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Page: 1 of 26

### TEST REPORT

Application No.: SZEM1706006068CR

**Applicant:** GUANGDONG CREATIVE DOUBLE STAR TECHNOLOGY CO., LTD **Address of Applicant:** Yangdongpian industrial area, Dongwan, Lianxia, Chenghai, Shantou,

Guangdong, China

Manufacturer: GUANGDONG CREATIVE DOUBLE STAR TECHNOLOGY CO., LTD Address of Manufacturer: Yangdongpian industrial area, Dongwan, Lianxia, Chenghai, Shantou,

Guangdong, China

**Factory:** GUANGDONG CREATIVE DOUBLE STAR TECHNOLOGY CO., LTD **Address of Factory:** Yangdongpian industrial area, Dongwan, Lianxia, Chenghai, Shantou,

Guangdong, China

**Equipment Under Test (EUT):** 

**EUT Name:** Remote Control Car Series **Model No.:** Please refer to section 2 **\*** 

Please refer to section 2 of this report which indicates which model was actually

tested and which were electrically identical.

FCC ID: 2AMOY27CDS

Standards: 47 CFR Part 15, Subpart C 15.227

**Date of Receipt**: 2017-06-16

**Date of Test**: 2017-06-16 to 2017-06-21

**Date of Issue**: 2017-07-27

Test Result : Pass\*

This report supersedes our previous report SZEM170600606801, issued on 2017-06-24, which is hereby deemed null and void.



Jack Zhang 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.: SZEM170600606802

Page: 2 of 26

Revision Record						
Version	sion Chapter Date Modifier					
01		2017-06-24		Original		
02		2017-07-27		New		

Authorized for issue by:		
	Brir Chen	
	Bill Chen /Project Engineer	
	Eric Fu	
	Eric Fu /Reviewer	



Report No.: SZEM170600606802

Page: 3 of 26

### 2 Test Summary

Radio Spectrum Technical Requirement					
Item	Standard	Method	Requirement	Result	
Antenna	47 CFR Part 15,	N/A	47 CFR Part 15,	Pass	
Requirement	Subpart C 15.227	IN/A	Subpart C 15.203	1 055	

Radio Spectrum Mat	ter Part			
Item	Standard	Method	Requirement	Result
20dB Bandwidth	47 CFR Part 15, Subpart C 15.227	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
Field Strength of the Fundamental Signal (15.227(a))	47 CFR Part 15, Subpart C 15.227	ANSI C63.10 (2013) Section 6.4	47 CFR Part 15, Subpart C 15.227(a)	Pass
Radiated Emissions (9kHz-30MHz)	47 CFR Part 15, Subpart C 15.227	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.227(b) & C 15.209	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart C 15.227	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.227(b) & C 15.209	Pass



Report No.: SZEM170600606802

Page: 4 of 26

#### **Declaration of EUT Family Grouping:**

```
Model No.: 1061, 859, 860, 861, 886, 887, 910, 972, 973, 975, 976, 986, 987, 988, 989, 901, 906, 911,
          923, 928, 929, 933, 935, 939, 950, 955, 956, 960, 961, 966, 967, 971, 977, 980, 981, 985,
          991, 993 (A), 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1005, 1006, 1007, 1010, 1011,
          1015, 1016, 1019, 1020, 1023, 1025, 1028, 1029, 1032, 1036, 1037, 1038, 1039, 1050,
          1051, 1052, 1053,
          1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1065, 1066, 1067, 1068, 1069,
          1070, 1071, 1072, 1075, 1076, 1077, 1078, 1100 (A), 1101 (A),
          1102 (A), 1103 (A), 1105 (A), 1106 (A), 1107 (A), 1108 (A), 1109 (A), 1110 (A), 1112 (A),
          1122 (A), 1123 (A), 1125(A), 1126 (A), 1127 (A), 1128 (A), 1129 (A),
          1130 (A), 1137W(A), 1137L(A), 1138 (A), 1139 (A), 1150 (A), 1151 (A),
          1152 (A), 1153 (A), 1155 (A), 1156 (A), 1157 (A), 1158 (A),
          1159 (A), 1160 (A), 1161 (A), 1162 (A), 1163 (A), 1165 (A),
          1166 (A), 1167 (A), 1168 (A), 1169 (A), 1170 (A), 1171 (A),
          1172 (A), 1173 (A), 1175 (A), 1176 (A), 1177 (A), 1178 (A),
          1179 (A), 1180 (A), 1181 (A), 1182 (A), 1183 (A), 1185 (A),
          1186 (A), 1187 (A), 1188 (A), 1189 (A), 1190 (A), 1191 (A),
          1192 (A), 1193 (A), 1195 (A), 1196 (A), 1197 (A), 1198 (A),
          1199 (A), 1200 (A), 1201 (A), 1202 (A), 1203 (A), 1205 (A),
         1206 ( A ) , 1207 ( A ) , 1208 ( A ) , 1209 ( A ) , 1210 ( A ) , 1211 ( A ) , 1212 ( A ) ,
         1213 ( A ) , 1215 ( A ) , 1216 ( A ) , 1217 ( A ) , 1218 ( A ) , 1219 ( A ) , 1220 ( A ) ,
         1221 ( A ) , 1222 ( A ) , 1223 ( A ) , 1225 ( A ) , 1226 ( A )
```

About all models for 27MHz, only the model 1061 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on number and color.



Report No.: SZEM170600606802

Page: 5 of 26

### 3 Contents

		Page
1	COVER PAGE	1
2	TEST SUMMARY	3
3	B CONTENTS	5
4		
	4.1 DETAILS OF E.U.T.	
	4.2 DESCRIPTION OF SUPPORT UNITS	
	4.3 MEASUREMENT UNCERTAINTY	
	4.5 Test Facility	
	4.6 DEVIATION FROM STANDARDS	
	4.7 ABNORMALITIES FROM STANDARD CONDITIONS	
_		
5	EQUIPMENT LIST	δ
6	RADIO SPECTRUM TECHNICAL REQUIREMENT	10
_		
	6.1 ANTENNA REQUIREMENT	
	6.1.2 Conclusion	
_		
7		
	7.1 20DB BANDWIDTH	
	7.1.1 E.U.T. Operation	
	7.1.2 Test Setup Diagram	
	7.1.3 Measurement Procedure and Data	
	7.2.1 E.U.T. Operation	
	7.2.2 Test Setup Diagram	
	7.2.3 Measurement Procedure and Data	
	7.3 RADIATED EMISSIONS(9KHz-30MHz)	16
	7.3.1 E.U.T. Operation	
	7.3.2 Test Setup Diagram	
	7.3.3 Measurement Procedure and Data	
	7.4 RADIATED EMISSIONS(30MHz-1GHz)	
	7.4.1 E.U.T. Operation	
	7.4.3 Measurement Procedure and Data	
_		
8		
	8.1 RADIATED EMISSIONS(9KHz-30MHz) TEST SETUP	
	8.2 RADIATED EMISSIONS(30MHz-1GHz) TEST SETUP	
	8.3 EUT CONSTRUCTIONAL DETAILS	26



Report No.: SZEM170600606802

Page: 6 of 26

### 4 General Information

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

Product Name: Remote Control Car Series

Model No.: 1061

Operation Frequency 27.145MHz

Modulation Type: ASK
Antenna Type: Integral
Antenna Gain: 0dBi

Power supply: TX:9.0V DC (9.0V x 1 "6LP3146" Size Battery)

### 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	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	DE Dadistad saves	4.5dB (below 1GHz)
7	RF Radiated power	4.8dB (above 1GHz)
0	Dadistad Courieus assissias test	4.5dB (30MHz-1GHz)
8	Radiated Spurious emission test	4.8dB (1GHz-18GHz)
9	Temperature test	1℃
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	3%



Report No.: SZEM170600606802

Page: 7 of 26

#### 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.

#### VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

#### • FCC - Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

#### 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.: SZEM170600606802

Page: 8 of 26

### 5 Equipment List

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2016-10-09	2017-10-09
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2016-10-09	2017-10-09
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2016-10-09	2017-10-09

Field Strength of the Fundamental Signal (15.227(a))						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-05-10	2018-05-10	
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09	
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01	
Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17	
Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24	

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2017-05-10	2018-05-10
EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESCI	SEM004-01	2017-04-14	2018-04-13
Trilog-Broadband Antenna (30M-1GHz)	Schwarzbeck	VULB9168	SEM003-17	2016-01-26	2019-01-26
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-03	2017-06-05	2018-06-04
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2015-08-14	2018-08-14



Report No.: SZEM170600606802

Page: 9 of 26

Radiated Emissions(30MHz-1GHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-05-10	2018-05-10	
EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2016-10-09	2017-10-09	
BiConiLog Antenna	ETC LINDODEN	3142C	SEM003-01	2014-11-01	2017-11-01	
(26-3000MHz)	ETS-LINDGREN	31420	3EIVI003-01	2014-11-01	2017-11-01	
Double-ridged horn	ETC LINDODEN	0117	CEM000 11	2015 10 17	0010 10 17	
(1-18GHz)	ETS-LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17	
Horn Antenna	ETC LINDODEN	2160	CEM002 10	0014 11 04	0017 11 04	
(18-26GHz)	ETS-LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24	

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	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2016-10-12	2017-10-12
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2016-10-12	2017-10-12
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2017-04-18	2018-04-18



Report No.: SZEM170600606802

Page: 10 of 26

### 6 Radio Spectrum Technical Requirement

#### 6.1 Antenna Requirement

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

#### 6.1.2 Conclusion

#### Standard Requirment:

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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an 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 0dBi.



Report No.: SZEM170600606802

Page: 11 of 26

### 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

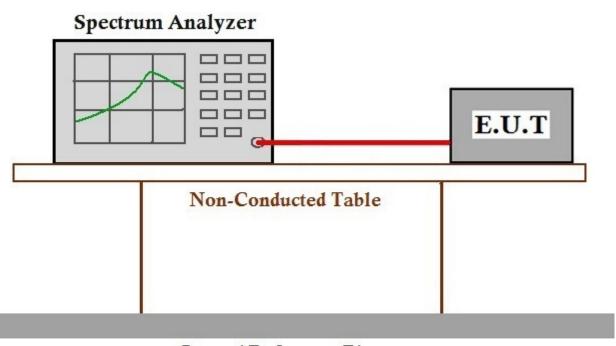
#### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1005 mbar

Test mode a: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

Mode	Frequency (MHz)	-20dB Bandwidth(KHz)	Limit	Conclusion
Tx	27.145	16.41	N/A	Pass



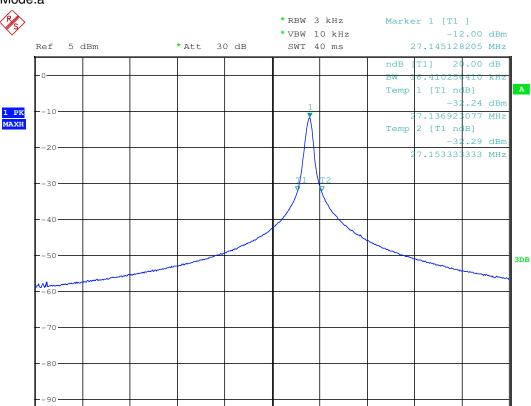
Report No.: SZEM170600606802

Page: 12 of 26

Stop 27.28 MHz

#### Mode:a

Start 26.96 MHz



32 kHz/



Report No.: SZEM170600606802

Page: 13 of 26

### 7.2 Field Strength of the Fundamental Signal (15.227(a))

Test Requirement 47 CFR Part 15, Subpart C 15.227(a)
Test Method: ANSI C63.10 (2013) Section 6.4

Measurement Distance: 3m

Limit: ≤ 10000 microvolts/meter at 3 meters, the emission limit is based on

measurement instrumentation employing an average Detector:. The

provisions in § 15.35 for limiting peak emissions apply.

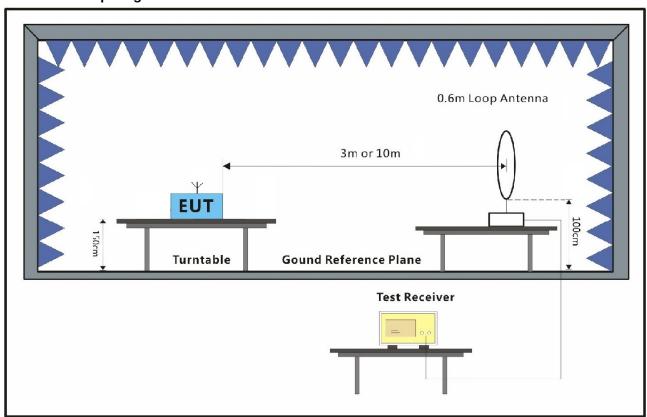
#### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1005 mbar

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

#### 7.2.2 Test Setup Diagram



#### 7.2.3 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.

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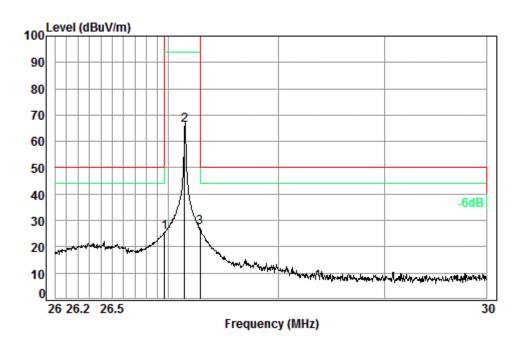


Report No.: SZEM170600606802

Page: 14 of 26

Detector: Peak

Mode:a; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : 06068CR

Test mode: a

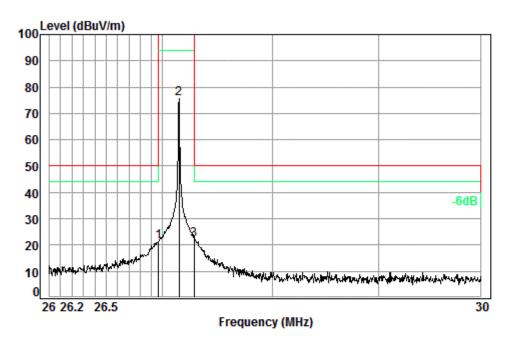
	Freq			Preamp Factor				
_	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	26.96	0.60	20.68	27.37	31.54	25.45	50.00	-24.55
2	27.14	0.60	20.56	27.37	72.54	66.33	100.00	-33.67
3	27.28	0.60	20.47	27.37	33.61	27.31	100.00	-72.69



Report No.: SZEM170600606802

Page: 15 of 26

Mode:a; Polarization:Vertical



Condition: 3m VERTICAL Job No. : 06068CR

Test mode: a

		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	26.96	0.60	20.68	27.37	27.41	21.32	50.00	-28.68
2 pp	27.14	0.60	20.56	27.37	81.90	75.69	100.00	-24.31
3	27.28	0.60	20.47	27.37	28.27	21.97	100.00	-78.03

#### 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) 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 the above measurement data were shown in the report.



Report No.: SZEM170600606802

Page: 16 of 26

### 7.3 Radiated Emissions(9kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.227(b) & C 15.209

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

Measurement Distance: 10m

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		

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 and 110-490kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.



Report No.: SZEM170600606802

Page: 17 of 26

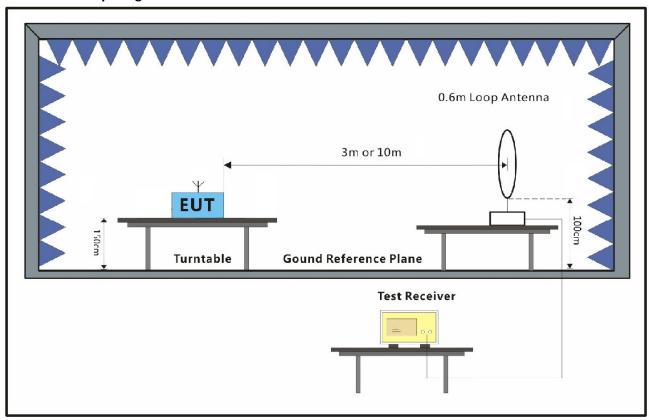
### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 54 % RH Atmospheric Pressure: 1005 mbar

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

#### 7.3.2 Test Setup Diagram



#### 7.3.3 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.

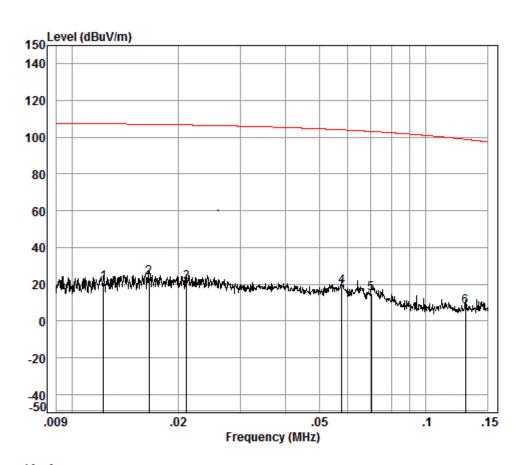


Report No.: SZEM170600606802

Page: 18 of 26

Mode:a;

Detector: QP 9KHz-0.15MHz



Condition: 10m Job No. : 06068CR

Test Mode: a

	Freq	Cable Loss		Preamp Factor			Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.01	0.27	18.03	32.48	34.78	20.60	104.91	-84.31
2	0.02	0.24	16.18	32.49	39.63	23.56	102.32	-78.76
3	0.02	0.21	14.85	32.49	38.37	20.94	100.22	-79.28
4 pp	0.06	0.11	12.29	32.51	38.51	18.40	91.45	-73.05
5	0.07	0.09	12.15	32.51	35.34	15.07	89.77	-74.70
6	0.13	0.06	11.81	32.51	28.36	7.72	84.44	-76.72

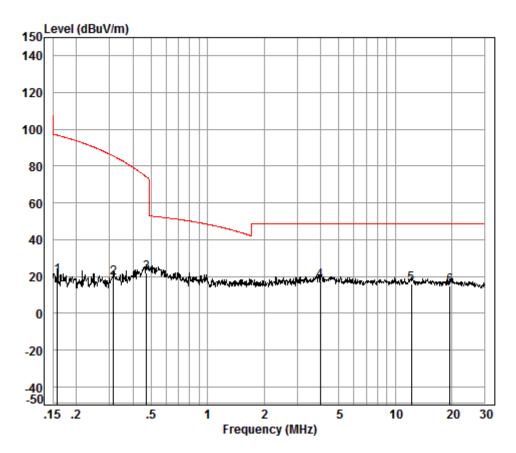


Report No.: SZEM170600606802

Page: 19 of 26

Mode:a;

0.15MHz-30MHz



Condition: 10m Job No. : 06068CR

Test Mode: a

		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	0.16	0.07	11.73	32.50	41.02	20.32	82.66	-62.34
2	0.31	0.09	11.90	32.52	39.78	19.25	76.73	-57.48
3	0.47	0.11	11.72	32.49	42.84	22.18	73.19	-51.01
4 pp	3.99	0.40	12.10	32.47	37.64	17.67	48.63	-30.96
5	12.12	0.54	10.56	32.50	37.40	16.00	48.63	-32.63
6	19.53	0.67	9.57	32.52	37.06	14.78	48.63	-33.85



Report No.: SZEM170600606802

Page: 20 of 26

### 7.4 Radiated Emissions(30MHz-1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.227(b) & C 15.209

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

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
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 above 1000MHz. Radiated emission limits above 1000MHz is based on measurements employing an average detector.



Report No.: SZEM170600606802

Page: 21 of 26

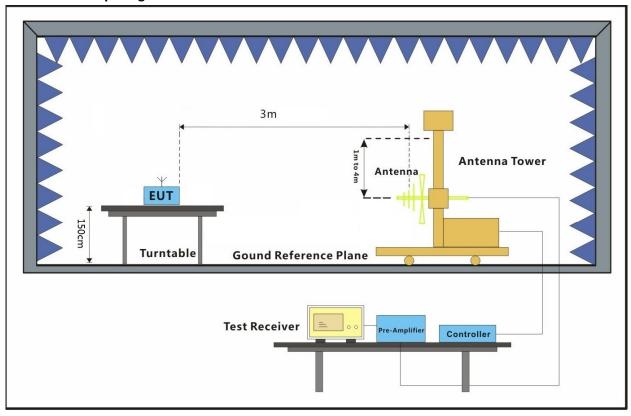
### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1005 mbar

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

#### 7.4.2 Test Setup Diagram





Report No.: SZEM170600606802

Page: 22 of 26

#### 7.4.3 Measurement Procedure and Data

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- d. 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.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

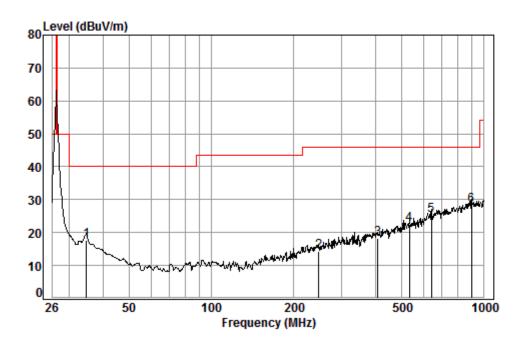


Report No.: SZEM170600606802

Page: 23 of 26

Detector: QP

Mode:a; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : 06068CR

Test mode: a

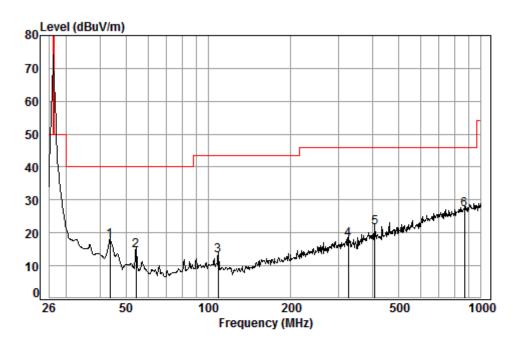
	Freq			Preamp Factor				Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	34.82	0.60	16.00	27.34	28.47	17.73	40.00	-22.27
2	248.04	1.66	12.24	26.54	27.07	14.43	46.00	-31.57
3	407.46	2.24	16.33	27.17	26.76	18.16	46.00	-27.84
4	531.85	2.63	18.61	27.65	28.89	22.48	46.00	-23.52
5	640.66	2.78	20.56	27.49	29.29	25.14	46.00	-20.86
6 pp	899.57	3.60	23.20	26.78	28.17	28.19	46.00	-17.81



Report No.: SZEM170600606802

Page: 24 of 26

Mode:a; Polarization:Vertical



Condition: 3m VERTICAL Job No. : 06068CR

Test mode: a

		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	43.50	0.68	11.56	27.31	32.59	17.52	40.00	-22.48
2	54.34	0.80	8.05	27.28	33.07	14.64	40.00	-25.36
3	108.72	1.23	8.66	27.14	30.22	12.97	43.50	-30.53
4	326.13	1.99	14.76	26.60	27.73	17.88	46.00	-28.12
5	407.46	2.24	16.33	27.17	30.06	21.46	46.00	-24.54
6 рр	870.50	3.49	22.89	26.92	27.57	27.03	46.00	-18.97



Report No.: SZEM170600606802

Page: 25 of 26

### 8 Photographs

### 8.1 Radiated Emissions(9kHz-30MHz) Test Setup



### 8.2 Radiated Emissions(30MHz-1GHz) Test Setup



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Report No.: SZEM170600606802

Page: 26 of 26

### 8.3 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1706006068CR.