

FCC TEST REPORT

FCC ID : ZQXCV-1215
Applicant : SUZHOU SWITEK ELECTRONICS&TECHNOLOGY CO., LTD.
Address : No.5 Linggang Industry Zone, Luzhi Town, Wuzhong District, Suzhou City


Equipment Under Test (EUT) :

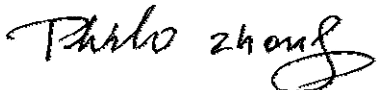
Product Name : VGA Video Splitter DC power input
Model No. : CV-1215

Standards : FCC Part 15 Subpart B:2009

Date of Test : July 2, 2011 ~ July 3, 2011

Date of Issue : July 18, 2011

Test Engineer : Hunk yan 

Reviewed By : Philo zhong 

Test Result	: PASS
--------------------	---------------

Prepared By:
Waltek Services (Shenzhen) Co., Ltd.
1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District,
Shenzhen 518105, China

Tel :+86-755-27553488
Fax:+86-755-27553868

✧ 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

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 2GHz)	FCC Part 15 Subpart B:2009	ANSI C63.4: 2003	Class B	PASS
Conducted Emission (150KHz to 30MHz)	FCC Part 15 Subpart B:2009	ANSI C63.4: 2003	Class B	PASS

3 Contents

1	COVER PAGE.....	1
2	TEST SUMMARY	2
3	CONTENTS.....	3
4	GENERAL INFORMATION	4
4.1	CLIENT INFORMATION.....	4
4.2	GENERAL DESCRIPTION OF E.U.T.....	4
4.3	DETAILS OF E.U.T.....	4
4.4	DESCRIPTION OF SUPPORT UNITS.....	4
4.5	STANDARDS APPLICABLE FOR TESTING	4
4.6	TEST FACILITY	5
4.7	TEST LOCATION	5
5	EQUIPMENT USED DURING TEST	6
6	EMISSIONS TEST RESULTS	8
6.1	CONDUCTED EMISSION DATA	8
6.1.1	<i>E.U.T. Operation</i>	8
6.1.2	<i>EUT Setup.....</i>	9
6.1.3	<i>Conducted Emission Test Result.....</i>	9
6.1.4	<i>Photograph – Conducted Emission Test Setup.....</i>	12
6.2	RADIATION EMISSION DATA	13
6.2.1	<i>Measurement Uncertainty.....</i>	13
6.2.2	<i>EUT Setup.....</i>	14
6.2.3	<i>Spectrum Analyzer Setup</i>	15
6.2.4	<i>Test Procedure.....</i>	16
6.2.5	<i>Corrected Amplitude & Margin Calculation.....</i>	16
6.2.6	<i>Summary of Test Results.....</i>	16
6.2.7	<i>Photograph – Radiation Emission Test Setup</i>	21
7	PHOTOGRAPHS - CONSTRUCTIONAL DETAILS.....	23
7.1	PRODUCT VIEW.....	23
7.2	EUT – FRONT VIEW	23
7.3	EUT – BACK VIEW	24
7.4	EUT – OPEN VIEW	24
7.5	PCB – FRONT VIEW	25
7.6	PCB – BACK VIEW.....	25
8	FCC LABEL.....	26

4 General Information

4.1 Client Information

Applicant : SUZHOU SWITEK ELECTRONICS&TECHNOLOGY CO., LTD.

Address of Applicant : No.5 Linggang Industry Zone, Luzhi Town, Wuzhong District, Suzhou City

Manufacturer : SUZHOU SWITEK ELECTRONICS&TECHNOLOGY CO., LTD.

Address of Manufacturer : No.5 Linggang Industry Zone, Luzhi Town, Wuzhong District, Suzhou City

4.2 General Description of E.U.T.

Product Name : VGA Video Splitter DC power input

Model No. : CV-1215

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 VGA Video Splitter DC power input. The standards used were FCC Part 15 Subpart B:2009.

4.6 Test Facility

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

- **IC – Registration No.: 7760A**

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, Aug.03, 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	MY45114 943	W20080 01	9k- 26.5GHz	Aug- 2010	Aug- 2011	Wws2 00815 96	±1dB
Trilog Broadband Antenne 30- 3000 MHz	SCHWARZB ECK MESS- ELEKTROM / VULB9163	336	W20080 02	30-3000 MHz	Aug- 2010	Aug- 2011	-	±1dB
Broad-band Horn Antenna 1- 18 GHz	SCHWARZB ECK MESS- ELEKTROM / BBHA9120D	667	W20080 03	1-18GHz	Aug- 2010	Aug- 2011	-	f<10 GHz: ±1dB 10GHz<f <18 GHz: ±1.5dB
Broadband Preamplifier 0.5-18 GHz	SCHWARZB ECK MESS- ELEKTROM / BBV 9718	9718-148	W20080 04	0.5-18GHz	Aug- 2010	Aug- 2011	-	±1.2dB
10m Coaxial Cable with N-male Connectors usable up to 18GHz,	SCHWARZB ECK MESS- ELEKTROM /AK 9515 H	-	-	-	Aug- 2010	Aug- 2011	-	-
10m 50 Ohm Coaxial Cable with N-plug, individual length, usable up to 3(5)GHz, Connector	SCHWARZB ECK MESS- ELEKTROM /AK 9513	-	-	-	Aug- 2010	Aug- 2011	-	-
Positioning Controller	C&C LAB/ CC-C-IF	-	-	-	N/A	N/A	-	-
Color Monitor	SUNSP0/ SP-14C	-	-	-	N/A	N/A	-	-
Test Receiver	ROHDE&SC HWARZ/ ESPI	101155	W20050 01	9k-3GHz	Aug- 2010	Aug- 2011	Wws2 00809 42	±1dB
EMI Receiver	Beijingkehua n	KH3931	-	9k-1GHz	Aug- 2010	Aug- 2011	-	-
Two-Line V- Network	ROHDE&SC HWARZ/ ENV216	100115	W20050 02	50Ω/50μ H	Aug- 2010	Aug- 2011	Wws2 00809 41	±10%
V-LISN	SCHWARZB ECK MESS- ELEKTRO NIK	NSLK 8128	8128- 259	9k-30MHz	Aug- 2010	Aug- 2011	-	-
PC	Lenovo	T2900D	-	-	Aug- 2010	Aug- 2011	-	±1dB

WALTEK SERVICES

Reference No.: WT11062603-U-E-F

Equipment Name	Manufacturer Model	Equipment No.	Internal No.	Specification	Cal. Date	Due Date	Cert. No.	Uncertainty
Display1	ViewSonic	S27996-1W	-	-	Aug-2010	Aug-2011	-	±0.5dB
Display2	Lenovo	9227-AC6	-	-	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 Emissions Test Results

6.1 Conducted Emission Data

Test Requirement:	FCC Part 15.107
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dB μ V between 0.15MHz & 0.5MHz 56 dB μ V between 0.5MHz & 5MHz 60 dB μ V between 5MHz & 30MHz
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:

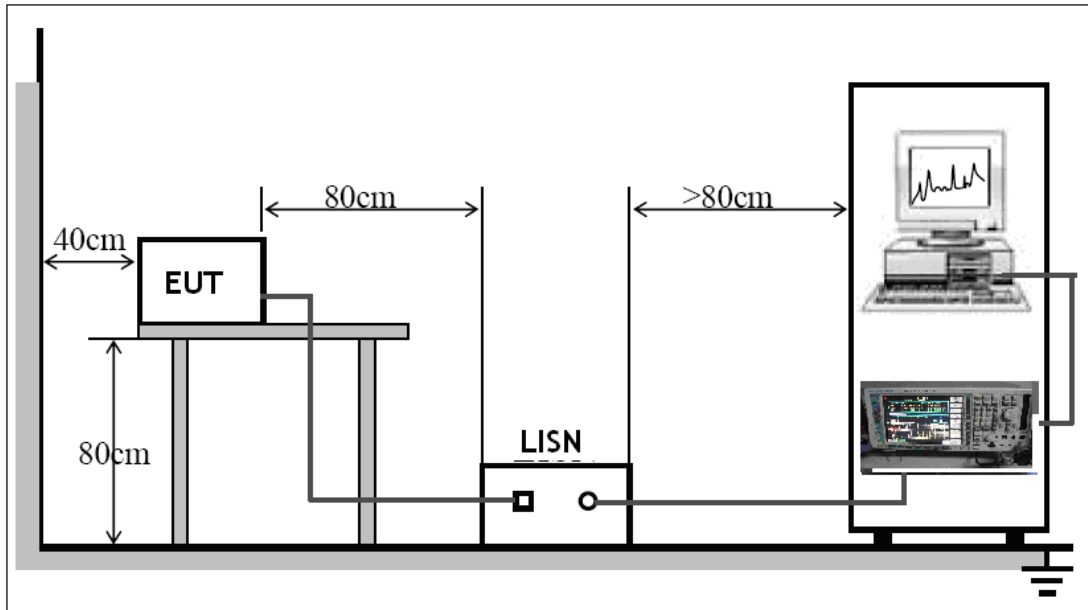
The EUT was tested in working mode, connected with the PC and two displays, and scrolling the “H” letter in full screen, the resolution was 1024*768, 60Hz.

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 Part15 B 15.107 limits.

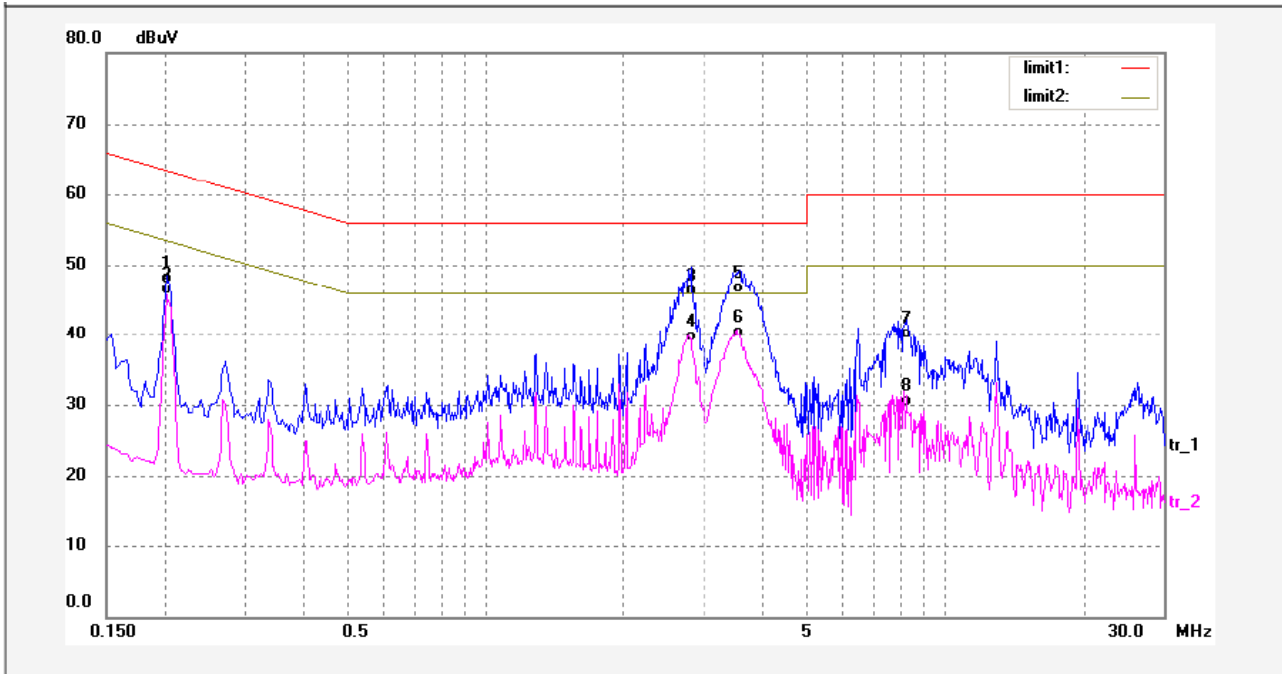


The EUT was placed on the test table in shielding room

6.1.3 Conducted Emission Test Result

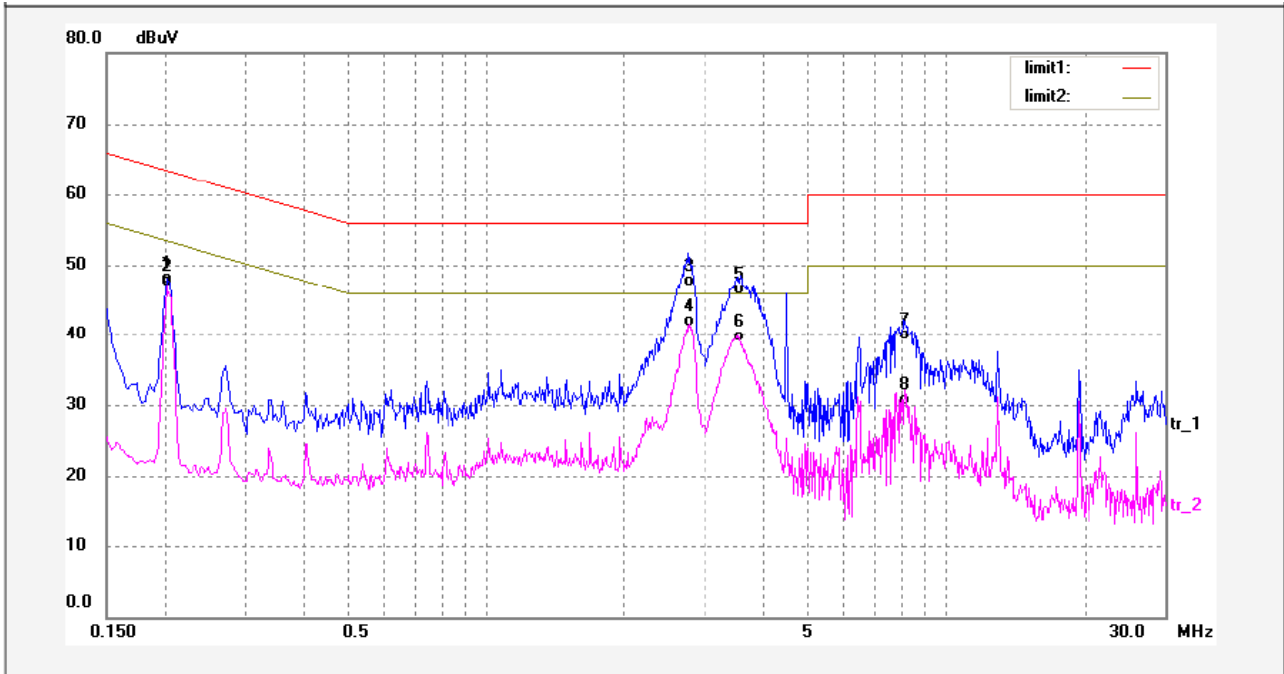
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2020	36.57	10.67	47.24	63.52	-16.28	QP	
2	0.2020	35.04	10.67	45.71	53.52	-7.81	AVG	
3	2.8020	33.06	12.38	45.44	56.00	-10.56	QP	
4	2.8020	26.49	12.38	38.87	46.00	-7.13	AVG	
5	3.5900	33.27	12.54	45.81	56.00	-10.19	QP	
6	3.5900	26.98	12.54	39.52	46.00	-6.48	AVG	
7	8.2380	27.61	11.77	39.38	60.00	-20.62	QP	
8	8.2380	18.00	11.77	29.77	50.00	-20.23	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2020	36.65	10.67	47.32	63.52	-16.20	QP	
2	0.2020	36.19	10.67	46.86	53.52	-6.66	AVG	
3	2.7580	34.60	12.36	46.96	56.00	-9.04	QP	
4	2.7580	28.70	12.36	41.06	46.00	-4.94	AVG	
5	3.6020	33.12	12.54	45.66	56.00	-10.34	QP	
6	3.6020	26.34	12.54	38.88	46.00	-7.12	AVG	
7	8.1100	27.36	11.71	39.07	60.00	-20.93	QP	
8	8.1100	18.12	11.71	29.83	50.00	-20.17	AVG	

6.1.4 Photograph – Conducted Emission Test Setup

Front View



Back View



6.2 Radiation Emission Data

Test Requirement:	FCC Part15.109
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	30MHz to 2GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dB μ V/m between 30MHz & 88MHz 43.5 dB μ V/m between 88MHz & 216MHz 46.0 dB μ V/m between 216MHz & 960MHz 54.0 dB μ V/m above 960MHz 74.0 dB μ V/m between 1GHz ~ 2GHz for peak 54.0 dB μ V/m between 1GHz ~ 2GHz for AVG
Detector:	Peak for pre-scan (120kHz resolution bandwidth)

EUT Operation :

The EUT was tested in working mode, connected with the PC and two displays, and scrolling the “H” letter in full screen, the resolution was 1024*768, 60Hz.

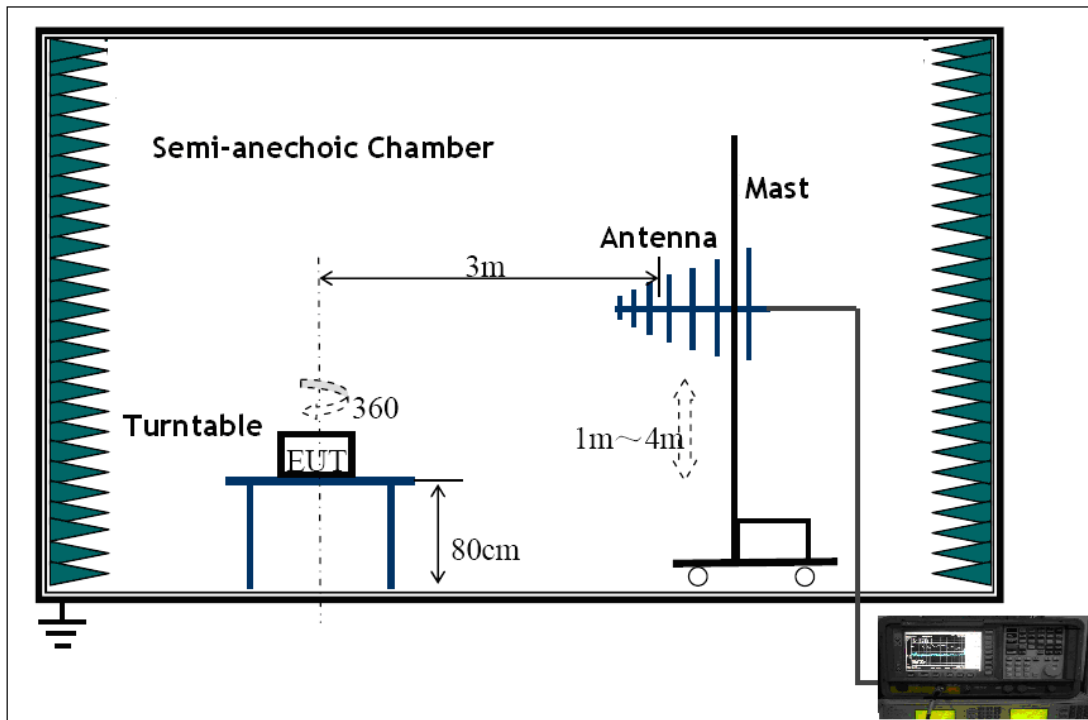
6.2.1 Measurement Uncertainty

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 ± 5.03 dB.

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 Part15 B limits.



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

6.2.3 Spectrum Analyzer Setup

According to FCC Part15 B Rules, the system was tested 30 to 2000MHz.

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

Above 1GHz

Start Frequency	1000 MHz
Stop Frequency	2000MHz
Sweep Speed	Auto
IF Bandwidth.....	120 KHz
Video Bandwidth.....	1MHz
Quasi-Peak Adapter Bandwidth	120 KHz
Quasi-Peak Adapter Mode	Normal
Resolution Bandwidth	1MHz

6.2.4 Test Procedure

1. The EUT is 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.
7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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

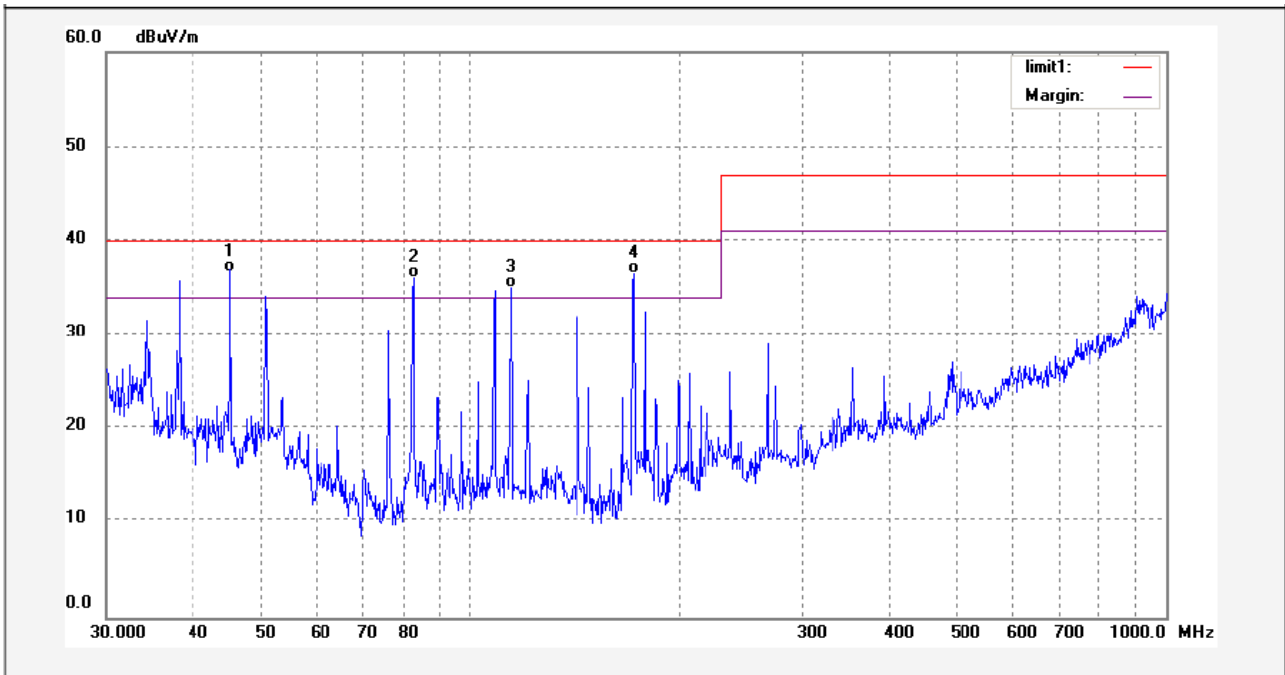
$$\text{Margin} = \text{Corr. Ampl.} - \text{Class B Limit}$$

6.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part15 B standards.

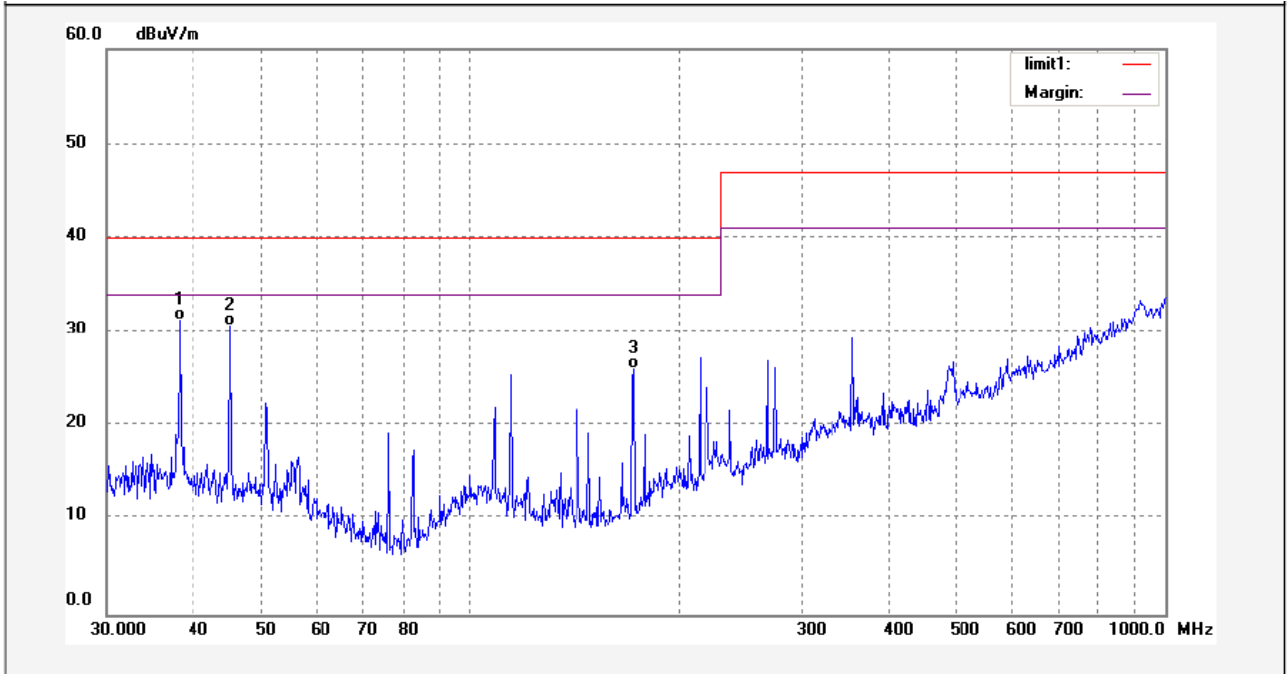
Frequency Range: 30MHz ~ 1000MHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	45.2538	22.02	14.69	36.71	40.00	-3.29	QP	
2	82.8162	26.39	9.63	36.02	40.00	-3.98	QP	
3	114.4197	22.28	12.74	35.02	40.00	-4.98	QP	
4	171.9922	24.35	12.18	36.53	40.00	-3.47	QP	

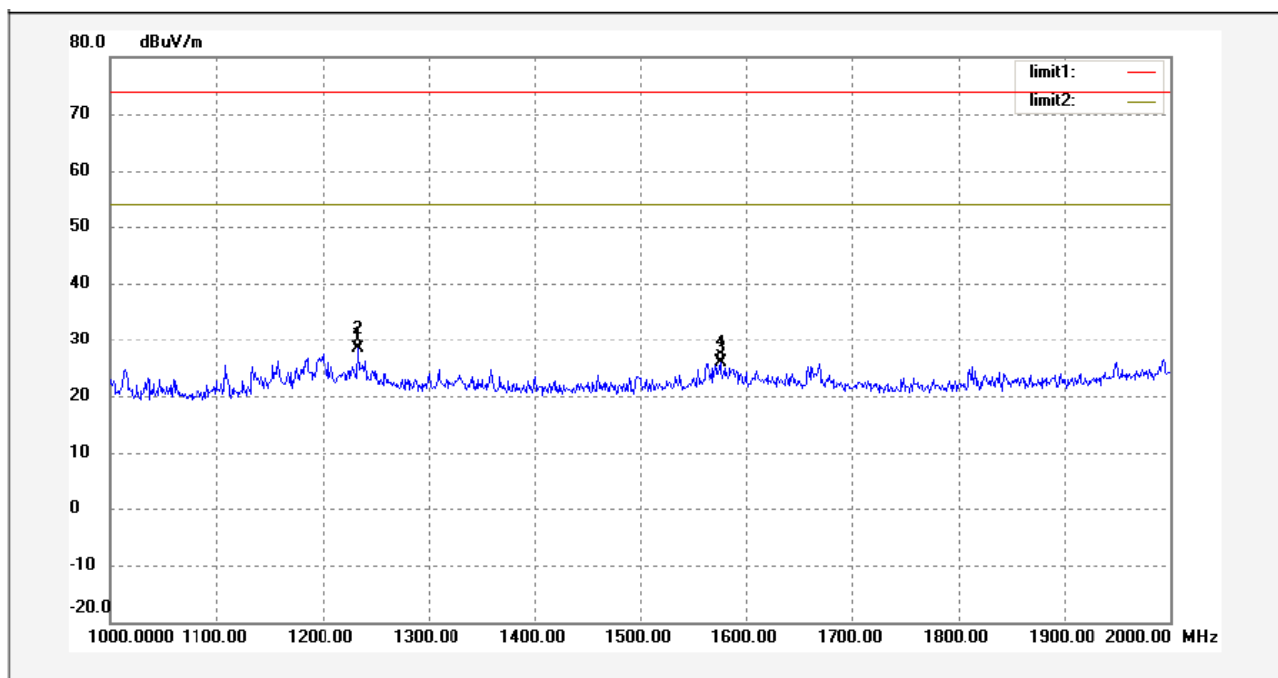
Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	38.2304	14.66	16.63	31.29	40.00	-8.71	QP	
2	45.2536	15.92	14.69	30.61	40.00	-9.39	QP	
3	171.9921	13.80	12.18	25.98	40.00	-14.02	QP	

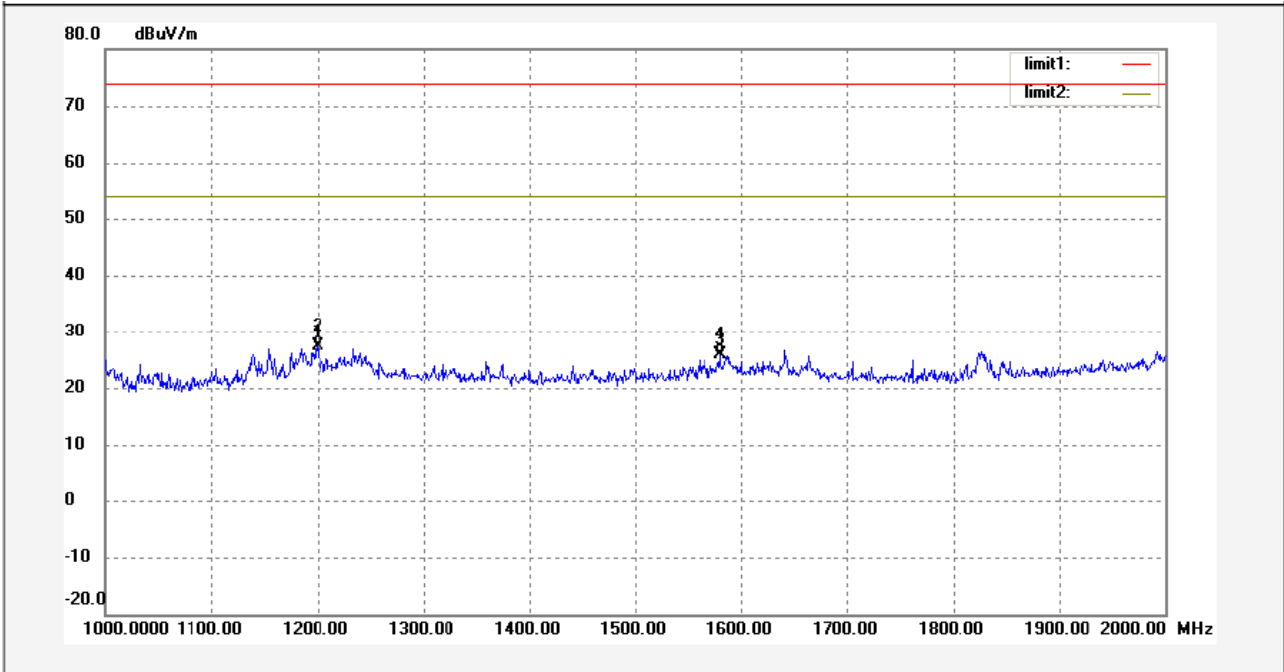
Frequency Range: 1GHz ~ 2GHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1233.467	42.39	-13.97	28.42	74.00	-45.58	peak	
2	1233.467	42.39	-13.97	28.42	54.00	-25.58	AVG	
3	1576.152	39.65	-13.77	25.88	74.00	-48.12	peak	
4	1576.152	39.65	-13.77	25.88	54.00	-28.12	AVG	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1199.399	41.57	-14.31	27.26	74.00	-46.74	peak	
2	1199.399	41.57	-14.31	27.26	54.00	-26.74	AVG	
3	1580.160	39.72	-13.78	25.94	74.00	-48.06	peak	
4	1580.160	39.72	-13.78	25.94	54.00	-28.06	AVG	

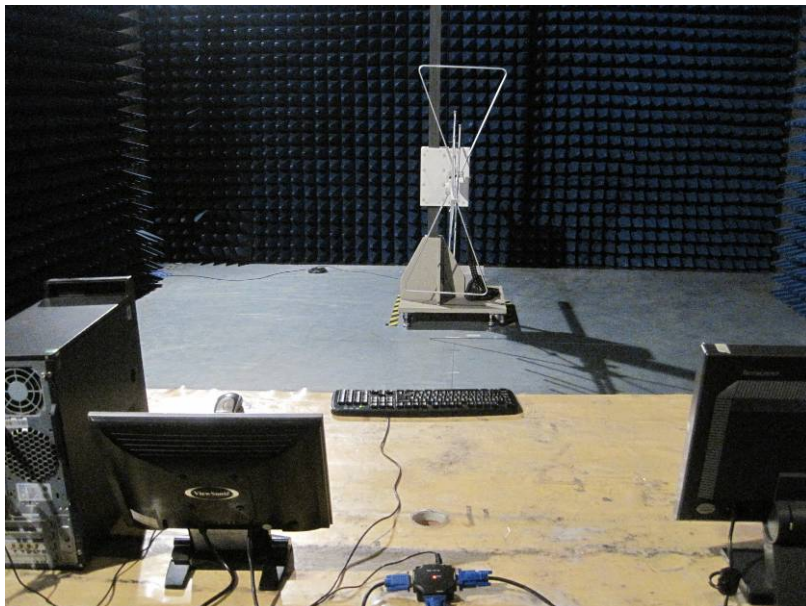
6.2.7 Photograph – Radiation Emission Test Setup

Below 1GHz

Front View

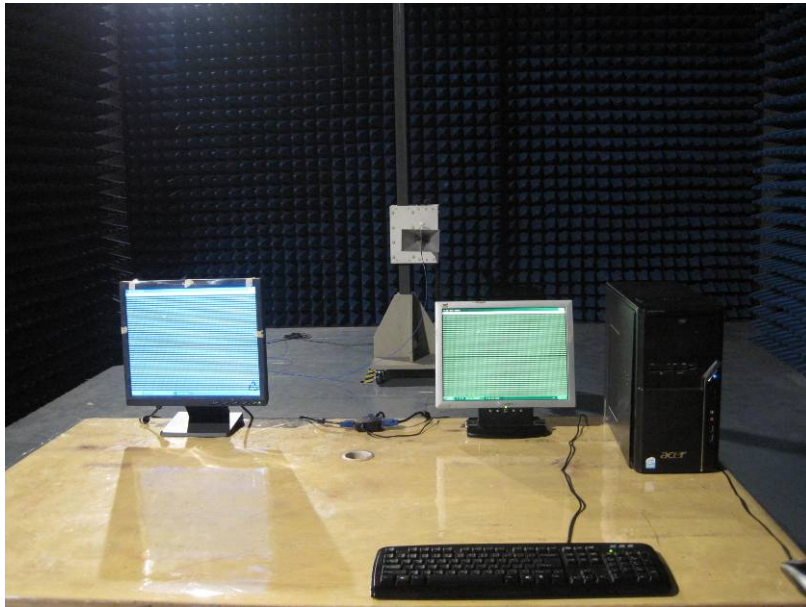


Back View

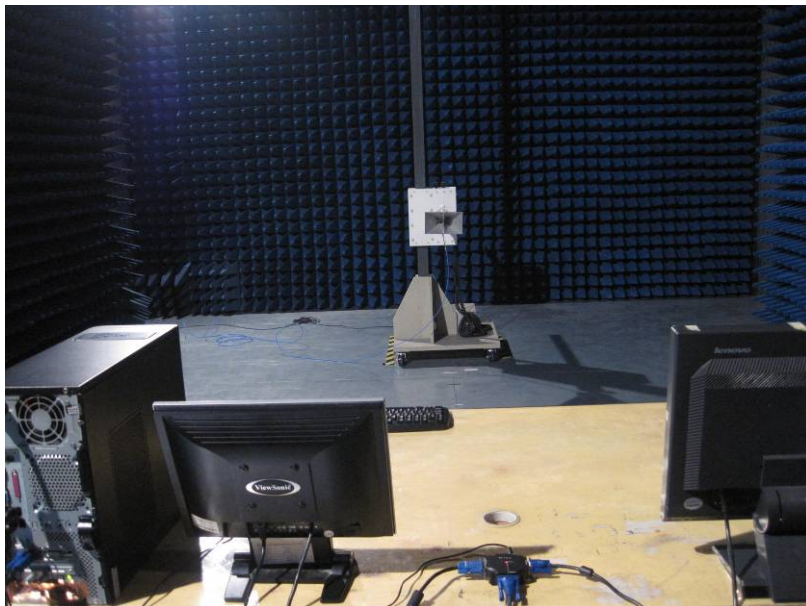


Above 1GHz

Front View



Back View



7 Photographs - Constructional Details

7.1 Product View



7.2 EUT – Front View



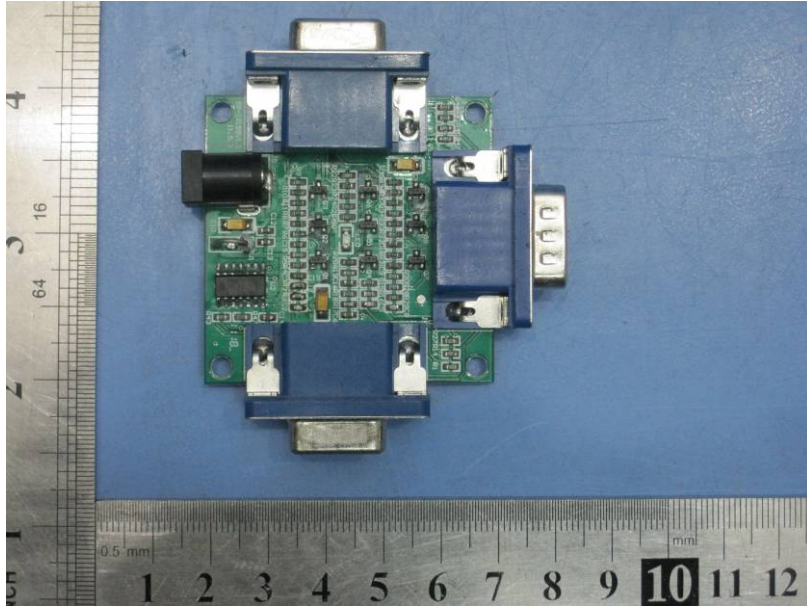
7.3 EUT – Back View



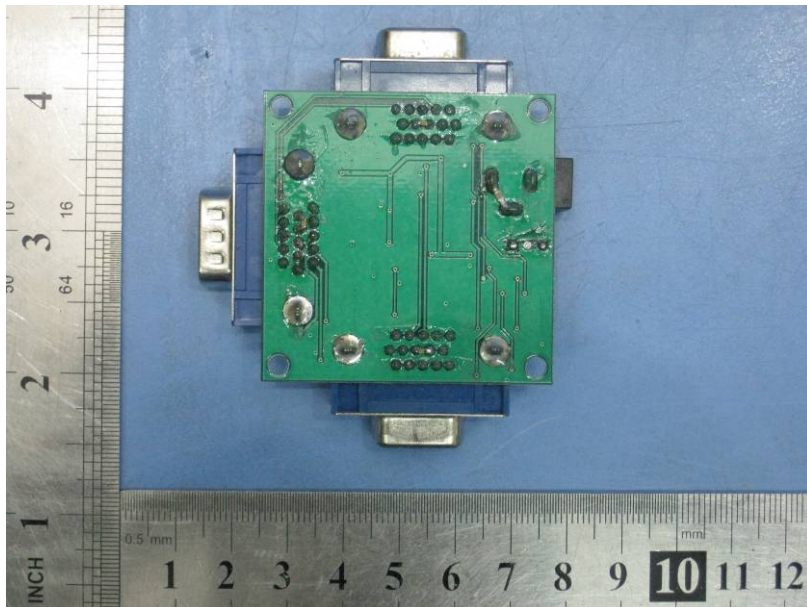
7.4 EUT – Open View



7.5 PCB – Front View



7.6 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.

