

No. 1 Workshop, M-10, Middle section, Science & Technology Park,

Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Report No.: SZEM180400332002

Fax: +86 (0) 755 2671 0594 Page: 1 of 42

### TEST REPORT

Application No.: SZEM1804003320CR(SGS SZ No.:T51810220166EM)

**Applicant:** Kid Galaxy Inc.

Address of Applicant: 150 Dow Street, Tower 2, Unit 425B Manchester New Hampshire United

States 03101

**Equipment Under Test (EUT):** 

**EUT Name:** 20V RC EPIC CLIMBER

Model No.: 10318R
Requested Age Grading: 8+

Country of Origin: China
Country of Destination: USA

FCC ID: QEA-V039-2G4R

Standard(s): 47 CFR Part 15, Subpart C 15.249

**Date of Receipt:** 2018-04-26

**Date of Test:** 2018-04-30 to 2018-05-03

**Date of Issue:** 2018-05-04

Test Result: Pass\*



EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



Report No.: SZEM180400332002

Page: 2 of 42

	Revision Record						
Version	Version Chapter Date Modifier						
01		2018-05-04		Original			

Authorized for issue by:		
	Gebin Sun	
	Gebin Sun /Project Engineer	
	EvicFu	
	Eric Fu /Reviewer	



Report No.: SZEM180400332002

Page: 3 of 42

### 2 Test Summary

Radio Spectrum Technical Requirement						
Item Standard Method Requirement Result						
Antenna Requirement	47 CFR Part 15, Subpart C 15.249	N/A	47 CFR Part 15, Subpart C 15.203	Pass		

Radio Spectrum Matt	er Part			
Item	Standard	Method	Requirement	Result
20dB Bandwidth	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
Field Strength of the Fundamental Signal (15.249(a))	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass
Restricted Band Around Fundamental Frequency	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass



Report No.: SZEM180400332002

Page: 4 of 42

### 3 Contents

		Page
1	COVER PAGE	1
2	TEST SUMMARY	3
3	CONTENTS	4
4		
	4.1 DETAILS OF E.U.T.	
	4.2 DESCRIPTION OF SUPPORT UNITS	
	4.4 Test Location	
	4.5 TEST FACILITY	
	4.6 DEVIATION FROM STANDARDS	
	4.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
5	EQUIPMENT LIST	7
6	RADIO SPECTRUM TECHNICAL REQUIREMENT	10
	6.1 ANTENNA REQUIREMENT	
	6.1.1 Test Requirement:	
	6.1.2 Conclusion	
7	RADIO SPECTRUM MATTER TEST RESULTS	11
	7.1 20dB Bandwidth	11
	7.1.1 E.U.T. Operation	
	7.1.2 Test Setup Diagram	
	7.1.3 Measurement Procedure and Data	
	7.2 FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL (15.249(A))	
	7.2.1 E.U.T. Operation	
	7.2.2 Test Setup Diagram7.2.3 Measurement Procedure and Data	
	7.2.3 RESTRICTED BAND AROUND FUNDAMENTAL FREQUENCY	
	7.3.1 E.U.T. Operation	
	7.3.2 Test Setup Diagram	23
	7.3.3 Measurement Procedure and Data	
	7.4 RADIATED EMISSIONS	
	7.4.1 E.U.T. Operation	
	7.4.2 Test Setup Diagram7.4.3 Measurement Procedure and Data	
8		
	8.1 FIELD STRENGTH OF THE FUNDAMENTAL SIGNAL (15.249(A)) TEST SETUP	
	8.2 RESTRICTED BAND AROUND FUNDAMENTAL FREQUENCY TEST SETUP	
	8.3 RADIATED EMISSIONS TEST SETUP	
	0.4 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)	42



Report No.: SZEM180400332002

Page: 5 of 42

### 4 General Information

#### 4.1 Details of E.U.T.

Rechargeable battery DC20V
Adapter Model: YLJXA-T220035
Input:AC100-240V 50/60Hz 0.5A Max
Output: DC22V 350mA
DC Cable:185cm unshielded
2.4GHz(2408MHz-2472MHz)
1 MHz
65
GFSK
Portable production
Integral
2dBi

#### 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 <sup>-8</sup>
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	DE Dadiated mayor	4.5dB (below 1GHz)
/	RF Radiated power	4.8dB (above 1GHz)
8	Dedicted Courieus emission test	4.5dB (Below 1GHz)
0	Radiated Spurious emission test	4.8dB (Above 1GHz)
9	Temperature test	1℃
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	3%



Report No.: SZEM180400332002

Page: 6 of 42

#### 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:

#### • CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

#### 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.

#### VCC

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.

#### Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

#### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None



Report No.: SZEM180400332002

Page: 7 of 42

### 5 Equipment List

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-26
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-26
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-26
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-26

Field Strength of the Fu 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	2017-07-13	2018-07-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2018-04-02	2019-04-01
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
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 (0.1-1300MHz)	HP	8447D	SEM005-02	2017-09-27	2018-09-26
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118- 352810	SEM005-05	2017-09-27	2018-09-27
Pre-amplifier (18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2018-04-02	2019-04-01
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2018-04-02	2019-04-01
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-09-27	2018-09-26
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Band filter	N/A	N/A	SEM023-01	N/A	N/A



Report No.: SZEM180400332002

Page: 8 of 42

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	2017-07-13	2018-07-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2018-04-02	2019-04-01
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
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 (0.1-1300MHz)	HP	8447D	SEM005-02	2017-09-27	2018-09-26
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118- 352810	SEM005-05	2017-09-27	2018-09-27
Pre-amplifier (18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2018-04-02	2019-04-01
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2018-04-02	2019-04-01
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-09-27	2018-09-26
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Band filter	N/A	N/A	SEM023-01	N/A	N/A



Report No.: SZEM180400332002

Page: 9 of 42

Radiated 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	2017-07-13	2018-07-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2018-04-02	2019-04-01
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2017-06-27	2020-06-26
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 (0.1-1300MHz)	HP	8447D	SEM005-02	2017-09-27	2018-09-26
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118- 352810	SEM005-05	2017-09-27	2018-09-27
Pre-amplifier (18-26GHz)	Rohde & Schwarz	CH14-H052	SEM005-17	2018-04-02	2019-04-01
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2018-04-02	2019-04-01
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-09-27	2018-09-26
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Band filter	N/A	N/A	SEM023-01	N/A	N/A

General used equipmen	t				
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2017-09-29	2018-09-28
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2017-09-29	2018-09-28
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2018-04-08	2019-04-07



Report No.: SZEM180400332002

Page: 10 of 42

### 6 Radio Spectrum Technical Requirement

#### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 Limit:

#### 15.203 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, 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.

#### 6.1.2 Conclusion

#### 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, 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.

#### **EUT Antenna:**



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2dBi.



Report No.: SZEM180400332002

Page: 11 of 42

### 7 Radio Spectrum Matter Test Results

#### 7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215 Test Method: ANSI C63.10 (2013) Section 6.9

Limit: N/A

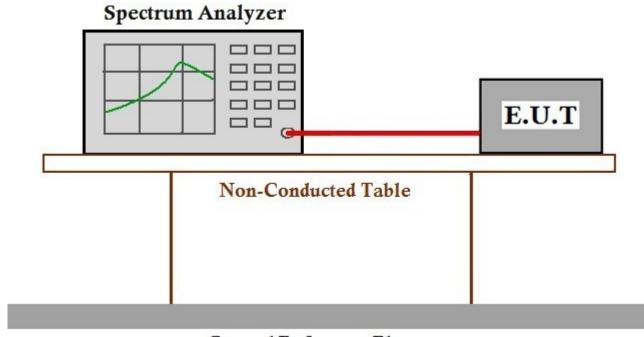
#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.8 °C Humidity: 41 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode\_Keep the EUT in transmitting with modulation mode.

#### 7.1.2 Test Setup Diagram



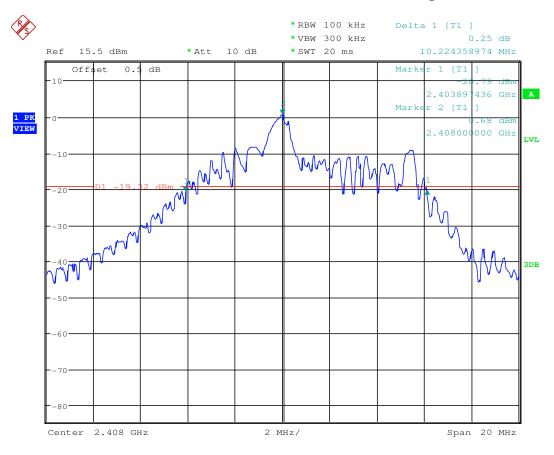
#### Ground Reference Plane

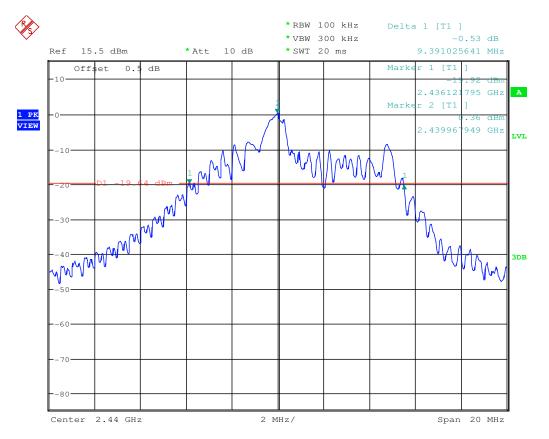
#### 7.1.3 Measurement Procedure and Data



Report No.: SZEM180400332002

Page: 12 of 42



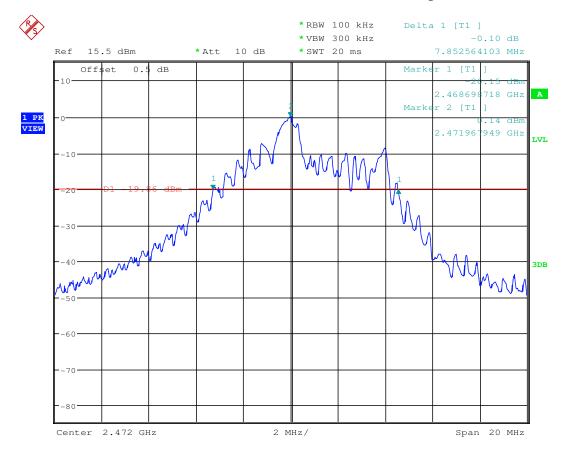


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Report No.: SZEM180400332002

Page: 13 of 42





Report No.: SZEM180400332002

Page: 14 of 42

#### 7.2 Field Strength of the Fundamental Signal (15.249(a))

Test Requirement 47 CFR Part 15, Subpart C 15.249(a)
Test Method: ANSI C63.10 (2013) Section 6.5&6.6

Measurement Distance: 3m

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
2400MHz-2483.5MHz	94.0	Average Value
	114.0	Peak Value



Report No.: SZEM180400332002

Page: 15 of 42

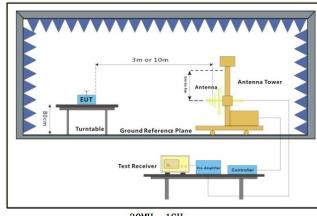
#### 7.2.1 E.U.T. Operation

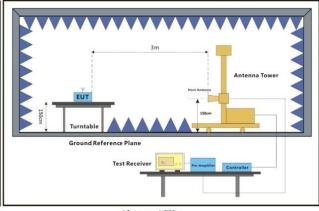
Operating Environment:

Temperature: 23.2 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode Keep the EUT in transmitting with modulation mode.

#### 7.2.2 Test Setup Diagram





30MHz-1GHz

Above 1GHz

#### 7.2.3 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.

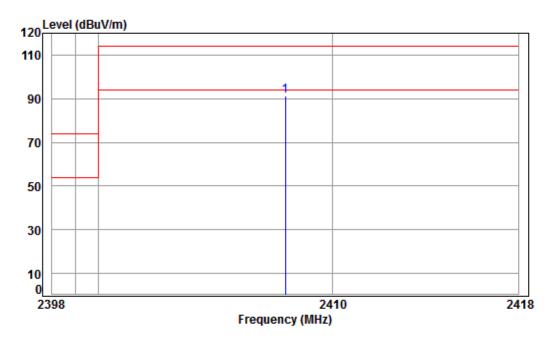
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



Report No.: SZEM180400332002

Page: 16 of 42

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



Condition: 3m HORIZONTAL Job No : 03320CR/03325CR

Mode : 2408 Field strength

Cable Ant Preamp Read Limit Over
Freq Loss Factor Factor Level Level Line Limit Remark

MHz dB dB/m dB dBuV dBuV/m dBuV/m dB

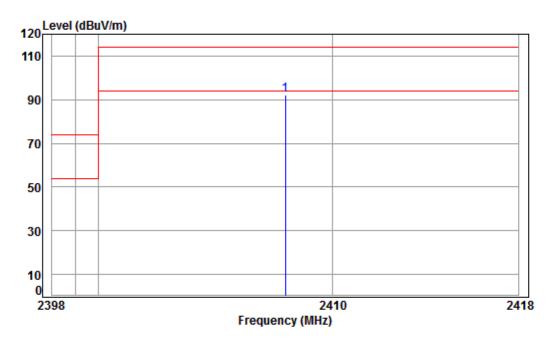
1 pp 2408.000 5.50 29.13 41.88 98.34 91.09 114.00 -22.91 Peak



Report No.: SZEM180400332002

Page: 17 of 42

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



Condition: 3m VERTICAL Job No : 03320CR/03325CR

Mode : 2408 Field strength

Cable Ant Preamp Read Limit Over
Freq Loss Factor Factor Level Level Line Limit Remark

MHz dB dB/m dB dBuV dBuV/m dBuV/m dB

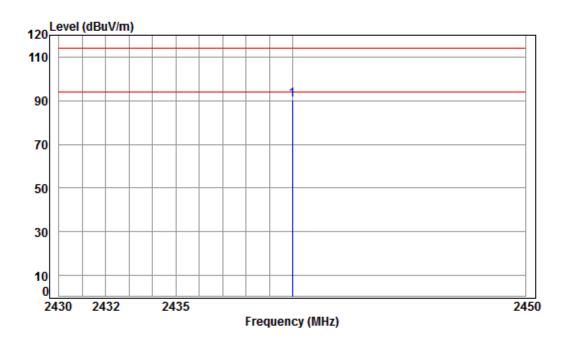
1 pp 2408.000 5.50 29.12 41.88 99.23 91.97 114.00 -22.03 Peak



Report No.: SZEM180400332002

Page: 18 of 42

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



Condition: 3m HORIZONTAL Job No : 03320CR/03325CR

Mode : 2440 Field strength

Cable Ant Preamp Read Limit Over Freq Loss Factor Factor Level Level Line Limit Remark

MHz dB dB/m dB dBuV dBuV/m dBuV/m dB

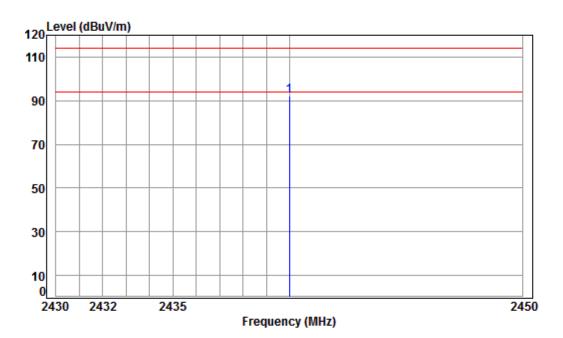
1 pp 2440.000 5.54 29.23 41.89 97.26 90.14 114.00 -23.86 Peak



Report No.: SZEM180400332002

Page: 19 of 42

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



Condition: 3m VERTICAL Job No : 03320CR/03325CR

Mode : 2440 Field strength

Cable Ant Preamp Read Limit Over
Freq Loss Factor Factor Level Level Line Limit Remark

MHz dB dB/m dB dBuV dBuV/m dBuV/m dB

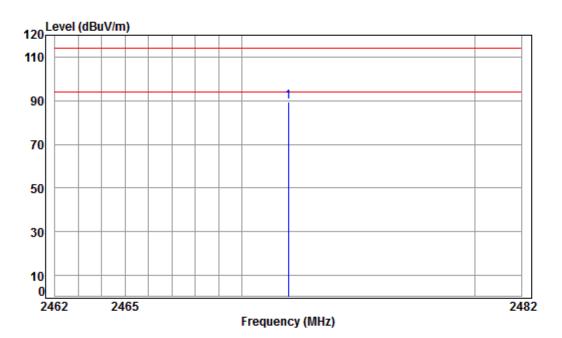
1 pp 2440.000 5.55 29.24 41.90 99.05 91.94 114.00 -22.06 Peak



Report No.: SZEM180400332002

Page: 20 of 42

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



Condition: 3m HORIZONTAL Job No : 03320CR/03325CR

Mode : 2472 Field strength

Cable Ant Preamp Read Limit Over
Freq Loss Factor Factor Level Level Line Limit Remark

MHz dB dB/m dB dBuV dBuV/m dBuV/m dB

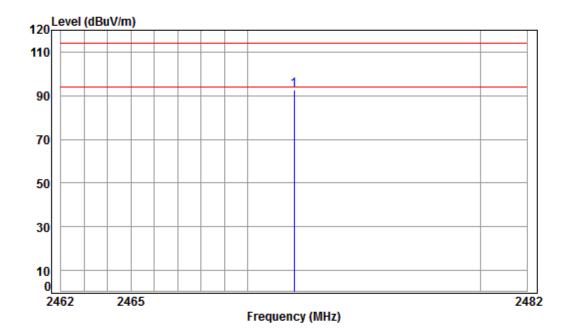
1 pp 2472.000 5.58 29.30 41.90 96.52 89.50 114.00 -24.50 Peak



Report No.: SZEM180400332002

Page: 21 of 42

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



Condition: 3m VERTICAL

Job No : 03320CR/03325CR

Mode : 2472 Field strength

Cable Ant Preamp Limit 0ver Read Loss Factor Factor Level Level Line Limit Remark MHz dBuV dBuV/m dBuV/m dB dB/m dB dB

1 pp 2472.000 5.57 29.30 41.90 99.58 92.55 114.00 -21.45 Peak

#### Remark:

As shown in this section, 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. So, only above measurement data were shown in the report.



Report No.: SZEM180400332002

Page: 22 of 42

#### 7.3 Restricted Band Around Fundamental Frequency

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209

Test Method: ANSI C63.10 (2013) Section 6.10.5

Measurement Distance: 3m

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
Above 1GHz	74.0	Peak Value

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.



Report No.: SZEM180400332002

Page: 23 of 42

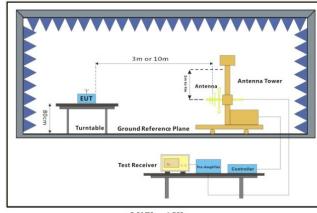
#### 7.3.1 E.U.T. Operation

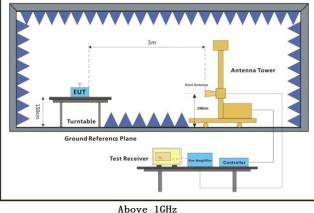
Operating Environment:

Temperature: 23.4 °C Humidity: 53 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode Keep the EUT in transmitting with modulation mode.

#### 7.3.2 Test Setup Diagram





30MHz-1GHz

#### 7.3.3 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.

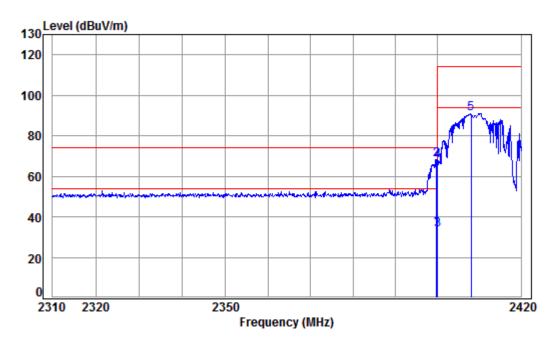
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



Report No.: SZEM180400332002

Page: 24 of 42

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



Condition: 3m HORIZONTAL
Job No : 03320CR/03325CR
Mode : 2408 Band edge

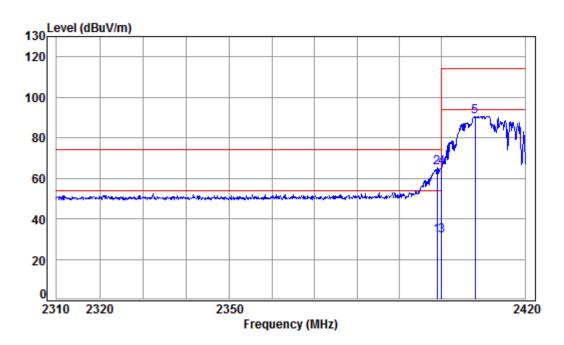
	_									
			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	av	2399.821	5.49	29.11	41.88	41.73	34.45	54.00	-19.55	Averag
2	pp	2399.821	5.49	29.11	41.88	75.73	68.45	74.00	-5.55	peak
3		2400.000	5.49	29.11	41.88	41.02	33.74	54.00	-20.26	Averag
4		2400.000	5.49	29.11	41.88	75.02	67.74	74.00	-6.26	peak
5		2408.000	5.50	29.14	41.88	98.14	90.90	114.00	-23.10	peak



Report No.: SZEM180400332002

Page: 25 of 42

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



Condition: 3m VERTICAL

Job No : 03320CR/03325CR Mode : 2408 Band edge

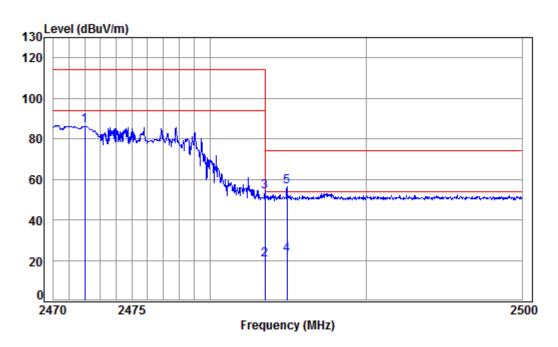
				- 0						
			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	_									
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		2398.927	5.49	29.10	41.88	38.71	31.42	54.00	-22.58	Averag
2		2398.927	5.49	29.10	41.88	72.71	65.42	74.00	-8.58	peak
3	av	2400.000	5.49	29.11	41.88	38.75	31.47	54.00	-22.53	Average
4	pp	2400.000	5.49	29.11	41.88	72.75	65.47	74.00	-8.53	peak
5		2408.000	5.50	29.13	41.88	97.93	90.68	114.00	-23.32	peak



Report No.: SZEM180400332002

Page: 26 of 42

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



Condition: 3m HORIZONTAL
Job No : 03320CR/03325CR
Mode : 2472 Band edge

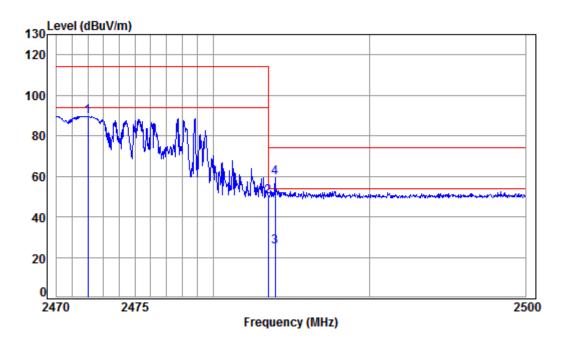
	_			0-						
			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	_									
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		2472.000	5.58	29.31	41.91	93.49	86.47	114.00	-27.53	peak
2		2483.500	5.60	29.35	41.91	27.01	20.05	54.00	-33.95	Average
3		2483.500	5.60	29.35	41.91	61.01	54.05	74.00	-19.95	peak
4	av	2484.895	5.60	29.36	41.91	29.45	22.50	54.00	-31.50	Averag
5	pp	2484.895	5.60	29.36	41.91	63.45	56.50	74.00	-17.50	peak



Report No.: SZEM180400332002

Page: 27 of 42

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



Condition: 3m VERTICAL

Job No : 03320CR/03325CR Mode : 2472 Band edge

				- 0						
			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		2472.000	5.58	29.31	41.91	96.61	89.59	114.00	-24.41	peak
2		2483.500	5.60	29.35	41.91	56.93	49.97	74.00	-24.03	peak
3	av	2483.935	5.60	29.35	41.91	32.32	25.36	54.00	-28.64	Average
4	ממ	2483.935	5.60	29.35	41.91	66.32	59.36	74.00	-14.64	peak



Report No.: SZEM180400332002

Page: 28 of 42

#### Remark:

1) 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

2) As shown in this section, 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. So, only above measurement data were shown in the report.



Report No.: SZEM180400332002

Page: 29 of 42

#### 7.4 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)

Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	-	300
0.490-1.705	24000/F(kHz)	-	-	30
1.705-30	30	-	-	30
30-88	100	40.0	QP	3
88-216	150	43.5	QP	3
216-960	200	46.0	QP	3
960-1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3



Report No.: SZEM180400332002

Page: 30 of 42

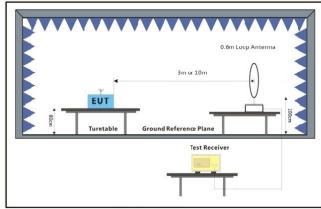
#### 7.4.1 E.U.T. Operation

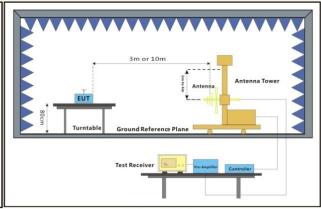
Operating Environment:

Temperature: 23.2 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode\_Keep the EUT in transmitting with modulation mode.

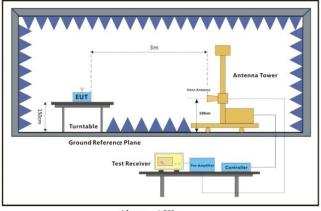
#### 7.4.2 Test Setup Diagram





Below 30MHz

30MHz-1GHz



Above 1GHz

#### 7.4.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

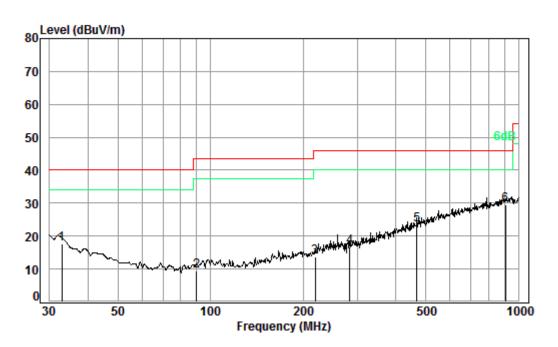


Report No.: SZEM180400332002

Page: 31 of 42

#### Radiated emission below 1GHz

Mode: b; Polarization: Horizontal



Condition: 3m HORIZONTAL

Job No. : 03320CR

Test mode: b

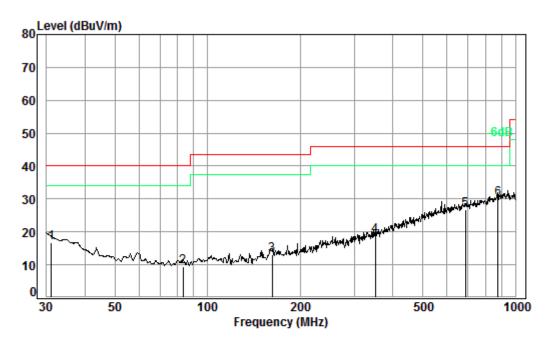
	Cablo Freq Los			Preamp Factor				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	32.86	0.60	20.92	27.66	23.71	17.57	40.00	-22.43
2	90.22	1.10	13.12	27.51	22.78	9.49	43.50	-34.01
3	219.08	1.51	17.17	27.53	22.54	13.69	46.00	-32.31
4	282.99	1.83	18.92	27.54	23.42	16.63	46.00	-29.37
5	468.88	2.49	23.97	27.84	24.95	23.57	46.00	-22.43
6 pp	909.67	3.61	29.85	27.05	22.98	29.39	46.00	-16.61



Report No.: SZEM180400332002

Page: 32 of 42

Mode: b; Polarization: Vertical



Condition: 3m VERTICAL Job No. : 03320CR

Test mode: b

		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	31.07	0.60	21.89	27.67	21.85	16.67	40.00	-23.33
2	83.23	1.10	12.37	27.50	23.61	9.58	40.00	-30.42
3	162.04	1.34	15.54	27.52	23.67	13.03	43.50	-30.47
4	350.48	2.06	21.11	27.64	23.36	18.89	46.00	-27.11
5	689.56	2.88	27.77	27.57	23.57	26.65	46.00	-19.35
6 рр	878.32	3.52	29.53	27.15	24.17	30.07	46.00	-15.93

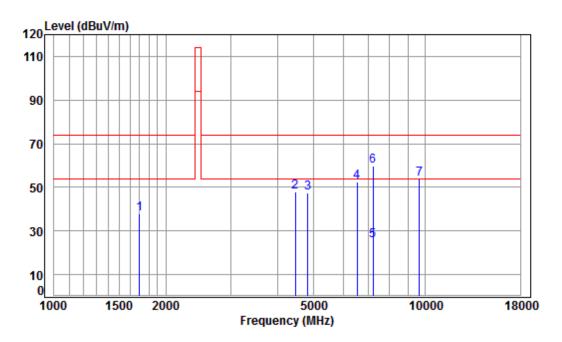


Report No.: SZEM180400332002

Page: 33 of 42

Above 1GHz

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



Condition: 3m HORIZONTAL
Job No : 03320CR/03325CR
Mode : 2408 TX RSE

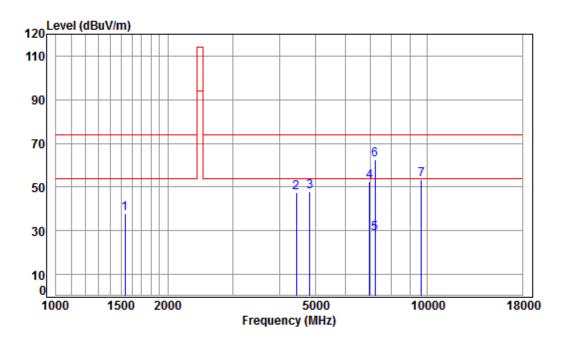
ouc	. 2.10	0 17 11							
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1697.129	5.23	26.66	41.53	47.56	37.92	74.00	-36.08	peak
2	4469.214	7.53	33.60	42.41	49.10	47.82	74.00	-26.18	peak
3	4816.000	7.90	34.18	42.47	47.92	47.53	74.00	-26.47	peak
4	6545.263	11.41	35.23	41.18	46.99	52.45	74.00	-21.55	peak
5 a	v 7224.000	10.07	36.41	40.70	19.97	25.75	54.00	-28.25	Average
6 p	p 7224.000	10.07	36.41	40.70	53.97	59.75	74.00	-14.25	peak
7	9632.000	10.76	37.53	37.70	43.06	53.65	74.00	-20.35	peak



Report No.: SZEM180400332002

Page: 34 of 42

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



Condition: 3m VERTICAL
Job No : 03320CR/03325CR
Mode : 2408 TX RSE

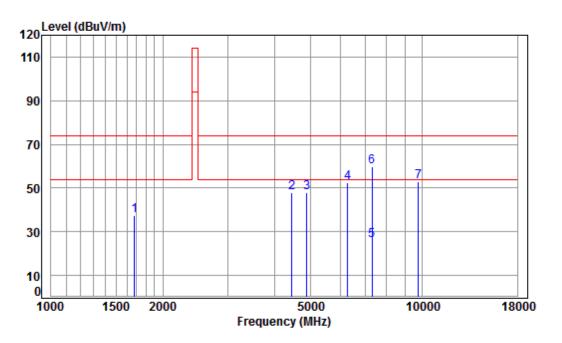
	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	——dB	
1	1533.841	5.44	25.96	41.43	47.81	37.78	74.00	-36.22	peak
2	4430.628	7.48	33.60	42.41	48.84	47.51	74.00	-26.49	peak
3	4816.000	7.90	34.18	42.47	48.42	48.03	74.00	-25.97	peak
4	6974.982	10.20	36.43	40.87	46.92	52.68	74.00	-21.32	peak
5 av	7224.000	10.07	36.41	40.70	22.79	28.57	54.00	-25.43	Average
6 pp	7224.000	10.07	36.41	40.70	56.79	62.57	74.00	-11.43	peak
7	9632.000	10.76	37.53	37.70	42.77	53.36	74.00	-20.64	peak



Report No.: SZEM180400332002

Page: 35 of 42

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



Condition: 3m HORIZONTAL
Job No : 03320CR/03325CR
Mode : 2440 TX RSE

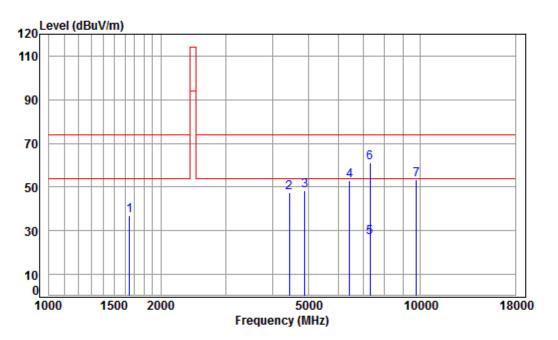
Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Level Line Limit Remark dBuV dBuV/m dBuV/m MHz dB dB/m dΒ dB 1677.621 5.25 26.58 41.52 47.30 37.61 74.00 -36.39 peak 1 2 33.60 42.41 49.02 47.72 74.00 -26.28 peak 4456.315 7.51 3 7.97 34.29 42.48 48.18 47.96 74.00 -26.04 peak 4880.000 4 6285.695 11.13 34.93 41.38 47.96 52.64 74.00 -21.36 peak 5 av 7320.000 10.05 36.37 40.63 20.18 25.97 54.00 -28.03 Average 6 pp 7320.000 10.05 36.37 40.63 54.19 59.98 74.00 -14.02 peak 7 9760.000 10.82 37.55 37.53 42.29 53.13 74.00 -20.87 peak



Report No.: SZEM180400332002

Page: 36 of 42

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



Condition: 3m VERTICAL
Job No : 03320CR/03325CR
Mode : 2440 TX RSE

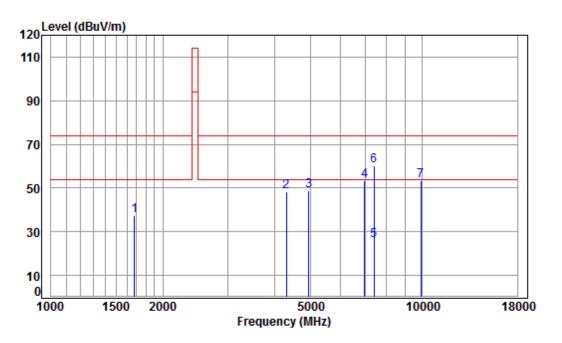
out		. 244	0 I/ II	JL						
			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	-	MU-					dD: M/m	dD: \// /m		
		MHz	dB	ub/m	dB	abuv	ubuv/m	ubuv/m	dB	
1		1648.778	5.29	26.46	41.50	46.91	37.16	74.00	-36.84	peak
2		4430.628	7.48	33.60	42.41	48.84	47.51	74.00	-26.49	peak
3		4880.000	7.97	34.29	42.48	48.49	48.27	74.00	-25.73	peak
4		6451.353	11.45	35.06	41.25	47.77	53.03	74.00	-20.97	peak
5	av	7320.000	10.05	36.37	40.63	21.26	27.05	54.00	-26.95	Average
6	pp	7320.000	10.05	36.37	40.63	55.27	61.06	74.00	-12.94	peak
7		9760.000	10.82	37.55	37.53	42.42	53.26	74.00	-20.74	peak



Report No.: SZEM180400332002

Page: 37 of 42

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



Condition: 3m HORIZONTAL
Job No : 03320CR/03325CR
Mode : 2472 TX RSE

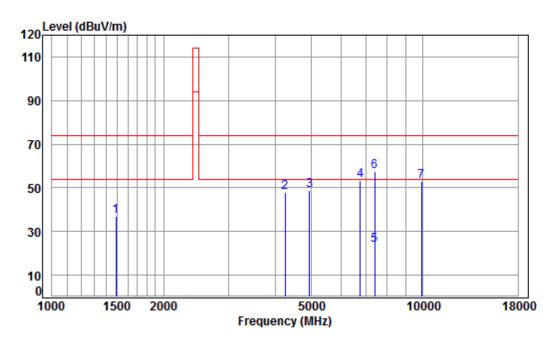
Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Level Line Limit Remark dBuV dBuV/m dBuV/m MHz dB dB/m dΒ dB 1677.621 5.25 26.58 41.52 46.96 37.27 74.00 -36.73 peak 1 2 7.34 48.33 74.00 -25.67 peak 4304.400 33.60 42.38 49.77 3 8.03 34.40 42.49 48.77 48.71 74.00 -25.29 peak 4944.000 6974.982 10.20 36.43 40.87 47.45 53.21 74.00 -20.79 peak 5 av 7416.000 10.02 36.33 40.57 20.37 26.15 54.00 -27.85 Average 6 pp 7416.000 10.02 36.33 40.57 54.37 60.15 74.00 -13.85 peak 7 9888.000 10.89 37.58 37.35 42.22 53.34 74.00 -20.66 peak



Report No.: SZEM180400332002

Page: 38 of 42

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



Condition: 3m VERTICAL
Job No : 03320CR/03325CR

Mode : 2472 TX RSE

		Frea			Preamp Factor					Remark
	_									
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
		4.405 044	F 43	05.74		47.00	27.06	74.00	26.04	
1		1485.841	5.43	25.74	41.40	47.29	37.06	74.00	-36.94	peak
2		4242.641	7.27	33.60	42.37	49.18	47.68	74.00	-26.32	peak
3		4944.000	8.03	34.40	42.49	48.69	48.63	74.00	-25.37	peak
4		6776.265	10.75	35.89	41.01	47.55	53.18	74.00	-20.82	peak
5	av	7416.000	10.02	36.33	40.57	17.87	23.65	54.00	-30.35	Average
6	pp	7416.000	10.02	36.33	40.57	51.87	57.65	74.00	-16.35	peak
7		9888.000	10.89	37.58	37.35	41.74	52.86	74.00	-21.14	peak

#### Remark:

- 1) 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
- 2) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

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Report No.: SZEM180400332002

Page: 39 of 42

3) As shown in this section, 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. So, only above measurement data were shown in the report.



Report No.: SZEM180400332002

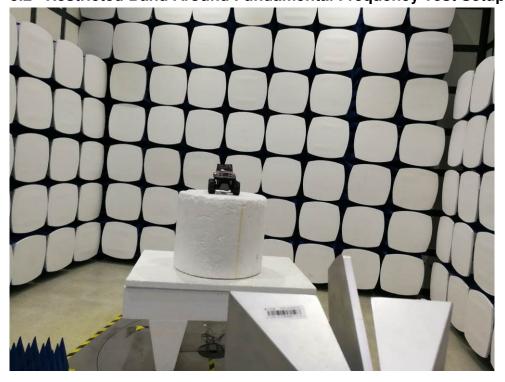
Page: 40 of 42

### 8 Photographs

#### 8.1 Field Strength of the Fundamental Signal (15.249(a)) Test Setup



#### 8.2 Restricted Band Around Fundamental Frequency Test Setup



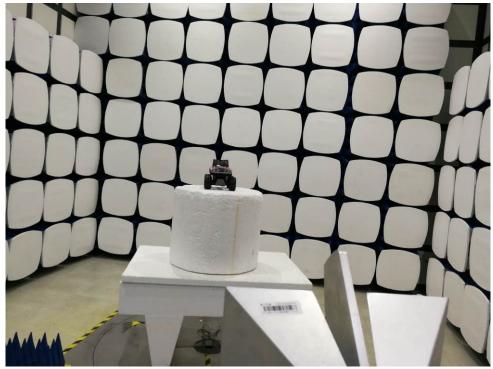
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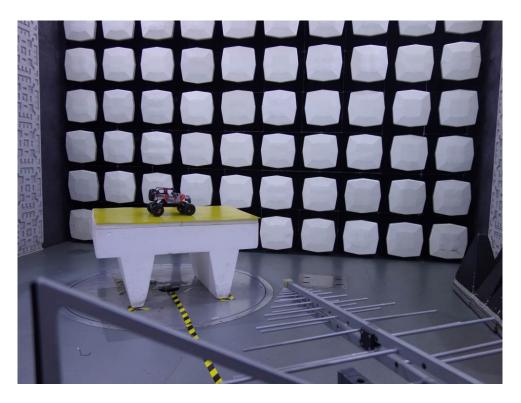


Report No.: SZEM180400332002

Page: 41 of 42

### 8.3 Radiated Emissions Test Setup







Report No.: SZEM180400332002

Page: 42 of 42

#### 8.4 EUT Constructional Details (EUT Photos)

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1804003320CR.

- End of the Report -