

Application for FCC Certificate  
On Behalf of  
Xiamen Longstar Lighting Co., Ltd.

Energy Saving Lamp

Model No.:	FE-BU-7W	FE-BU-9W	FE-BU-11W
	FE-BU-13W	FE-BU-15W	FE-BU-20W
	FE-BU-18W	FE-Z-13W	FE-Z-15W

FCC ID: PKCLS0301

Prepared For : Xiamen Longstar Lighting Co., Ltd.  
Chengnan Industrial Zone,  
Tongan, Xiamen, China  
361100

Prepared By : Audix Technology (Shanghai) Co., Ltd.  
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Report No. : ACI-F03033  
Date of Test : Apr 03-May 21, 2003  
Date of Report : Jun 20, 2003

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## TEST REPORT FOR FCC CERTIFICATE

Applicant : Xiamen Longstar Lighting Co., Ltd.  
Manufacturer : Xiamen Longstar Lighting Co., Ltd.  
EUT Description : Energy Saving Lamp  
(A) Model No.:  
FE-BU-7W, FE-BU-9W, FE-BU-11W,  
FE-BU-13W, FE-BU-15W, FE-BU-18W,  
FE-BU-20W, FE-Z-13W, FE-Z-15W  
(B) Power Supply: 120V/60Hz

## Test Procedure Used:

*FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (2002.10)*  
*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 : Apr 03-May 21, 2003

Prepared by :

Cathrin Yin 2003.7.15  
CATHRIN YIN  
(Assistant)

Test Engineer :

Solon Gong 2003.7.15  
SOLON GONG  
For and on behalf of  
Audix Technology (Shanghai) Co., Ltd.

Reviewer :

Sammy Chen 2003.7.15  
SAMMY CHEN  
(Engineer)

Approved Signatory :

Byron Kwo 2003.7.15  
BYRON KWO  
Authorized Signatory(s)  
(Assistant Manager)

# 1 GENERAL INFORMATION

## 1.1 Description of Equipment Under Test

Description : Energy Saving Lamp

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

Model Number : FE-BU-7W, FE-BU-9W, FE-BU-11W,  
FE-BU-13W, FE-BU-15W, FE-BU-18W,  
FE-BU-20W, FE-Z-13W, FE-Z-15W,

Applicant : Xiamen Longstar Lighting Co., Ltd.  
Chengnan Industrial Zone, Tongan,  
Xiamen, China 361100

Manufacturer : Xiamen Longstar Lighting Co., Ltd.  
Chengnan Industrial Zone, Tongan,  
Xiamen, China 361100

Test Model	Apparent Power (V • A)	Real Power (W)
FE-BU-7W	13.59	7.01
FE-BU-9W	14.33	7.43
FE-BU-11W	18.52	9.26
FE-BU-13W	21.91	13.31
FE-BU-15W	27.08	14.69
FE-BU-18W	27.68	15.19
FE-BU-20W	28.63	16.75
FE-Z-13W	21.19	12.24
FE-Z-15W	26.87	13.86

## 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 :  $U = \pm 2.66\text{dB}$

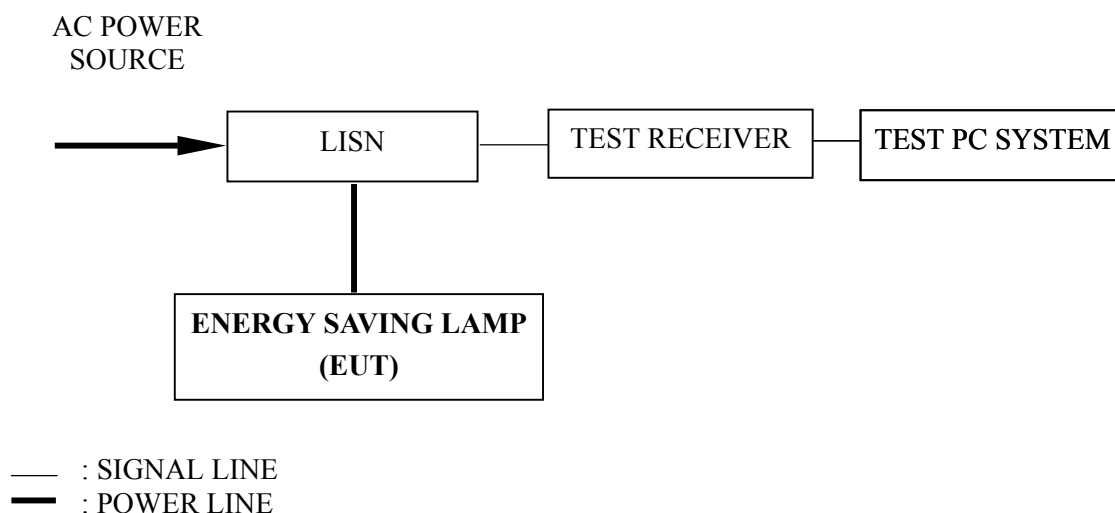
## 2 AC POWERLINE CONDUCTED EMISSION TEST

### 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	844077/020	Apr 21, 2003	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Apr 24, 2003	1 Year

### 2.2 Block Diagram of Test Setup



### 2.3 Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56	56~46
0.5 ~ 5	56	46
5 ~ 30	60	50
NOTE 1 - Decreases with the logarithm of the frequency within the band 0.15 MHz to 5 MHz. NOTE 2 - The lower limit applies at the band edges. NOTE 3 - The average should be read if the quasi-peak's margin is below 10 dB.		

## 2.4 EUT Configuration on Test

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 150 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.

The waveform is attached in APPENDIX I.

## 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.

NOTE 1 – Probe Factor means insertion loss of LISN

NOTE 2 – Level = Read Level + Factor

NOTE 3 – Factor = Cable Loss + Probe Factor

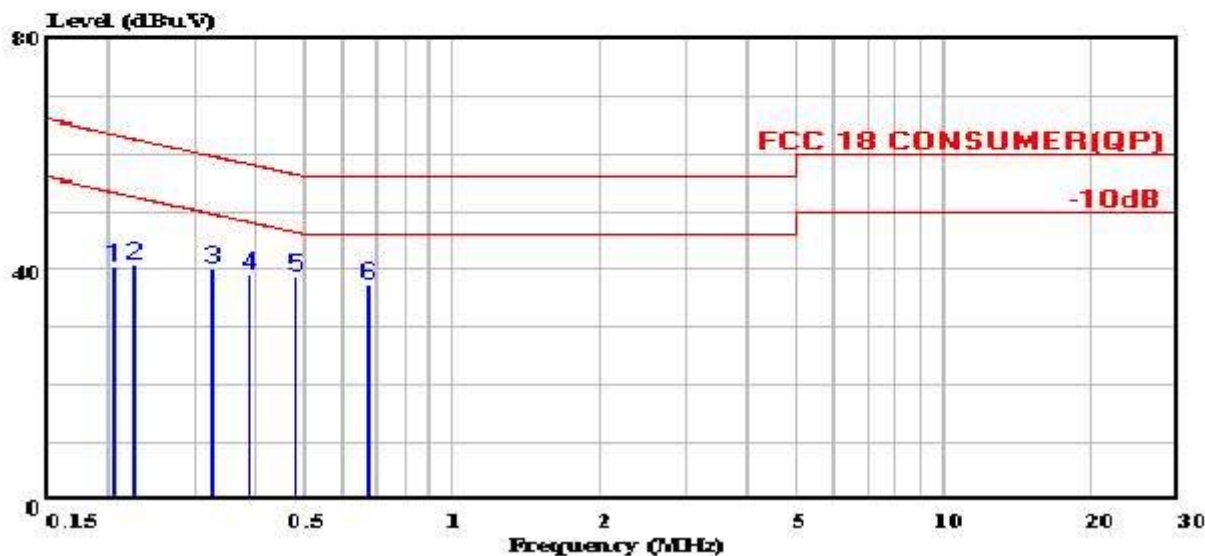
NOTE 4 – QP means Quasi-Peak Values, AV means Average Values.



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Data#: 477 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-03 Time: 18:40:14



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-7W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer:

*Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.206	40.40	40.62	63.36	-22.74	0.22	0.04	0.18
2	0.227	40.62	40.83	62.57	-21.74	0.21	0.04	0.17
3	0.325	39.94	40.08	59.57	-19.49	0.14	0.04	0.10
4	0.387	38.86	38.99	58.12	-19.13	0.13	0.04	0.09
5	0.484	38.66	38.78	56.27	-17.49	0.12	0.04	0.08
6	0.679	37.07	37.18	56.00	-18.82	0.11	0.05	0.06

NOTE - The worst emission is detected at 0.484 MHz with corrected signal level of 38.78 ( $\mu$ V) (limit is 56.27 $\mu$ V)), when the VA of the EUT is connected to LISN.

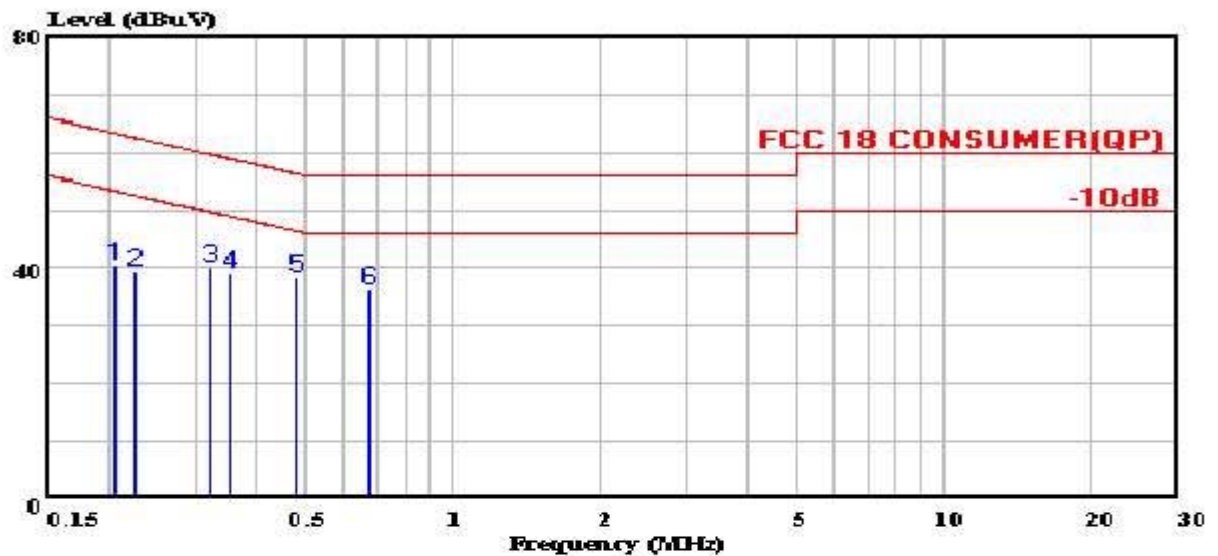




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Data#: 480 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-03 Time: 18:43:27



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-7W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer:

*Solon Gong*

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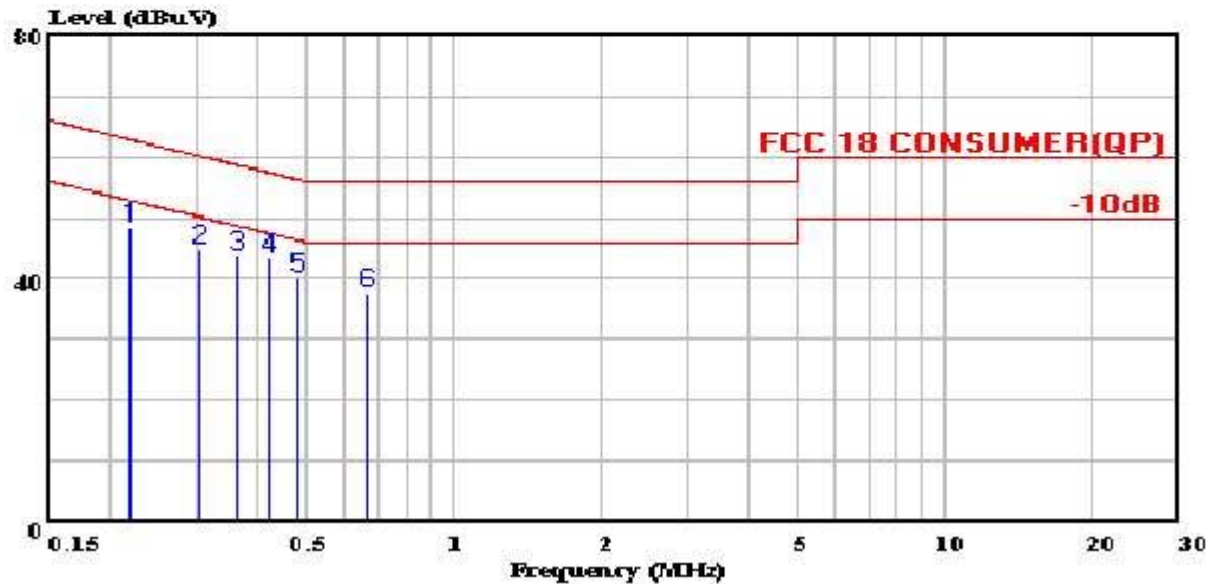
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.204	40.40	40.60	63.45	-22.85	0.20	0.04	0.16
2	0.224	39.30	39.50	62.66	-23.16	0.20	0.04	0.16
3	0.322	39.88	40.07	59.66	-19.59	0.19	0.04	0.15
4	0.354	38.86	39.04	58.87	-19.83	0.18	0.04	0.14
5	0.479	38.07	38.22	56.36	-18.14	0.15	0.04	0.11
6	0.675	36.06	36.22	56.00	-19.78	0.16	0.05	0.11



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Data#: 588 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-09 Time: 10:46:50



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-9W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer:

*Solon Gong*

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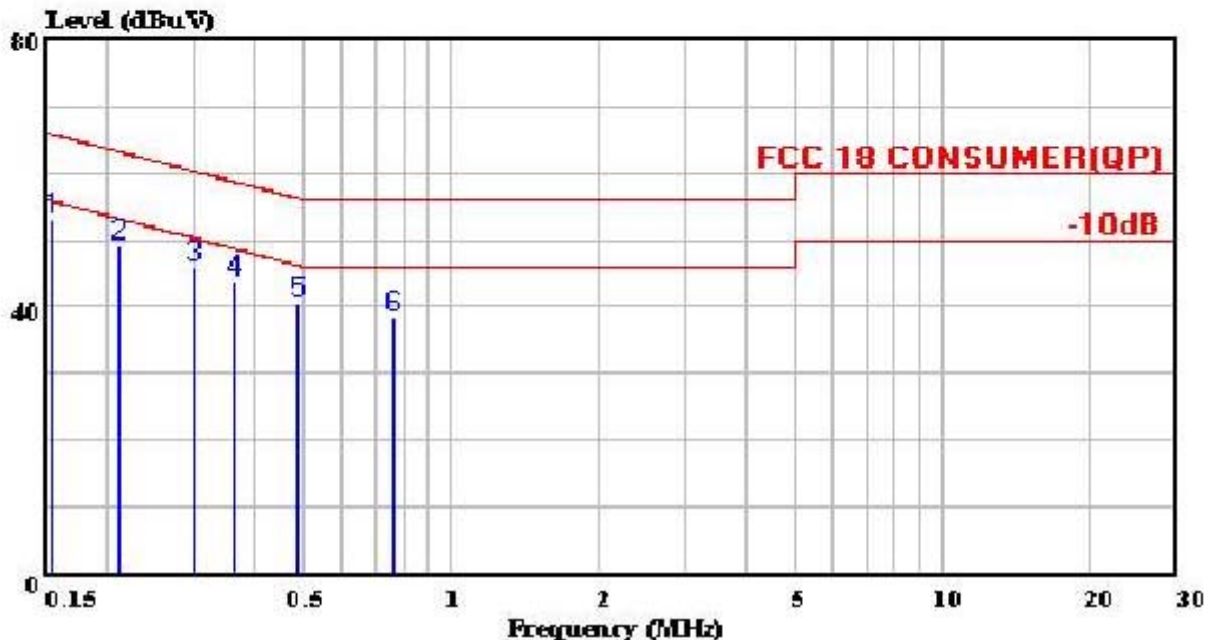
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.220	48.34	48.55	62.83	-14.28	0.21	0.04	0.17
2	0.302	44.74	44.88	60.19	-15.31	0.14	0.04	0.10
3	0.360	43.52	43.65	58.74	-15.09	0.13	0.04	0.09
4	0.421	43.13	43.26	57.42	-14.16	0.13	0.04	0.09
5	0.479	40.00	40.12	56.36	-16.24	0.12	0.04	0.08
6	0.665	37.49	37.60	56.00	-18.40	0.11	0.05	0.06



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Data#: 590 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-09 Time: 10:48:28



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KMW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-9W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer:

*Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.155	52.79	53.04	65.74	-12.70	0.25	0.03	0.22
2	0.211	48.96	49.16	63.18	-14.02	0.20	0.04	0.16
3	0.300	45.74	45.94	60.24	-14.30	0.20	0.04	0.16
4	0.360	43.54	43.72	58.74	-15.02	0.18	0.04	0.14
5	0.486	40.28	40.43	56.23	-15.80	0.15	0.04	0.11
6	0.763	38.19	38.35	56.00	-17.65	0.16	0.05	0.11

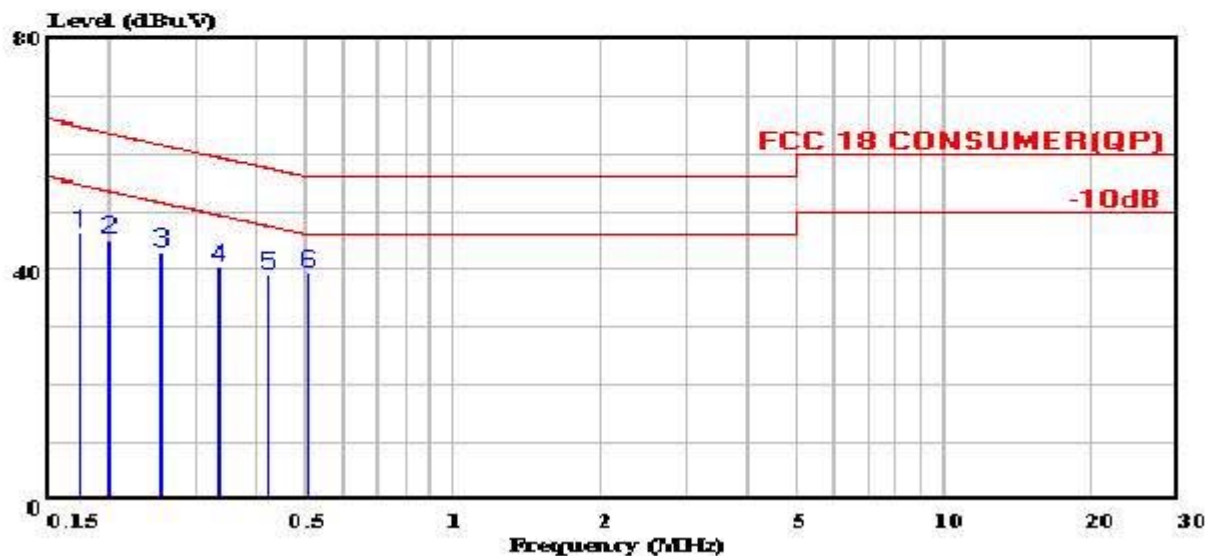
NOTE - The worst emission is detected at 0.155 MHz with corrected signal level of 53.04 (μV) (limit is 65.74 dB (μV)), when the VB of the EUT is connected to LISN.



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Data#: 936 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-10 Time: 06:17:05



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-11W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer:

*Solon Gong*

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	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.174	46.11	46.33	64.77	-18.44	0.22	0.04	0.18
2	0.200	45.14	45.36	63.62	-18.26	0.22	0.04	0.18
3	0.253	42.76	42.95	61.64	-18.69	0.19	0.04	0.15
4	0.336	40.33	40.47	59.31	-18.84	0.14	0.04	0.10
5	0.419	38.89	39.02	57.46	-18.44	0.13	0.04	0.09
6	0.505	39.39	39.51	56.00	-16.49	0.12	0.04	0.08

NOTE - The worst emission is detected at 0.505 MHz with corrected signal level of 39.51 ( $\mu$ V) (limit is 56.00 dB ( $\mu$ V)), when the VA of the EUT is connected to LISN.

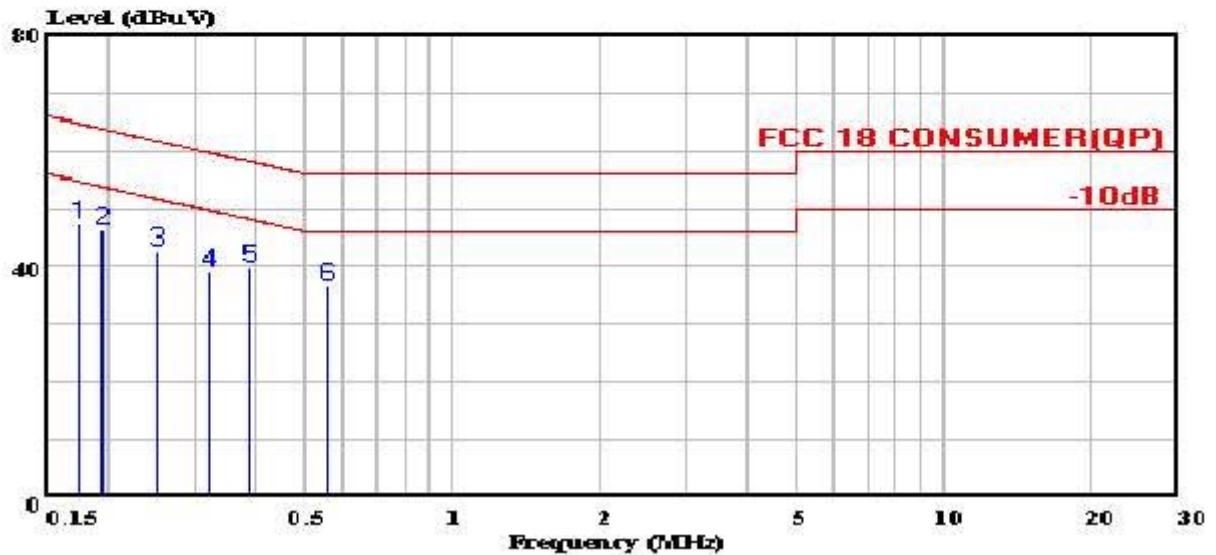




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Data#: 938 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-10 Time: 06:18:54



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-11W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer:

*Solon Gong*

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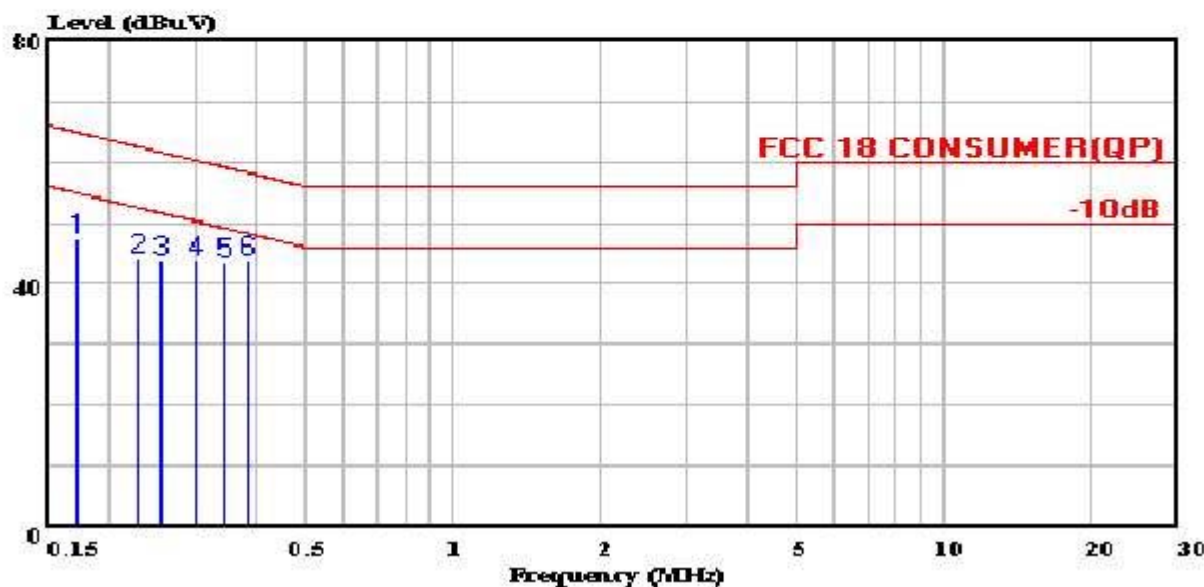
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.174	47.29	47.52	64.77	-17.25	0.23	0.04	0.19
2	0.194	45.97	46.18	63.84	-17.66	0.21	0.04	0.17
3	0.251	42.52	42.72	61.73	-19.01	0.20	0.04	0.16
4	0.318	39.07	39.26	59.75	-20.49	0.19	0.04	0.15
5	0.389	39.59	39.76	58.08	-18.32	0.17	0.04	0.13
6	0.561	36.48	36.63	56.00	-19.37	0.15	0.04	0.11



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Data#: 367 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-03 Time: 12:37:04



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-13W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer:

*Solon Gong*

Page: 1

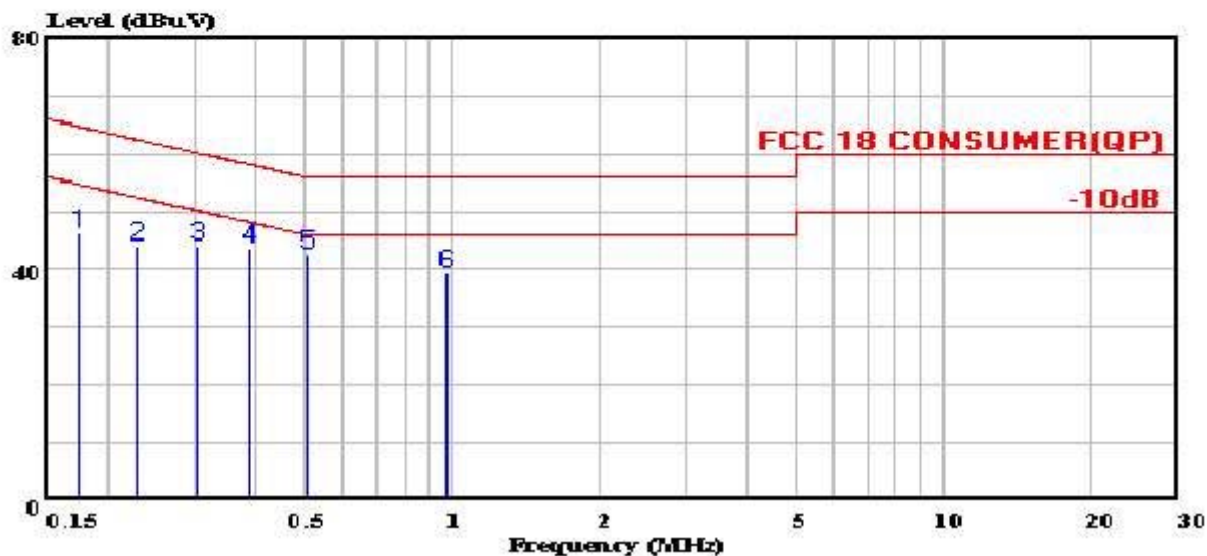
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.172	47.18	47.40	64.86	-17.46	0.22	0.03	0.19
2	0.229	43.99	44.20	62.48	-18.28	0.21	0.04	0.17
3	0.255	43.50	43.69	61.60	-17.91	0.19	0.04	0.15
4	0.300	43.68	43.82	60.24	-16.42	0.14	0.04	0.10
5	0.345	43.27	43.40	59.09	-15.69	0.13	0.04	0.09
6	0.381	43.56	43.69	58.25	-14.56	0.13	0.04	0.09



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Data#: 1024 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-03 Time: 12:38:58



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-13W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer: *Solon Gong*

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	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.174	46.19	46.42	64.77	-18.35	0.23	0.04	0.19
2	0.228	44.06	44.26	62.52	-18.26	0.20	0.04	0.16
3	0.305	43.80	44.00	60.10	-16.10	0.20	0.04	0.16
4	0.387	43.52	43.69	58.12	-14.43	0.17	0.04	0.13
5	0.510	42.65	42.80	56.00	-13.20	0.15	0.04	0.11
6	0.974	39.23	39.39	56.00	-16.61	0.16	0.05	0.11

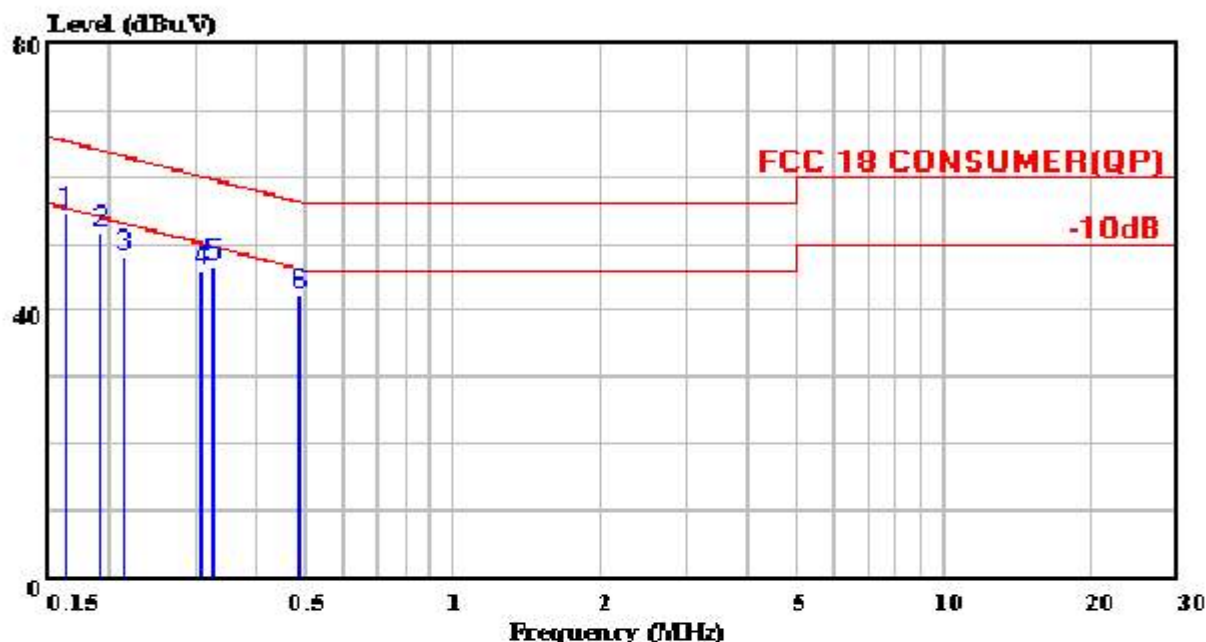
NOTE - The worst emission is detected at 0.510 MHz with corrected signal level of 42.80 (μV) (limit is 56.00 dB (μV)), when the VB of the EUT is connected to LISN.



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Data#: 365 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-03 Time: 12:34:06



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-15W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer:

*Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.162	54.14	54.36	65.34	-10.98	0.22	0.03	0.19
2	0.190	51.33	51.55	64.02	-12.47	0.22	0.04	0.18
3	0.214	47.79	48.00	63.05	-15.05	0.21	0.04	0.17
4	0.307	45.83	45.97	60.06	-14.09	0.14	0.04	0.10
5	0.327	46.53	46.67	59.53	-12.86	0.14	0.04	0.10
6	0.486	42.11	42.23	56.23	-14.00	0.12	0.04	0.08

NOTE - The worst emission is detected at 0.162 MHz with corrected signal level of 54.36 ( $\mu$ V) (limit is 65.34 dB ( $\mu$ V)), when the VA of the EUT is connected to LISN.

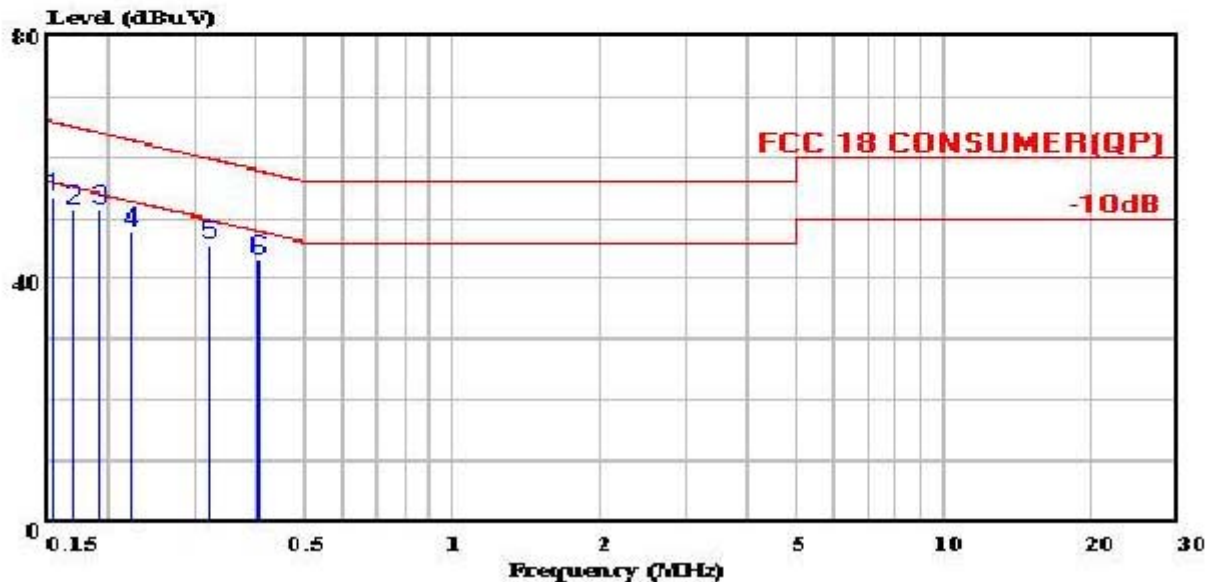




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Data#: 363 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-03 Time: 12:31:40



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-15W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer:

*Solon Gong*

Page: 1

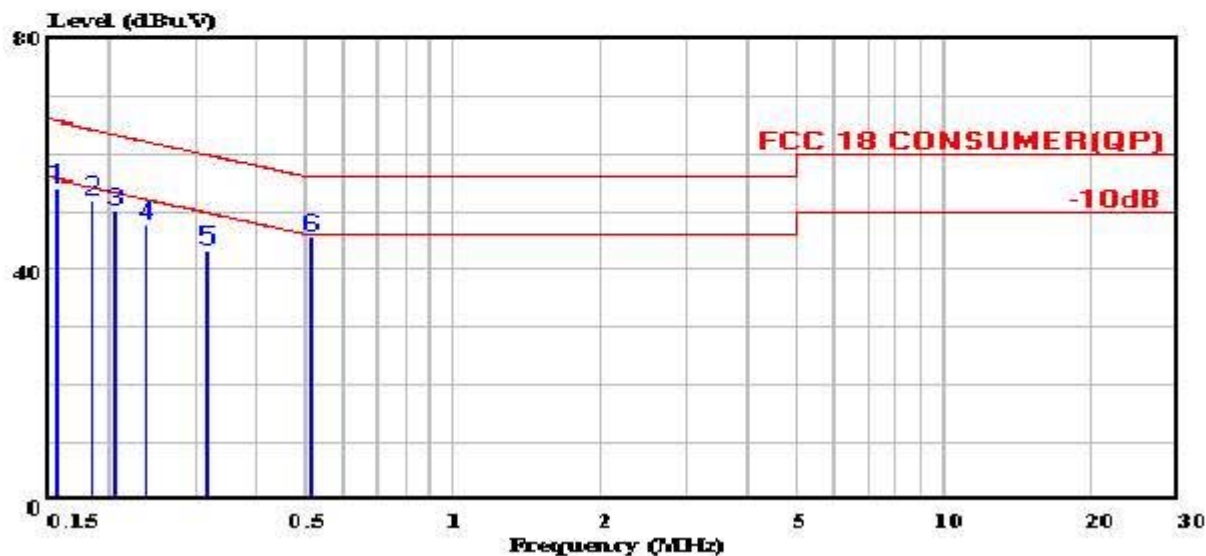
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.154	53.37	53.62	65.78	-12.16	0.25	0.03	0.22
2	0.169	51.10	51.33	64.99	-13.66	0.23	0.03	0.20
3	0.190	50.97	51.18	64.02	-12.84	0.21	0.04	0.17
4	0.221	47.65	47.85	62.79	-14.94	0.20	0.04	0.16
5	0.320	45.26	45.45	59.71	-14.26	0.19	0.04	0.15
6	0.404	42.77	42.94	57.77	-14.83	0.17	0.04	0.13



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Data#: 985 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-10 Time: 23:57:14



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-18W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23°C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer:

*Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.156	53.81	54.03	65.70	-11.67	0.22	0.03	0.19
2	0.185	51.78	52.00	64.27	-12.27	0.22	0.04	0.18
3	0.205	50.16	50.38	63.42	-13.04	0.22	0.04	0.18
4	0.238	47.52	47.72	62.16	-14.44	0.20	0.04	0.16
5	0.316	43.20	43.34	59.82	-16.48	0.14	0.04	0.10
6	0.518	45.60	45.72	56.00	-10.28	0.12	0.04	0.08

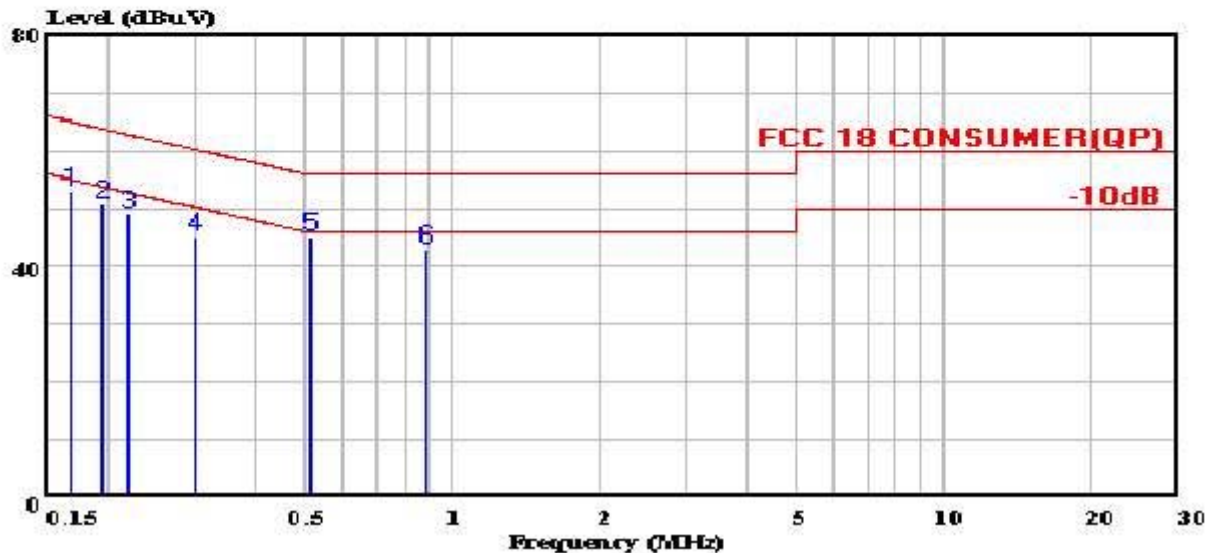
NOTE - The worst emission is detected at 0.518 MHz with corrected signal level of 45.72 (μV) (limit is 56.00 dB (μV)), when the VA of the EUT is connected to LISN.



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Data#: 983 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-10 Time: 23:52:52



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-18W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer: *Solon Gong*

Page: 1

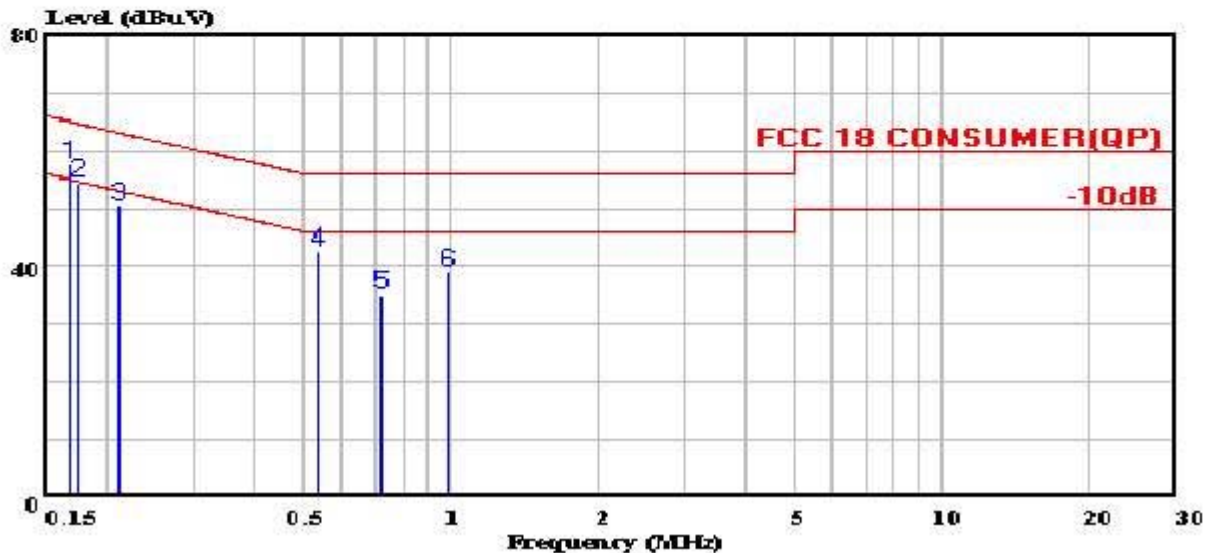
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.167	52.93	53.16	65.09	-11.93	0.23	0.03	0.20
2	0.194	50.72	50.93	63.86	-12.93	0.21	0.04	0.17
3	0.218	48.98	49.18	62.90	-13.72	0.20	0.04	0.16
4	0.298	44.93	45.13	60.31	-15.18	0.20	0.04	0.16
5	0.515	45.07	45.22	56.00	-10.78	0.15	0.04	0.11
6	0.884	43.01	43.17	56.00	-12.83	0.16	0.05	0.11



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Data#: 1077 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-21 Time: 09:11:05



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-20W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : ON  
Test Engineer:

*Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.168	57.47	57.69	65.06	-7.37	0.22	0.03	0.19
2	0.175	54.20	54.42	64.72	-10.30	0.22	0.04	0.18
3	0.211	50.47	50.69	63.17	-12.48	0.22	0.04	0.18
4	0.539	42.42	42.54	56.00	-13.46	0.12	0.04	0.08
5	0.720	35.13	35.24	56.00	-20.76	0.11	0.05	0.06
6	0.989	38.93	39.03	56.00	-16.97	0.10	0.05	0.05

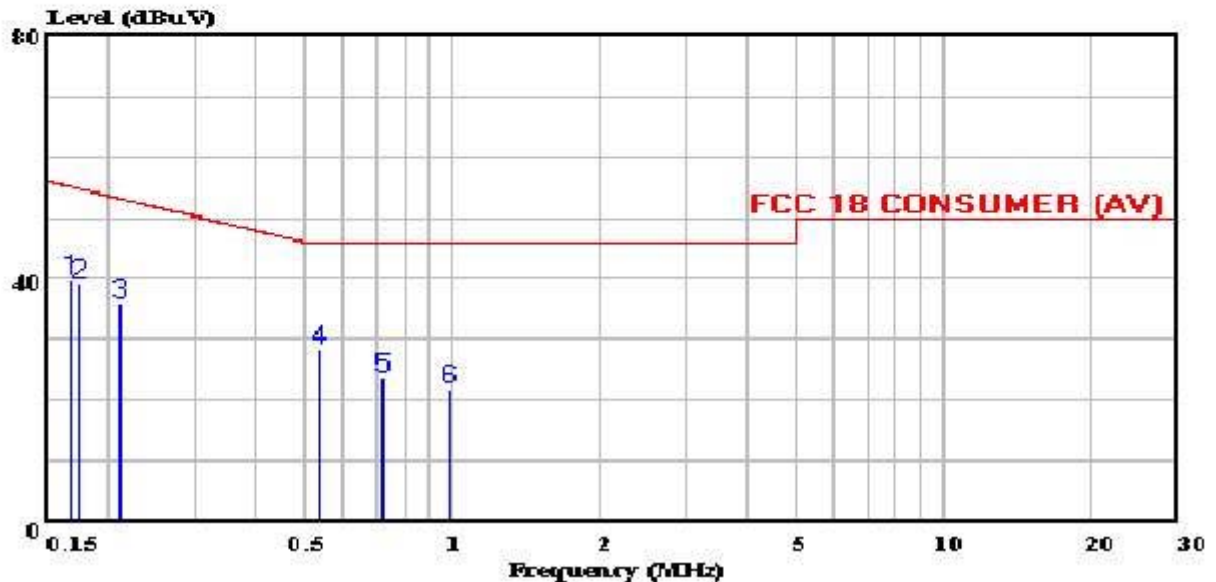




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Data#: 1076 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-21 Time: 09:01:58



Site : Conducted emission  
Condition : FCC 18 CONSUMER (AV) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-20W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : ON  
Test Engineer:

*Salon Gong*

Page: 1

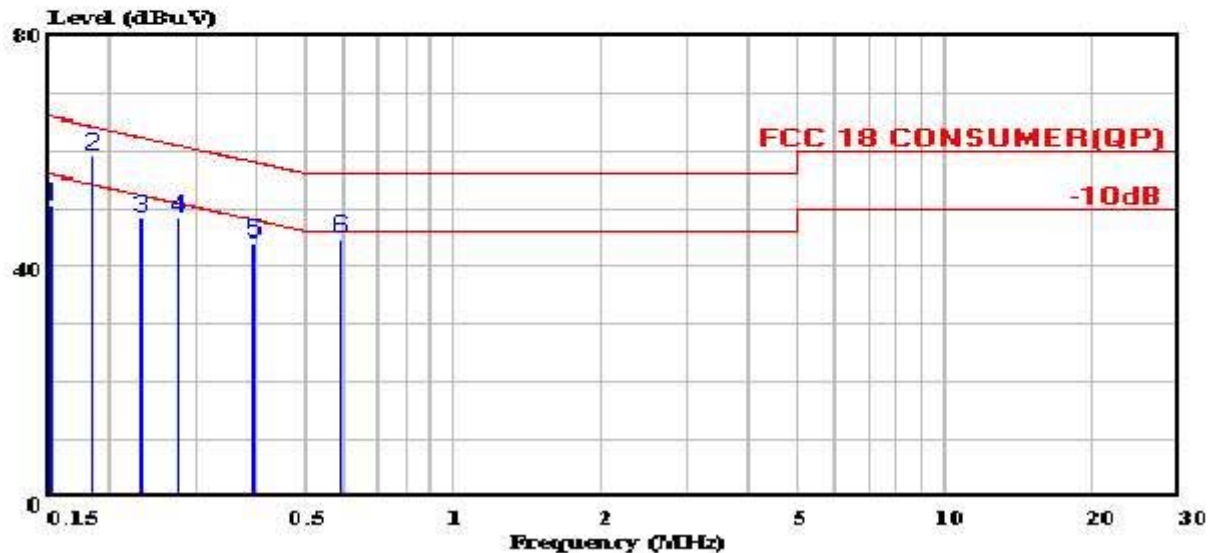
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.168	39.57	39.79	55.06	-15.27	0.22	0.03	0.19
2	0.175	38.91	39.13	54.74	-15.61	0.22	0.04	0.18
3	0.211	35.55	35.76	53.15	-17.39	0.21	0.04	0.17
4	0.539	28.18	28.30	46.00	-17.70	0.12	0.04	0.08
5	0.719	23.72	23.83	46.00	-22.17	0.11	0.05	0.06
6	0.989	21.68	21.78	46.00	-24.22	0.10	0.05	0.05



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Data#: 1073 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-21 Time: 08:55:41



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-20W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : ON  
Test Engineer: *Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.151	50.19	50.45	65.94	-15.49	0.26	0.03	0.23
2	0.183	59.09	59.31	64.36	-5.05	0.22	0.04	0.18
3	0.230	48.15	48.35	62.44	-14.09	0.20	0.04	0.16
4	0.277	48.11	48.31	60.90	-12.59	0.20	0.04	0.16
5	0.394	43.78	43.95	57.98	-14.03	0.17	0.04	0.13
6	0.589	44.56	44.71	56.00	-11.29	0.15	0.04	0.11

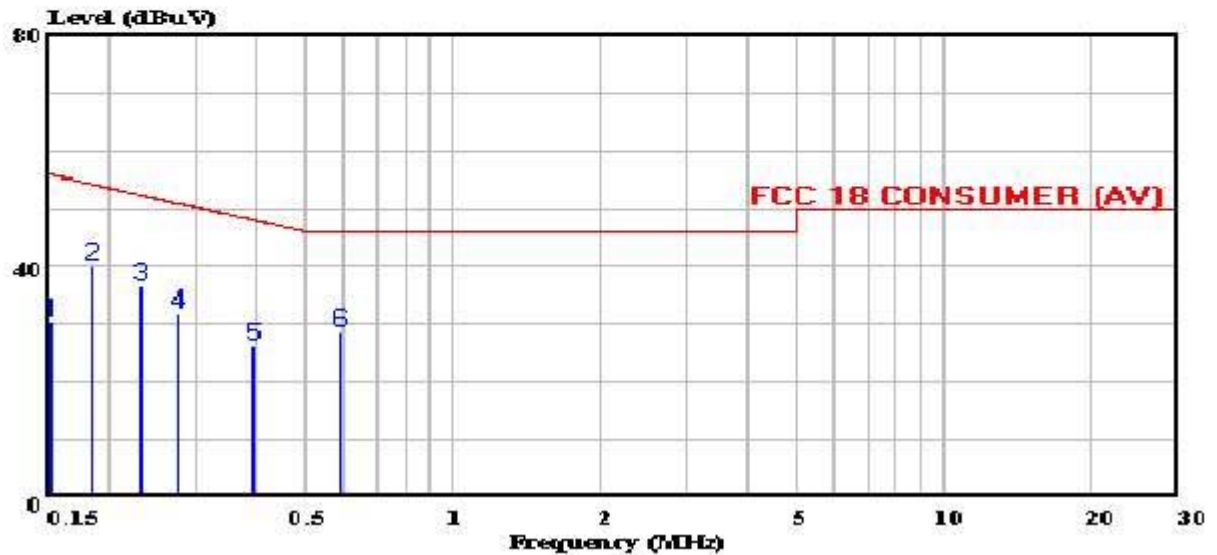
NOTE - The worst emission is detected at 0.183 MHz with corrected signal level of 59.31 (μV) (limit is 64.36 dB (μV)), when the VB of the EUT is connected to LISN.



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Data#: 1074 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-05-21 Time: 08:55:41



Site : Conducted emission  
Condition : FCC 18 CONSUMER (AV) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-20W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : ON  
Test Engineer: *Solon Gong*

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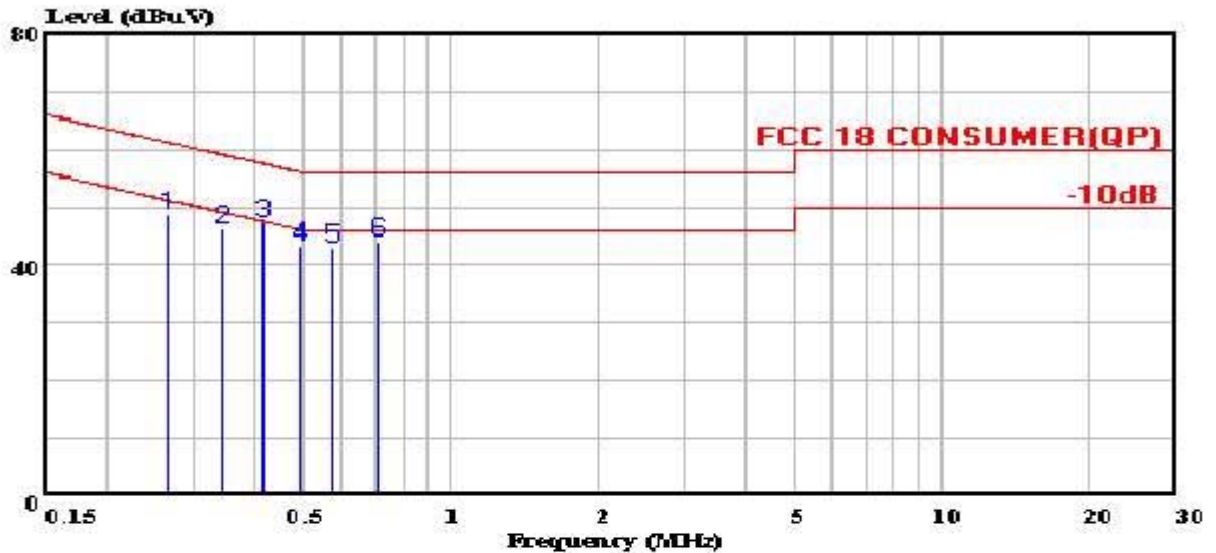
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.151	30.08	30.34	55.94	-25.60	0.26	0.03	0.23
2	0.183	39.99	40.21	54.36	-14.15	0.22	0.04	0.18
3	0.230	36.41	36.61	52.44	-15.83	0.20	0.04	0.16
4	0.277	31.62	31.82	50.90	-19.08	0.20	0.04	0.16
5	0.394	25.84	26.01	47.98	-21.97	0.17	0.04	0.13
6	0.589	28.62	28.77	46.00	-17.23	0.15	0.04	0.11



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Data#: 592 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-09 Time: 10:52:24



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-Z-13W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer : *Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.264	48.52	48.70	61.29	-12.59	0.18	0.04	0.14
2	0.343	46.14	46.27	59.13	-12.86	0.13	0.04	0.09
3	0.413	47.37	47.50	57.59	-10.09	0.13	0.04	0.09
4	0.495	43.19	43.31	56.08	-12.77	0.12	0.04	0.08
5	0.574	43.04	43.15	56.00	-12.85	0.11	0.04	0.07
6	0.712	43.99	44.10	56.00	-11.90	0.11	0.05	0.06

NOTE - The worst emission is detected at 0.413 MHz with corrected signal level of 47.50 ( $\mu$ V) (limit is 57.59 dB ( $\mu$ V)), when the VA of the EUT is connected to LISN.

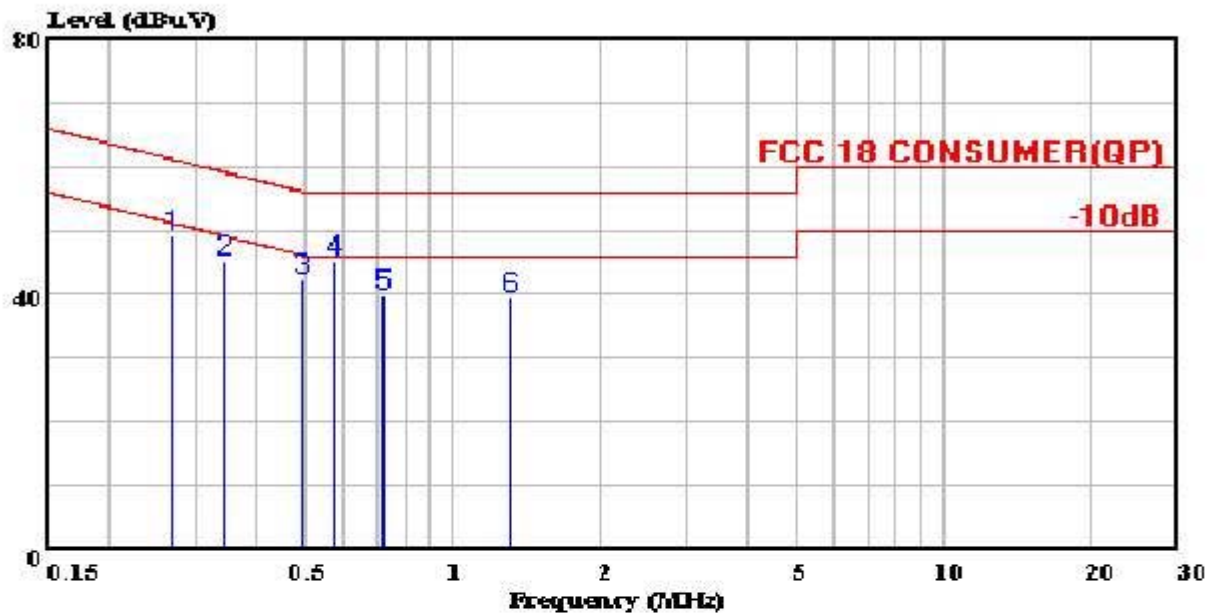




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Data#: 594 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-09 Time: 10:56:45



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-Z-13W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer: *Solon Gong*

Page: 1

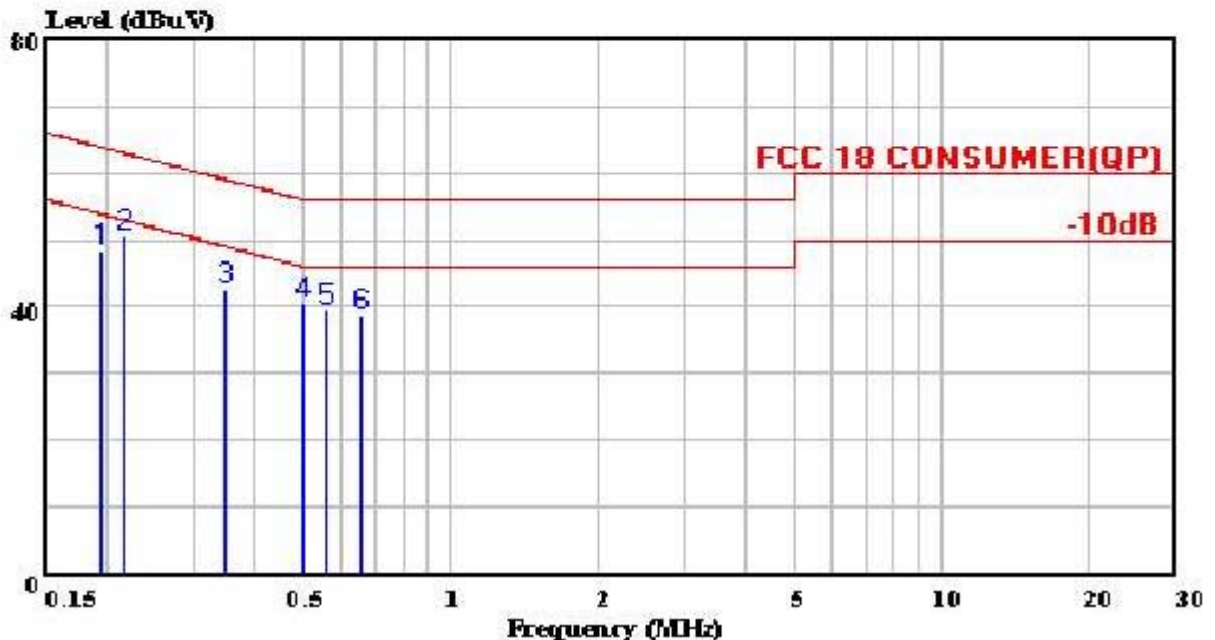
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.269	48.90	49.10	61.16	-12.06	0.20	0.04	0.16
2	0.344	44.88	45.07	59.11	-14.04	0.19	0.04	0.15
3	0.497	42.23	42.38	56.05	-13.67	0.15	0.04	0.11
4	0.570	45.06	45.21	56.00	-10.79	0.15	0.04	0.11
5	0.724	39.80	39.96	56.00	-16.04	0.16	0.05	0.11
6	1.310	39.26	39.43	56.00	-16.57	0.17	0.06	0.11



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Data#: 599 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-09 Time: 11:10:32



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VA  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-Z-15W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23'C 56%RH  
Test line : VA  
Test Mode : on  
Test Engineer: *Salon Gong*

Page: 1

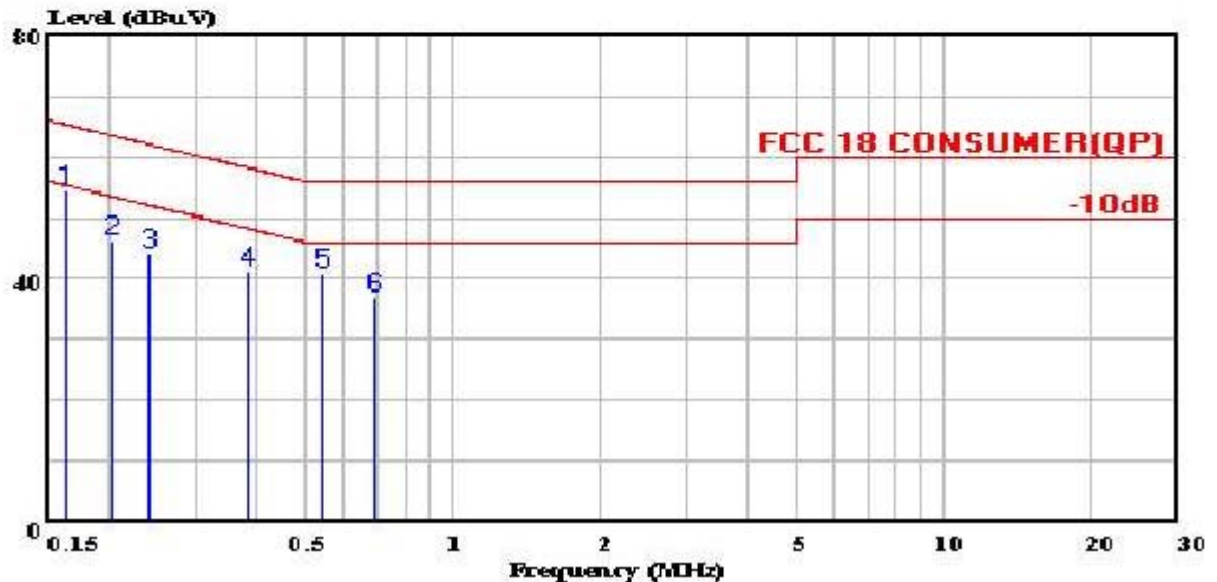
	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.193	48.15	48.37	63.89	-15.52	0.22	0.04	0.18
2	0.216	50.40	50.61	62.96	-12.35	0.21	0.04	0.17
3	0.348	42.47	42.60	59.00	-16.40	0.13	0.04	0.09
4	0.502	40.26	40.38	56.00	-15.62	0.12	0.04	0.08
5	0.558	39.41	39.52	56.00	-16.48	0.11	0.04	0.07
6	0.658	38.63	38.74	56.00	-17.26	0.11	0.05	0.06



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Data#: 597 File#: C:\emivm\TEST\L\longstar.EMI

Date: 2003-04-09 Time: 11:08:47



Site : Conducted emission  
Condition : FCC 18 CONSUMER(QP) KNW-407 VB  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-Z-15W  
S/N :  
Power Supply : 120V/60Hz  
Ambient : 23°C 56%RH  
Test line : VB  
Test Mode : on  
Test Engineer: *Solon Gong*

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Cable Loss	Probe Factor
	MHz	dBuV	dBuV	dBuV	dB	dB	dB	dB
1	0.163	54.46	54.70	65.30	-10.60	0.24	0.03	0.21
2	0.203	46.01	46.21	63.49	-17.28	0.20	0.04	0.16
3	0.240	43.75	43.95	62.08	-18.13	0.20	0.04	0.16
4	0.383	40.91	41.09	58.21	-17.12	0.18	0.04	0.14
5	0.541	40.83	40.98	56.00	-15.02	0.15	0.04	0.11
6	0.697	36.85	37.01	56.00	-18.99	0.16	0.05	0.11

NOTE - The worst emission is detected at 0.163 MHz with corrected signal level of 54.70 (μV) (limit is 65.30 dB (μV)), when the VB of the EUT is connected to LISN.

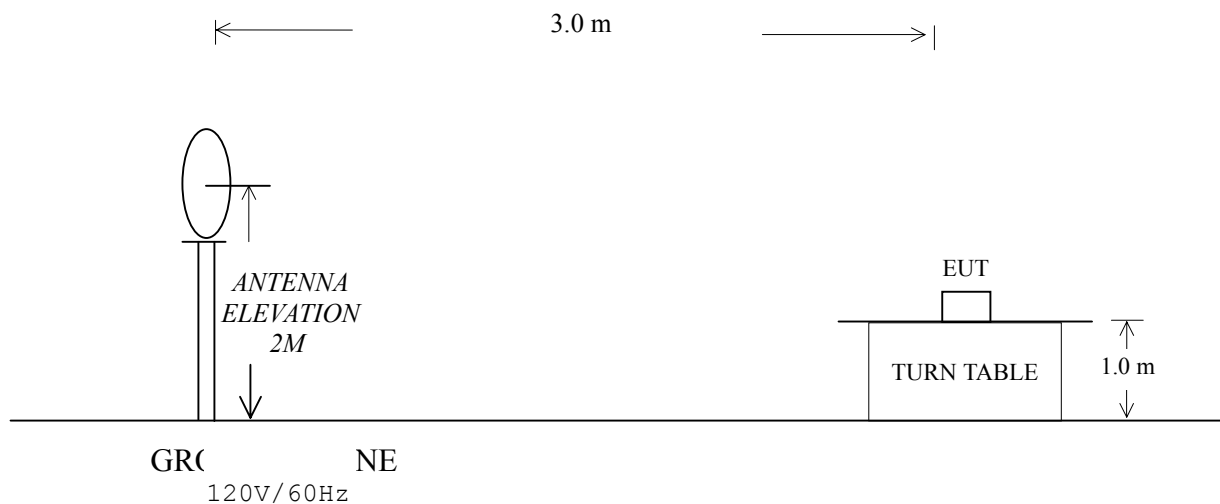
### 3 MAGNETIC FIELD EMISSION TEST

#### 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	CHASE	HLA6120	1062	Jun 02, 03	1 Year
2.	Test Receiver	Rohde & Schwarz	ESVS10	844594/001	Apr 22, 03	1 Year

#### 3.2 Block Diagram of Test Setup



#### 3.3 Magnetic Field Emission Limit

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)	Quasi-peak Electric Field Test Distance 3m dB( $\mu$ V/m)
0.009~30	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.	

#### 3.4 EUT Configuration on Test

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 2.4.

### 3.5 Operating Condition of EUT

3.5.1 Setup the EUT as shown on Section 3.2.

3.5.2 Turn on the power of all equipments.

3.5.3 Let the EUT work in test mode (ON) and test it.

### 3.6 Test Procedures

The EUT is placed on a table, which is 1.0 meter above ground. Measurements are performed at 3.0m distance 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 2m height 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 scanning waveforms are attached within Sec. 3.7.

### 3.7 Test Results

<PASS>

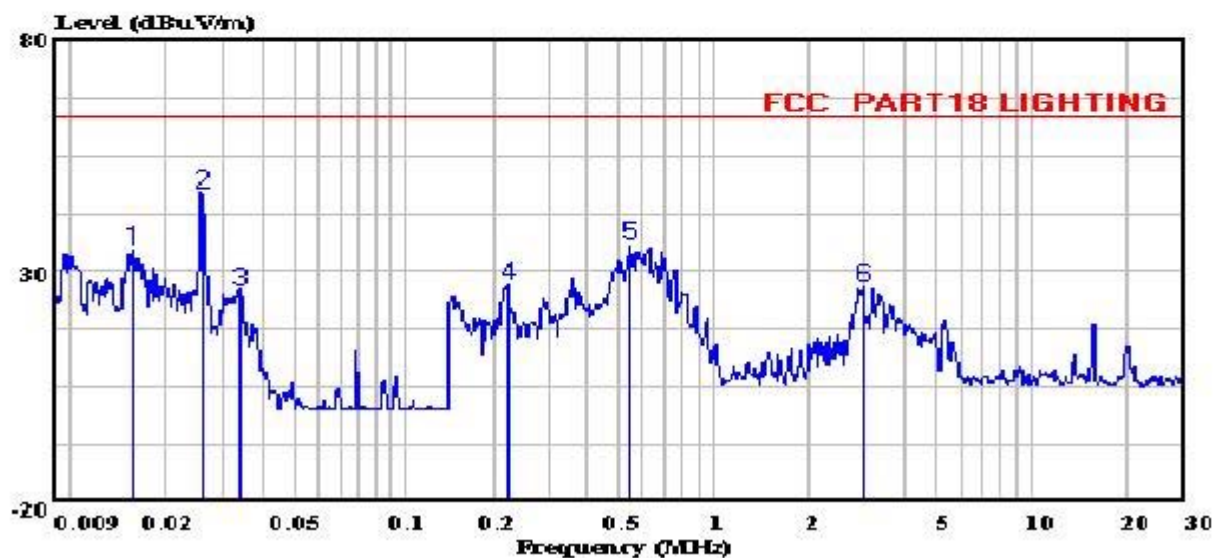
Refer to the following pages.



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Data#: 143 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:15:04



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-7W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Salon Gong*

Page: 1

		Read		Limit	Over
	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.016	34.76	34.76	63.50	-28.74
2	0.026	46.62	46.62	63.50	-16.88
3	0.034	25.82	25.82	63.50	-37.68
4	0.233	27.13	27.13	63.50	-36.37
5	0.564	35.72	35.72	63.50	-27.78
6	2.972	26.64	26.64	63.50	-36.86

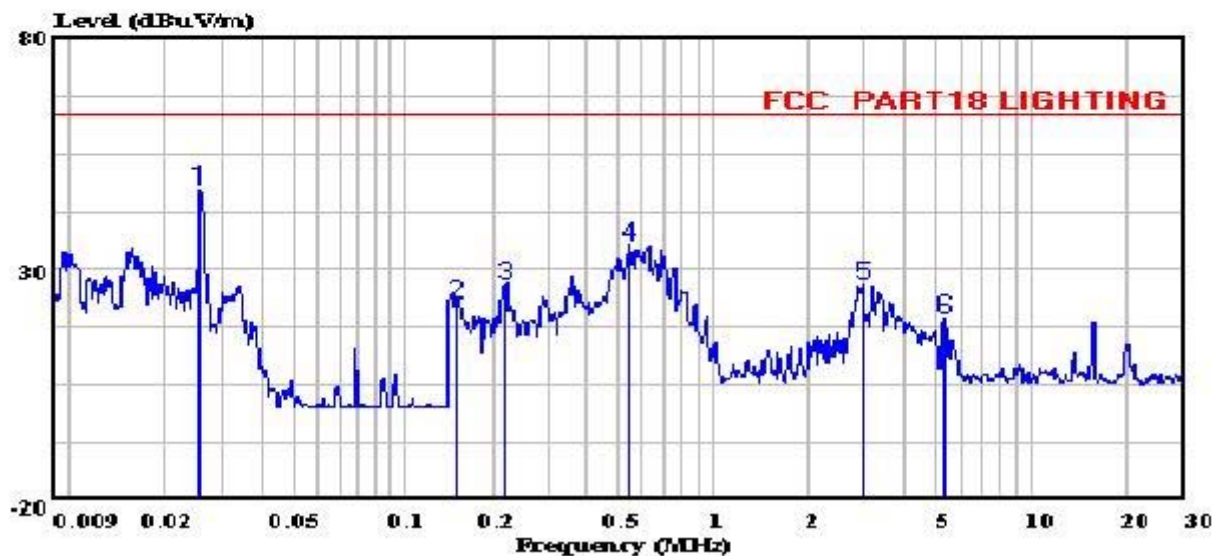




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Data#: 142 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:15:04



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-9W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer: *Solon Gong*

Page: 1

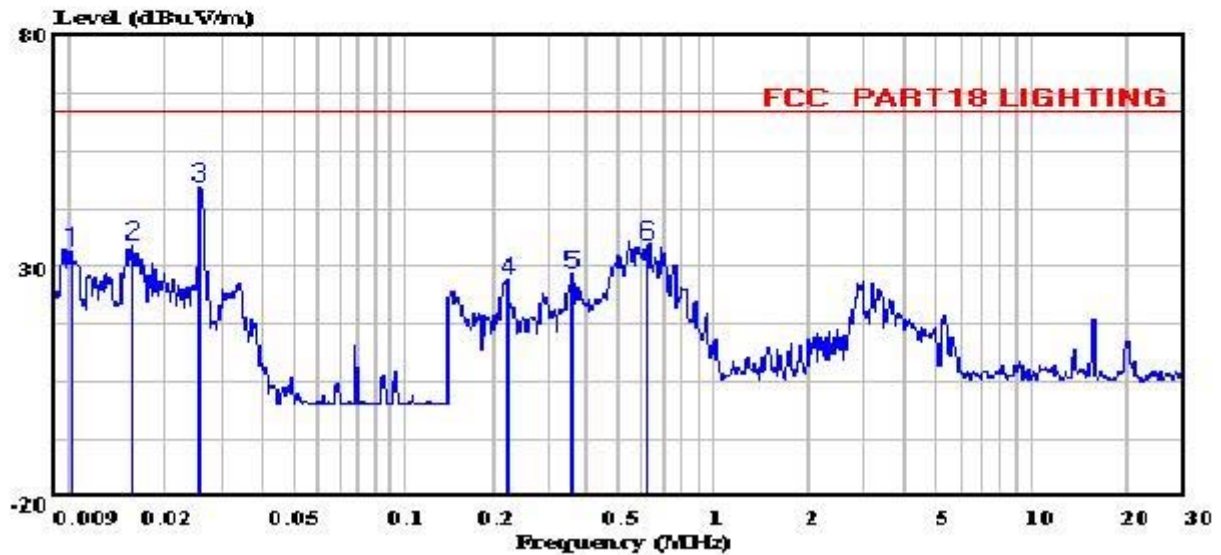
		Read		Limit	Over
	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.026	47.37	47.37	63.50	-16.13
2	0.160	22.48	22.48	63.50	-41.02
3	0.231	26.81	26.81	63.50	-36.69
4	0.559	35.06	35.06	63.50	-28.44
5	2.972	26.64	26.64	63.50	-36.86
6	5.374	19.26	19.26	63.50	-44.24



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Data#: 141 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:15:04



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-11W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Solon Gong*

Page: 1

		Read		Limit	Over
Freq	Level	Level	Line	Limit	
MHz	dBuV	dBuV/m	dBuV/m		dB
1	0.010	33.50	33.50	63.50	-30.00
2	0.016	34.76	34.76	63.50	-28.74
3	0.026	47.37	47.37	63.50	-16.13
4	0.233	27.13	27.13	63.50	-36.37
5	0.373	28.42	28.42	63.50	-35.08
6	0.636	34.92	34.92	63.50	-28.58

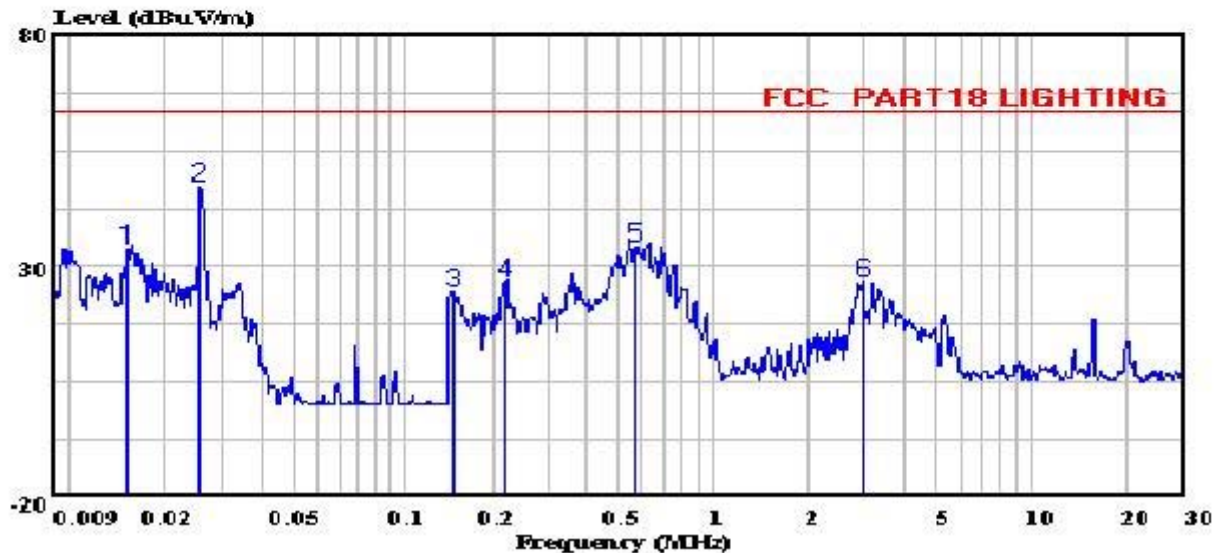




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Data#: 140 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:15:04



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-13W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Solon Gong*

Page: 1

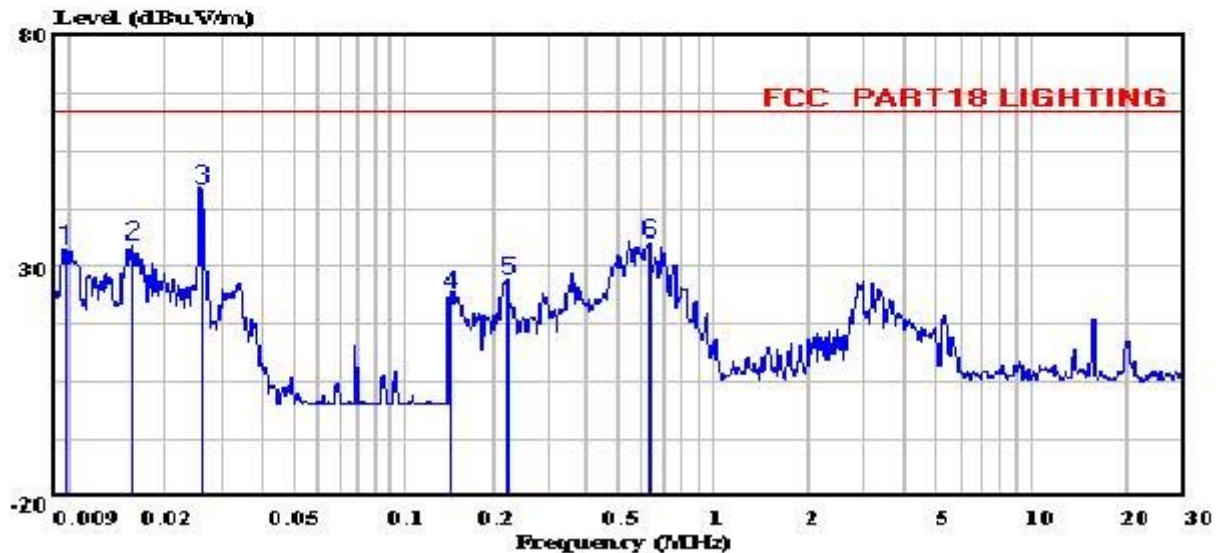
		Read	Limit	Over
Freq	Level	Level	Line	Limit
MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.015	33.94	33.94	63.50 -29.56
2	0.026	47.37	47.37	63.50 -16.13
3	0.156	24.57	24.57	63.50 -38.93
4	0.231	26.81	26.81	63.50 -36.69
5	0.587	34.23	34.23	63.50 -29.27
6	2.972	26.64	26.64	63.50 -36.86



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Data#: 138 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:15:04



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-15W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Solon Gong*

Page: 1

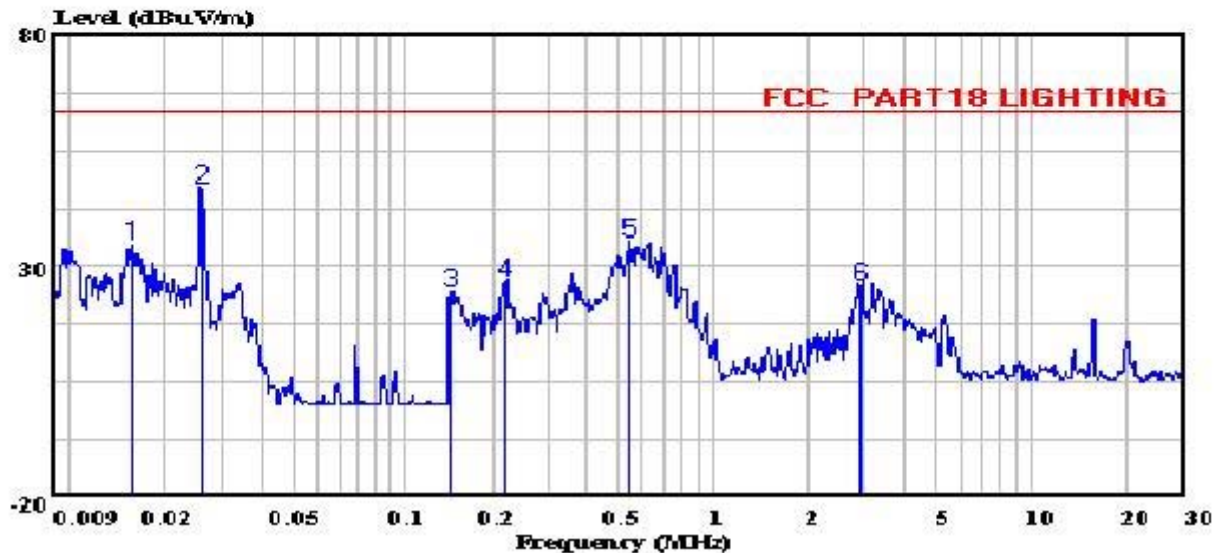
		Read	Limit	Over
Freq	Level	Level	Line	Limit
MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.010	33.59	33.59	63.50 -29.91
2	0.016	34.76	34.76	63.50 -28.74
3	0.026	46.62	46.62	63.50 -16.88
4	0.154	24.15	24.15	63.50 -39.35
5	0.233	27.13	27.13	63.50 -36.37
6	0.642	35.00	35.00	63.50 -28.50



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Data#: 144 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:15:04



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-18W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Solon Gong*

Page: 1

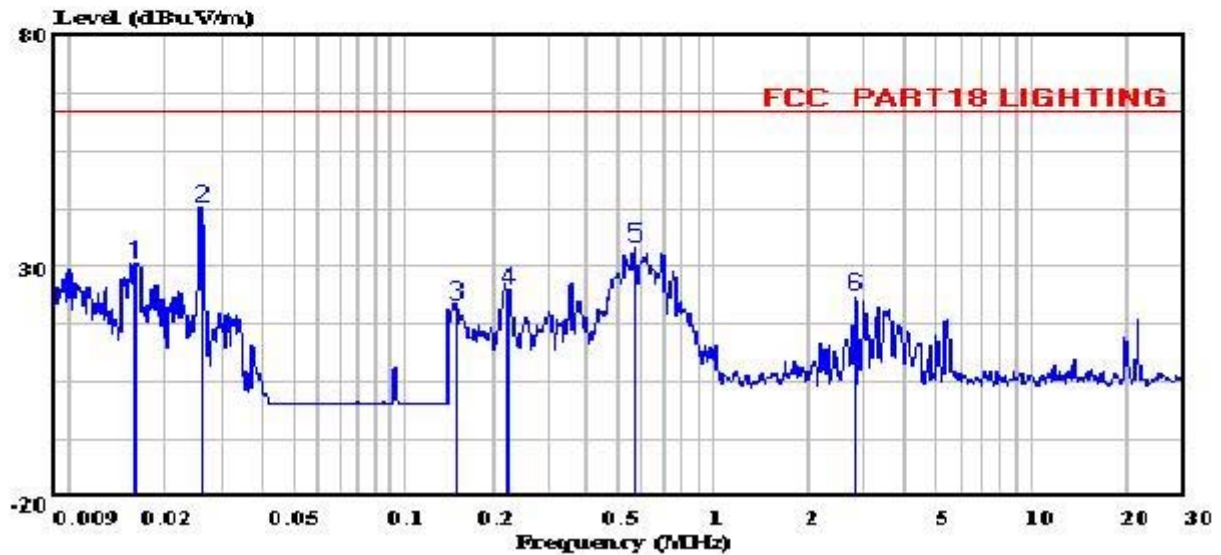
		Read		Limit	Over
	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.016	34.76	34.76	63.50	-28.74
2	0.026	46.62	46.62	63.50	-16.88
3	0.155	24.36	24.36	63.50	-39.14
4	0.231	26.81	26.81	63.50	-36.69
5	0.559	35.06	35.06	63.50	-28.44
6	2.925	25.75	25.75	63.50	-37.75



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Data#: 209 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 16:38:17



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-BU-20W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Solon Gong*

Page: 1

		Read		Limit	Over
	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.016	30.48	30.48	63.50	-33.02
2	0.026	42.71	42.71	63.50	-20.79
3	0.162	21.69	21.69	63.50	-41.81
4	0.233	24.85	24.85	63.50	-38.65
5	0.577	34.32	34.32	63.50	-29.18
6	2.831	23.28	23.28	63.50	-40.22

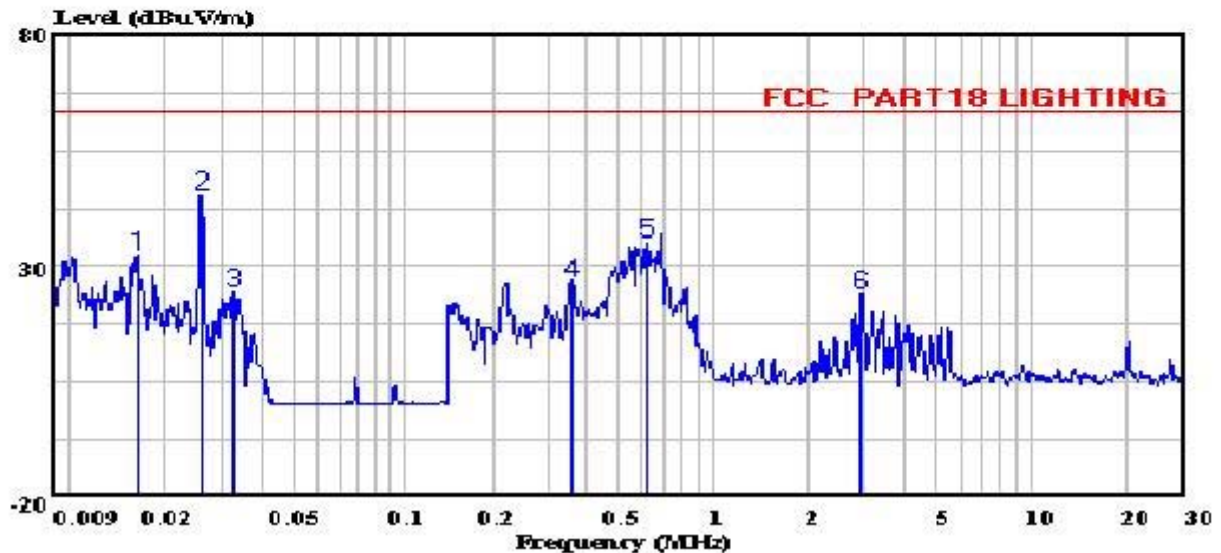




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Data#: 132 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:08:47



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-Z-13W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Solon Gong*

Page: 1

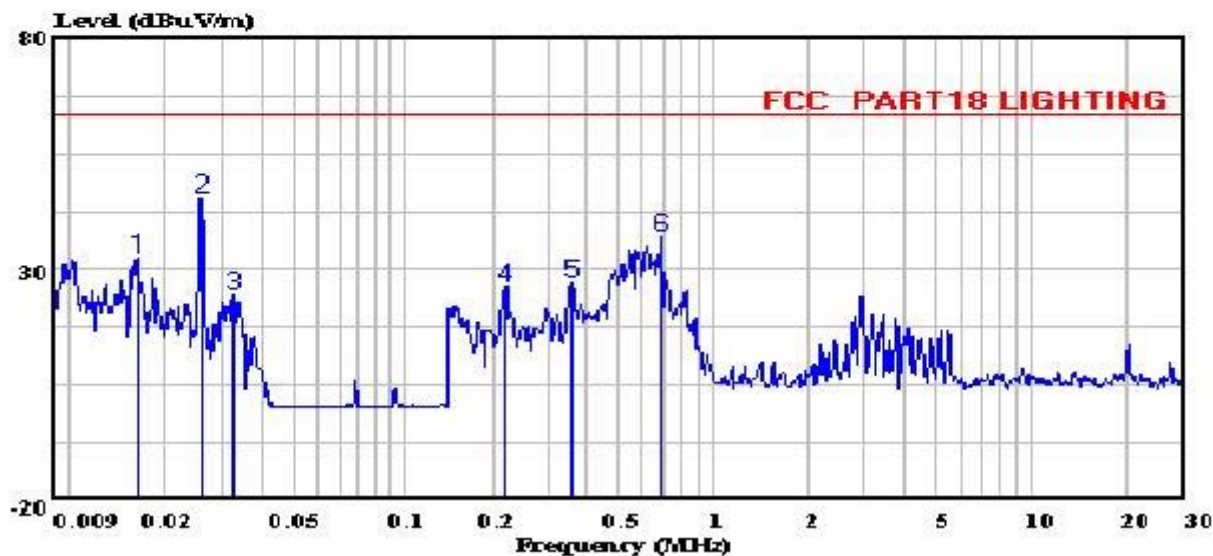
		Read		Limit	Over
	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.016	32.28	32.28	63.50	-31.22
2	0.026	45.58	45.58	63.50	-17.92
3	0.033	24.57	24.57	63.50	-38.93
4	0.370	26.65	26.65	63.50	-36.85
5	0.636	35.07	35.07	63.50	-28.43
6	2.948	23.80	23.80	63.50	-39.70



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Data#: 131 File#: E:\EMI\_TEST\Data\L\longstar.EMI

Date: 2003-05-11 Time: 17:08:47



Site : audix-aci NO.3 CHAMBER  
Condition : FCC PART18 LIGHTING 3m  
Project No. : AOE-000367  
Applicant : XIAMEN LONGSTAR LIGHTING CO.,LTD  
EUT : Energy Saving Lamp  
M/N : FE-Z-15W  
Power Supply : 120V/60Hz  
Ambient : 20.7C, 53%  
Test Mode : on  
S/N :  
Test Engineer:

*Solon Gong*

Page: 1

		Read		Limit	Over
	Freq	Level	Level	Line	Limit
	MHz	dBuV	dBuV/m	dBuV/m	dB
1	0.016	32.36	32.36	63.50	-31.14
2	0.026	45.58	45.58	63.50	-17.92
3	0.033	24.57	24.57	63.50	-38.93
4	0.229	26.25	26.25	63.50	-37.25
5	0.373	26.95	26.95	63.50	-36.55
6	0.707	36.88	36.88	63.50	-26.62