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

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TEST REPORT

Application No.:	SZEM1704003895CR
Applicant:	ShenZhen FLYSKY Technology Co., Ltd
Address of Applicant:	ADD 16F, Huafeng Building, No. 6006 Shennan Road, Futian District, Shenzhen, Guangdong, China
Manufacturer:	ShenZhen FLYSKY Technology Co., Ltd
Address of Manufacturer:	ADD 16F, Huafeng Building, No. 6006 Shennan Road, Futian District, Shenzhen, Guangdong, China
Factory:	Dongguan Flysky RC Model technology Co., Ltd
Address of Factory:	West building 3, Huangjinyuan Ind Park, Qiaoli North Gate, Changping Town, Dongguan ,China
Equipment Under Test (EUT):	
EUT Name:	Digital propotional radio control system
Model No.:	FS-GS-GT2D, FS-GT2♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standards:	ETSI EN 301 489-1 V2.1.1 ETSI EN 301 489-17 V3.1.1
Date of Receipt:	2017-05-02
Date of Test:	2017-05-12 to 2017-06-15
Date of Issue:	2017-06-16
Test Result :	**Pass***

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

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The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

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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Revision Record				
Version	***Chapter***	***Date***	***Modifier***	***Remark***
01		*2017-06-16*		*Original*

Authorized for issue by:				
		Jacky Li **Jacky Li /Project Engineer**		
		Eric Fu **Eric Fu /Reviewer**		

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2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Radiated Disturbance (30MHz-1GHz)	ETSI EN 301 489-1 V2.1.1	EN 55032:2015	N/A	Pass

N/A: Not applicable

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	ETSI EN 301 489-1 V2.1.1	EN 61000-4-2:2009	4kV Contact Discharge 8kV Air Discharge	Pass
Radiated Immunity (80MHz-6GHz)	ETSI EN 301 489-1 V2.1.1	EN 61000-4-3:2006 +A1:2008+A2:2010	3V/m, 80%, 1kHz Amp. Mod.	Pass

N/A: Not applicable

Remark:

Model No.: FS-GS-GT2D, FS-GT2

Only the model FS-GT2 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, only different on product name and model No..

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4 General Information

4.1 Details of E.U.T.

Power supply: Transmitter: DC 12V by 8 x AA battery
Receiver: DC 4.5~6.0V

4.2 Description of Support Units

The EUT has been tested as an independent unit.

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4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radiated emission	4.5dB (30MHz-1GHz)
2	Radiated Immunity	1.64dB
3	ESD	6 %
4	Temperature test	1℃
5	Humidity test	3%
6	DC power test	0.5 %

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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

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5 Equipment List

Radiated Disturbance (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 (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-14

Electrostatic Discharge					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
ESD Ground Plane	SGS(3m*3m)	N/A	SEN006-01	N/A	N/A

Radiated Immunity (80MHz-6GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2014-06-10	2017-06-10
Signal Generator	Rohde & Schwarz	SMB100A	SEM006-11	2017-04-14	2018-04-14
Broadband Amplifier(80MHz-1GHz)	Rohde & Schwarz	BBA150-BC250	SEM005-12	2016-10-09	2017-10-09
Broadband Amplifier(800MHz-6GHz)	Rohde & Schwarz	BBA150-D30E30	SEM005-13	2017-01-20	2018-01-20
Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	2017-04-14	2018-04-14
Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-08	2017-04-14	2018-04-14
Log-periodic Antenna(0.07-3GHz)	Schwarzbeck	VUSLP9111 E	SEM003-19	N/A	N/A
Stacked Double Log-periodic Antenna (0.7-10.5GHz)	Schwarzbeck	STLP 9149	SEM003-24	N/A	N/A
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	SEM010-01	2016-10-09	2017-10-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2017-04-14	2018-04-14
Audio Analyzer	Rohde & Schwarz	UPV	SEM008-03	2016-10-09	2017-10-09

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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

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6 Emission Test Results

6.1 Radiated Disturbance (30MHz-1GHz)

Test Requirement: ETSI EN 301 489-1 V2.1.1

Test Method: EN 55032:2015

Frequency Range: 30MHz to 1GHz

Measurement Distance: 3m

6.1.1 E.U.T. Operation

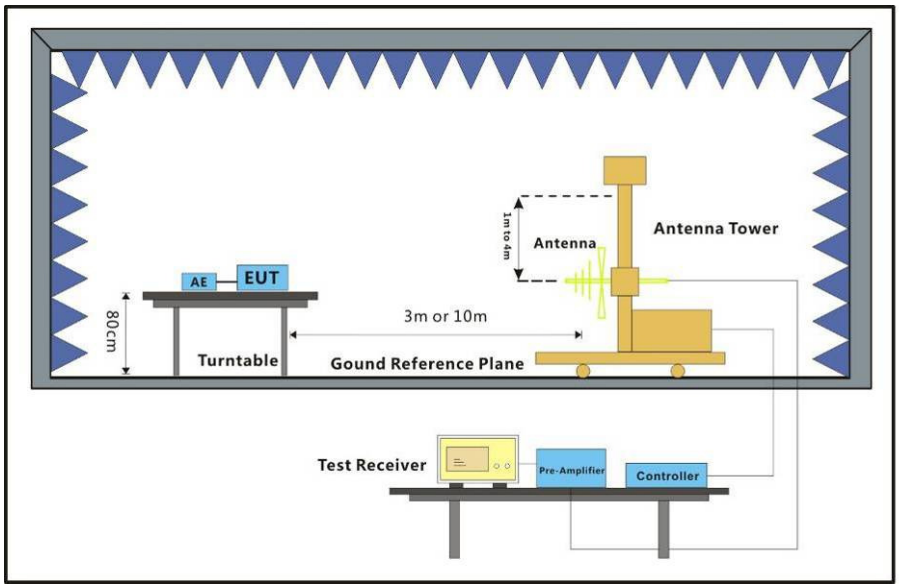
Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1015 mbar

Pretest these mode to find the worst case: a:Nornal working_Keep the EUT communicate with other auxiliary devices.
b:Idle_Keep the EUT standby.

The worst case for final test: a:Nornal working_Keep the EUT communicate with other auxiliary devices.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

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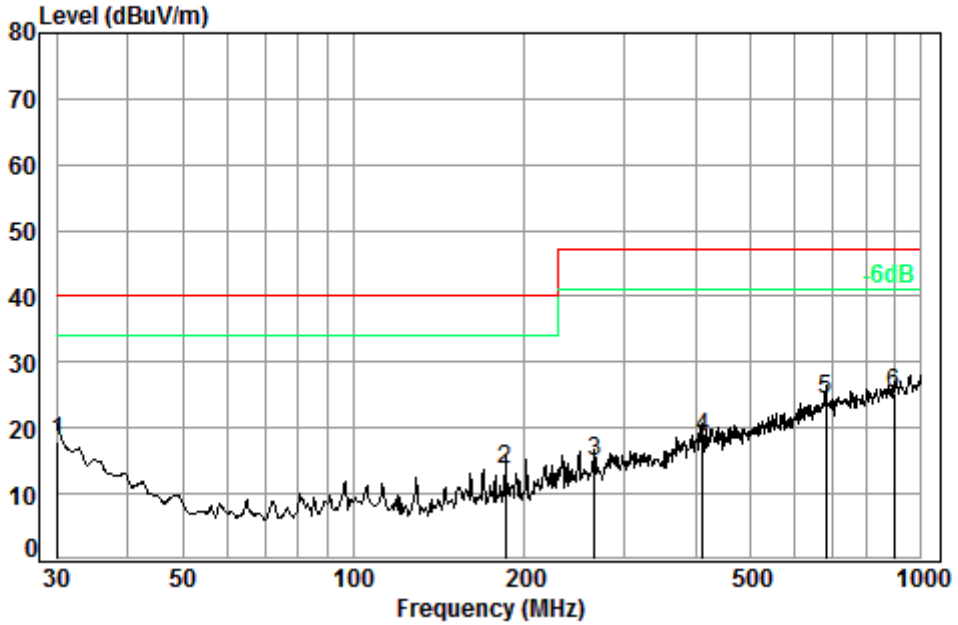
Mode:a; Polarization:Horizontal



Condition: 3m HORIZONTAL
Job No. : 03895CR
Test mode: a

	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	30.21	0.60	18.58	27.36	26.19	18.01	40.00	-21.99
2	185.14	1.38	10.00	26.75	29.06	13.69	40.00	-26.31
3	265.68	1.75	12.61	26.49	26.91	14.78	47.00	-32.22
4	411.82	2.25	16.35	27.21	27.28	18.67	47.00	-28.33
5	679.96	2.86	21.44	27.43	27.54	24.41	47.00	-22.59
6 pp	893.86	3.58	23.15	26.82	25.21	25.12	47.00	-21.88

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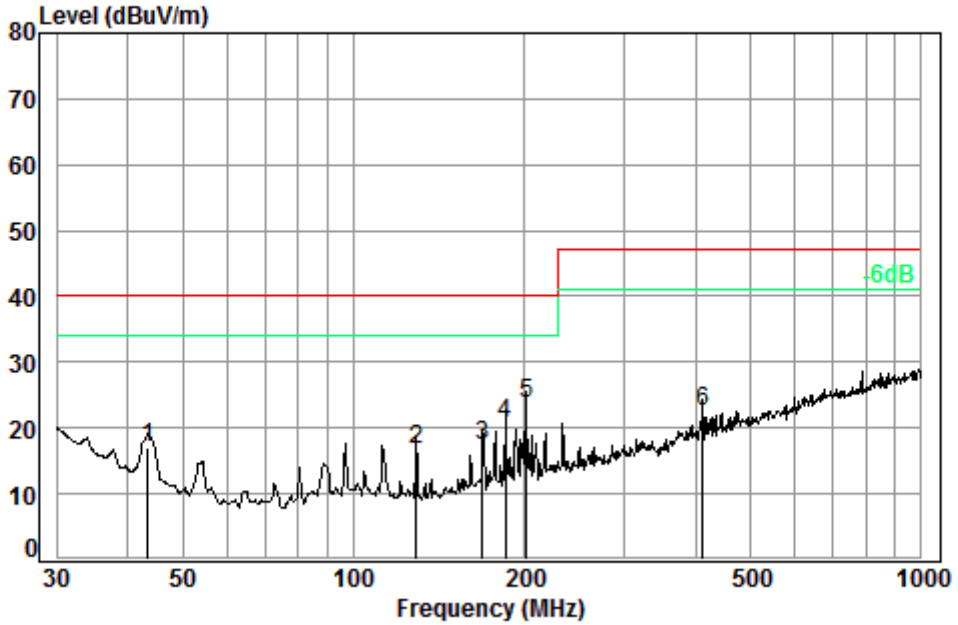
Mode:a; Polarization:Vertical



Condition: 3m VERTICAL
Job No. : 03895CR
Test mode: a

	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	43.51	0.68	11.56	27.31	32.23	17.16	40.00	-22.84
2	129.01	1.27	7.72	27.02	34.73	16.70	40.00	-23.30
3	169.01	1.35	9.51	26.82	33.43	17.47	40.00	-22.53
4	185.14	1.38	10.00	26.75	36.13	20.76	40.00	-19.24
5 pp	201.39	1.41	10.27	26.69	38.62	23.61	40.00	-16.39
6	411.82	2.25	16.35	27.21	31.03	22.42	47.00	-24.58

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7 Immunity Test Results

7.1 Performance Criteria Description in ETSI EN 301 489-1 V2.1.1

Criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Criterion B

After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.

If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

Criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

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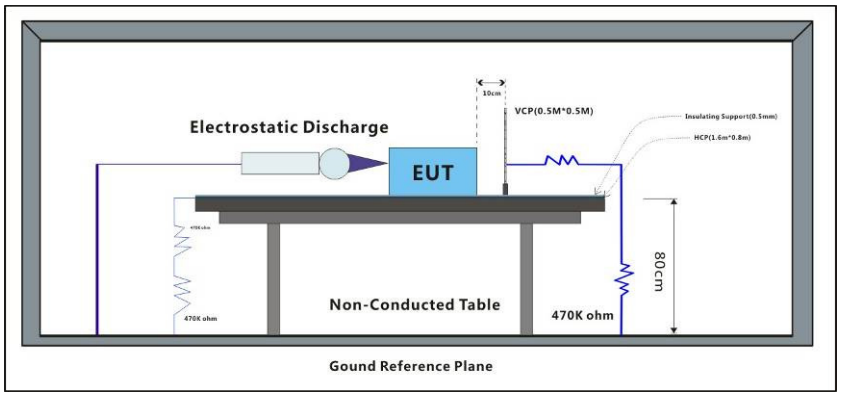
7.2 Electrostatic Discharge

Test Requirement: ETSI EN 301 489-1 V2.1.1
Test Method: EN 61000-4-2:2009
Performance Criterion: B
Discharge Impedance: 330Ω/150pF
Number of Discharge: Minimum 10 times at each test point
Discharge Mode: Single Discharge
Discharge Period: 1 second minimum

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 21 °C Humidity: 54 % RH Atmospheric Pressure: 1015 mbar

Test mode: a:Nornal working_Keep the EUT communicate with other auxiliary devices.
b:Idle_Keep the EUT standby.

7.2.3 Test Results:

Observations: Test Point:

1. All insulated enclosure and seams.
2. All accessible metal parts of the enclosure.
3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	A
Air Discharge	2,4,8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A

Results:

A: No degradation in the performance of the EUT was observed.

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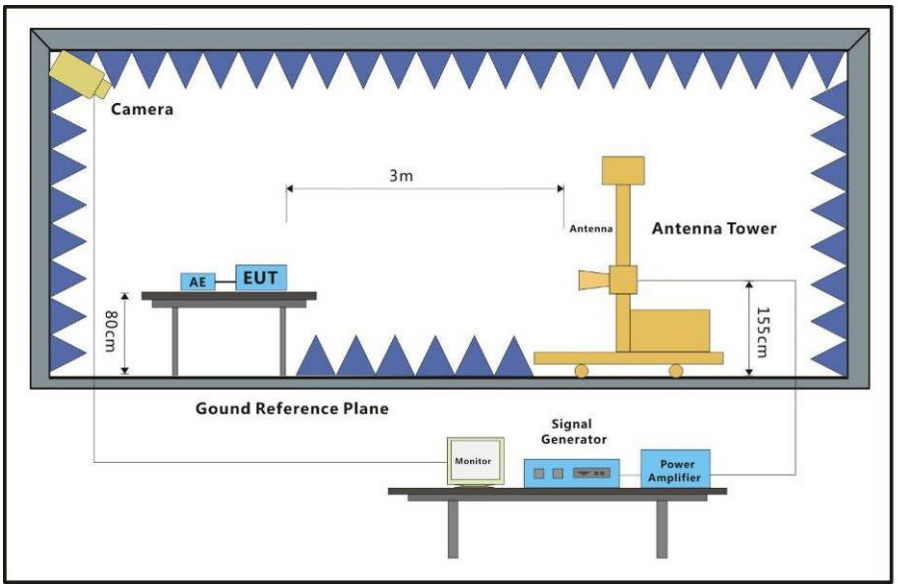
7.3 Radiated Immunity (80MHz-6GHz)

Test Requirement: ETSI EN 301 489-1 V2.1.1
Test Method: EN 61000-4-3:2006+A1:2008+A2:2010
Performance Criterion: A
Frequency Range: 80MHz to 6GHz
Antenna Polarisation: Vertical and Horizontal
Modulation 1kHz,80% Amp. Mod,1% increment

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 53 % RH Atmospheric Pressure: 1015 mbar

Test mode: a:Nornal working_Keep the EUT communicate with other auxiliary devices.
b:Idle_Keep the EUT standby.

7.3.3 Test Results:

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-6GHz	3	Front	2s	A
80MHz-6GHz	3	Back	2s	A
80MHz-6GHz	3	Left	2s	A
80MHz-6GHz	3	Right	2s	A
80MHz-6GHz	3	Top	2s	A
80MHz-6GHz	3	Underside	2s	A

Results:

A: No degradation in the performance of the EUT was observed.

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8 Photographs

8.1 Radiated Disturbance (30MHz-1GHz) Test Setup

8.2 Electrostatic Discharge Test Setup

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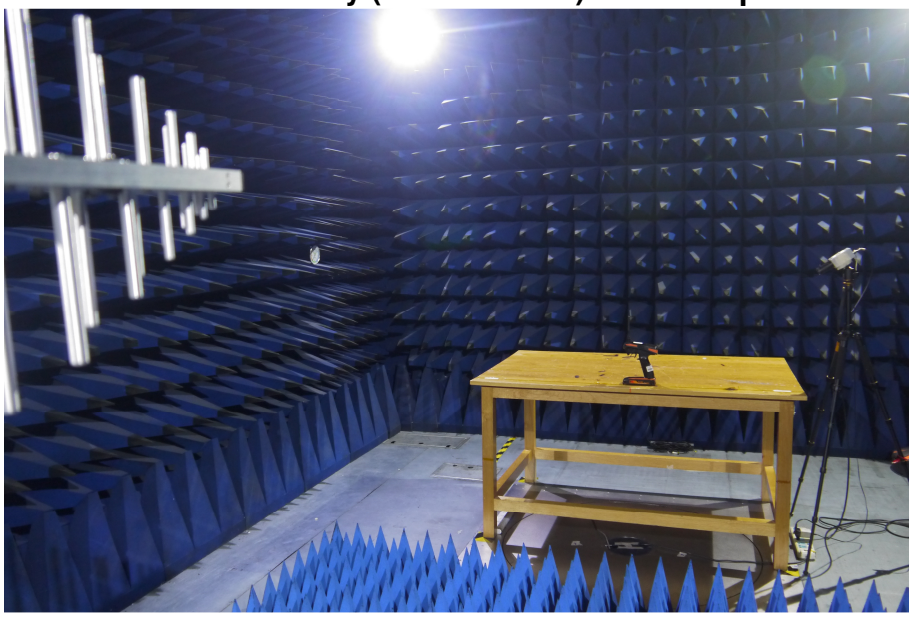
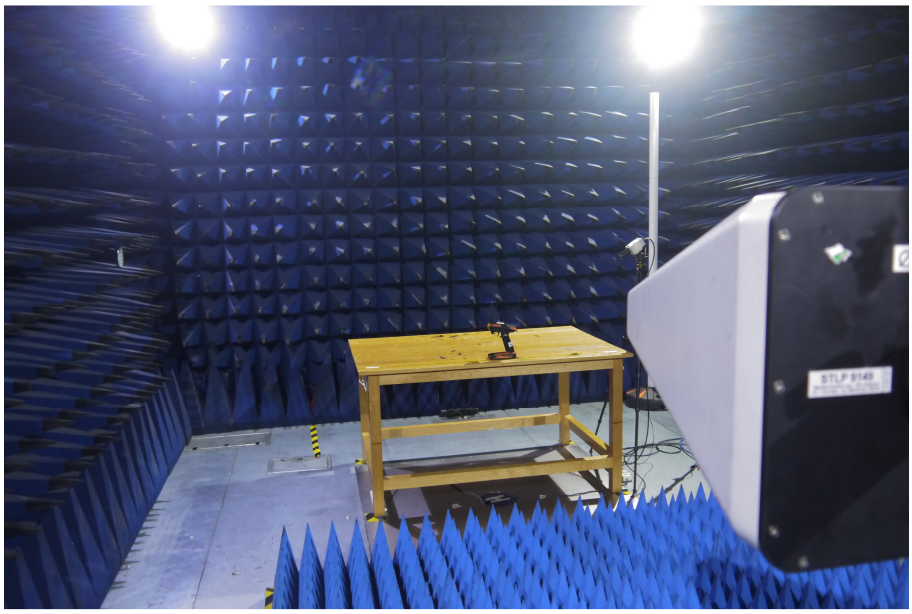
8.3 Radiated Immunity (80MHz-6GHz) Test Setup





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8.4 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1704003895CR.

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