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Shenzhen Branch**

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Report No.: SZEM170500507501
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TEST REPORT

Application No.: SZEM1705005075CR
Applicant: ZHEN CHENG TOYS FACTORY
Address of Applicant: CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, CHINA
Equipment Under Test (EUT):
EUT Name: R/C CAR
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.
Standards: ETSI EN 301 489-1 V2.1.1
Final draft ETSI EN 301 489-3 V2.1.1
(only for Radiated Disturbance and Radiated Immunity)
Date of Receipt: 2017-05-25
Date of Test: 2017-06-02 to 2017-06-15
Date of Issue: 2017-06-20

Test Result :	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

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		2017-06-20		Original

Authorized for issue by:				
				
		<hr/>		
		Peter Geng /Project Engineer		
				
		<hr/>		
		Eric Fu /Reviewer		



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	Class B	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
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

Remark:

Model No.: 333-BBD01, 333-BBD02, 333-BBD03, 333-BB01, 333-BB02, 333-BB03, 333-NB01, 333-NB02, 333-NB03, 333-NBS01, 333-NBS02, 333-NBS03, 333-P001, 333-P002, 333-P003, 333-P004, 333-P004, 333-P005, 333-P006, 333-P007, 333-P008, 333-P009, 333-933B, 333-933A, 333-XZ001B, 333-XZ007B, 333-WL007, 333-WL008, 333-WL009, 333-ZL01B, 333-ZL02B, 333-ZL03B, 333-4T11, 333-4T12, 333-4T11A, 333-4T12A, 333-4T21A, 333-4T22A, 333-4T23A, 333-4T21, 333-4T22, 333-4T23, 333-P011, 333-P012, 333-P013, 333-P014, 333-P015, 333-P011A, 333-P012A, 333-P013A, 333-P014A, 333-P015A, 333-P021, 333-P022, 333-P023, 333-P024, 333-P021A, 333-P022A, 333-P023A, 333-P024A, 333-PS021, 333-PS022, 333-PS023, 333-PS024, 333-PS021A, 333-PS022A, 333-PS023A, 333-PS024A, 333-VS01, 333-VS02, 333-VS03, 333-VS04, 333-TK01, 333-TK11, 333-ZJ01, 333-ZJ11, 17XZ01B, 17XZ01A

Only the model 333-BBD01 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on colour, package and decorations.

This test report (Ref. No.: SZEM170500507501) is only valid with the original test report (Ref. No.: SZEM160900745401).

Compared with the original report, this report changed the model No. and updated the below standards.

Original report standard

EN 301 489-1 V1.9.2

EN 301 489-3 V1.6.1

The newest report standard

ETSI EN 301 489-1 V2.1.1

Final draft ETSI EN 301 489-3 V2.1.1

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 Disturbance Radiated Immunity were retested on Model 333-BBD01 and shown the data in this report, other tests please refer to original report SZEM160900745401.



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4 General Information

4.1 Details of E.U.T.

Power supply:	Remote: DC 9V by (6F22) battery; Car: DC 7.2V 700mAh rechargeable battery which charged by adapter. adapter information: MODEL: LJ-06A0720250Z INPUT: AC 100-240V, 50/60Hz OUTPUT: DC 7.2V, 0.25A
Test voltage	AC 230V/50Hz
Cable:	DC line: 150cm, unshielded

4.2 Description of Support Units

The EUT has been tested as an independent unit.



4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radiated emission	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-6GHz)
2	Radiated Immunity	1.64dB
3	Temperature test	1 °C
4	Humidity test	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:

- **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

4.8 Monitoring of EUT for All Immunity Test

Visual: monitor the working status of the EUT

Audio: none



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	2018-04-13

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	2018-04-13
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	2018-04-13
Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-08	2017-04-14	2018-04-13
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	2018-04-13
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

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
Limit:	
30MHz-230MHz	40 dB(μ V/m) quasi-peak
230MHz-1GHz	47 dB(μ V/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

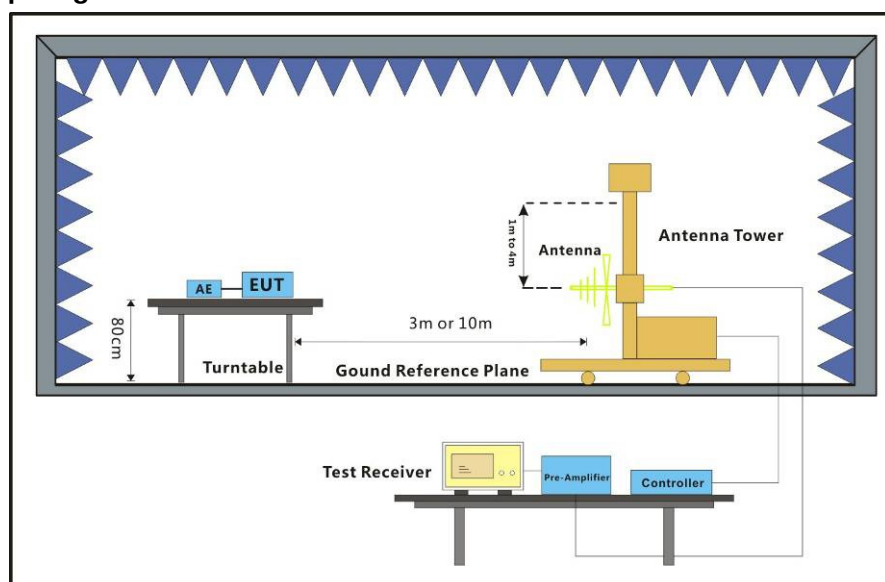
Pretest these b:Idle_Keep the EUT standby.

mode to find the c:Charging_Keep the battery of the EUT in charging mode

worst case: d:Operation(wireless)_Keep the EUT pairing with other devices

The worst case d:Operation(wireless)_Keep the EUT pairing with other devices
for final test:

6.1.2 Test Setup Diagram

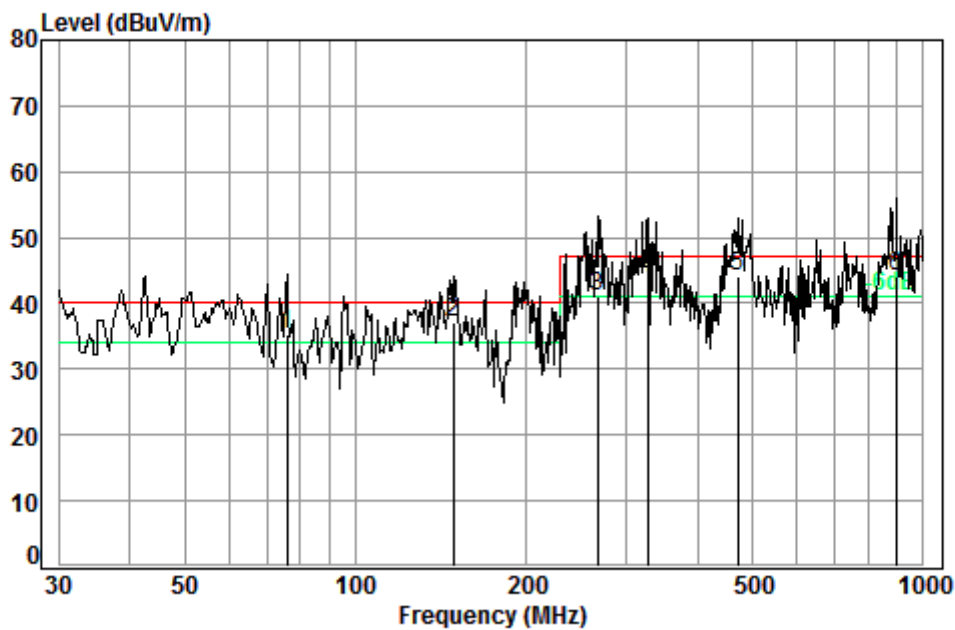


6.1.3 Measurement Data

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.



Mode:d; Polarization:Horizontal



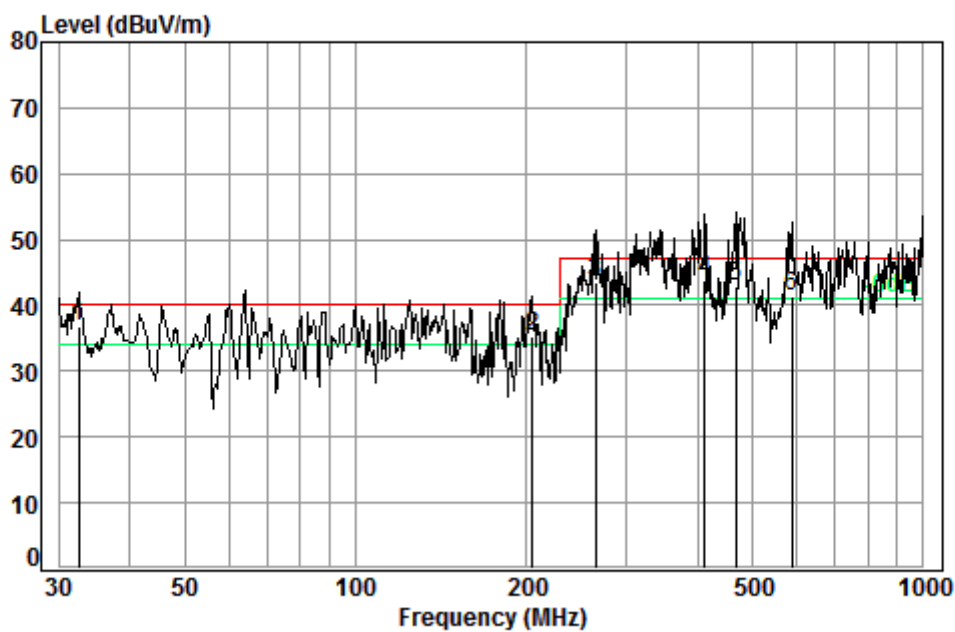
Condition: 3m HORIZONTAL

Job No. : 05075CR

: d

	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	75.71	0.97	7.36	27.24	54.30	35.39	40.00	-4.61
2	148.44	1.31	8.86	26.91	53.74	37.00	40.00	-3.00
3	266.61	1.75	12.63	26.49	53.31	41.20	47.00	-5.80
4	326.74	1.99	14.74	26.60	53.80	43.93	47.00	-3.07
5	470.52	2.49	17.64	27.56	51.40	43.97	47.00	-3.03
6	897.00	3.59	23.18	26.78	43.97	43.96	47.00	-3.04

Mode:d; Polarization:Vertical



Condition: 3m VERTICAL

Job No. : 05075CR

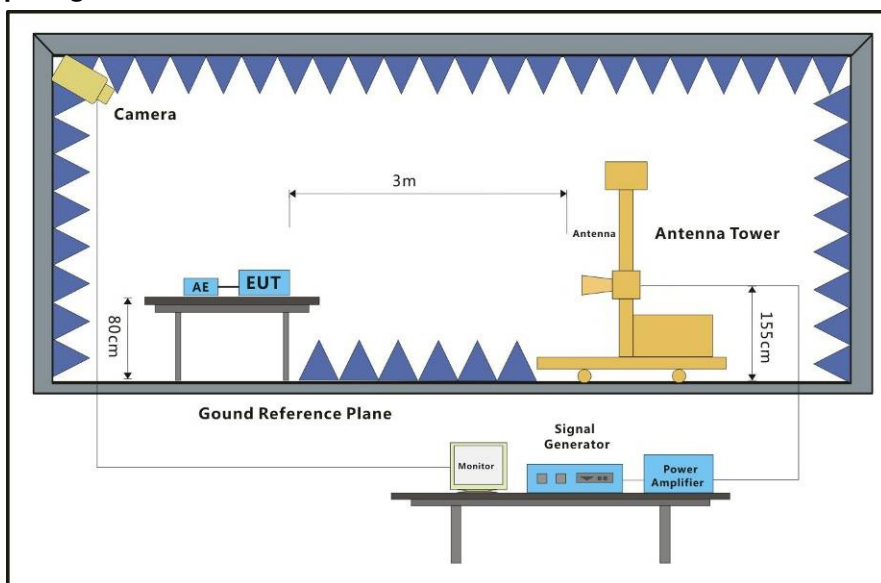
: d

		Cable	Ant	Preamp	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	pp	32.63	0.60	17.22	27.35	46.46	36.93	40.00
2		204.96	1.43	10.46	26.68	50.11	35.32	40.00
3		264.75	1.74	12.59	26.49	55.51	43.35	47.00
4		411.82	2.25	16.35	27.21	52.42	43.81	47.00
5		467.24	2.48	17.52	27.54	50.57	43.03	47.00
6		586.84	2.69	19.43	27.56	46.94	41.50	47.00

6.2 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

6.2.1 Test Setup Diagram



6.2.2 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode: b:Idle_Keep the EUT standby.

c:Charging_Keep the battery of the EUT in charging mode

d:Operation(wireless)_Keep the EUT pairing with other devices

6.2.3 Test Results:

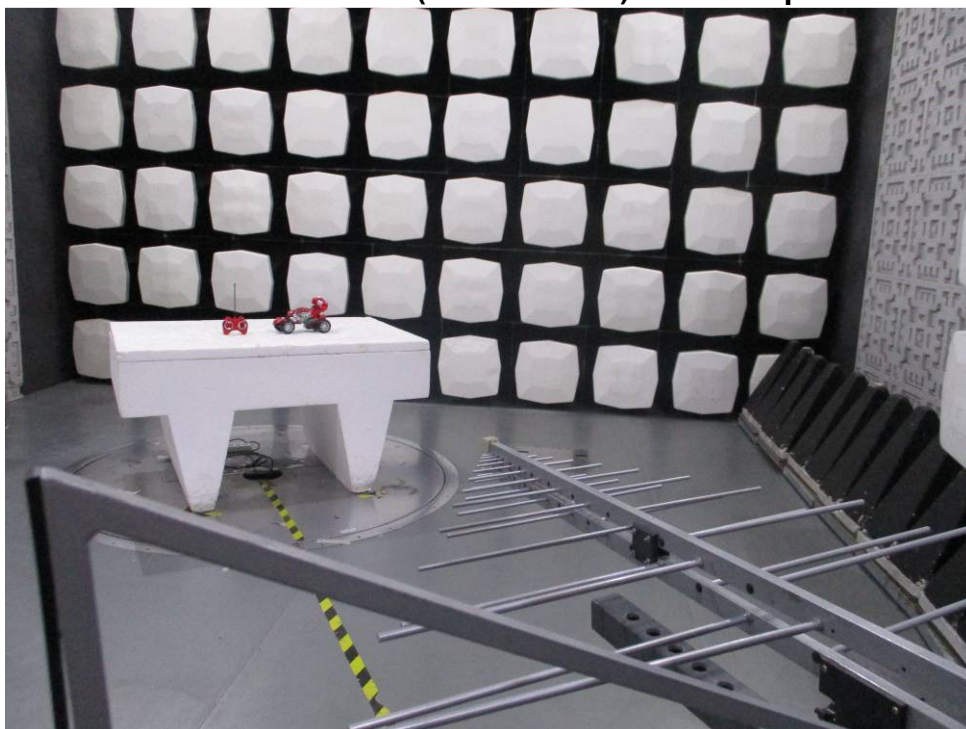
Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations
80MHz-6GHz	3	Front	2s	A
80MHz-6GHz	3	Back	2s	A
80MHz-6GHz	3	Left	2s	A
80MHz-6GHz	3	Right	2s	A
80MHz-6GHz	3	Top	2s	A
80MHz-6GHz	3	Underside	2s	A

Results:

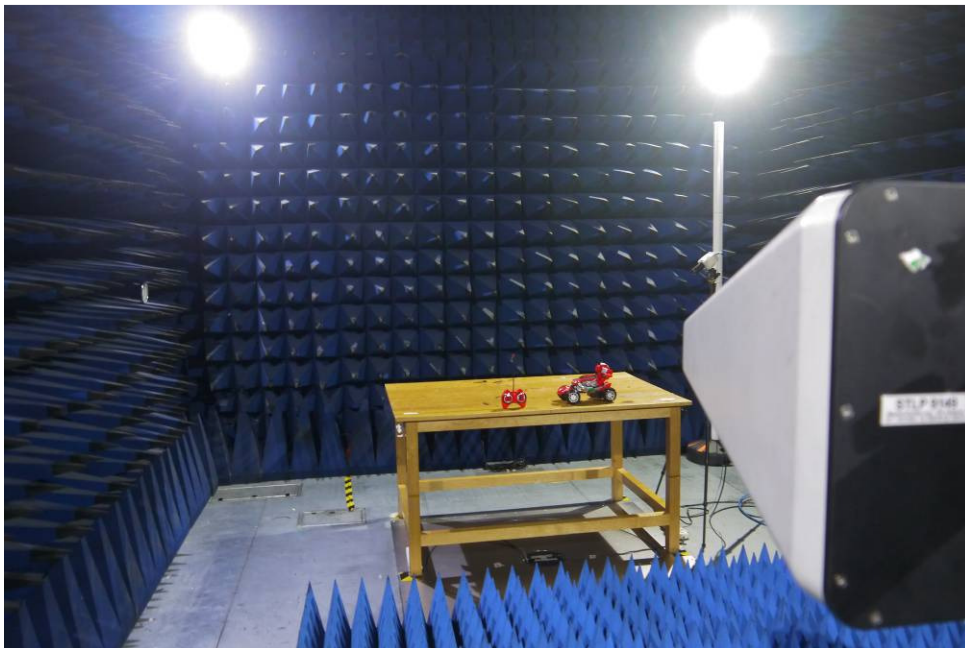
A: No degradation in the performance of the EUT was observed.

7 Photographs

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



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





7.3 EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1705005075CR.