FCC TEST REPORT

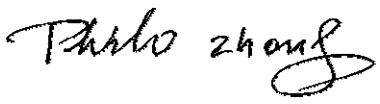
FCC ID : ZUA-454110406081
Applicant : Jiangyin SINBON Electronics Co., Ltd.
Address : 288 Chengjiang Middle Rd., Jiangyin, Jiangsu, China

Equipment Under Test (EUT) :
Product Name : USB to RS232 Cable
Model No. : 454110406081

Standards : FCC CFR47 Part 15 Section 15.109:2009

Date of Test : July 26, 2011 ~ July 28, 2011
Date of Issue : August 5, 2011

Test Engineer : Hunk yan 

Reviewed By : Philo zhong 

Test Result	**: PASS**

Prepared By:
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✧ The sample detailed above has been tested to the requirements of Council Directives ANSI C63.4:2003. The test results have been reviewed against the Directives above and found to meet their essential requirements.

2 Test Summary

FCC CFR47 Part 15 Subpart B Requirements			
Test Items	**Test Requirement**	**Test Method**	**Result**
Radiated Emission (30MHz to 1GHz)	FCC CFR47 Part 15 Section 15.109:2009	ANSI C63.4: 2003	PASS
Conducted Emission (150KHz to 30MHz)	FCC CFR47 Part 15 Section 15.107:2009	ANSI C63.4: 2003	PASS

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4 General Information

4.1 Client Information

Applicant : Jiangyin SINBON Electronics Co., Ltd.

Address of Applicant : 288 Chengjiang Middle Rd., Jiangyin, Jiangsu, China

Manufacturer : Jiangyin SINBON Electronics Co., Ltd.

Address of Manufacturer : 288 Chengjiang Middle Rd., Jiangyin, Jiangsu, China

4.2 General Description of E.U.T.

Product Name : USB to RS232 Cable

Model No. : 454110406081

4.3 Details of E.U.T.

Technical Data: : DC 5.0V (Support by PC USB Port)

4.4 Description of Support Units

The EUT has been tested as an independent unit. All the test was performed in the condition of DC 5.0V input.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a USB to RS232 Cable. The standards used were FCC CFR47 Part 15 Subpart B Section 15.107 and Section 15.109.

4.6 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: IC7760A**
  Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A, August 3, 2010.

- **FCC – Registration No.: 880581**
  Waltek Services(Shenzhen) 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 880581, May 26, 2011.

4.7 Test Location

All the tests were performed at:
Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd.,Songgang Street, Baoan District, Shenzhen, China

5 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug-2010	Aug-2011	Wws20081596	±1dB
Trilog Broadband Antenne	SCHWARZBECK MESS-ELEKTROM / VULB9163	336	W2008002	30-3000 MHz	Aug-2010	Aug-2011	-	±1dB
Broad-band Horn Antenna	SCHWARZBECK MESS-ELEKTROM / BBHA 9120D(1201)	667	W2008003	1-18GHz	Aug-2010	Aug-2011	-	f＜10 GHz：±1dB 10GHz＜f＜18 GHz：±1.5dB
Broadband Preamplifier	SCHWARZBECK MESS-ELEKTROM / BBV 9718	9718-148	W2008004	0.5-18GHz	Aug-2010	Aug-2011	-	±1.2dB
10m Coaxial Cable with N-male Connectors	SCHWARZBECK MESS-ELEKTROM / AK 9515 H	-	-	-	Aug-2010	Aug-2011	-	-
10m 50 Ohm Coaxial Cable	SCHWARZBECK MESS-ELEKTROM / AK 9513	-	-	-	Aug-2010	Aug-2011	-	-
Positioning Controller	C&C LAB/ CC-C-IF	-	-	-	N/A	N/A	-	-
Color Monitor	SUNSPO/ SP-14C	-	-	-	N/A	N/A	-	-
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug-2010	Aug-2011	Wws20080942	±1dB
EMI Receiver	Beijingkehuan	KH3931	-	9k-1GHz	Aug-2010	Aug-2011	-	-
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug-2010	Aug-2011	Wws20080941	±10%
Digital Power Analyzer	Em Test AG/Switzerland/ DPA 500	V0745103095	W2008012	Power：2000VA Vol-range：0-300V Freq_range：10-80Hz	Aug-2010	Aug-2011	Wwd20081185	Voltage distinguish:0.025% Power_freq distinguish:0.02Hz
Power Source	Em Test AG/Switzerland/ ACS 500	V0745103096	W2008013	Vol-range：0-300V Power_freq：10-80Hz				

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Cert. No	Uncertainty
RF Generator	TESEQ GmbH/ NSG4070	25781	W2008008	Fraq-range：9K-1GHz RF voltage：-60 dBm-+10dBm	Aug-2010	Aug-2011	Wws20081890	Power_freq distinguish0.1Hz RFeletricity distinguish 0.1 B
CDN M-Type	TESEQ GmbH/ CDN M016	25112	W2008009	Voltage correct factor 9.5 dB	Aug-2010	Aug-2011	Wwc20082396	150K-80MHz：±1dB 80-230MHz:-2-+3dB
EM-Clamp	TESEQ GmbH/ KEMZ 801	25453	W2008010	Freq_range：0.15-1000 MHz	Aug-2010	Aug-2011	Wwc20082397	0.3-400 MHz：±4dB Other freq：±5dB
Attenuator 6dB	TESEQ GmbH/ ATN6050	25365	-	-	Aug-2010	Aug-2011	Wws20081597	-
All Modules Generator	SCHAFFNER/6150	34579	W2008006	voltage:200V-4.4KV Pulse current：100A-2.2KA	Aug-2010	Aug-2011	Wwc20082401	voltage: ±10% Pulse current：±10%
Capacitive Coupling Clamp	SCHAFFNER/ CDN 8014	25311	-	-	Aug-2010	Aug-2011	Wwc20082398	-
Signal and Data Line Coupling Network	SCHAFFNER/ CDN 117	25627	W2008011	1.2/50μs	Aug-2010	Aug-2011	Wwc20082399	-
AC Power Supply	TONGYUN/ DTDGC-4	-	-	-	Aug-2010	Aug-2011	Wws20080944	-
PC	Lenovo	T2900D	-	-	Aug-2010	Aug-2011	-	±1dB
Display	ViewSonic	S27996-1W	-	-	Aug-2010	Aug-2011	-	±0.5dB
K/B	Dell	L100	-	-	Aug-2010	Aug-2011	-	±0.5dB
Mouse	Acer	M-UVACR1	-	-	Aug-2010	Aug-2011	-	±0.5dB

6 FCC CFR47 Part 15 Subpart B Requirements

6.1 Conducted Emission Data

Test Requirement:	FCC CFR47 Part 15 Section 15.107
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz 56 dBμV between 0.5MHz & 5MHz 60 dBμV between 5MHz & 30MHz The tighter limit applies at the band edges.
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C
Humidity: 51 % RH
Atmospheric Pressure: 1012 mbar

EUT Operation:

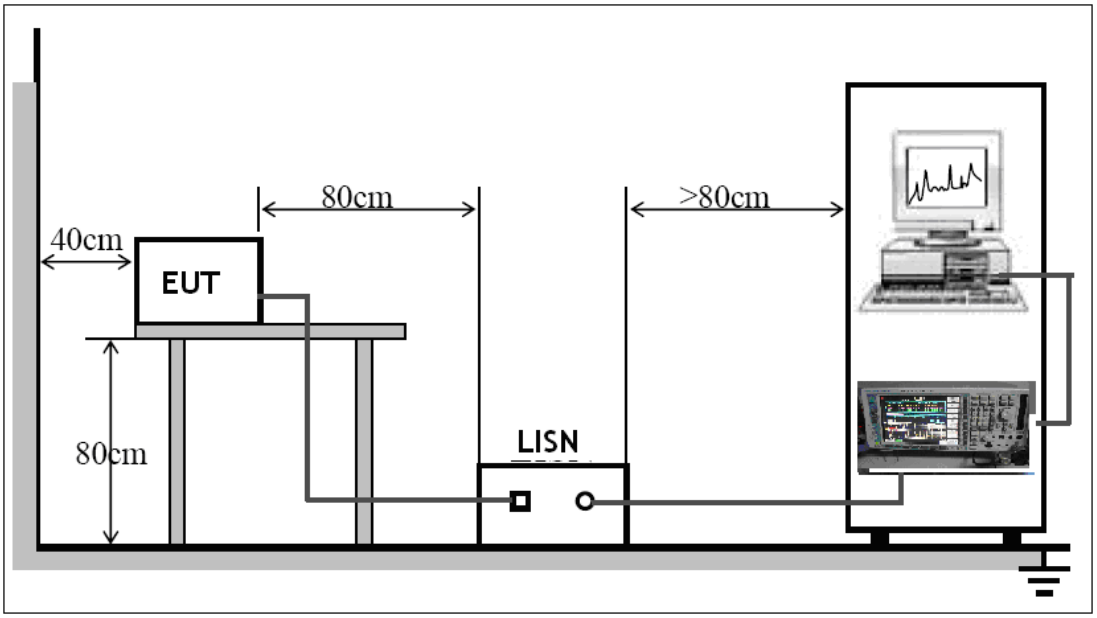
The EUT was tested in RS232 Serial communication mode.

The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.1.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC CFR47 Part15 Section 15.107 limits.

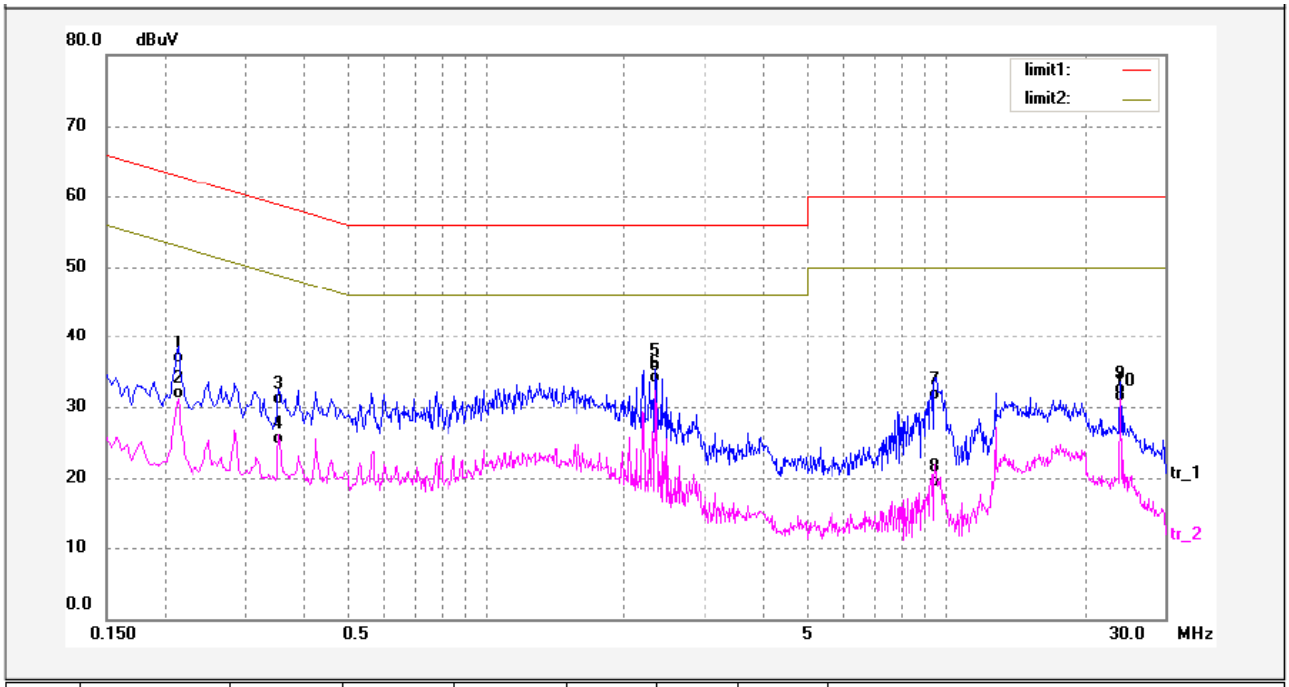


The EUT was placed on the test table in shielding room

6.1.3 Conducted Emission Test Result

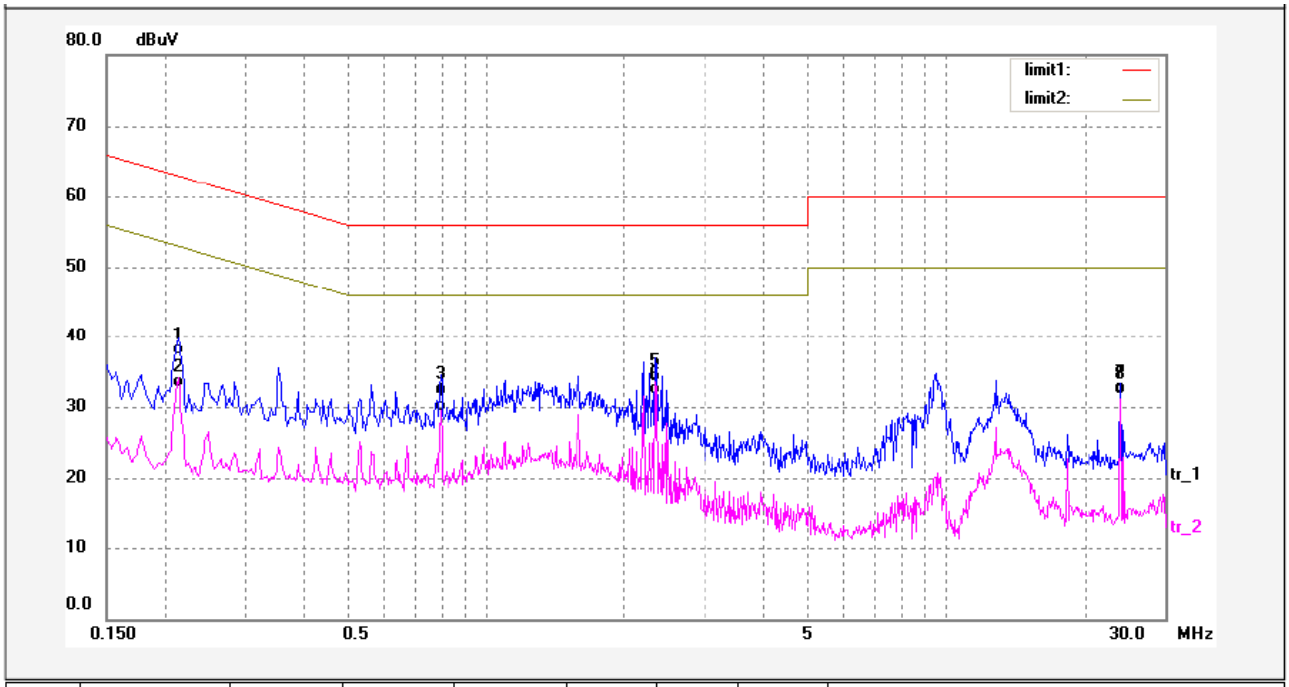
An initial pre-scan was performed on the live and neutral lines.
The EUT was working in RS232 Serial communication mode.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2140	25.49	10.66	36.15	63.04	-26.89	QP	
2	0.2140	20.36	10.66	31.02	53.04	-22.02	AVG	
3	0.3540	19.47	10.74	30.21	58.87	-28.66	QP	
4	0.3540	14.05	10.74	24.79	48.87	-24.08	AVG	
5	2.3420	22.73	12.26	34.99	56.00	-21.01	QP	
6	2.3420	21.11	12.26	33.37	46.00	-12.63	AVG	
7	9.4740	19.07	11.90	30.97	60.00	-29.03	QP	
8	9.4740	6.87	11.90	18.77	50.00	-31.23	AVG	
9	24.0780	19.16	12.48	31.64	60.00	-28.36	QP	
10	24.0780	18.26	12.48	30.74	50.00	-19.26	AVG	

Neutral line:

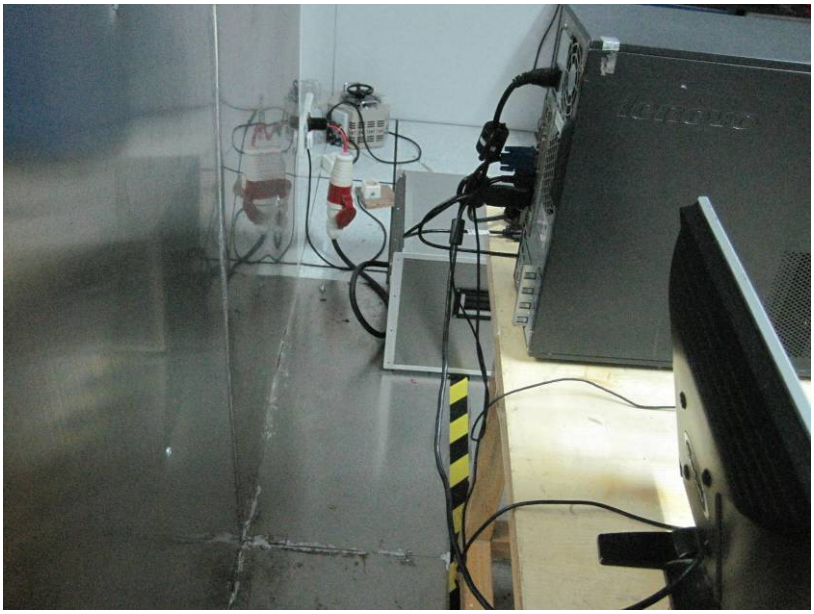


No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2140	26.73	10.66	37.39	63.04	-25.65	QP	
2	0.2140	22.10	10.66	32.76	53.04	-20.28	AVG	
3	0.7980	19.60	12.17	31.77	56.00	-24.23	QP	
4	0.7980	17.22	12.17	29.39	46.00	-16.61	AVG	
5	2.3420	21.32	12.26	33.58	56.00	-22.42	QP	
6	2.3420	19.51	12.26	31.77	46.00	-14.23	AVG	
7	24.0780	19.46	12.48	31.94	60.00	-28.06	QP	
8	24.0780	19.18	12.48	31.66	50.00	-18.34	AVG	

6.1.4 Photograph – Conducted Emission Test Setup

Front View

Back View



6.2 Radiation Emission Data

Test Requirement:	FCC CFR47 Part 15 Section 15.109
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46.0 dBμV/m between 216MHz & 960MHz
	54.0 dBμV/m above 960MHz
	The tighter limit applies at the band edges.
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

EUT Operation :

The EUT was tested in RS232 Serial communication mode.

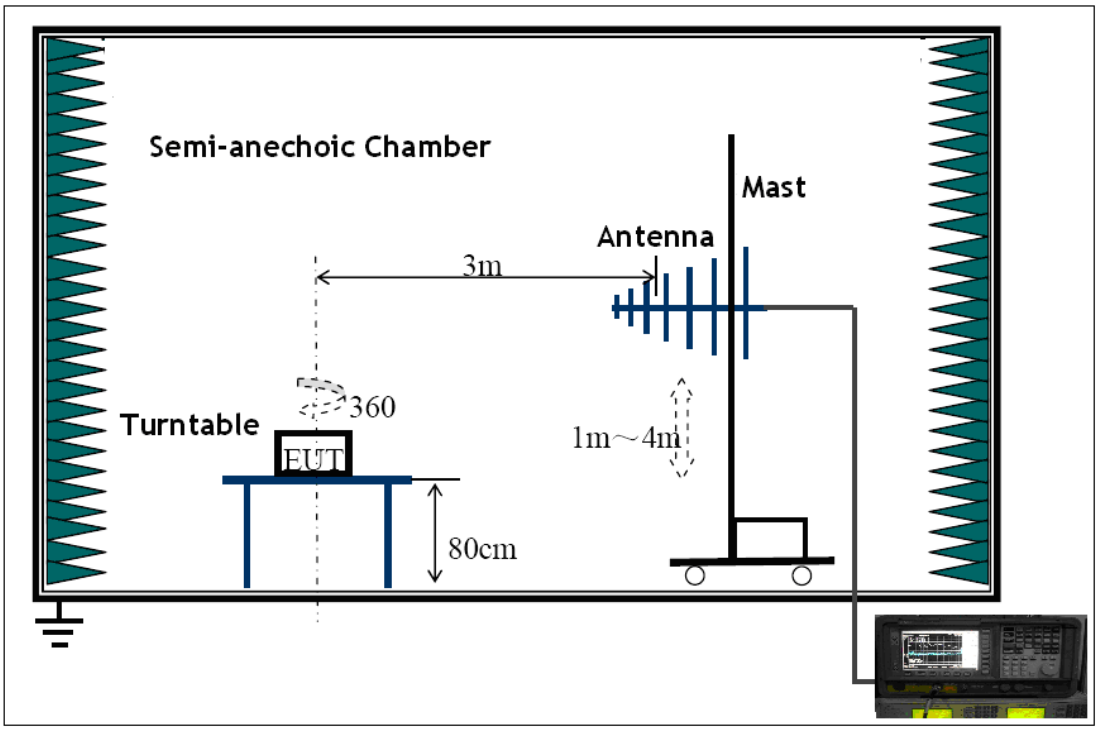
6.2.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC Lab is $\pm$5.03dB.

6.2.2 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC CFR47 Part15 Section 15.109 limits.



The EUT was placed on the test table in shielding room.

6.2.3 Spectrum Analyzer Setup

According to FCC CFR47 Part 15 Section 15.35 and Section 15.109 Rules, the system was tested 30 to 1000MHz.

Below 1GHz

Start Frequency	30 MHz
Stop Frequency	1000MHz
Sweep Speed	Auto
IF Bandwidth	120 KHz
Video Bandwidth	100KHz
Quasi-Peak Adapter Bandwidth	120 KHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	100KHz

6.2.4 Test Procedure

1. The EUT is connected to PC with a AE which has a COM port, and placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

6.2.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

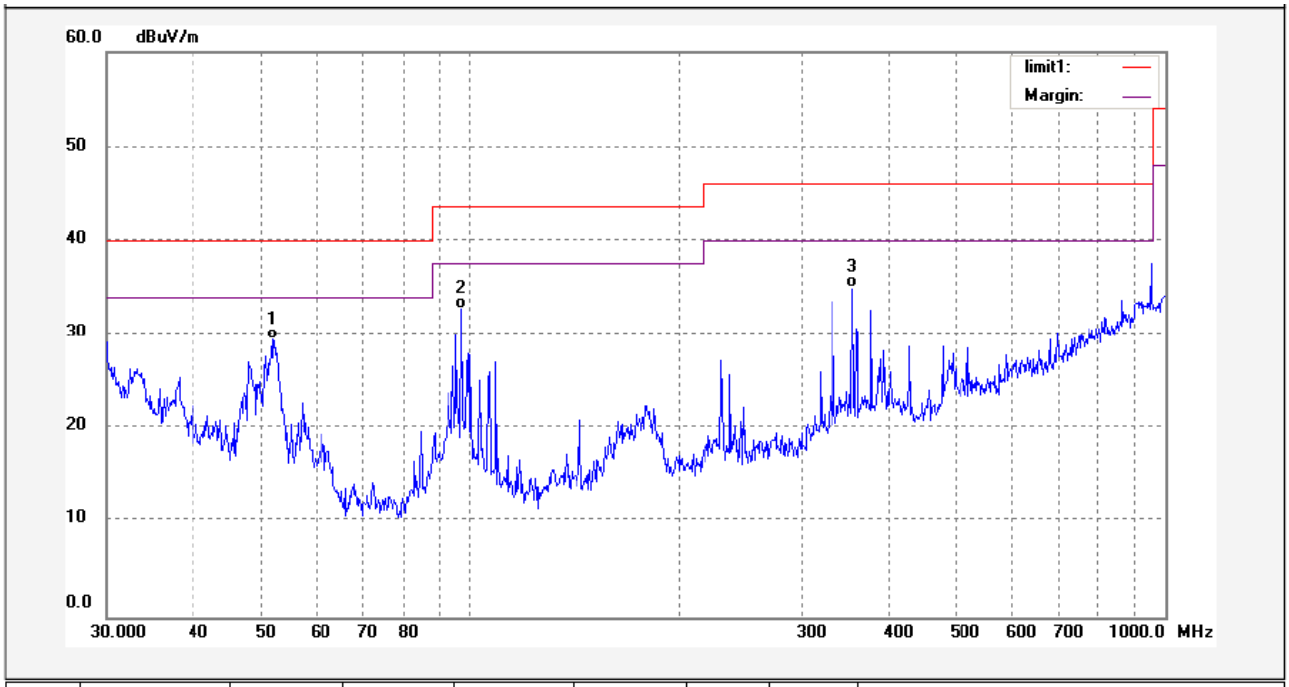
Margin = Corr. Ampl. – Class B Limit

6.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part15 B standards.
The EUT was working in RS232 Serial communication mode.

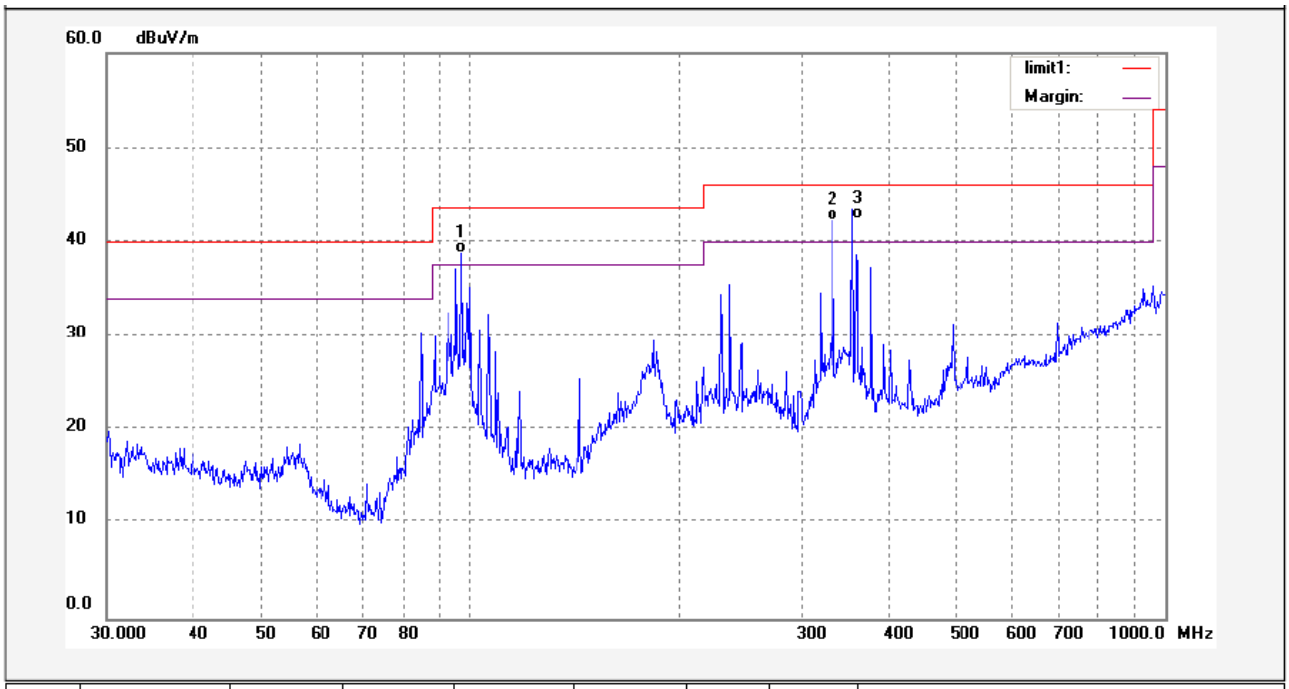
Frequency Range: 30MHz ~ 1000MHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	51.8998	14.98	14.51	29.49	40.00	-10.51	QP	
2	97.3437	19.23	13.54	32.77	43.50	-10.73	QP	
3	354.6912	14.52	20.43	34.95	46.00	-11.05	QP	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	97.3437	25.18	13.54	38.72	43.50	-4.78	QP	
2	332.9536	22.74	19.47	42.21	46.00	-3.79	QP	
3	360.6912	21.68	20.76	42.44	46.00	-3.56	QP	

6.2.7 Photograph – Radiation Emission Test Setup

Front View

Back View

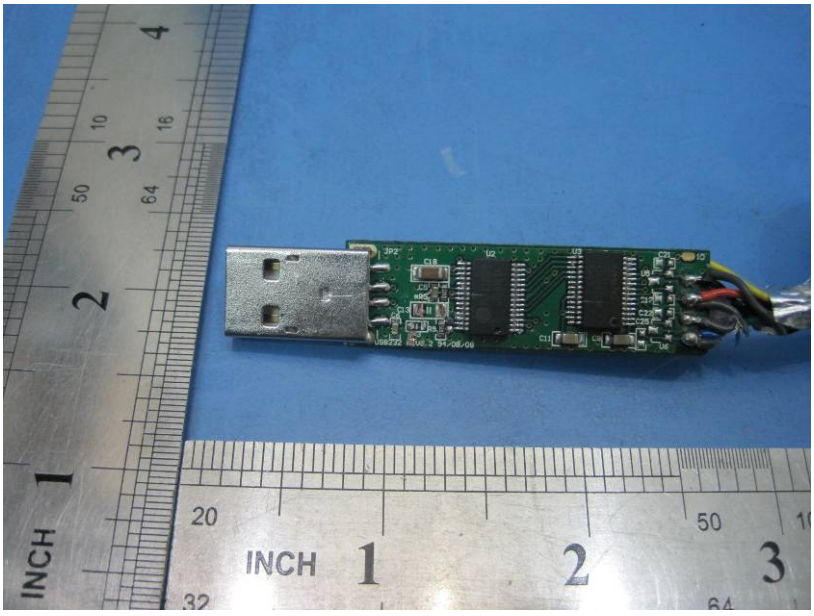
7 Photographs - Constructional Details

7.1 EUT – Front View

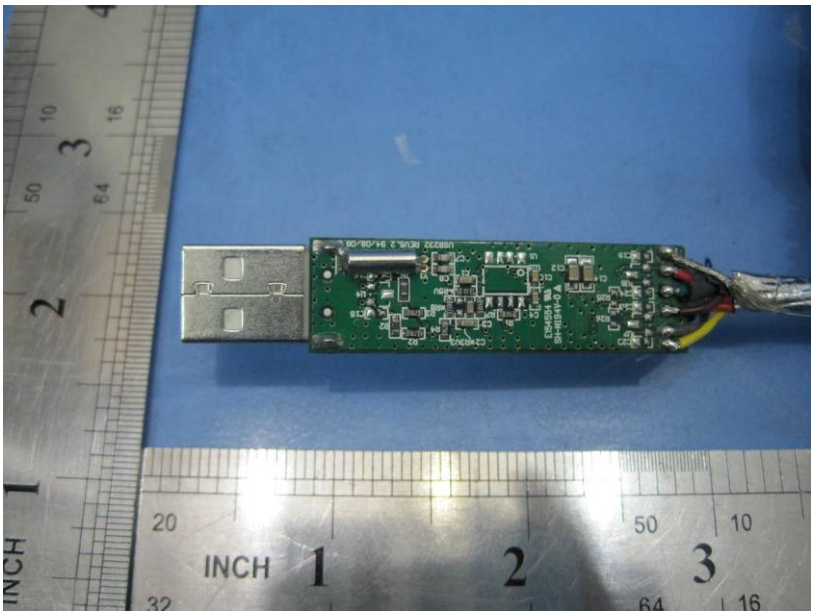
7.2 EUT – Back View

7.3 EUT – Open View

7.4 PCB – Front View



7.5 PCB – Back View



8 FCC Label

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:(1)this device may not cause harmful interference,and (2) this device must accept any interference received, including interference that may cause undesired operation

The Label must not be a stick-on paper. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.