	peak
2	2390.000	5.47	28.52	40.97	57.74	50.76	74.00	-23.24	peak
3 *	2402.000	5.49	28.54	40.98	99.18	92.23	74.00	18.23	peak

Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:High

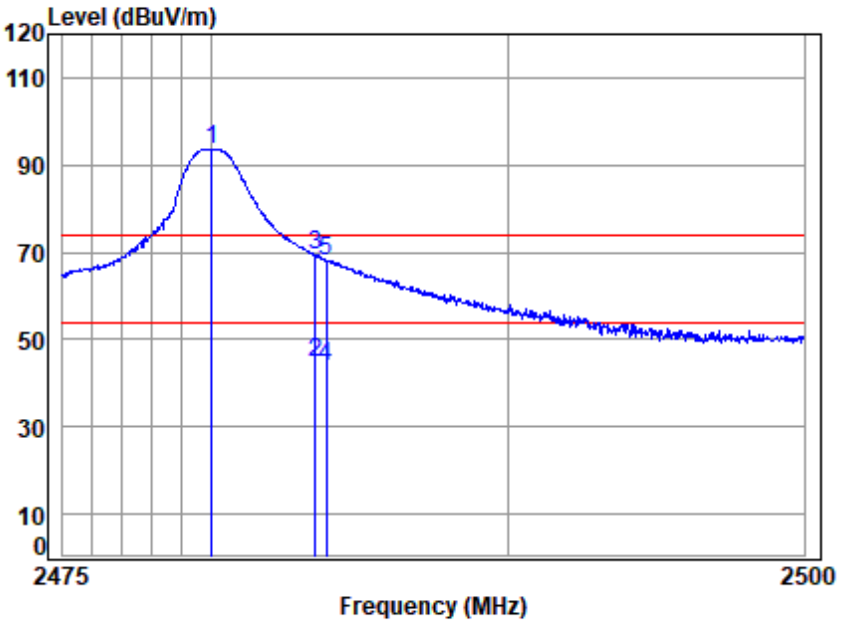


Site : chamber
Condition: 3m HORIZONTAL
Job No : 19608CR
Mode : 2480 Band edge
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 *	2480.000	5.59	28.67	41.01	101.59	94.84	74.00	20.84	peak
2	2483.500	5.60	28.67	41.01	52.80	46.06	54.00	-7.94	Average
3	2483.500	5.60	28.67	41.01	77.25	70.51	74.00	-3.49	peak
4	2483.896	5.60	28.67	41.01	51.31	44.57	54.00	-9.43	Average
5	2483.896	5.60	28.67	41.01	75.76	69.02	74.00	-4.98	peak

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 19608CR
Mode : 2480 Band edge
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 *	2480.000	5.59	28.67	41.01	100.44	93.69	74.00	19.69	peak
2	2483.500	5.60	28.67	41.01	51.52	44.78	54.00	-9.22	Average
3	2483.500	5.60	28.67	41.01	75.97	69.23	74.00	-4.77	peak
4	2483.846	5.60	28.67	41.01	50.47	43.73	54.00	-10.27	Average
5	2483.846	5.60	28.67	41.01	74.92	68.18	74.00	-5.82	peak

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

6.3 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.		

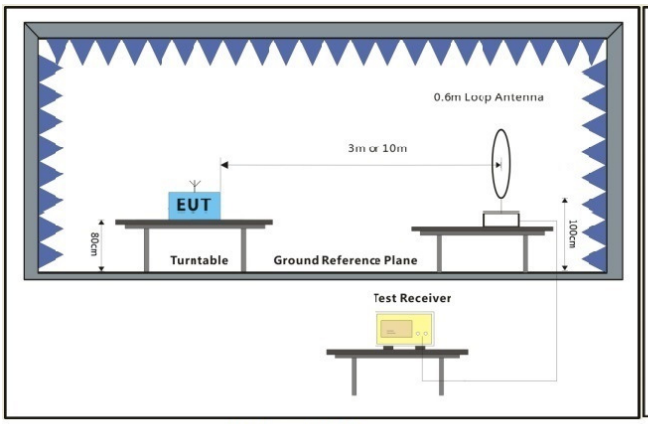
6.3.1 E.U.T. Operation

Operating Environment:

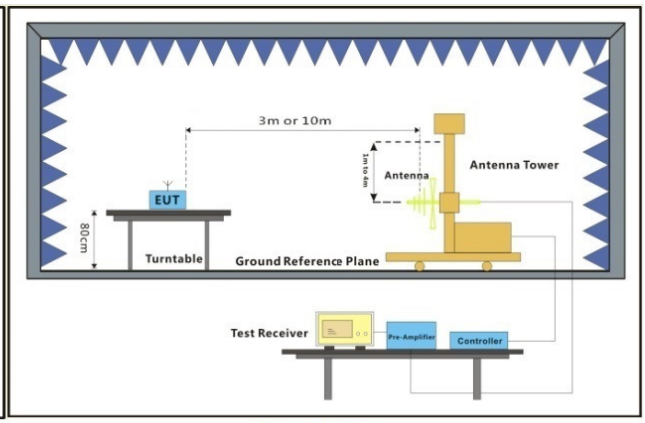
Temperature: 20.1 °C Humidity: 56.3 % RH Atmospheric Pressure: 1015 mbar

Test mode b:TX_non-Hop mode_Keep the EUT in continuously transmitting mode with GFSK modulation, π/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

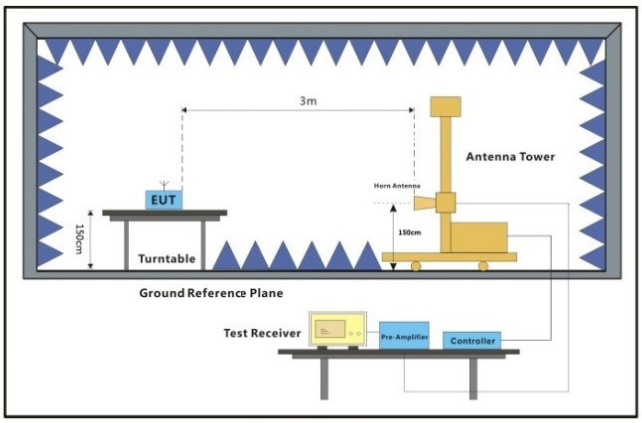
6.3.2 Test Setup Diagram



Below 30MHz



30MHz-1GHz



Above 1GHz

6.3.3 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark:

1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

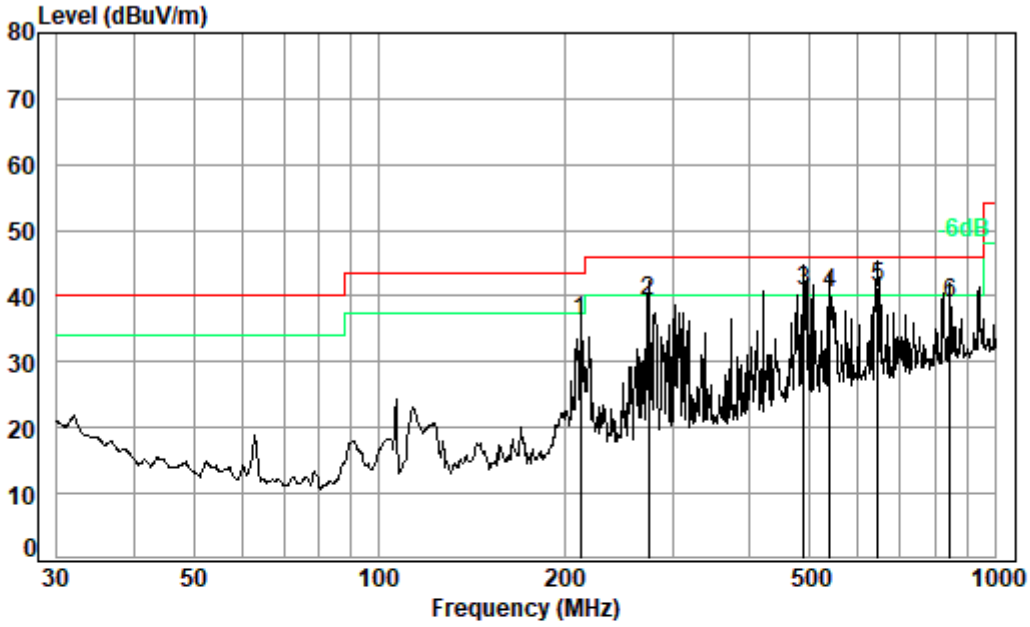
3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

30MHz~1GHz

QP value:

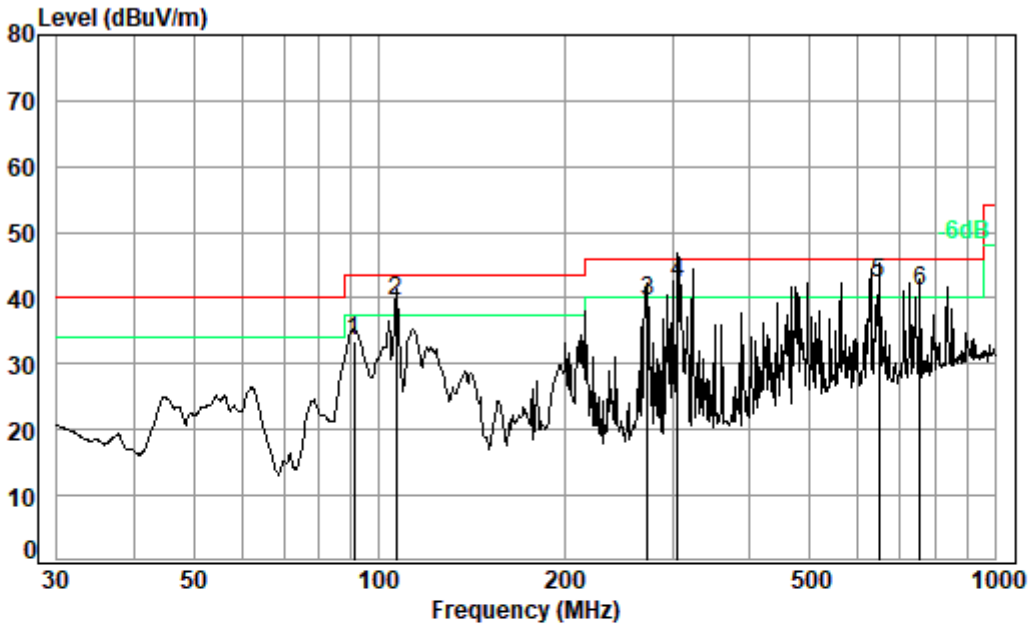
Mode: b; Polarization: Horizontal



Condition: 3m HORIZONTAL
Job No. : 19608CR
Test mode: b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	212.27	1.47	16.94	27.13	44.81	36.09	43.50	-7.41
2	274.19	1.79	18.88	26.95	45.57	39.29	46.00	-6.71
3	489.03	2.56	24.38	27.79	41.71	40.86	46.00	-5.14
4	539.48	2.64	25.43	27.97	40.49	40.59	46.00	-5.41
5 pp	645.12	2.80	27.21	28.06	39.41	41.36	46.00	-4.64
6	845.09	3.39	29.11	27.52	33.94	38.92	46.00	-7.08

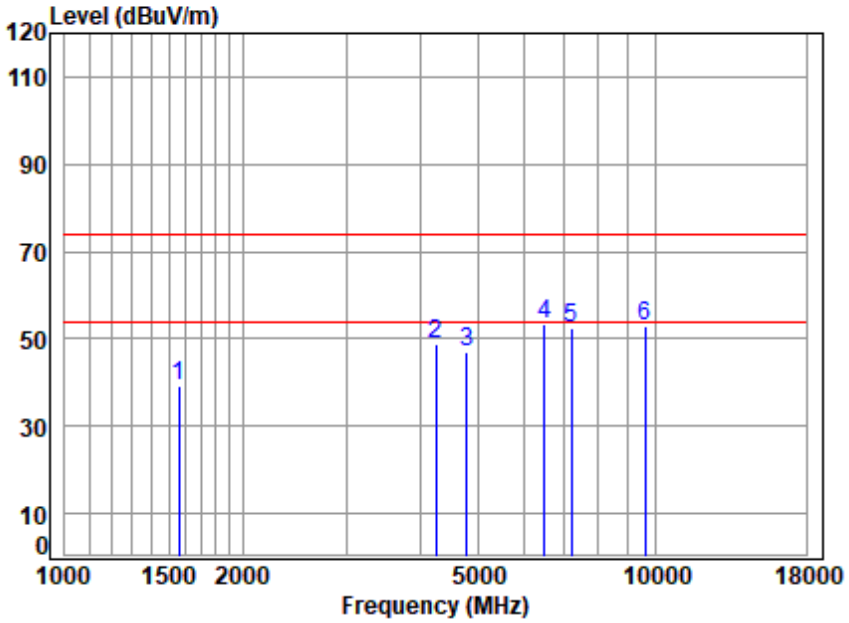
Mode: b; Polarization: Vertical



Condition: 3m VERTICAL
Job No. : 19608CR
Test mode: b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	91.17	1.11	13.21	27.65	46.81	33.48	43.50	-10.02
2	106.76	1.22	13.68	27.60	52.11	39.41	43.50	-4.09
3	273.23	1.78	18.90	26.95	45.70	39.43	46.00	-6.57
4 pp	305.68	1.92	19.78	26.92	47.65	42.43	46.00	-3.57
5	647.39	2.80	27.24	28.05	40.36	42.35	46.00	-3.65
6	755.39	3.07	28.24	27.81	37.51	41.01	46.00	-4.99

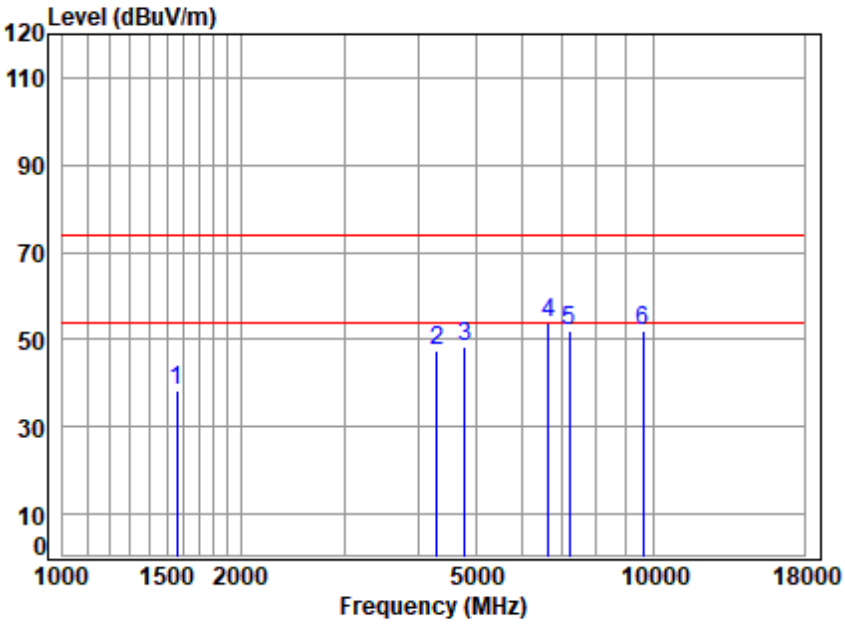
Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 19608CR
Mode : 2402 TX RSE
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1560.673	5.40	26.08	40.55	48.12	39.05	74.00	-34.95	peak
2	4254.921	7.28	33.60	42.36	50.49	49.01	74.00	-24.99	peak
3	4804.000	7.89	34.16	42.77	47.72	47.00	74.00	-27.00	peak
4	6488.754	11.52	35.09	41.96	48.78	53.43	74.00	-20.57	peak
5	7206.000	10.08	36.42	41.58	47.50	52.42	74.00	-21.58	peak
6	9608.000	10.75	37.52	38.57	43.10	52.80	74.00	-21.20	peak

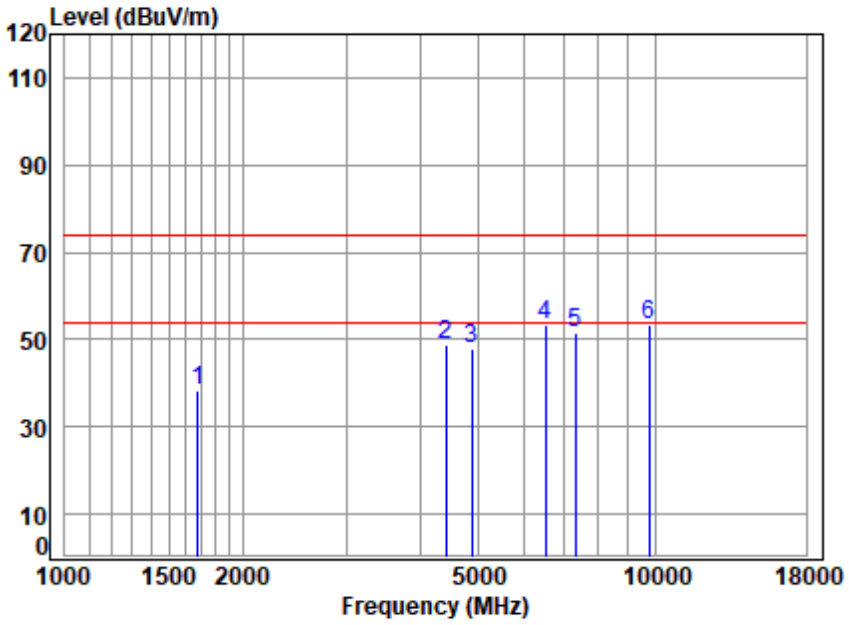
Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 19608CR
Mode : 2402 TX RSE
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1560.673	5.40	26.08	40.55	47.17	38.10	74.00	-35.90	peak
2	4304.400	7.34	33.60	42.40	48.94	47.48	74.00	-26.52	peak
3	4804.000	7.89	34.16	42.77	48.89	48.17	74.00	-25.83	peak
4	6640.542	11.13	35.50	41.87	48.92	53.68	74.00	-20.32	peak
5	7206.000	10.08	36.42	41.58	46.98	51.90	74.00	-22.10	peak
6	9608.000	10.75	37.52	38.57	42.49	52.19	74.00	-21.81	peak

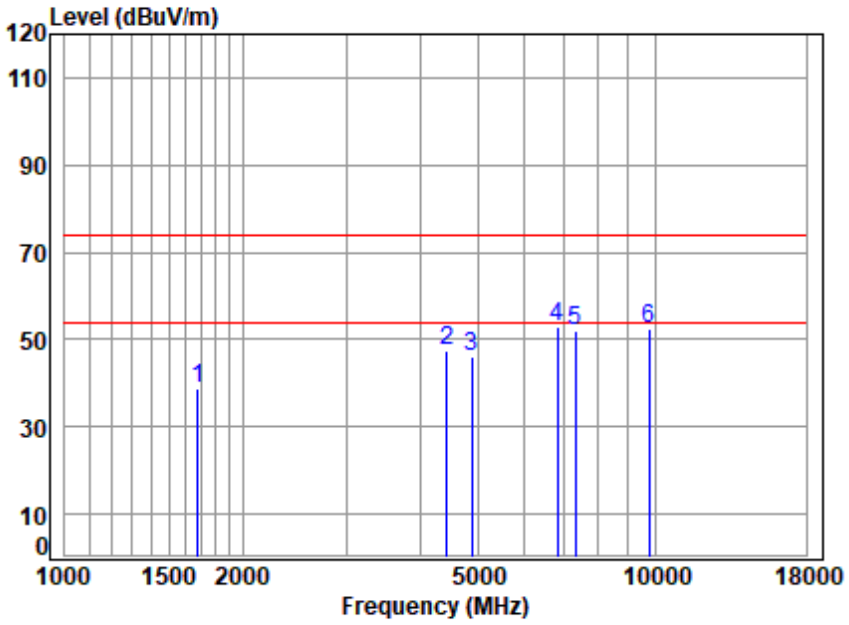
Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 19608CR
Mode : 2441 TX RSE
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	5.25	26.58	40.62	47.27	38.48	74.00	-35.52	peak
2	4417.841	7.47	33.60	42.49	50.16	48.74	74.00	-25.26	peak
3	4882.000	7.97	34.30	42.82	48.29	47.74	74.00	-26.26	peak
4	6507.536	11.52	35.12	41.95	48.50	53.19	74.00	-20.81	peak
5	7323.000	10.05	36.37	41.52	46.58	51.48	74.00	-22.52	peak
6	9764.000	10.82	37.55	38.34	43.23	53.26	74.00	-20.74	peak

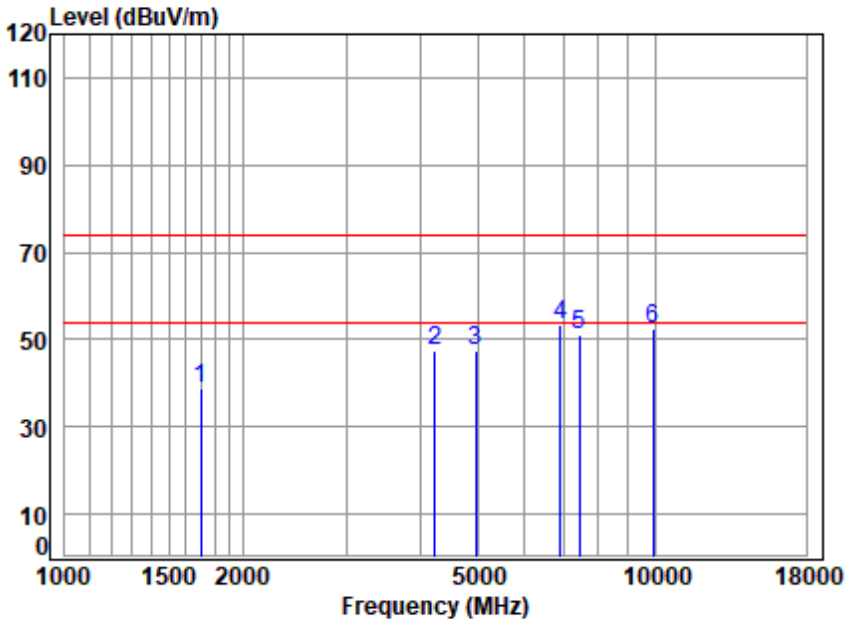
Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 19608CR
Mode : 2441 TX RSE
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1677.621	5.25	26.58	40.62	47.77	38.98	74.00	-35.02	peak
2	4443.453	7.50	33.60	42.51	48.82	47.41	74.00	-26.59	peak
3	4882.000	7.97	34.30	42.82	46.69	46.14	74.00	-27.86	peak
4	6815.551	10.64	36.00	41.78	48.04	52.90	74.00	-21.10	peak
5	7323.000	10.05	36.37	41.52	47.26	52.16	74.00	-21.84	peak
6	9764.000	10.82	37.55	38.34	42.57	52.60	74.00	-21.40	peak

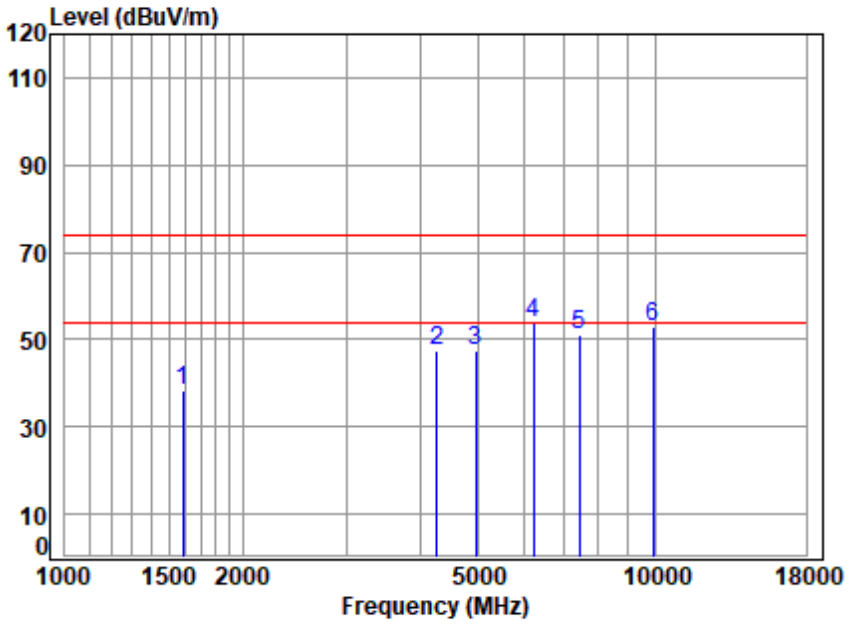
Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 19608CR
Mode : 2480 TX RSE
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1702.042	5.23	26.68	40.63	47.57	38.85	74.00	-35.15	peak
2	4230.396	7.26	33.60	42.34	49.01	47.53	74.00	-26.47	peak
3	4960.000	8.05	34.43	42.87	47.77	47.38	74.00	-26.62	peak
4	6894.806	10.42	36.21	41.74	48.46	53.35	74.00	-20.65	peak
5	7440.000	10.02	36.32	41.46	46.42	51.30	74.00	-22.70	peak
6	9920.000	10.90	37.58	38.12	42.16	52.52	74.00	-21.48	peak

Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 19608CR
Mode : 2480 TX RSE
Note : BT

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1587.975	5.37	26.20	40.56	47.29	38.30	74.00	-35.70	peak
2	4267.237	7.30	33.60	42.37	48.70	47.23	74.00	-26.77	peak
3	4960.000	8.05	34.43	42.87	47.82	47.43	74.00	-26.57	peak
4	6213.441	10.99	34.87	42.11	49.89	53.64	74.00	-20.36	peak
5	7440.000	10.02	36.32	41.46	46.30	51.18	74.00	-22.82	peak
6	9920.000	10.90	37.58	38.12	42.56	52.92	74.00	-21.08	peak

7 Photographs

7.1 Test Setup

Please refer to setup photos.

7.2 EUT Constructional Details (EUT Photos)

Please refer to external and internal photos.

8 Appendix

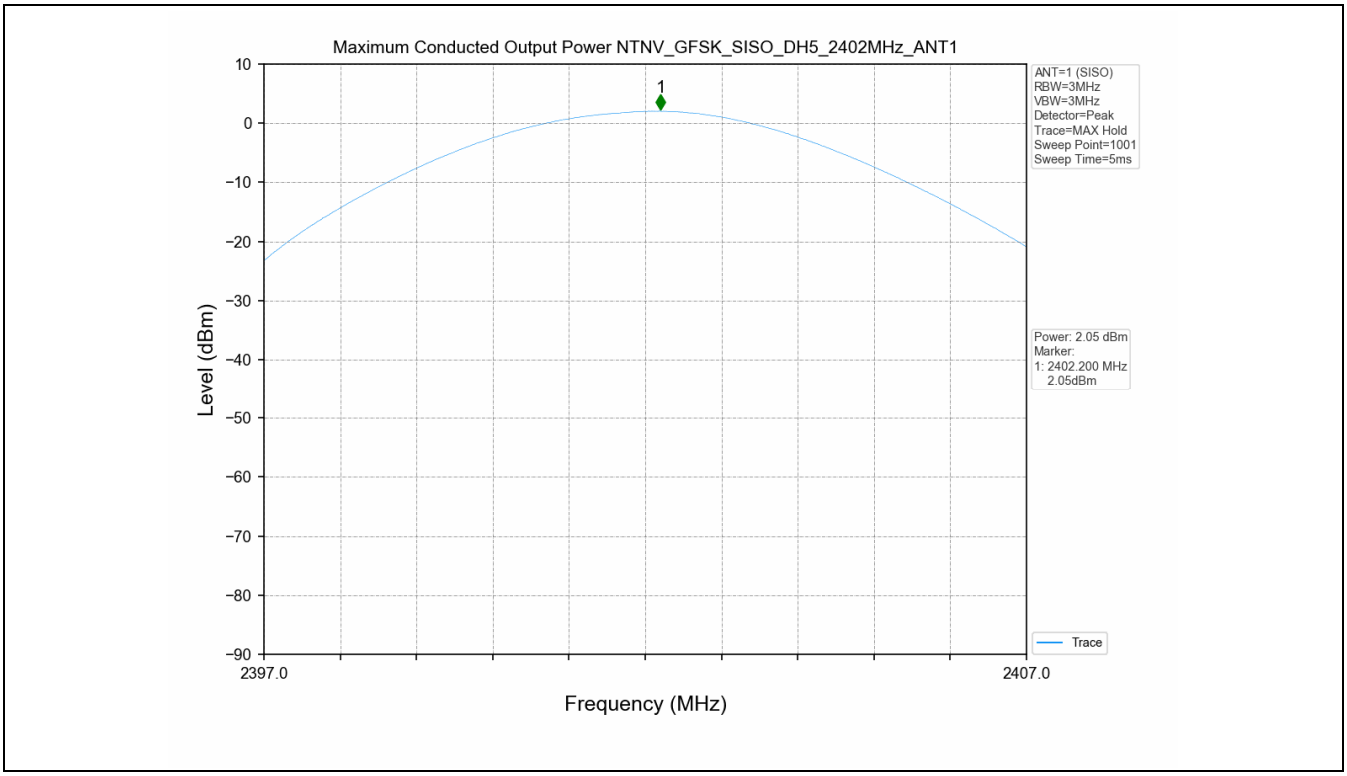
8.1 Appendix 15.247

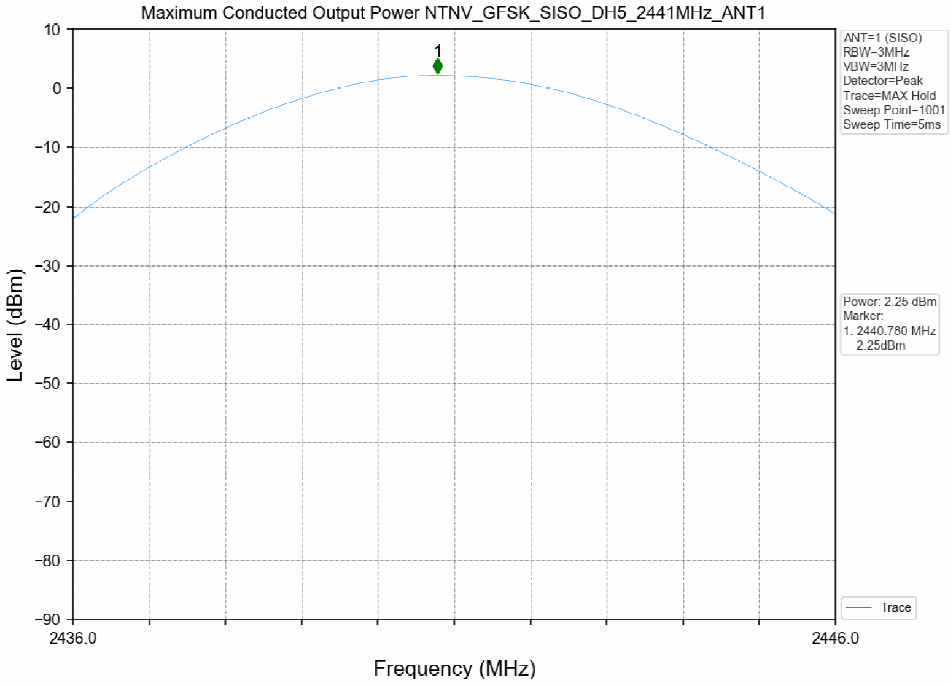
1. Maximum Conducted Output Power

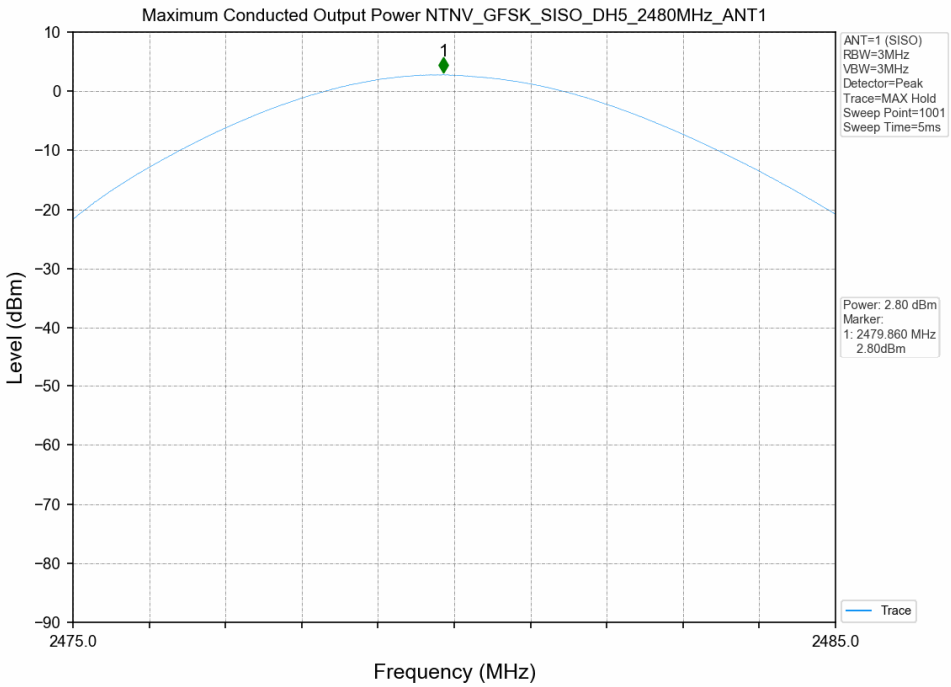
1.1 Test Result

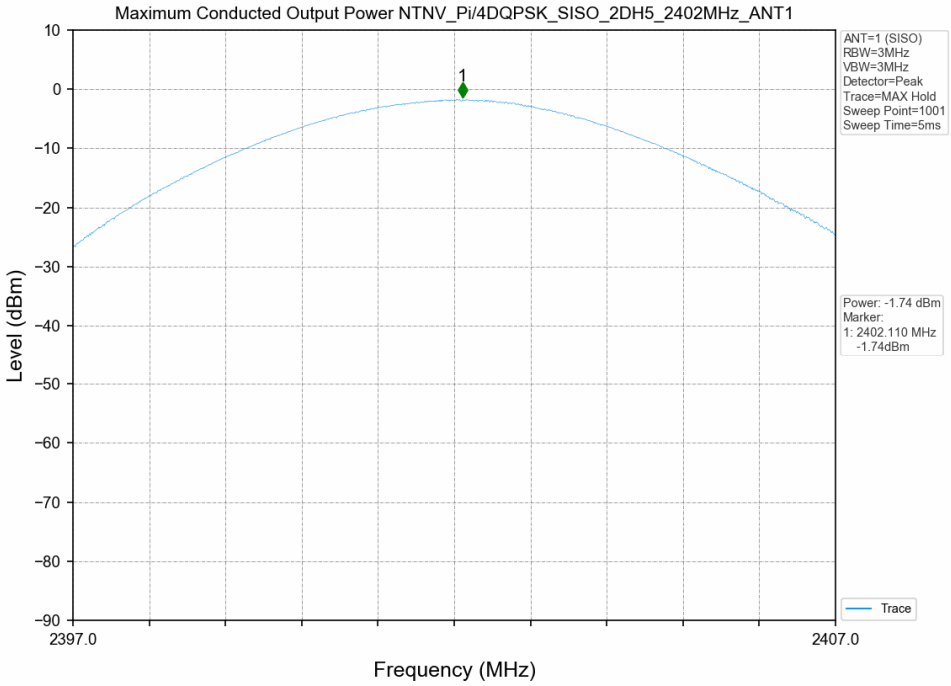
Test Mode	Frequency (MHz)	Tx Type	Measured Peak Output Power (dBm)	Limits (dBm)	Verdict
			Ant 1		
GFSK	2402	SISO	2.05	20.97	PASS
	2441	SISO	2.25	20.97	PASS
	2480	SISO	2.80	20.97	PASS
Pi/4DQPSK	2402	SISO	-1.74	20.97	PASS
	2441	SISO	-1.34	20.97	PASS
	2480	SISO	-0.98	20.97	PASS
8DPSK	2402	SISO	-1.34	20.97	PASS
	2441	SISO	-0.95	20.97	PASS
	2480	SISO	-0.55	20.97	PASS

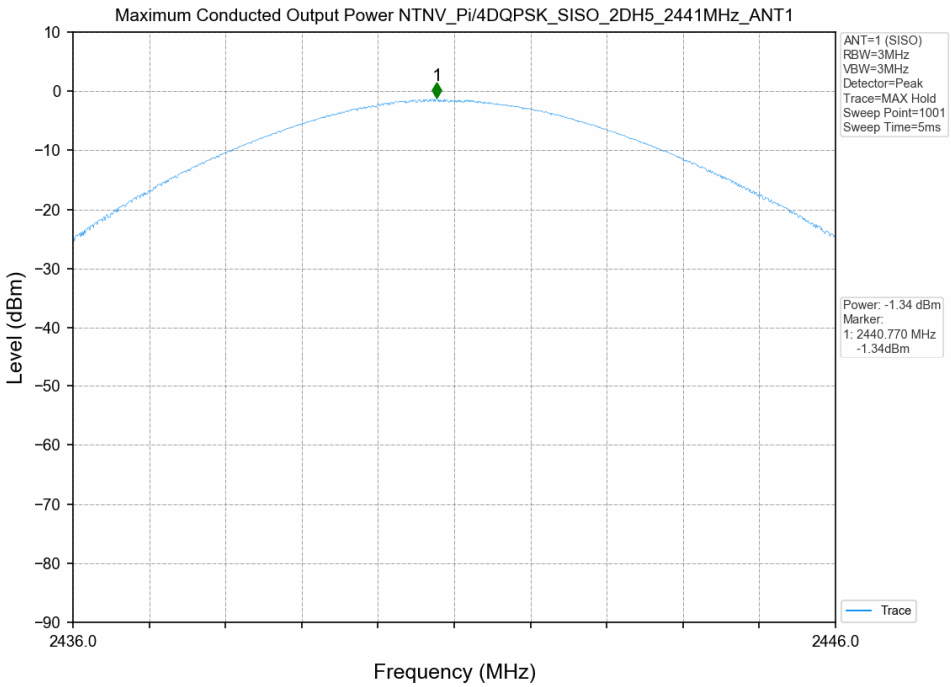
1.2 Test Graph

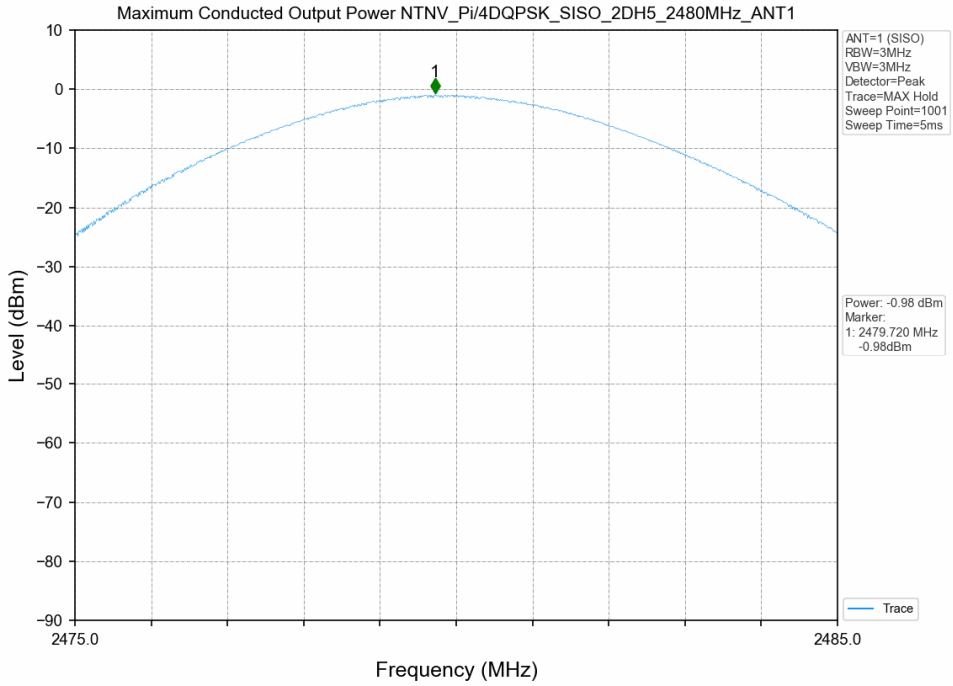


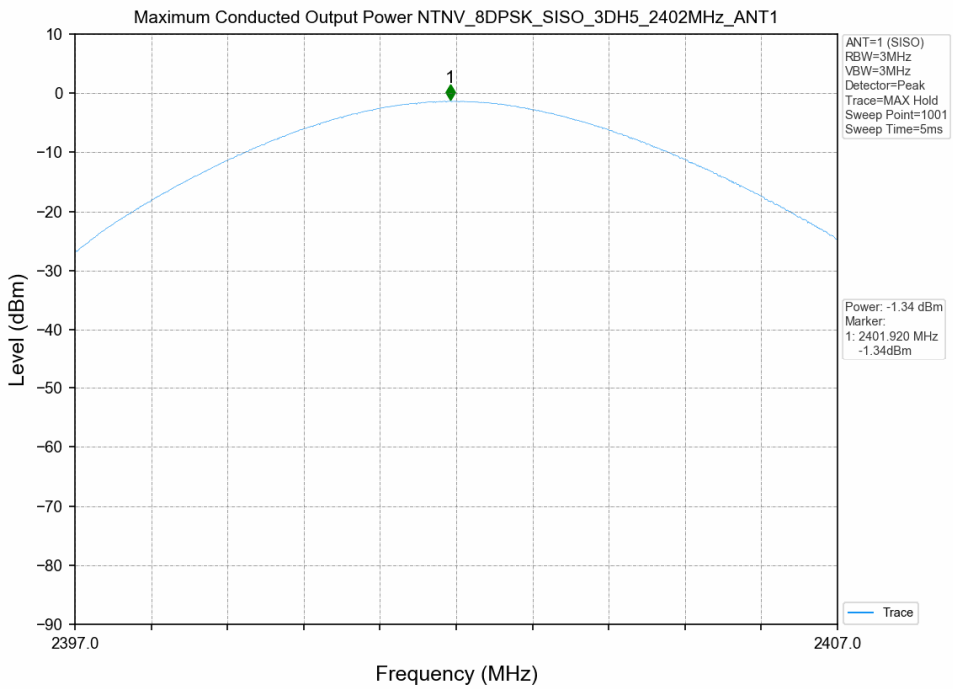


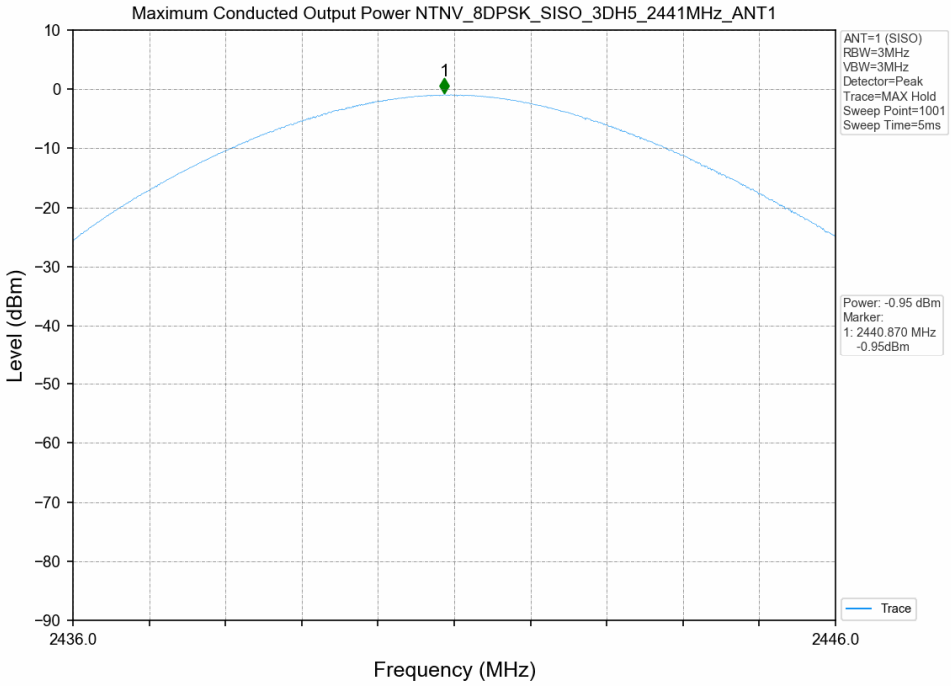


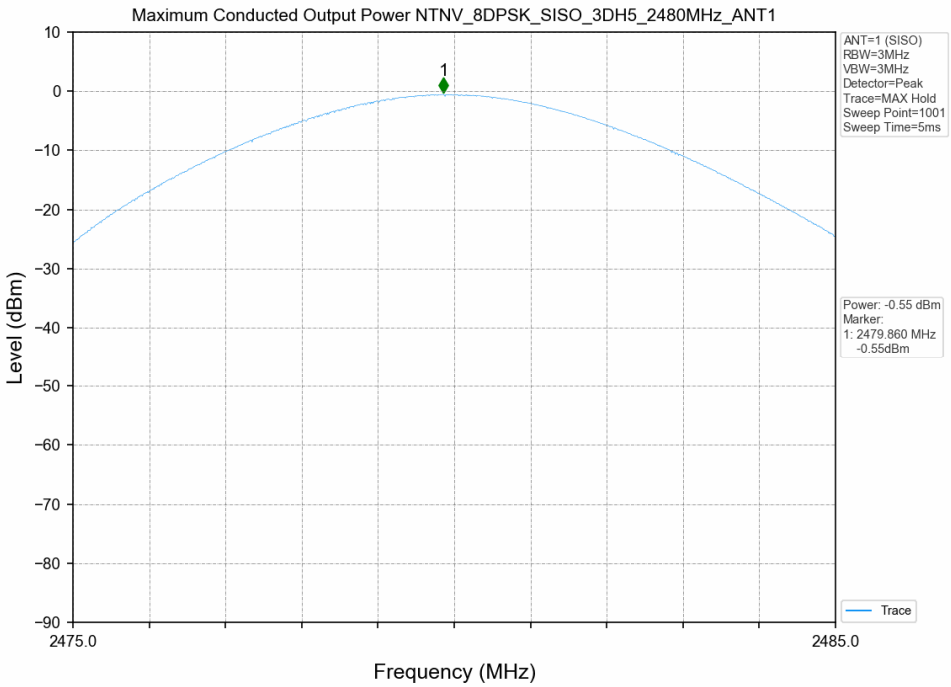












- End of the Report -

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com