

Application for FCC Certificate
On Behalf of
Shanghai Viva Home Improvement Co., Ltd.

Ballast

Model No.	Serial No.
VEB82155	E2008121817
VEB82170	E2008121822
VEB82223	E2008121818
VEB82234	E2008121816
VEB82233	E2008121823

FCC ID : OGB822

Prepared For : Shanghai Viva Home Improvement Co., Ltd.
No. 888, Zhangcao Rd. Caojing, Jinshan,
Shanghai 201507, China

Prepared By : Audix Technology (Shanghai) Co., Ltd.
3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

Tel: +86-21-64955500
Fax: +86-21-64955491

Report No. : ACI-F08077
Date of Test : Dec 19, 2008
Date of Report : Dec 22, 2008

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TEST REPORT FOR FCC CERTIFICATE

Applicant : Shanghai Viva Home Improvement Co., Ltd.
Manufacturer : Shanghai Viva Home Improvement Co., Ltd.
EUT Description : Ballast

Model No.	Serial No.	Power Supply
VEB82155	E2008121817	120V/60Hz
VEB82170	E2008121822	
VEB82223	E2008121818	
VEB82234	E2008121816	
VEB82233	E2008121823	

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 18 SUBPART C CLASS B OCTOBER 2008
AND MP-5/1986*

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 18 Subpart C (Class B) limits both radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report shows that the EUT (M/N: VEB82155, VEB82170, VEB82223, VEB82234, VEB82233; S/N: E2008121817, E2008121822, E2008121818, E2008121816, E2008121823) which was tested in 3m anechoic chamber on Dec 19, 2008 is technically compliance with the FCC official limits also.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report contains data that are not covered by the NVLAP accreditation.

This 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.

Date of Test : Dec 19, 2008 Date of Report : Dec 22, 2008

Producer : Zeno Gu
ZENO GU/ Assistant

Review : Sammy Chen
SAMMY CHEN / Assistant Manager

AUDIX® For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Byron Kwo
Authorized Signature EMC BYRON KWO / Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description / Test Item	Test Standard	Meets Limit	Results
EMISSION			
Conducted Disturbance at the Mains Terminals	FCC RULES AND REGULATIONS PART 18 SUBPART C OCTOBER 2008 AND MP-5/1986	18.307(c) Consumer Equipment	Pass
Magnetic Field Strength	FCC RULES AND REGULATIONS PART 18 SUBPART C OCTOBER 2008 AND MP-5/1986	18.305(b) Any type, Non-ISM Frequency	Pass
Radiated Emission	FCC RULES AND REGULATIONS PART 18 SUBPART C OCTOBER 2008 AND MP-5/1986	18.305(c) Consumer Equipment	Pass

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description : Ballast

Type of EUT : ☒ Production ☐ Pre-product ☐ Pro-type

Model No.	Serial No.	Lamp
VEB82155	E2008121817	55W Lamp
VEB82170	E2008121822	70W Lamp
VEB82223	E2008121818	22W Lamp + 32W Lamp
VEB82234	E2008121816	32W Lamp*2
VEB82233	E2008121823	32W Lamp + 40W Lamp

Note 1 : VEB82155, VEB82170, VEB82223, VEB82234 and VEB82233 have same principle diagram and circuit board.

Note 2 : VEB82234 and VEB82233 are the same except for different lamp tube.

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Manufacturer : Shanghai Viva Home Improvement Co., Ltd.
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Shanghai 201507, China

Model No	Apparent Power (VA)	Real Power (W)	Power Factor
VEB82155	96.00	55.00	0.57
VEB82170	129.00	70.00	0.54
VEB82223	100.00	56.00	0.56
VEB82234	113.00	73.00	0.54
VEB82233	117.00	62.00	0.53

2.2 Lamp

2.2.1 55W Lamp

Manufacturer : VIVA
Model Number: TC 55W

2.2.2 70W Lamp

Manufacturer : VIVA
Model Number: 2C 70W

2.2.3 22W Lamp

Manufacturer : VIVA
Model Number: FC8T9 22W

2.2.4 32W Lamp

Manufacturer : VIVA
Model Number: FC12T9 32W

2.2.5 40W Lamp

Manufacturer : VIVA
Model Number: FC 40W

2.3 Description of Test Facility

Site Description : Sept. 17, 1998 file on
(Semi-Anechoic Chamber) July 26, 2006 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34Bldg 680 Guiping Rd,
Caohejing Hi-Tech Park,
Shanghai 200233, China

NVLAP Lab Code : 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty: U = 1.26 dB
Radiated Emission Expanded Uncertainty : U = 3.02 dB

3 CONDUCTED EMISSION TEST

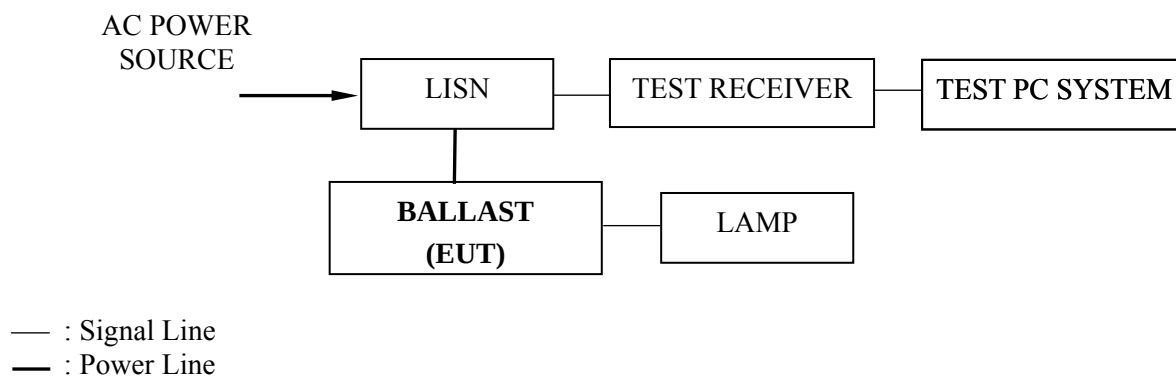
3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESHS10	830223/007	Apr 02, 2008	Apr 02, 2009
2.	Line Impedance Stabilization Network (LISN)	FCC	KNW-407	8-1280-4	Apr 02, 2008	Apr 02, 2009
3.	50 Ω Coaxial Switch	Anritsu	MP59B	6200426389	Sep 19, 2008	Mar 19, 2009
4.	50 Ω Terminator	Anritsu	BNC	001	Apr 02, 2008	Apr 02, 2009
5.	Software	Audix	E3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup

3.2.1 Conducted Disturbance Test Setup



3.3 Conducted Emission Limits (FCC Part 18 Consumer Equipment)

Frequency (MHz)	Maximum RF Line Voltage	
	(μ V)	dB(μ V)
0.45 ~ 2.51	250	48
2.51 ~ 3.0	3000	70
3.0 ~ 30	250	48
NOTE 1 – RF Line Voltage dB (μ V) = 20 log RF Line Voltage (μ V) NOTE 2 – The tighter limits shall apply at the boundary between two frequency ranges.		

3.4 Test Configuration

The EUT (listed in Sec.2.1) was installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT as shown in Sec. 3.2.

3.5.2 Turn on the power of EUT.

3.5.3 The EUT will be operated normally.

3.5.4 Set the EUT on the lighting test mode, and then test.

3.6 Test Procedures

The EUT and lamp were connected to the power mains through a Line Impedance Stabilization Network (LISN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to MP-5/1986 during conducted emission test.

The I.F bandwidth of Test Receiver ESHS10 was set at 10 kHz.

The frequency range from 450 kHz to 30 MHz for Lighting mode was checked.

The test modes were done on conducted test and the test results of the highest emissions are listed in Sec. 3.7.

3.7 Test Results

< PASS >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Model No	Test Mode	Data Page
VEB82155	Lighting	P9
VEB82170		P10
VEB82223		P11
VEB82234		P12
VEB82233		P13

NOTE 1 – Factor = Cable Loss + LISN Factor.

NOTE 2 – Emission Level = Meter Reading + Factor.

NOTE 3 – All readings are Quasi-Peak values. (QP)

NOTE 4 – The worst case is for VEB82155 model. The worst emission is detected at 0.489 MHz with corrected signal level of 46.70 dB (μV) (limit is 48.00 dB (μV)), when the VA of the EUT is connected to LISN.

EUT : Ballast Temperature : 21°C

Model No. : VEB82155 Humidity : 52%RH

Serial No. : E2008121817 Date of Test : Dec 19, 2008

Test Mode : Lighting

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
VA	0.498	46.00	0.70	46.70	48.00	1.30	QP
	0.654	44.47	0.62	45.09	48.00	2.91	
	0.907	43.14	0.61	43.75	48.00	4.25	
	1.087	41.02	0.62	41.64	48.00	6.36	
	5.807	37.53	0.78	38.31	48.00	9.69	
	20.300	23.69	1.02	24.71	48.00	23.29	
VB	0.456	44.40	0.71	45.11	48.00	2.89	QP
	0.824	44.25	0.61	44.86	48.00	3.14	
	0.987	43.26	0.61	43.87	48.00	4.13	
	1.740	36.50	0.63	37.13	48.00	10.87	
	5.430	33.07	0.76	33.83	48.00	14.17	
	16.875	29.83	0.97	30.80	48.00	17.20	

TEST ENGINEER: YONG XU

EUT : Ballast Temperature : 21°C

Model No. : VEB82170 Humidity : 52%RH

Serial No. : E2008121822 Date of Test : Dec 19, 2008

Test Mode : Lighting

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
VA	0.483	44.30	0.70	45.00	48.00	3.00	QP
	0.610	45.90	0.64	46.54	48.00	1.46	
	0.742	43.56	0.61	44.17	48.00	3.83	
	5.141	37.13	0.74	37.87	48.00	10.13	
	14.940	32.89	0.85	33.74	48.00	14.26	
	26.560	33.53	1.19	34.72	48.00	13.28	
VB	0.450	45.60	0.71	46.31	48.00	1.69	QP
	0.484	45.30	0.70	46.00	48.00	2.00	
	0.603	45.41	0.64	46.05	48.00	1.95	
	0.783	44.51	0.61	45.12	48.00	2.88	
	5.522	39.01	0.76	39.77	48.00	8.23	
	20.557	26.94	1.04	27.98	48.00	20.02	

TEST ENGINEER: YONG XU

EUT : Ballast Temperature : 21°C

Model No. : VEB82223 Humidity : 52%RH

Serial No. : E2008121818 Date of Test : Dec 19, 2008

Test Mode : Lighting

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
VA	0.463	44.00	0.70	44.70	48.00	3.30	QP
	0.519	43.18	0.69	43.87	48.00	4.13	
	0.900	39.09	0.61	39.70	48.00	8.30	
	5.522	35.11	0.76	35.87	48.00	12.13	
	17.017	33.69	0.92	34.61	48.00	13.39	
	29.749	29.43	1.31	30.74	48.00	17.26	
VB	0.506	44.89	0.70	45.59	48.00	2.41	QP
	0.817	40.27	0.61	40.88	48.00	7.12	
	1.078	37.77	0.62	38.39	48.00	9.61	
	4.868	36.71	0.73	37.44	48.00	10.56	
	5.856	38.52	0.78	39.30	48.00	8.70	
	22.265	26.91	1.12	28.03	48.00	19.97	

TEST ENGINEER: YONG XU

EUT : Ballast Temperature : 21°C

Model No. : VEB82234 Humidity : 52%RH

Serial No. : E2008121816 Date of Test : Dec 19, 2008

Test Mode : Lighting

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
VA	0.528	40.93	0.69	41.62	48.00	6.38	QP
	0.856	32.89	0.61	33.50	48.00	14.50	
	1.148	29.04	0.62	29.66	48.00	18.34	
	1.884	27.08	0.62	27.70	48.00	20.30	
	5.711	36.28	0.77	37.05	48.00	10.95	
	15.451	25.72	0.87	26.59	48.00	21.41	
VB	0.530	39.20	0.68	39.88	48.00	8.12	QP
	0.622	37.69	0.63	38.32	48.00	9.68	
	1.381	31.81	0.63	32.44	48.00	15.56	
	2.550	30.43	0.66	31.09	69.50	38.41	
	5.807	32.38	0.78	33.16	48.00	14.84	
	16.113	31.84	0.96	32.80	48.00	15.20	

TEST ENGINEER: YONG XU

EUT : Ballast Temperature : 21°C

Model No. : VEB82233 Humidity : 52%RH

Serial No. : E2008121823 Date of Test : Dec 19, 2008

Test Mode : Lighting

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
VA	0.528	43.78	0.69	44.47	48.00	3.53	QP
	0.702	40.89	0.60	41.49	48.00	6.51	
	1.060	37.12	0.61	37.73	48.00	10.27	
	2.111	32.52	0.63	33.15	48.00	14.85	
	5.407	33.71	0.76	34.47	48.00	13.53	
	13.508	25.53	0.86	26.39	48.00	21.61	
VB	0.530	44.14	0.68	44.82	48.00	3.18	QP
	0.617	43.24	0.64	43.88	48.00	4.12	
	1.238	36.61	0.63	37.24	48.00	10.76	
	3.568	30.78	0.70	31.48	48.00	16.52	
	12.161	31.92	0.97	32.89	48.00	15.11	
	15.581	33.70	0.96	34.66	48.00	13.34	

TEST ENGINEER: YONG XU

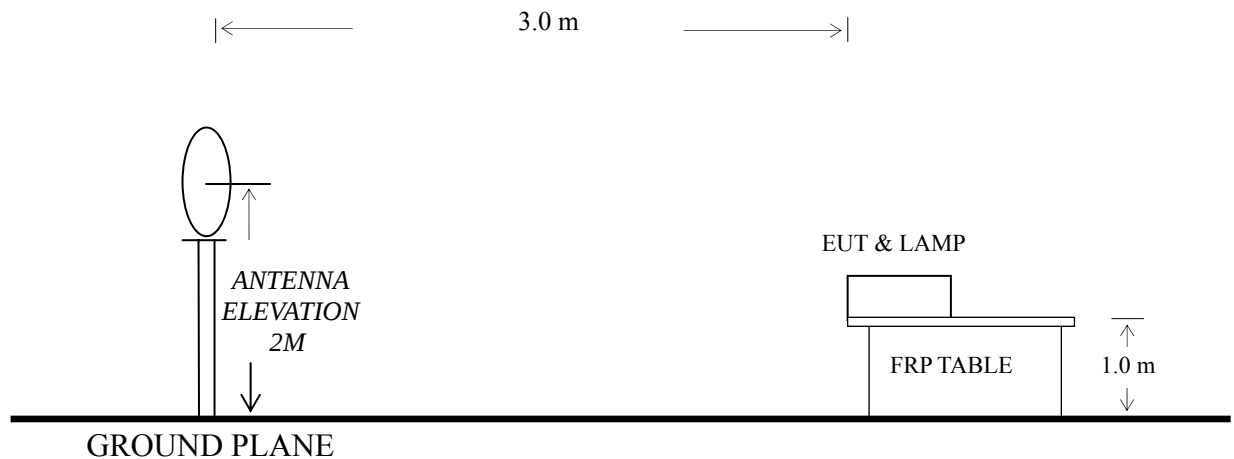
4 MAGNETIC FIELD EMISSION TEST

4.1 Test Equipment

The following test equipment are used during the field strength test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Loop Antenna	Schaffner	HLA6120	1193	Apr 06, 2008	Apr 06, 2009
2.	Test Receiver	R&S	ESHS10	844077/020	Feb 20, 2008	Feb 20, 2009
3.	50Ω Coaxial Switch	ANRITSU	MP59B	6200426390	Sep 18, 2008	Mar 18, 2009
4.	Software	Audix	E3	SET00200 9912M295-2	--	--

4.2 Block Diagram of Test Setup



4.3 Magnetic Field Emission Limit (FCC Part 18 305(b))

All emanations from Non-ISM frequency devices or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Frequency (MHz)	Distance (m)	Field Strength Limits ($\mu\text{V/m}$)	Converted Field Strength Limits By 3 Meters Measuring Distance dB ($\mu\text{V/m}$)
0.009~30	300	15	63.5
NOTE 1 - Distance refers to the distance in meters between the test antenna and the closed point of any part of the EUT.			
NOTE 2 - Audix Technology (Shanghai) Co., Ltd. only has a 3 meters Semi-anechoic Chamber to do the radiated disturbance test, therefore, Audix Shanghai used 3 meters measuring distance and converted limits to judge the EUT compliance with or not.			

4.4 Test Configuration

The FCC part 18 regulations test method must be used to find the maximum emission during Radiated Emission test.

The configuration of the EUT is same as used in conducted emission test. Please Refer to Section 3.4.

4.5 Operating Condition of EUT

- 4.5.1 Setup the EUT as shown on Section 4.2.
- 4.5.2 Turn on the power of all equipments.
- 4.5.3 Let the EUT work in test mode and test it.

4.6 Test Procedures

The EUT and lamp were placed on a table, which is 1.0 meter above ground. Measurements are performed at distance 3.0m with a 0.6m loop antenna as described in 2.2.4 of MP-5. The antenna shall be with the lower edge of the loop at height 2m above the floor.

The bandwidth setting on the test receiver (R&S Test Receiver ESHS10) is 200Hz from 9kHz to 150kHz and 10kHz from 150kHz to 30MHz. The EUT is tested in a semi-anechoic chamber.

All the test results are attached within Sec. 4.7.

4.7 Test Results

<PASS>

Refer to the following pages.

Model No	Test Mode	Data Page
VEB82155	Lighting	P17
VEB82170		P18
VEB82223		P19
VEB82234		P20
VEB82233		P21

NOTE 1 - Factor = Antenna Factor + Cable Loss

NOTE 2 - All reading are Quasi-Peak Values.

NOTE 3 – The worst case is for VEB82234 model. The worst emission is detected at 0.025 MHz with corrected signal level of 56.70 dB (μV) (limit is 63.50 dB (μV)).

EUT : Ballast Temperature : 22°C

Model No. : VEB82155 Humidity : 60%RH

Serial No. : E2008121817 Date of Test : Dec 19, 2008

Test Mode : Lighting

Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
0.015	23.54	20.44	43.98	63.50	19.52	QP
0.020	25.41	20.26	45.67	63.50	17.83	
0.211	17.20	20.30	37.50	63.50	26.00	
0.657	21.99	20.24	42.23	63.50	21.27	
1.997	19.58	20.38	39.96	63.50	23.54	
5.734	24.47	20.71	45.18	63.50	18.32	

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82170 Humidity : 60%RH

Serial No. : E2008121822 Date of Test : Dec 19, 2008

Test Mode : Lighting

Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
0.012	27.15	20.55	47.70	63.50	15.80	QP
0.019	27.32	20.27	47.59	63.50	15.91	
0.031	27.08	20.60	47.68	63.50	15.82	
0.046	29.50	20.46	49.96	63.50	13.54	
0.189	16.36	20.25	36.61	63.50	26.89	
2.877	21.42	20.45	41.87	63.50	21.63	

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82223 Humidity : 60%RH

Serial No. : E2008121818 Date of Test : Dec 19, 2008

Test Mode : Lighting

Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
0.014	29.96	20.47	50.43	63.50	13.07	QP
0.046	27.40	20.47	47.87	63.50	15.63	
0.307	23.99	20.18	44.17	63.50	19.33	
0.690	20.64	20.23	40.87	63.50	22.63	
1.981	21.11	20.37	41.48	63.50	22.02	
5.734	22.47	20.71	43.18	63.50	20.32	

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82234 Humidity : 60%RH

Serial No. : E2008121816 Date of Test : Dec 19, 2008

Test Mode : Lighting

Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
0.011	32.50	20.72	53.22	63.50	10.28	QP
0.019	31.00	20.41	51.41	63.50	12.09	
0.025	36.06	20.64	56.70	63.50	6.80	
0.030	35.15	20.68	55.83	63.50	7.67	
0.156	28.96	20.25	49.21	63.50	14.29	
1.198	34.98	20.28	55.26	63.50	8.24	

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82233 Humidity : 60%RH

Serial No. : E2008121823 Date of Test : Dec 19, 2008

Test Mode : Lighting

Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
0.011	30.60	20.70	51.30	63.50	12.20	QP
0.026	35.76	20.65	56.41	63.50	7.09	
0.031	30.33	20.69	51.02	63.50	12.48	
0.053	27.55	20.46	48.01	63.50	15.49	
0.939	32.20	20.40	52.60	63.50	10.90	
1.169	29.21	20.31	49.52	63.50	13.98	

TEST ENGINEER: TOM SI

5 RADIATED EMISSION TEST

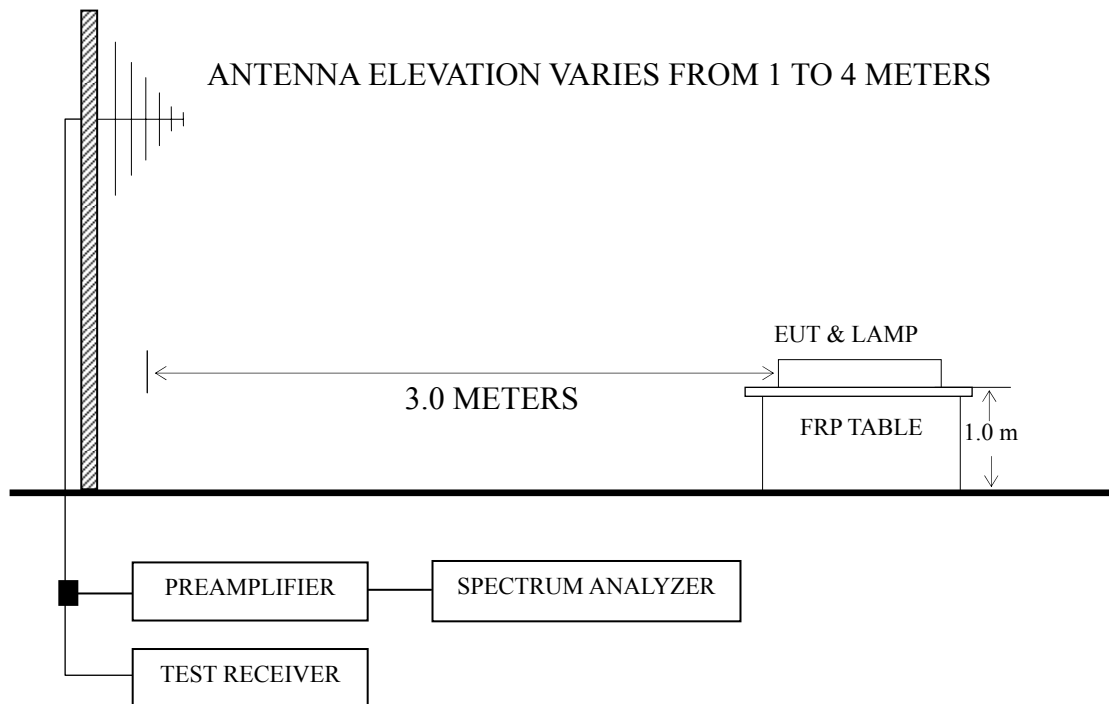
5.1 Test Equipment

The following test equipments are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESVS10	844594/001	Mar 07, 2008	Mar 07, 2009
2.	Preamplifier	Agilent	8447D	2944A10548	Mar 19, 2008	Sep 19, 2008
3.	Preamplifier	HP	8449B	3008A00864	May 19, 2008	May 19, 2009
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 14, 2008	May 14, 2009
5.	Spectrum	Agilent	E7405A	MY45106600	May 19, 2008	May 19, 2009
6.	Software	Audix	E3	SET00200 9912M295-2	--	--

5.2 Block Diagram of Test Setup

5.2.1 Radiated emission test setup



■ : 50 ohm Coaxial Switch

5.3 Radiated Emission Limit (FCC Part 18.305(c) Consumer Equipment)

Frequency (MHz)	Distance (m)	Field strength limits		Converted Field Strength Limits By 3 Meters Measuring Distance
		($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)	dB ($\mu\text{V/m}$)
30 ~ 88	30	10	20.0	40.0
88 ~ 216	30	15	23.5	43.5
216 ~ 1000	30	20	26.0	46.0
NOTE 1 - The lower limit shall apply at the transition frequency. NOTE 2 - Measuring distance of 30 m is a primary requirement. However, 3 m (instead of 30 m) distance maybe allowed. In this case, the limits with measuring distance of 3 m shall be the above limit value increased $20\lg(30/3)=20\text{dB}$. NOTE 3 - 1 $\mu\text{V/m}$ is regarded as 0 dB $\mu\text{V/m}$.				

5.4 Test Configuration

The configuration of the EUT and peripherals are same as those used in conducted emission test.

Please refer to Sec.3.4.

5.5 Operating Condition of EUT

Same as conducted emission test which is listed in Sec.3.5, except for the test setup replaced by Sec.5.2.

5.6 Test Procedures

The EUT and lamp were placed on a turntable that is 1.0 meter above ground. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to FCC MP-5: 1986 requirements during radiated emission test.

The bandwidth of Test Receiver R&S ESVS10 was set at 120 kHz.

The frequency range from 30 MHz to 1000 MHz was checked.

The test mode was done on radiated disturbance test and all the test results are listed in Sec.5.7.

5.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Model No	Test Mode	Data Page
VEB82155	Lighting	P25
VEB82170		P26
VEB82223		P27
VEB82234		P28
VEB82233		P29

NOTE 1 – Emission Level = Antenna Factor + Cable Loss + Meter Reading.

NOTE 2 – The emission levels that are 20dB below the official limit are not reported.

NOTE 3 – 0° was the table front facing the antenna. Degree is calculated from 0° clockwise facing the antenna.

NOTE 4 – The worst case is for VEB82170 model. The worst emission at horizontal polarization was detected at 30.970 MHz with corrected signal level of 19.75 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 250°. The worst emission at vertical polarization was detected at 38.730 MHz with corrected signal level of 34.88 dB (μV/m) (limit is 40.00 dB (μV/m)), when the antenna was 1.00 m height and the turntable was at 45°.

EUT : Ballast Temperature : 22°C

Model No. : VEB82155 Humidity : 60%RH

Serial No. : E2008121817 Date of Test : Dec 19, 2008

Test Mode : Lighting

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	-0.20	19.03	0.57	19.40	40.00	20.60
	119.240	-0.33	12.97	0.88	13.52	43.50	29.98
	166.770	9.42	10.31	0.98	20.71	43.50	22.79
	279.290	5.89	13.52	1.42	20.83	46.00	25.17
	526.640	1.05	18.24	2.43	21.72	46.00	24.28
	671.170	3.59	19.57	2.95	26.11	46.00	19.89
Vertical	35.820	14.00	16.45	0.64	31.09	40.00	8.91
	153.190	8.31	11.04	0.93	20.28	43.50	23.22
	279.290	10.79	13.52	1.42	25.73	46.00	20.27
	362.710	7.02	15.65	1.87	24.54	46.00	21.46
	526.640	3.11	18.24	2.43	23.78	46.00	22.22
	743.920	3.50	20.17	3.19	26.86	46.00	19.14

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82170 Humidity : 60%RH

Serial No. : E2008121822 Date of Test : Dec 19, 2008

Test Mode : Lighting

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	0.15	19.03	0.57	19.75	40.00	20.25
	138.640	2.92	12.17	0.91	16.00	43.50	27.50
	166.770	7.96	10.31	0.98	19.25	43.50	24.25
	279.290	3.15	13.52	1.42	18.09	46.00	27.91
	569.320	0.78	18.84	2.54	22.16	46.00	23.84
	671.170	1.62	19.57	2.95	24.14	46.00	21.86
Vertical	38.730	19.59	14.62	0.67	34.88	40.00	5.12
	126.030	2.65	12.71	0.89	16.25	43.50	27.25
	153.190	4.83	11.04	0.93	16.80	43.50	26.70
	281.230	13.79	13.57	1.44	28.80	46.00	17.20
	364.650	7.66	15.73	1.89	25.28	46.00	20.72
	743.920	2.76	20.17	3.19	26.12	46.00	19.88

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82223 Humidity : 60%RH

Serial No. : E2008121818 Date of Test : Dec 19, 2008

Test Mode : Lighting

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	-0.55	19.03	0.57	19.05	40.00	20.95
	166.770	8.08	10.31	0.98	19.37	43.50	24.13
	281.230	4.77	13.57	1.44	19.78	46.00	26.22
	364.650	1.49	15.73	1.89	19.11	46.00	26.89
	534.400	0.87	18.36	2.46	21.69	46.00	24.31
	671.170	2.43	19.57	2.95	24.95	46.00	21.05
Vertical	37.760	17.96	15.20	0.66	33.82	40.00	6.18
	101.780	1.68	11.63	0.85	14.16	43.50	29.34
	164.830	5.52	10.35	0.97	16.84	43.50	26.66
	281.230	6.71	13.57	1.44	21.72	46.00	24.28
	362.710	6.84	15.65	1.87	24.36	46.00	21.64
	743.920	2.86	20.17	3.19	26.22	46.00	19.78

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82234 Humidity : 60%RH

Serial No. : E2008121816 Date of Test : Dec 19, 2008

Test Mode : Lighting

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	-0.15	19.03	0.57	19.45	40.00	20.55
	114.390	-0.72	12.64	0.87	12.79	43.50	30.71
	166.770	7.49	10.31	0.98	18.78	43.50	24.72
	281.230	4.96	13.57	1.44	19.97	46.00	26.03
	557.680	-0.56	18.68	2.51	20.63	46.00	25.37
	717.730	1.72	19.88	3.12	24.72	46.00	21.28
Vertical	34.850	15.17	16.97	0.62	32.76	40.00	7.24
	43.580	16.08	11.88	0.72	28.68	40.00	11.32
	163.860	6.80	10.40	0.97	18.17	43.50	25.33
	281.230	14.29	13.57	1.44	29.30	46.00	16.70
	363.680	7.04	15.69	1.87	24.60	46.00	21.40
	743.920	2.90	20.17	3.19	26.26	46.00	19.74

TEST ENGINEER: TOM SI

EUT : Ballast Temperature : 22°C

Model No. : VEB82233 Humidity : 60%RH

Serial No. : E2008121823 Date of Test : Dec 19, 2008

Test Mode : Lighting

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)
Horizontal	30.970	-0.19	19.03	0.57	19.41	40.00	20.59
	166.770	6.69	10.31	0.98	17.98	43.50	25.52
	279.290	2.44	13.52	1.42	17.38	46.00	28.62
	399.570	1.15	16.50	2.04	19.69	46.00	26.31
	493.660	0.37	17.83	2.35	20.55	46.00	25.45
	671.170	2.38	19.57	2.95	24.90	46.00	21.10
Vertical	36.790	13.31	15.80	0.65	29.76	40.00	10.24
	117.300	0.77	12.84	0.88	14.49	43.50	29.01
	164.830	5.30	10.35	0.97	16.62	43.50	26.88
	281.230	7.73	13.57	1.44	22.74	46.00	23.26
	364.650	8.54	15.73	1.89	26.16	46.00	19.84
	743.920	3.78	20.17	3.19	27.14	46.00	18.86

TEST ENGINEER: TOM SI

6 DEVIATION TO TEST SPECIFICATIONS

None.