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

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TEST REPORT

Application No.:	GZEM1606004344CR
Applicant:	Shenzhen XK Innovations Technology Co., Ltd
Address of Applicant:	D3-Building, xinwei third industrial zone, Dalang north Road, Loonghua new district, Shenzhen, China
Manufacturer:	The same as applicant
Address of Manufacturer:	The same as applicant
Product Description:	Remote control aircraft
Model No.:	X251, X250, X252, X260, X350, X380, X500, X50, X1, X300, X100, X110, X120, X130, X150, X160, X170, X180, A430, A600, A700, A1200, A800, A900, A1000, A1600, K50, K110, K120, K100, K124, K123, X280, X320, X340, X360, X420, X460, X480, X520, X540, X560, X580, X600, X620, X640, X660, X680, X700, X720, X740, X760, X780, X800, X820, X840, X860, X880, X900, X920, X940, X960, K125, K126, K127, K128, K129, K200, K210, K220, K230, K250, K260, K270, K290, K300, K310, K320, K330 ¤
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standards:	47 CFR PART 15,Subpart B:2015
Date of Receipt:	2016-06-29
Date of Test:	2016-07-11 to 2016-07-29
Date of Issue:	2016-09-12
Test Result :	**Pass***

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

Jerry Chan
Manager

2 Test Summary

Item	Standard	Method	Class	Result
Conducted Disturbance at Mains Terminals (150KHz-30MHz)	47 CFR PART 15,Subpart B:2015	ANSI C63.4	Class B	Pass
Radiated Disturbance (30MHz-1GHz)	47 CFR PART 15,Subpart B:2015	ANSI C63.4	Class B	Pass

Declaration of EUT Family Grouping:

According to the declaration from the applicant, the electrical circuit design, layout, components used and internal wiring were identical for all models, with only difference being the outer decoration. Therefore only one model X251 was tested in this report.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply: DC 5.0V supplied by AC/DC adapter

Cable: None.

4.2 Description of Support Units

The EUT has been tested with AC/DC adapter supplied by SGS.

Power Supply: Model: MJ-4015(EU)

Input: AC 220-240V, 50Hz

Output: DC 5V, 1000mA

Cable: about 1.2m unscreened AC/DC output cable.

4.3 Standards Applicable for Testing

Table 1 : Tests Carried Out Under 47 CFR PART 15,Subpart B:2015

Method	Item	Status
ANSI C63.4	Conducted Disturbance at Mains Terminals(150KHz-30MHz)	√
ANSI C63.4	Radiated Disturbance(30MHz-1GHz)	√
ANSI C63.4	Radiated Disturbance(above 1GHz)	×

× Indicates that the test is not applicable
√ Indicates that the test is applicable

4.4 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663
Tel: +86 20 82155555 Fax: +86 20 82075059
No tests were sub-contracted.

4.5 Test Facility

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

- **NVLAP (Lab Code: 200611-0)**

  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

  The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

  SGS-CSTC Standards Technical Services Co., Ltd., 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 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

  The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

- **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

  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.: R-2460, C-2584, G-449 and T-1179 respectively.

- **CBTL (Lab Code: TL129)**

  SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 Monitoring of EUT for All Immunity Test

Visual: Indicator lighting&motor running.
Audio: N/A

5 Equipment List

Conducted Disturbance at Mains Terminals(150KHz-30MHz)						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1	Shielding Room	Zhong Yu	8 x 3 x 3.8 m3	EMC0306	N/A	N/A
2	Two-line v-netwok	R&S	ENV216	EMC0118	2016-01-25	2017-01-24
3	LISN	SCHAFFNER CHASE	MN2050D/1	EMC0102	2015-09-24	2016-09-23
4	EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2015-12-19	2016-12-18
5	Coaxial Cable	SGS	2m	EMC0107	2016-07-24	2018-07-23
6	Voltage Probe	SGS	N/A	EMC0106	2016-04-05	2018-04-04
7	Conical metal housing	SGS-EMC	N/A	EMC0167	2016-04-19	2018-04-18

Radiated Disturbance(30MHz-1GHz)						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1	EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2016-02-01	2017-01-31
2	EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2016-02-01	2017-01-31
3	RI High frequency Cable	SGS	20 m	EMC0528	2016-04-19	2018-04-18
4	Trilog Broadband Antenna 30-1000MHz	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	EMC2025	2014-07-14	2017-07-13
5	Bilog Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2014-05-04	2017-05-03
6	Horn Antenna 1-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2013-08-31	2016-08-30
7	1-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2016-01-25	2017-01-24
8	Amplifier	HP	8447F	EMC2065	2016-07-04	2017-07-03
9	PRE AMPLIFIER MH648A	ANRITSU CORP	MH648A	EMC2086	2015-12-19	2016-12-18
10	Active Loop Antenna	EMCO	6502	EMC0523	2016-02-27	2018-02-26
11	Broad-Band Horn Antenna (14)15-26.5(40)GHz	SCHWARZBECK MESS-ELEKTRONI	BBHA 9170	EMC2041	2014-05-26	2017-05-25
12	High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2016-01-25	2017-01-24
13	2.4GHz filter	Micro-Tronics	BRM 50702	EMC2069	2016-01-25	2017-01-24
14	10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2016-04-30	2018-04-29

General used equipment						
Item	**Equipment**	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1	DMM	Fluke	73	EMC0006	2015-09-17	2016-09-16
2	DMM	Fluke	73	EMC0007	2015-09-17	2016-09-16

6 Emission Test Results

6.1 Conducted Disturbance at Mains Terminals(150KHz-30MHz)

Test Requirement:	47 CFR PART 15,Subpart B:2015
Test Method:	ANSI C63.4
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

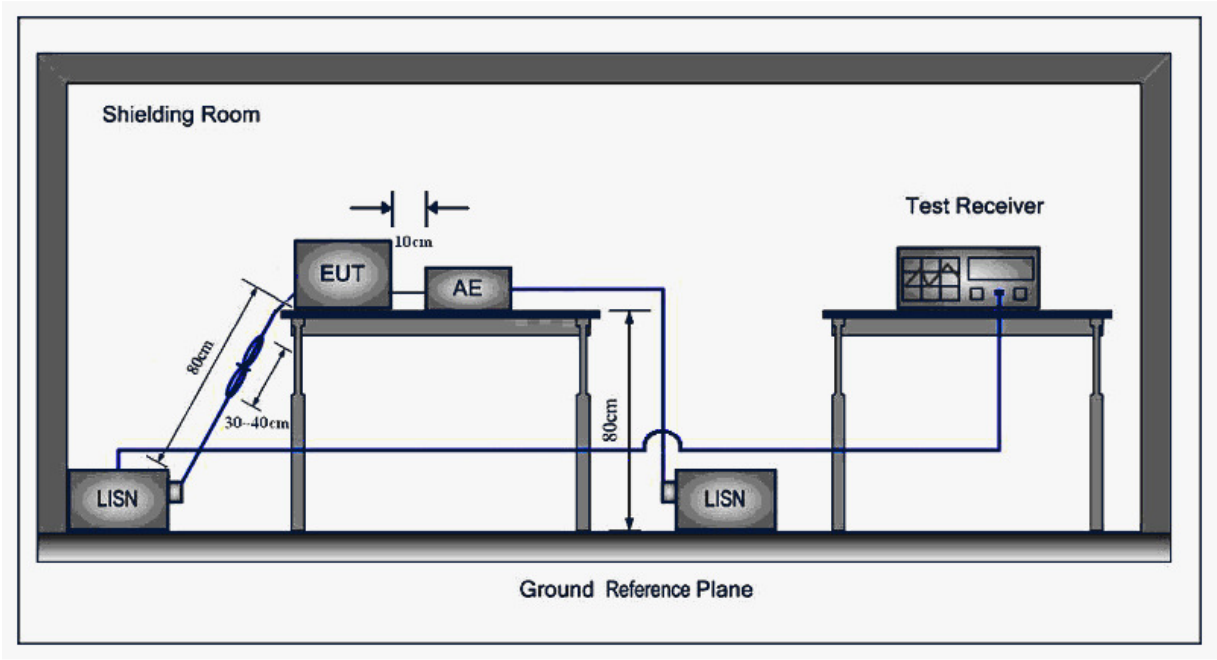
6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1001 mbar

Test mode a:test in charging mode

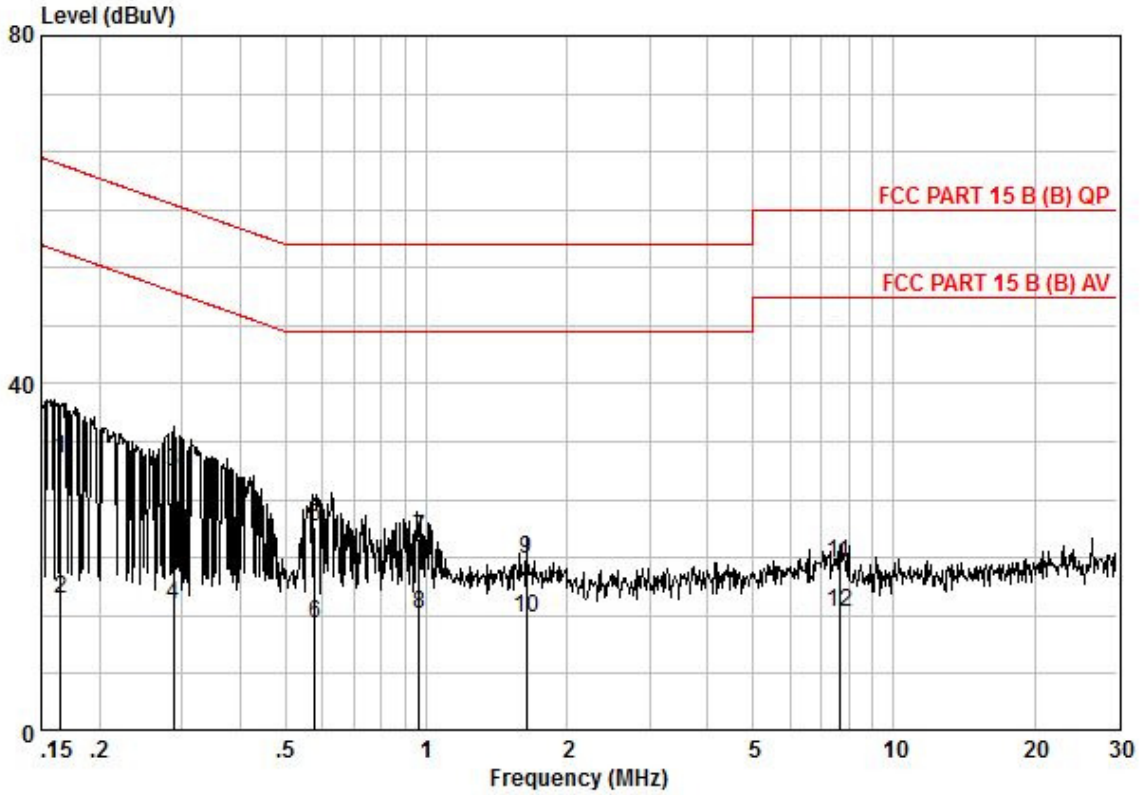
6.1.2 Test Setup



6.1.3 Measurement Data

An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

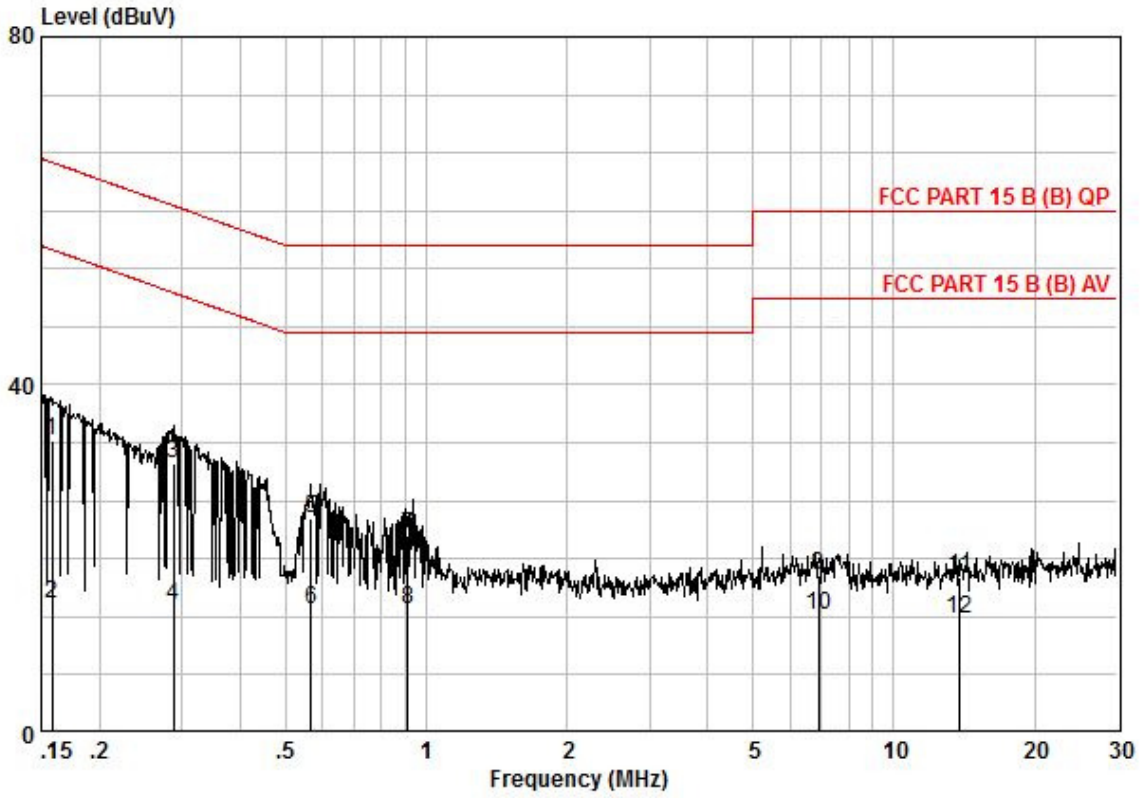
Mode:a;Line:Live Line



Phase : LINE
No :
Model :RETEST

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0,17	21,65	0,10	9,60	31,35	65,21	-33,86	QP
0,17	5,63	0,10	9,60	15,33	55,21	-39,88	AVERAGE
0,29	20,07	0,07	9,68	29,81	60,59	-30,77	QP
0,29	4,81	0,07	9,68	14,55	50,59	-36,03	AVERAGE
0,58	13,77	0,03	9,70	23,50	56,00	-32,50	QP
0,58	2,75	0,03	9,70	12,48	46,00	-33,52	AVERAGE
0,96	12,46	0,00	9,70	22,16	56,00	-33,84	QP
0,96	3,73	0,00	9,70	13,43	46,00	-32,57	AVERAGE
1,64	10,16	0,07	9,70	19,93	56,00	-36,07	QP
1,64	3,35	0,07	9,70	13,12	46,00	-32,88	AVERAGE
7,65	9,32	0,27	9,80	19,39	60,00	-40,61	QP
7,65	3,75	0,27	9,80	13,82	50,00	-36,18	AVERAGE

Mode:a;Line:Neutral Line



Phase : NEUTRAL
No :
Model :RETEST

Frequency MHz	read level dBuV	Cable Loss dB	LISN Factor dB	Measured level dBuV	Limit Line dBuV	Over limit dB	Remark
0,16	23,82	0,10	9,66	33,58	65,56	-31,98	QP
0,16	4,96	0,10	9,66	14,72	55,56	-40,84	AVERAGE
0,29	21,28	0,07	9,66	31,01	60,59	-29,58	QP
0,29	4,87	0,07	9,66	14,60	50,59	-35,99	AVERAGE
0,57	14,83	0,03	9,67	24,53	56,00	-31,47	QP
0,57	4,57	0,03	9,67	14,27	46,00	-31,73	AVERAGE
0,91	12,91	0,00	9,67	22,59	56,00	-33,41	QP
0,91	4,48	0,00	9,67	14,16	46,00	-31,84	AVERAGE
6,91	8,03	0,25	9,73	18,01	60,00	-41,99	QP
6,91	3,63	0,25	9,73	13,61	50,00	-36,39	AVERAGE
13,84	7,55	0,35	9,98	17,88	60,00	-42,12	QP
13,84	2,77	0,35	9,98	13,10	50,00	-36,90	AVERAGE

6.2 Radiated Disturbance(30MHz-1GHz)

Test Requirement:	47 CFR PART 15,Subpart B:2015
Test Method:	ANSI C63.4
Frequency Range:	30MHz to 1GHz
Limit:	
30MHz -88MHz	29.5(dBμV/m) quasi-peak
88MHz-216MHz	33.1(dBμV/m) quasi-peak
216MHz-960MHz	35.6(dBμV/m) quasi-peak
960MHz-1000MHz	43.5(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

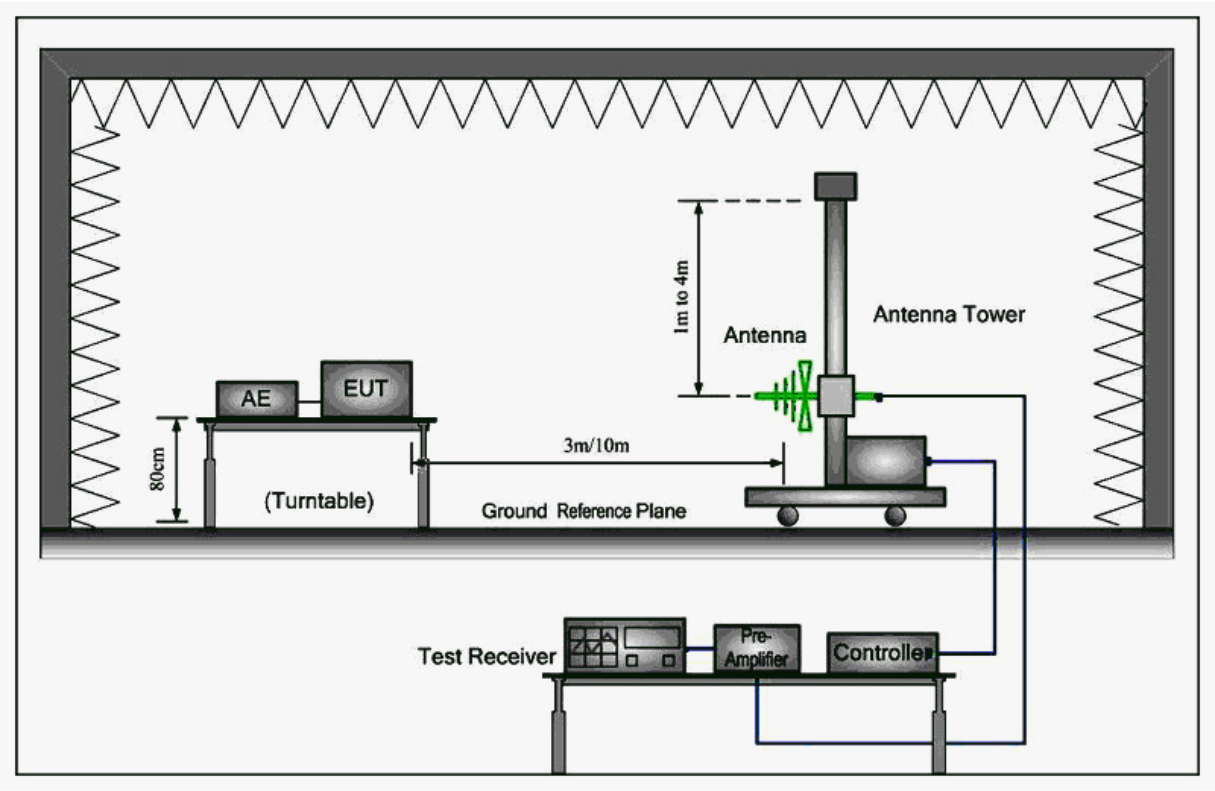
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 60 % RH Atmospheric Pressure: 1003 mbar

Pretest these mode to find the worst case:	a:test in charging mode b: test in motor running mode
Final Test	a:test in charging mode

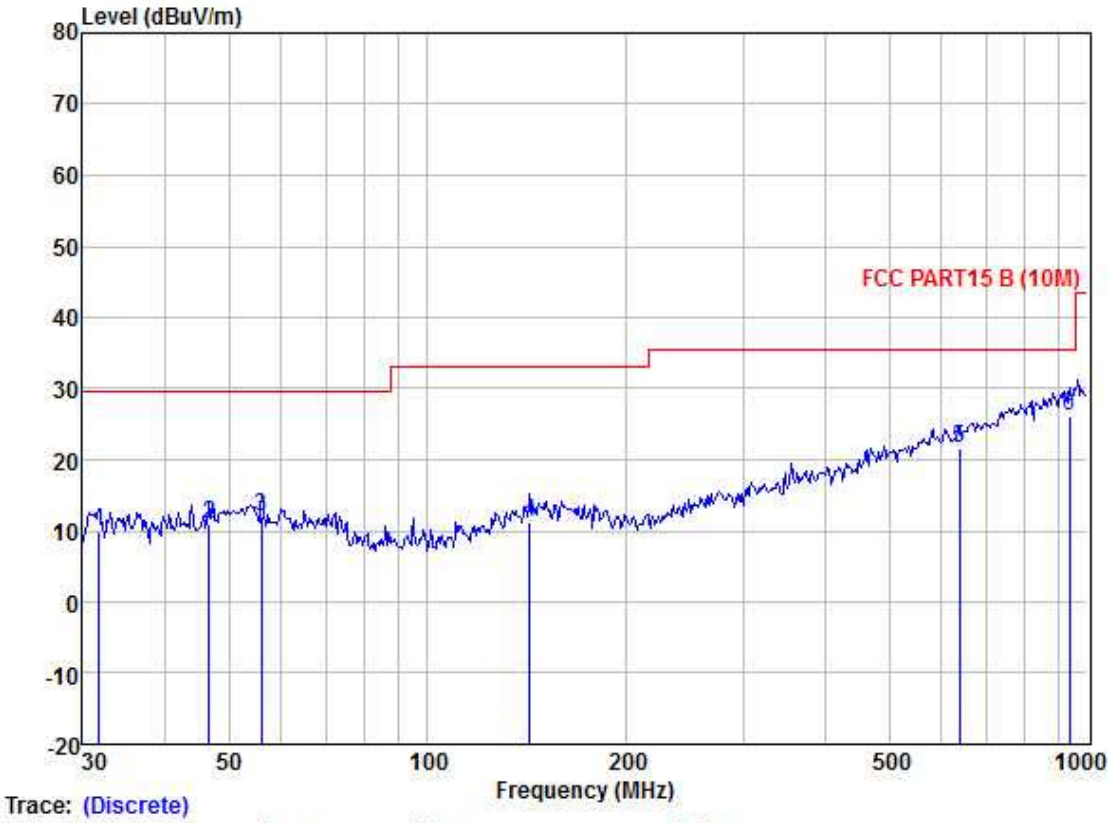
6.2.2 Test Setup



6.2.3 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.

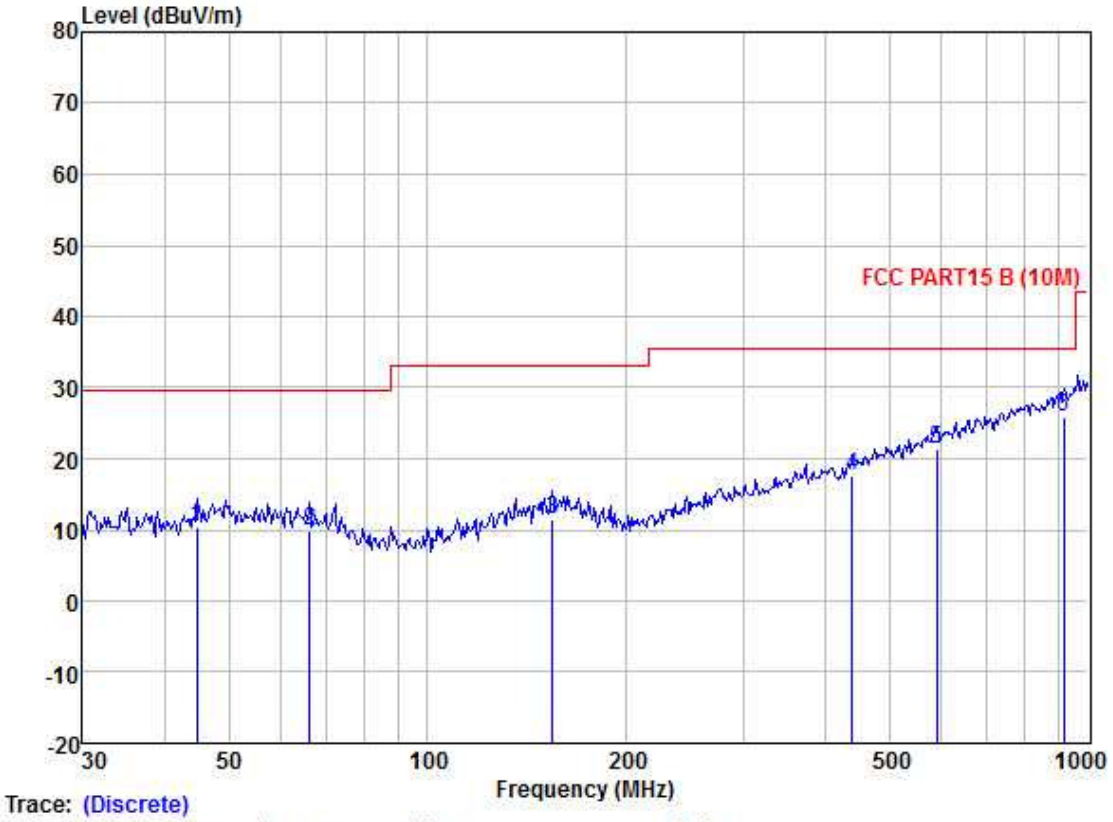
Mode:a;Polarization:Horizontal



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	31.731	23.52	12.45	1.10	27.10	9.97	29.50	-19.53	HORIZONTAL	QP
2	46.666	23.01	13.73	1.23	27.00	10.97	29.50	-18.53	HORIZONTAL	QP
3	56.001	23.97	13.73	1.32	27.00	12.02	29.50	-17.48	HORIZONTAL	QP
4	142.824	23.04	12.78	2.25	26.81	11.26	33.10	-21.84	HORIZONTAL	QP
5	638.369	24.84	20.03	4.92	28.09	21.70	35.60	-13.90	HORIZONTAL	QP
6	938.833	24.28	23.39	6.05	27.67	26.05	35.60	-9.55	HORIZONTAL	QP

Mode:a;Polarization:Vertical

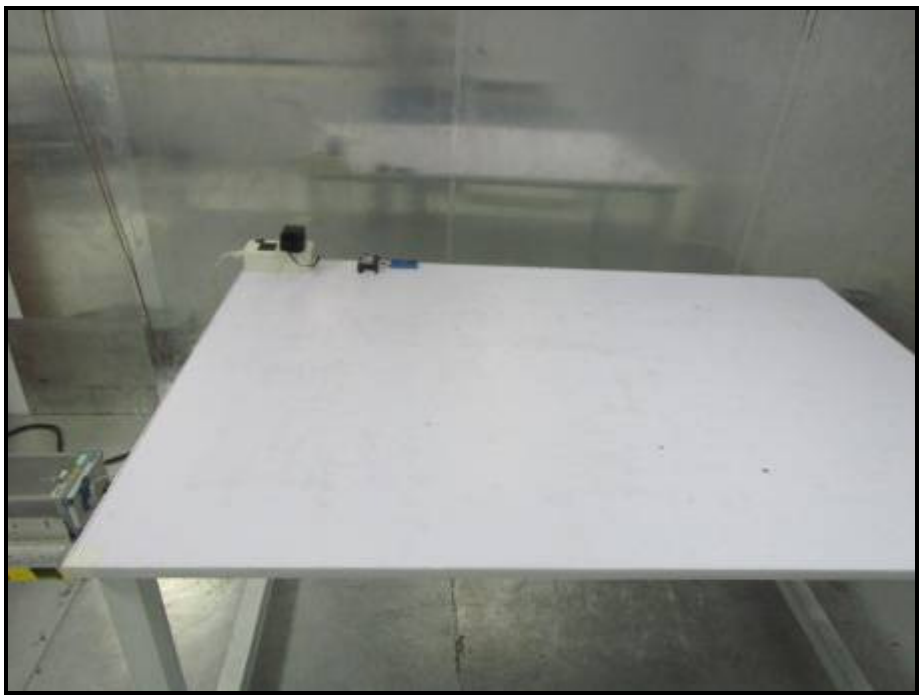


Trace: (Discrete)

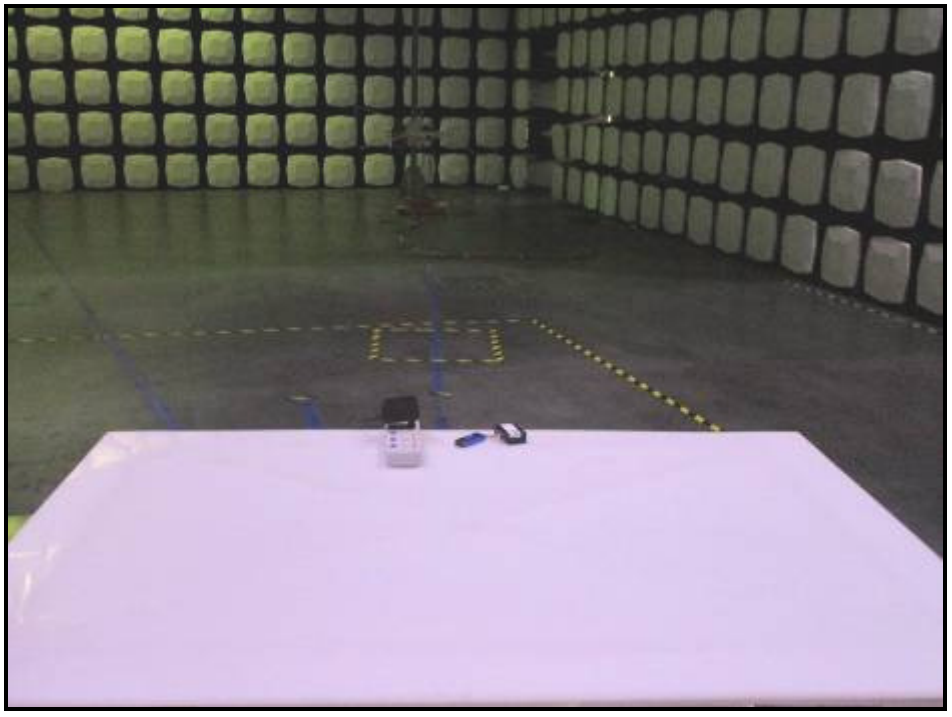
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	44.743	22.84	13.40	1.20	27.00	10.44	29.50	-19.06	VERTICAL	QP
2	66.266	22.70	12.55	1.50	27.00	9.75	29.50	-19.75	VERTICAL	QP
3	154.279	22.66	13.26	2.32	26.79	11.45	33.10	-21.65	VERTICAL	QP
4	440.196	24.60	16.24	4.10	27.45	17.49	35.60	-18.11	VERTICAL	QP
5	590.974	25.03	19.51	4.78	28.00	21.32	35.60	-14.28	VERTICAL	QP
6	919.287	24.31	23.16	5.97	27.70	25.74	35.60	-9.86	VERTICAL	QP

7 Photographs

7.1 Conducted Disturbance at Mains Terminals(150KHz-30MHz) Test Setup



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



7.3 EUT Constructional Details