

Application for FCC Certificate
On Behalf of
SGEG N.A. INC

Ballast

Model No.: FBT T5 14x3, FBT T5 21x3

FCC ID: QA7FBTT5003

Prepared For : SGEG N.A. INC
159 LAS TUNAS DRIVE,
ARCADIA, CA91007.USA

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F03005
Date of Test : Dec 04~16, 2002
Date of Report : Jan 15, 2003

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TEST REPORT FOR FCC CERTIFICATE

Applicant : SGEG N.A. INC
Manufacturer : POWER Mag (SuZhou) ELECTRONIC CO., LTD.
EUT Description : Ballast
(A) Model No.:
FBT T5 14x3, FBT T5 21x3
(B) Serial No.:
E120301-3, E120302-3
(C) Power Supply: 120V/60Hz

Test Procedure Used:

*FCC RULES AND REGULATIONS PART 18 NON-CONSUMER DEVICES (2000)
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 RF Lighting Device limits both conducted emissions and field strength.


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. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

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 must not be used by the applicant to claim product endorsement by NVLAP or any agency of the U.S. Government.

Date of Test : Dec 04-16, 2002

Prepared by : Cathrin Yin 2003.1.16 Test Engineer : Sammy Chen 2003.01.16
CATHRIN YIN
(Assistant)

 (Engineer)
For and on behalf of
Audix Technology (Shanghai) Co., Ltd.
Aaron Su
AARON SU
Authorized Signatory (Manager)

Reviewer : Byron Kwo 1/16/03 Approved Signatory :
BYRON KWO
(Supervisor)

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test

Description : Ballast

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

Model Number : FBT T5 14x3, FBT T5 21x3

Applicant : SGEG N.A. INC
159 LAS TUNAS DRIVE, ARCADIA,
CA91007.USA

Manufacturer : POWER Mag (SuZhou) ELECTRONIC CO., LTD.
Suzhou industrial Park Dong Xing Road No.10

Test Model	Apparent Power (V • A)	Real Power (W)
FBT T5 14x3	52.3	52.2
FBT T5 21x3	97.1	94.9

1.2 Description of Test Facility

Site Description : Sept. 17, 1998 file on
(Semi-Anechoic Chamber) 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, China 200233.

NVLAP Lab Code : 200371-0

1.3 Measurement Uncertainty

Conducted Emission Uncertainty : $U = \pm 2.66\text{dB}$

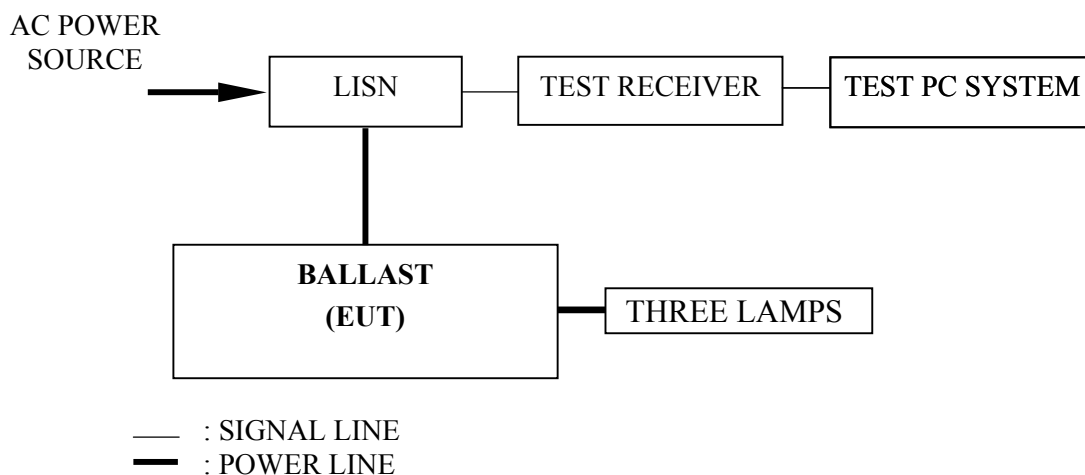
2 AC POWERLINE CONDUCTED EMISSION TEST

2.1 Test Equipment

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

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESHS10	844077/007	Jun 03, 2002	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	May 09, 2002	1 Year

2.2 Block Diagram of Test Setup



2.3 Conducted Emission Limits

Frequency (MHz)	Maximum RF Line Voltage	
	(μ V)	dB(μ V)
0.45 ~ 1.6	1000	60
1.6 ~ 30	3000	69.5
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.		

2.4 Test Configuration

The EUT (listed in Sec. 1.1) was installed as shown on Sec. 2.2 to meet FCC requirement and operating in a manner which tends to maximize its emission level in a normal application.

2.5 Operating Condition of EUT

2.5.1 Setup the EUT as shown in Sec. 2.2.

2.5.2 Turn on the power of all equipment.

2.5.3 The EUT will be operated normally.

2.6 Test Procedures

The EUT was 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 IF bandwidth of Test Receiver ESHS10 was set at 10 kHz.

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

The test mode (ON) was done on conducted test and the test results of the highest emissions are listed in Sec. 2.7.

2.7 Test Results

< PASS >


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

EUT : Ballast Temperature : 23°C

Model No. : FBT T5 14x3 Humidity : 56%

Test Mode : ON Date of Test : Dec 04~16, 2002

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.485	0.06	36.77	36.83	60.00	23.17
	0.654	0.04	36.64	36.68	60.00	23.32
	1.012	0.05	42.89	42.94	60.00	17.06
	13.395	0.27	62.20	62.47	69.50	7.03
	16.804	0.43	60.63	61.06	69.50	8.44
	19.878	0.61	59.08	59.69	69.50	9.81
VB	0.489	0.09	47.81	47.90	60.00	12.10
	0.539	0.09	46.60	46.69	60.00	13.31
	0.614	0.08	47.41	47.49	60.00	12.51
	1.134	0.08	45.04	45.12	60.00	14.88
	3.848	0.10	46.07	46.17	69.50	23.33
	12.960	0.26	62.80	63.06	69.50	6.44
NOTE 1 – Emission Level = Meter Reading + Factor NOTE 2 – Factor = Insertion Loss + Cable Loss NOTE 3 – All reading are Quasi-Peak Values. NOTE 4 – The worst emission is detected at 12.960 MHz with corrected signal level of 63.06 dB (μV) (limit is 69.50 dB (μV)), when the VB of the EUT is connected to LISN.						


 TEST ENGINEER: _____
 (SAMMY CHEN)

EUT : Ballast Temperature : 23°C

Model No. : FBT T5 21x3 Humidity : 56%

Test Mode : ON Date of Test : Dec 04~16, 2002

Test Line	Frequency (MHz)	Factor (dB)	Meter Reading dB(μV)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.475	0.06	43.11	43.17	60.00	16.83
	0.562	0.05	40.33	40.38	60.00	19.62
	1.004	0.05	43.36	43.41	60.00	16.59
	9.492	0.17	45.31	45.48	69.50	24.02
	13.320	0.27	64.80	65.07	69.50	4.43
	25.255	0.64	61.53	62.17	69.50	7.33
VB	0.504	0.09	44.11	44.20	60.00	15.80
	0.665	0.08	43.94	44.02	60.00	15.98
	1.096	0.08	44.13	44.21	60.00	15.79
	1.837	0.10	42.94	43.04	69.50	26.46
	3.628	0.10	43.28	43.38	69.50	26.12
	13.035	0.26	68.70	68.96	69.50	0.54
<p>NOTE 1 – Emission Level = Meter Reading + Factor</p> <p>NOTE 2 – Factor = Insertion Loss + Cable Loss</p> <p>NOTE 3 – All reading are Quasi-Peak Values.</p> <p>NOTE 4 – The worst emission is detected at 13.035 MHz with corrected signal level of 68.96 dB (μV) (limit is 69.50 dB(μV)), when the VB of the EUT is connected to LISN.</p> <p>NOTE 5 – At the frequency 13.035MHz, the measured result is below the specification limit by a margin less than the measurement uncertainty, it is not therefore possible to determine compliance at a level of confidence of 95%. However, the measured result indicates a higher probability that the product tested complies with the specification limit.</p>						

Sammy Chen

TEST ENGINEER: _____
(SAMMY CHEN)

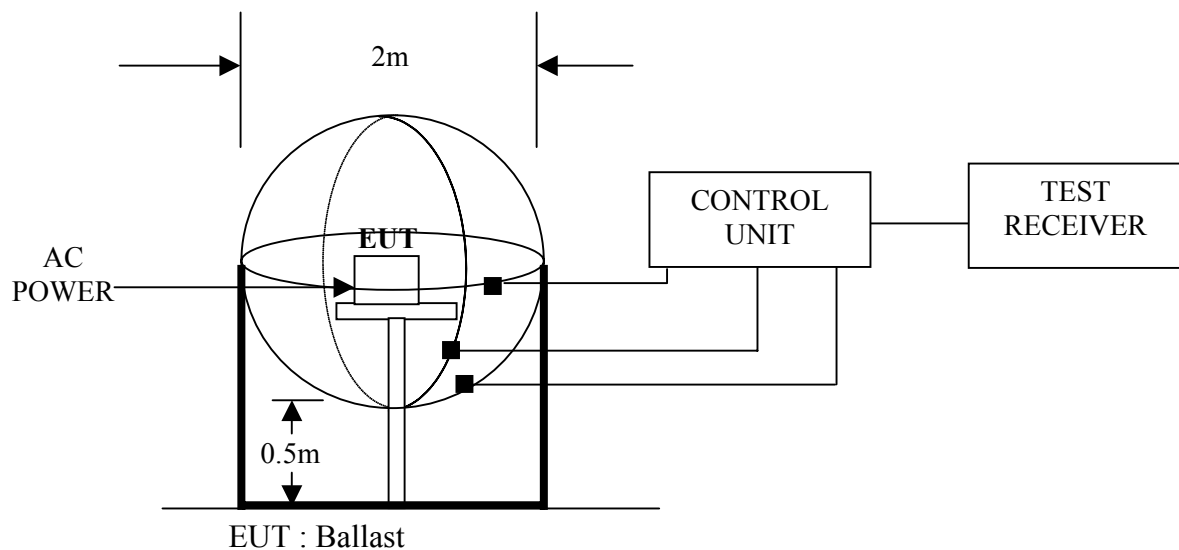
3 FIELD STRENGTH TEST

3.1 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.	Cal. Interval
1.	Loop Antenna	Laplace	RF300	5001	Oct 29, 2002	1/2 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	844077/007	Jun 03, 2002	1 Year

3.2 Block Diagram of Test Setup



3.3 Test Configuration

The configuration of the EUT is same as those used in conducted emission test. Refer to Sec. 2.4, except the test setup replaced by Sec. 3.2.

3.4 Operating Condition of EUT

Same as conducted emission test which is listed in Sec. 2.5, except the test setup replaced by Sec. 3.2.

3.5 Test Procedure

The EUT was placed on a wooden table, which is in the center of the loop antenna. The loop antenna is 0.5 meters above the ground. Each side had one sensor. The three sensors were through the control unit to connect the Test receiver, which receiving the emission and find out the maximum emission of each side of the loop antenna.

The IF bandwidth of R&S Test Receiver ESHS10 was set at 200 Hz from 9kHz to 150kHz and 10kHz from 150 kHz to 30 MHz.

The IF frequency range from 9 kHz to 30 MHz was checked.

The test mode (ON) was done on field strength test and all the test results are listed in Sec. 3.6.

3.6 Test Result

<PASS>

Refer to the following pages.

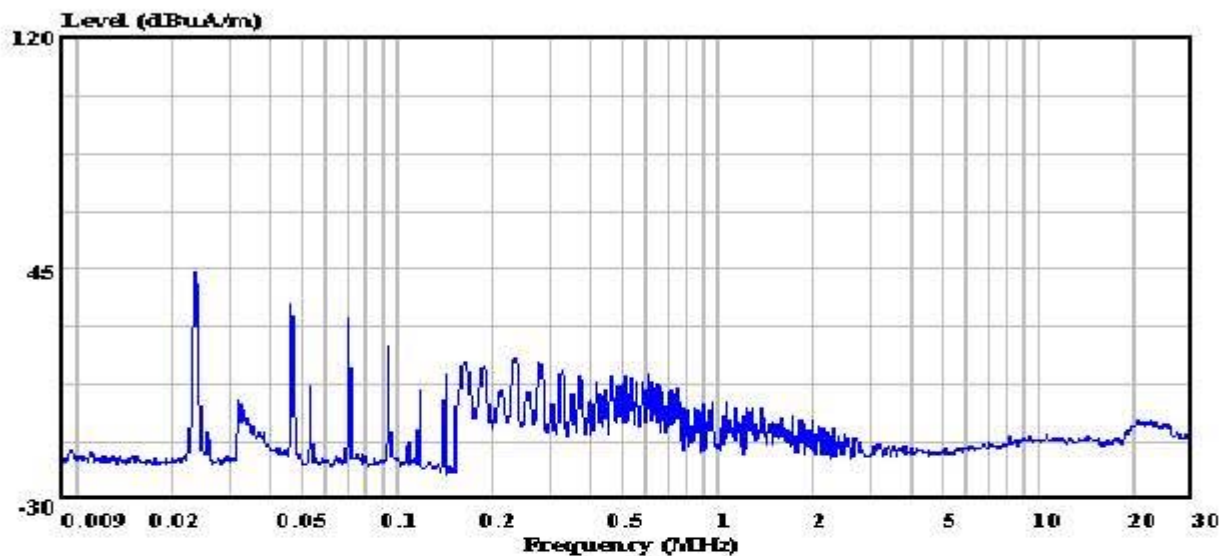


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Data#: 250 File#: C:\emivm\TEST\P\Power-mag.EMI

Date: 2002-12-16 Time: 09:02:16



Site : Magnetic field
Condition : 2m
Project No. : AOE-000303
Applicant : SGEG N.A. INC
EUT : BALLAST
M/N : FBT T5 14x3
S/N : E120301-3
Power Supply : 120V/60Hz
Ambient : 23'C 56%RH
Test line : A
Test Mode : ON
Test Engineer: *Sammy Chen*

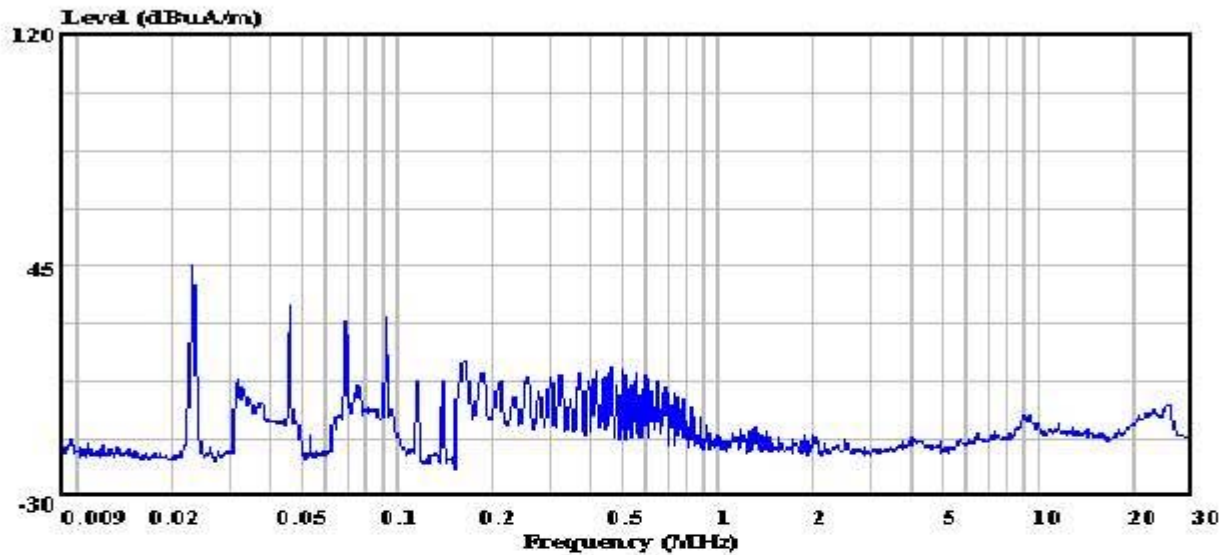


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Data#: 247 File#: C:\emivm\TEST\P\Power-mag.EMI

Date: 2002-12-16 Time: 08:57:40



Site : Magnetic field
Condition : 2m
Project No. : AOE-000303
Applicant : SGEG N.A. INC
EUT : BALLAST
M/N : FBT T5 14x3
S/N : E120301-3
Power Supply : 120V/60Hz
Ambient : 23'C 56%RH
Test line : B
Test Mode : ON
Test Engineer:

Sammy Chen

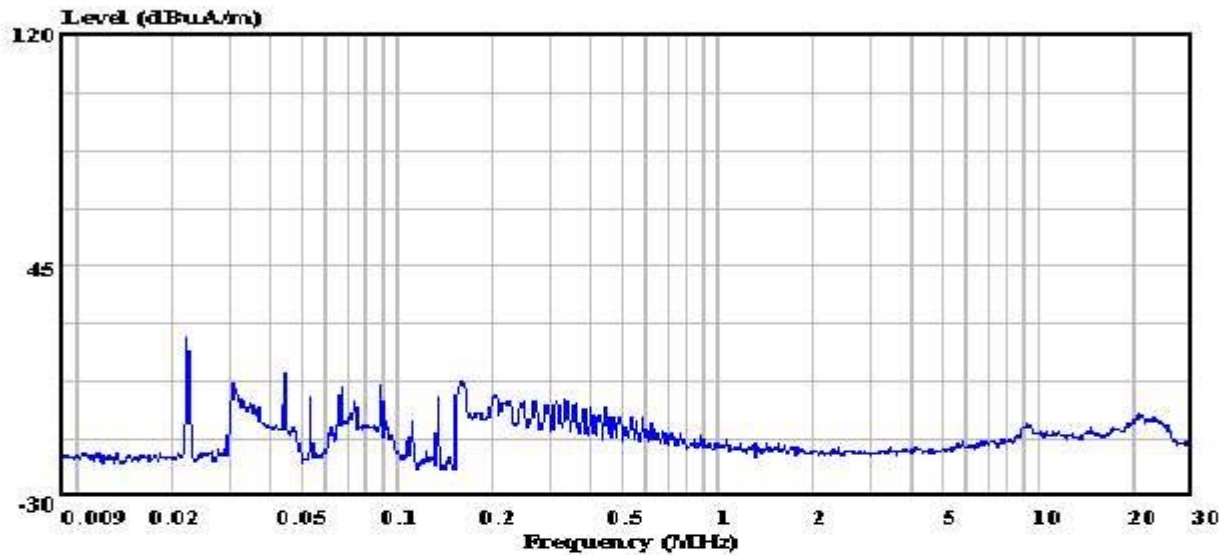


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Data#: 244 File#: C:\emivm\TEST\P\Power-mag.EMI

Date: 2002-12-16 Time: 08:54:40



Site : Magnetic field
Condition : 2m
Project No. : AOE-000303
Applicant : SGEG N.A. INC
EUT : BALLAST
M/N : FBT T5 14x3
S/N : E120301-3
Power Supply : 120V/60Hz
Ambient : 23'C 56%RH
Test line : C
Test Mode : ON
Test Engineer: *Sammy Chen*

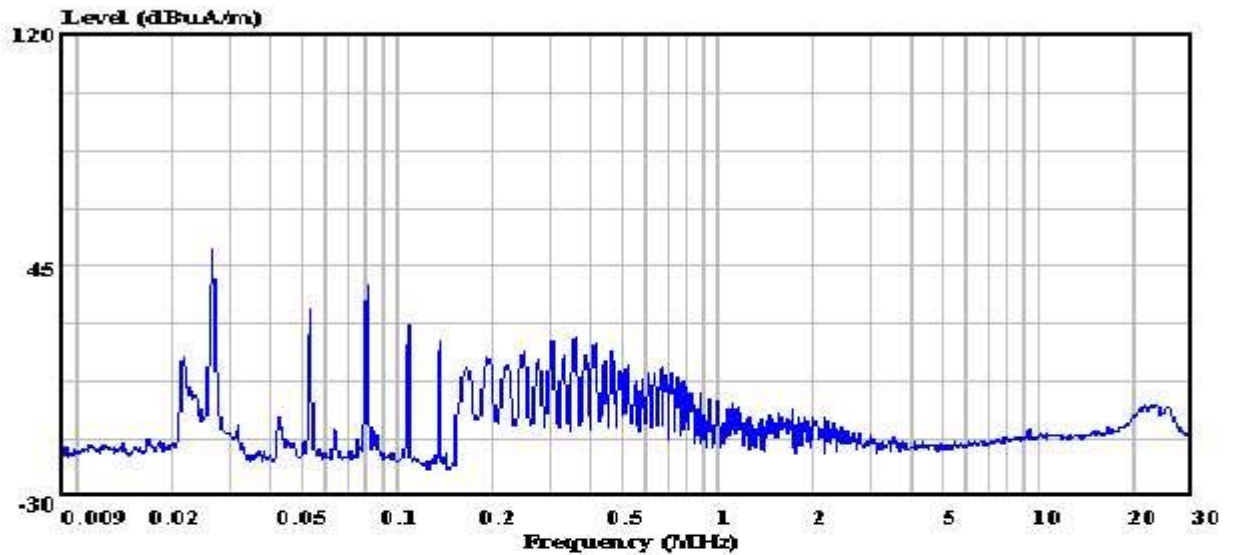


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Data#: 271 File#: C:\emivm\TEST\P\Power-mag.EMI

Date: 2002-12-16 Time: 10:10:02



Site : Magnetic field
Condition : 2m
Project No. : AOE-000303
Applicant : SGEG N.A. INC
EUT : BALLAST
M/N : FBT T5 21x3
S/N : E120302-3
Power Supply : 120V/60Hz
Ambient : 23'C 56%RH
Test line : A
Test Mode : ON
Test Engineer: *Sammy Chen*

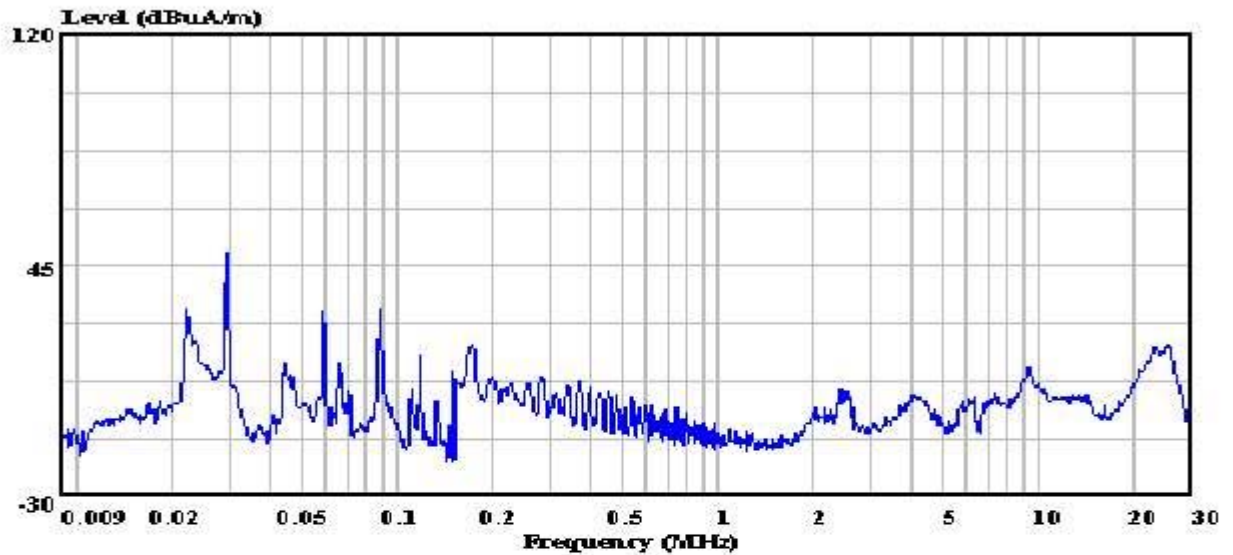


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Data#: 274 File#: C:\emivm\TEST\P\Power-mag.EMI

Date: 2002-12-16 Time: 10:13:00



Site : Magnetic field
Condition : 2m
Project No. : AOE-000303
Applicant : SGEG N.A. INC
EUT : BALLAST
M/N : FBT T5 21x3
S/N : E120302-3
Power Supply : 120V/60Hz
Ambient : 23'C 56%RH
Test line : B
Test Mode : ON
Test Engineer:

Sammy Chen

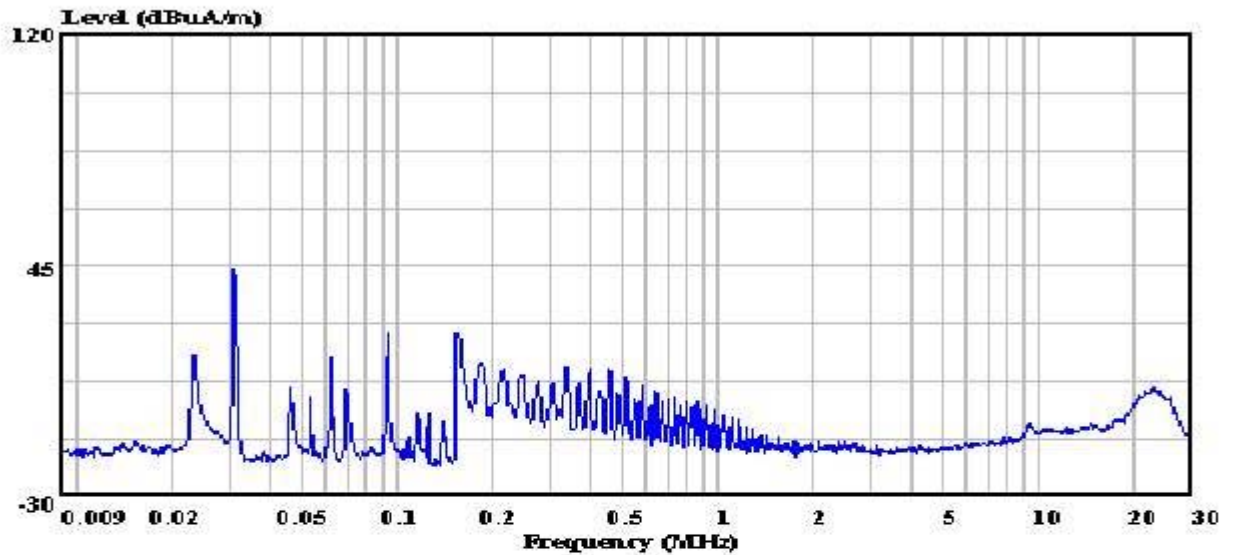


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Data#: 277 File#: C:\emivm\TEST\P\Power-mag.EMI

Date: 2002-12-16 Time: 10:17:54



Site : Magnetic field
Condition : 2m
Project No. : AOE-000303
Applicant : SGEG N.A. INC
EUT : BALLAST
M/N : FBT T5 21x3
S/N : E120302-3
Power Supply : 120V/60Hz
Ambient : 23'C 56%RH
Test line : C
Test Mode : ON
Test Engineer: *Sammy Chen*