Application for FCC Certificate
On Behalf of
Fujian Joinluck Electronic Enterprise Co., Ltd.

Energy Saving Lamp

Model No.: R30 T3S 15W A-Type T3S 15W
Globe T3S 15W Tubular T3S 15W

Serial No.: F04101001 F04101002
F04101003 F04101004

FCC ID: N6AFJEE0406

Prepared For : Fujian Joinluck Electronic Enterprise Co., Ltd.
Cangshan Industrial Area, Cangshan District,
Fuzhou, Fujian, China.

Prepared By : Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F04086
Date of Test : Oct 20, 2004
Date of Report : Oct 25, 2004

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TEST REPORT FOR FCC CERTIFICATE

Applicant	:	Fujian Joinluck Electronic Enterprise Co., Ltd.
Manufacturer	:	Fujian Joinluck Electronic Enterprise Co., Ltd.
EUT Description	:	Energy Saving Lamp (A) Model No.: R30 T3S 15W, A-Type T3S 15W, Globe T3S 15W, Tubular T3S 15W (B) Serial No.: F04101001, F04101002, F04101003, F04101004 (C) Power Supply: 120V/60Hz

Test Procedure Used:

FCC RULES AND REGULATIONS PART 18 CONSUMER DEVICES (2003.10) 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 (Please see the EUT Description above), which was tested in 3m anechoic chamber on Oct 20, 2004, 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 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 : Oct 20, 2004

Prepared by : Kathy Wang 2004.10.25
KATHY WANG
(Assistant)

Test Engineer : Harry Zhao 2004.10.25
HARRY ZHAO
(Engineer)

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

Reviewer : Sammy Chen 2004.10.26
SAMMY CHEN
(Supervisor)

Approved Signatory : Byron Kwo 2004/10/26
BYRON KWO
(Deputy Manager)

Authorized Signature(s)

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test

Description	:	Energy Saving Lamp
Type of EUT	:	☑ Production ☐ Pre-product ☐ Pro-type
Model Number	:	R30 T3S 15W, A-Type T3S 15W, Globe T3S 15W, Tubular T3S 15W
Serial Number	:	F04101001, F04101002, F04101003, F04101004
Note	:	Except the lamp shades, model numbers and serial numbers, they are the same product. The circuit card copper traces are in agreement with the schematic.
Applicant	:	Fujian Joinluck Electronic Enterprise Co., Ltd. Cangshan Industrial Area, Cangshan District, Fuzhou, Fujian, China.
Manufacturer	:	Fujian Joinluck Electronic Enterprise Co., Ltd. Cangshan Industrial Area, Cangshan District, Fuzhou, Fujian, China.

Test Model	Apparent Power (V • A)	Real Power (W)
R30 T3S 15W	25.95	14.69
A-Type T3S 15W	26.01	14.72
Globe T3S 15W	25.79	14.49
Tubular 15W	25.83	14.60

1.2 Description of Test Facility

Site Description (Semi-Anechoic Chamber)	:	Sept. 17, 1998 file on 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.
FCC registration Number	:	91789
Accredited by NVLAP, Lab Code	:	200371-0

1.3 Measurement Uncertainty

Conducted Emission Uncertainty	:	U = ±2.66dB

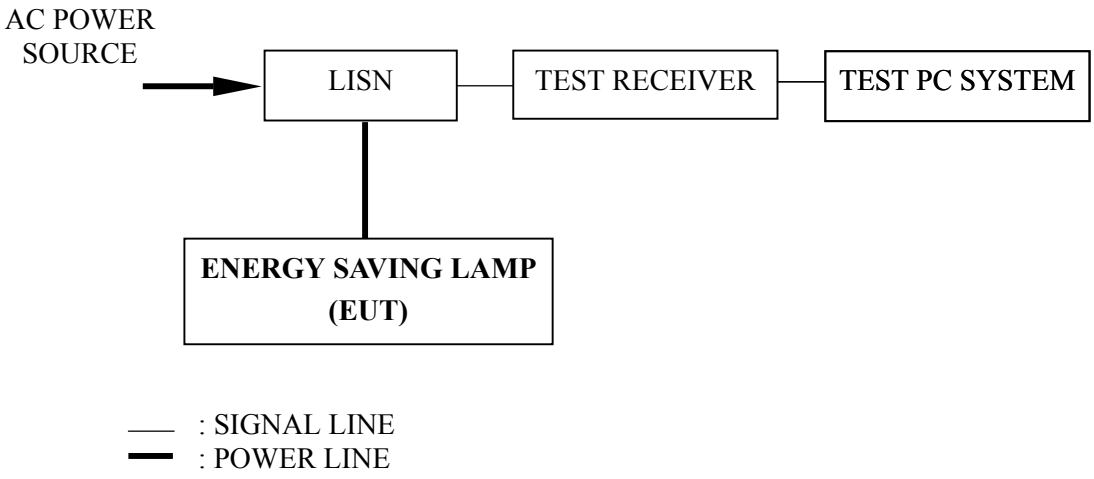
2 AC POWERLINE CONDUCTED EMISSION TEST

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 20, 2004	1 Year
2.	Line Impedance Stabilization Network (LISN)	Kyoritsu	KNW-407	8-1280-5	Apr 27, 2004	1 Year
3.	Attenuator	Yalian	TTS-1	#1	Sep 18, 2004	1/2 Year
4.	Software	Audix	E3	SET00200 9804M592	-	-

2.2 Block Diagram of Test Setup



2.3 Conducted Emission Limits

Frequency (MHz)	Maximum RF Line Voltage	
	(μV)	dB(μV)
0.45 ~ 2.51	250	48
2.51 ~ 3	3000	70
3 ~ 30	250	48

NOTE 1 – RF Line Voltage dB (μV) = 20 log RF Line Voltage (μV)
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 (Lighting) was done on conducted test and the test results of the highest emissions are listed in Sec. 2.7.

2.7 Test Results

< PASS >

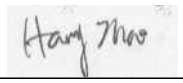
The frequency and amplitude of the highest AC powerline conducted emissions relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

The worse case is for Tubular T3S 15W. The worst emission is detected at 0.471 MHz with corrected signal level of 41.96 dB(μV) (limit is 48.00 dB(μV)), when the VA of the EUT is connected to LISN.

EUT	:	Energy Saving Lamp	Temperature :	22.8℃	
Model No.	:	R30 T3S 15W	Humidity	:	56%
Serial No.	:	F04101001	Date of Test	:	Oct 20, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.469	24.70	10.28	34.98	48.00	13.02
	0.609	22.60	10.28	32.88	48.00	15.12
	0.966	23.03	10.29	33.32	48.00	14.68
	1.177	24.06	10.30	34.36	48.00	13.64
	3.538	14.76	10.39	25.15	48.00	22.85
	14.940	6.98	10.80	17.78	48.00	30.22
VB	**0.494**	**25.84**	**10.31**	**36.15**	**48.00**	**11.85**
	0.574	24.79	10.32	35.11	48.00	12.89
	0.685	25.19	10.33	35.52	48.00	12.48
	0.870	24.34	10.35	34.69	48.00	13.31
	1.496	16.50	10.38	26.88	48.00	21.12
	15.321	7.00	10.81	17.81	48.00	30.19

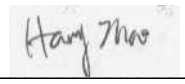
NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss (including 10dB attenuator) + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.

TEST ENGINEER: 
(HARRY ZHAO)

EUT	:	Energy Saving Lamp	Temperature :	22.8℃	
Model No.	:	A-Type T3S 15W	Humidity	:	56%
Serial No.	:	F04101002	Date of Test	:	Oct 20, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.460	29.25	10.28	39.53	48.00	8.47
	0.589	26.77	10.29	37.06	48.00	10.94
	0.927	25.91	10.29	36.20	48.00	11.80
	1.207	28.59	10.31	38.90	48.00	9.10
	4.115	11.82	10.42	22.24	48.00	25.76
	17.525	6.36	11.01	17.37	48.00	30.63
VB	0.471	26.74	10.31	37.05	48.00	10.95
	0.632	26.90	10.33	37.23	48.00	10.77
	0.885	26.25	10.35	36.60	48.00	11.40
	1.143	**30.83**	**10.37**	**41.20**	**48.00**	**6.80**
	3.705	12.87	10.47	23.34	48.00	24.66
	21.260	5.17	11.04	16.21	48.00	31.79

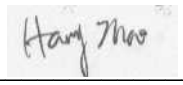
NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss (including 10dB attenuator) + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.

TEST ENGINEER: 
(HARRY ZHAO)

EUT	:	Energy Saving Lamp	Temperature :	22.8℃	
Model No.	:	Globe T3S 15W	Humidity	:	56%
Serial No.	:	F04101003	Date of Test	:	Oct 20, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.515	24.52	10.28	34.80	48.00	13.20
	0.584	24.94	10.29	35.23	48.00	12.77
	0.742	25.66	10.29	35.95	48.00	12.05
	1.087	**27.73**	**10.30**	**38.03**	**48.00**	**9.97**
	4.383	18.68	10.42	29.10	48.00	18.90
	20.731	8.82	11.20	20.02	48.00	27.98
VB	0.528	25.95	10.31	36.26	48.00	11.74
	0.643	23.32	10.33	33.65	48.00	14.35
	0.856	24.10	10.35	34.45	48.00	13.55
	1.115	26.26	10.37	36.63	48.00	11.37
	5.476	19.39	10.51	29.90	48.00	18.10
	15.581	10.18	10.82	21.00	48.00	27.00

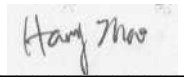
NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss (including 10dB attenuator) + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.

TEST ENGINEER: 
(HARRY ZHAO)

EUT	:	Energy Saving Lamp	Temperature :	22.8℃	
Model No.	:	Tubular T3S 15W	Humidity	:	56%
Serial No.	:	F04101004	Date of Test	:	Oct 20, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	**0.471**	**31.68**	**10.28**	**41.96**	**48.00**	**6.04**
	0.668	28.96	10.28	39.24	48.00	8.76
	0.958	29.12	10.29	39.41	48.00	8.59
	1.459	24.65	10.31	34.96	48.00	13.04
	5.476	18.89	10.44	29.33	48.00	18.67
	14.630	13.41	10.79	24.20	48.00	23.80
VB	0.574	29.12	10.32	39.44	48.00	8.56
	0.790	25.86	10.34	36.20	48.00	11.80
	1.038	27.58	10.36	37.94	48.00	10.06
	1.689	23.74	10.39	34.13	48.00	13.87
	2.174	22.76	10.41	33.17	48.00	14.83
	4.115	21.00	10.48	31.48	48.00	16.52

NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss(including 10dB attenuator) + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.

TEST ENGINEER: 
(HARRY ZHAO)

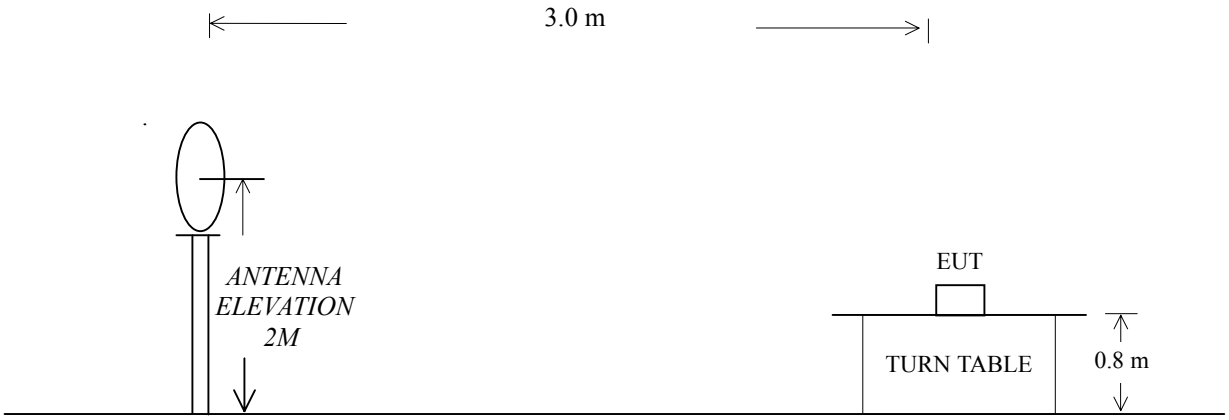
3 MAGNETIC FIELD EMISSION TEST

3.1 Test Equipment

The following test equipment are used during the field strength test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Loop Antenna	Schaffner	HLA6120	1193	Aug 06, 2003	2 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	830223/007	Apr 20, 2004	1 Year
3.	50Ω Coaxial Switch	ANRITSU	MP59B	M73389	Sept 19, 2004	1/2 Year
4.	Software	Audix	E3	SET00200 9912M295-2	-	-

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(μV/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 (Lighting) and test it.

3.6 Test Procedures

The EUT is placed on a table, which is 0.8 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 center of the loop at 2m height above the floor.

The bandwidth setting on the test receiver (R&S Test Receiver ESHS10) is 200Hz from 9 kHz to 150 kHz and 10 kHz from 150 kHz 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

NOTE 1 - Probe Factor means antenna factor of the 0.6m Loop Antenna.
NOTE 2 - Factor = Probe Factor + Cable Loss
NOTE 3 - Level = Read Level+ Factor
NOTE 4 - All reading are Quasi-Peak values.

<**PASS**>

Refer to the following pages.

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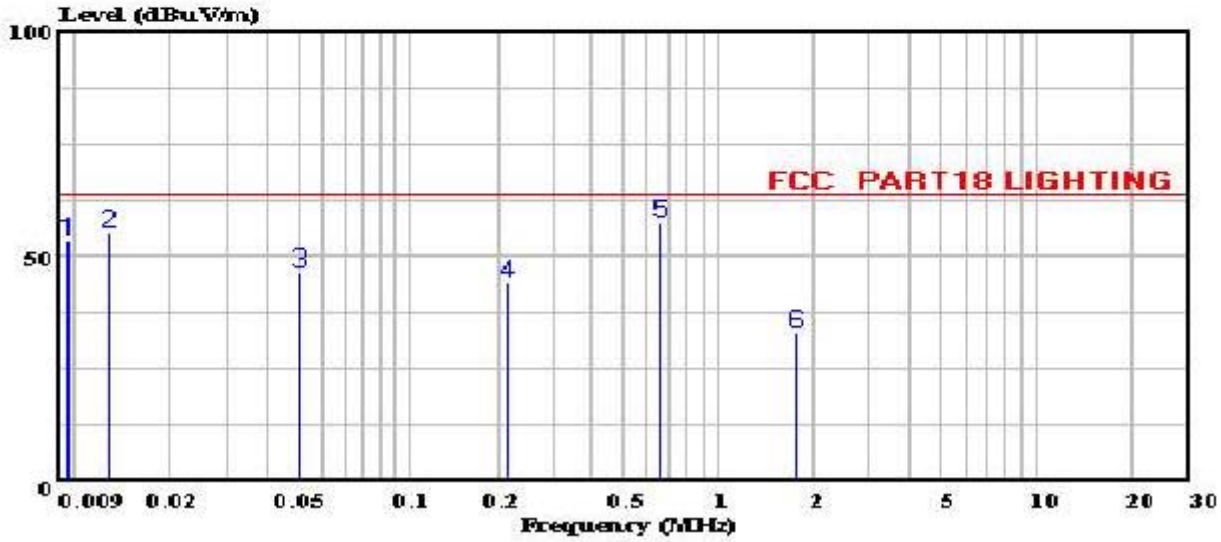

Site : Chamber 3
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000770
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
: CO., LTD.
EUT : Energy Saving Lamp
M/N : R30 T3S 15W
S/N : F04101001
Power Supply : 120V/60Hz
Ambient : 23'C 55%
Test Mode : Lighting
Test Engineer: Harry Mao

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	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Probe Factor	Cable Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB
1	0.010	53.57	63.50	-9.93	32.73	20.84	20.70	0.14
2	0.013	55.24	63.50	-8.26	34.38	20.86	20.70	0.16
3	0.050	46.54	63.50	-16.96	25.77	20.77	20.50	0.27
4	0.224	44.32	63.50	-19.18	23.82	20.50	20.10	0.40
5	0.668	57.45	63.50	-6.05	36.96	20.49	20.00	0.49
6	1.783	33.11	63.50	-30.39	12.60	20.51	19.94	0.57

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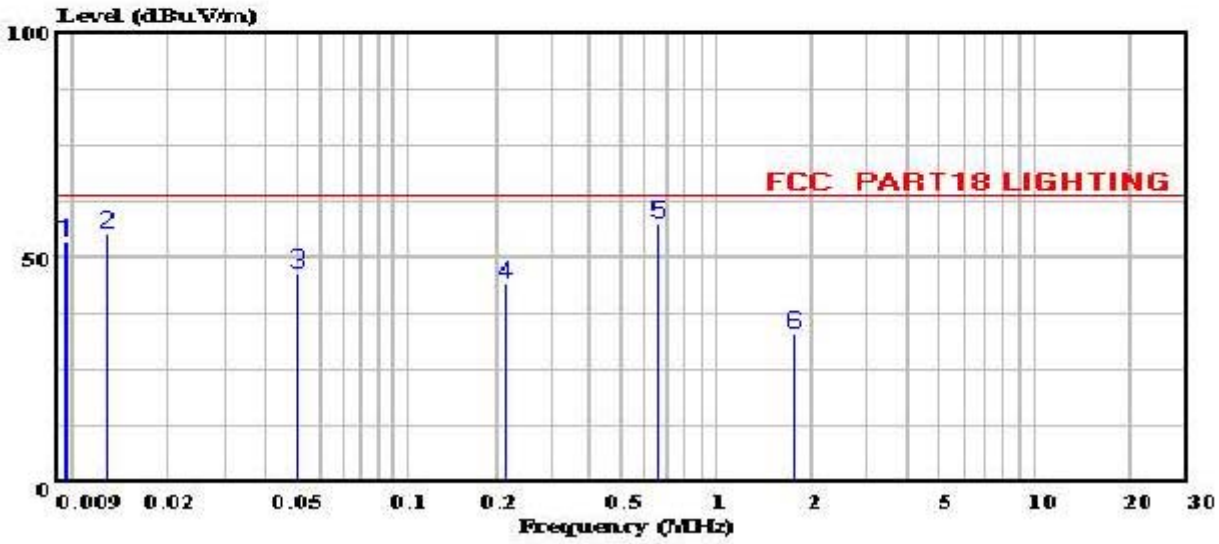

Site : Chamber 3
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000770
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
: CO., LTD.
EUT : Energy Saving Lamp
M/N : A-Type T3S 15W
S/N : F04101002
Power Supply : 120V/60Hz
Ambient : 23'C 55%
Test Mode : Lighting
Test Engineer:

Page: 1

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Probe Factor	Cable Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB
1	0.010	53.57	63.50	-9.93	32.73	20.84	20.70	0.14
2	0.013	55.24	63.50	-8.26	34.38	20.86	20.70	0.16
3	0.050	46.54	63.50	-16.96	25.77	20.77	20.50	0.27
4	0.224	44.32	63.50	-19.18	23.82	20.50	20.10	0.40
5	0.668	57.45	63.50	-6.05	36.96	20.49	20.00	0.49
6	1.783	33.11	63.50	-30.39	12.60	20.51	19.94	0.57

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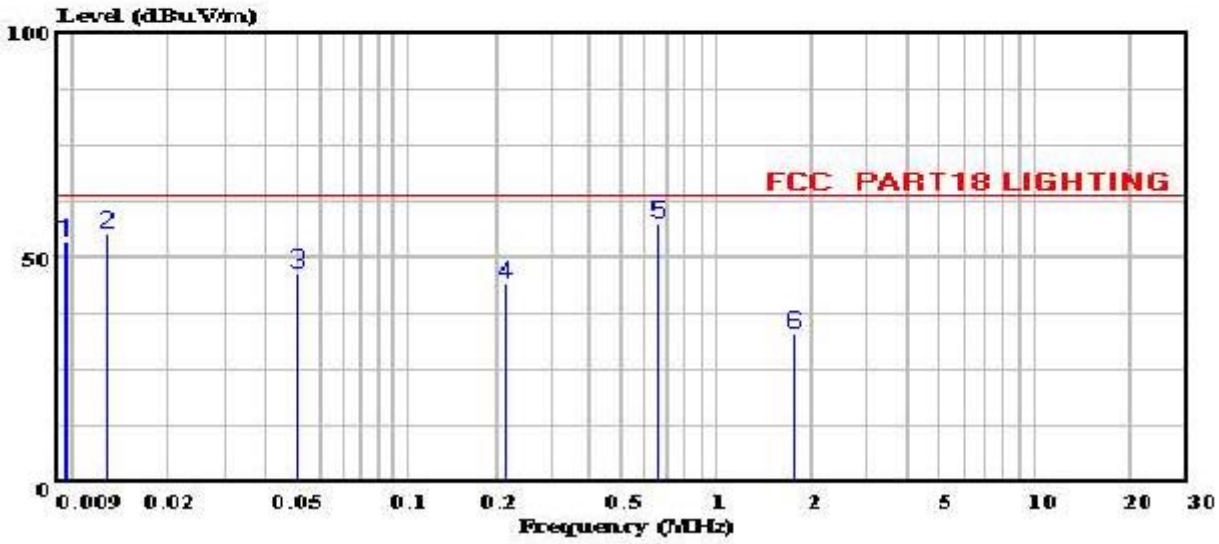

Site : Chamber 3
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000770
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
: CO., LTD.
EUT : Energy Saving Lamp
M/N : Globe T3S 15W
S/N : F04101003
Power Supply : 120V/60Hz
Ambient : 23'C 55%
Test Mode : Lighting
Test Engineer:

Page: 1

	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Probe Factor	Cable Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB
1	0.010	53.57	63.50	-9.93	32.73	20.84	20.70	0.14
2	0.013	55.24	63.50	-8.26	34.38	20.86	20.70	0.16
3	0.050	46.54	63.50	-16.96	25.77	20.77	20.50	0.27
4	0.224	44.32	63.50	-19.18	23.82	20.50	20.10	0.40
5	0.668	57.45	63.50	-6.05	36.96	20.49	20.00	0.49
6	1.783	33.11	63.50	-30.39	12.60	20.51	19.94	0.57

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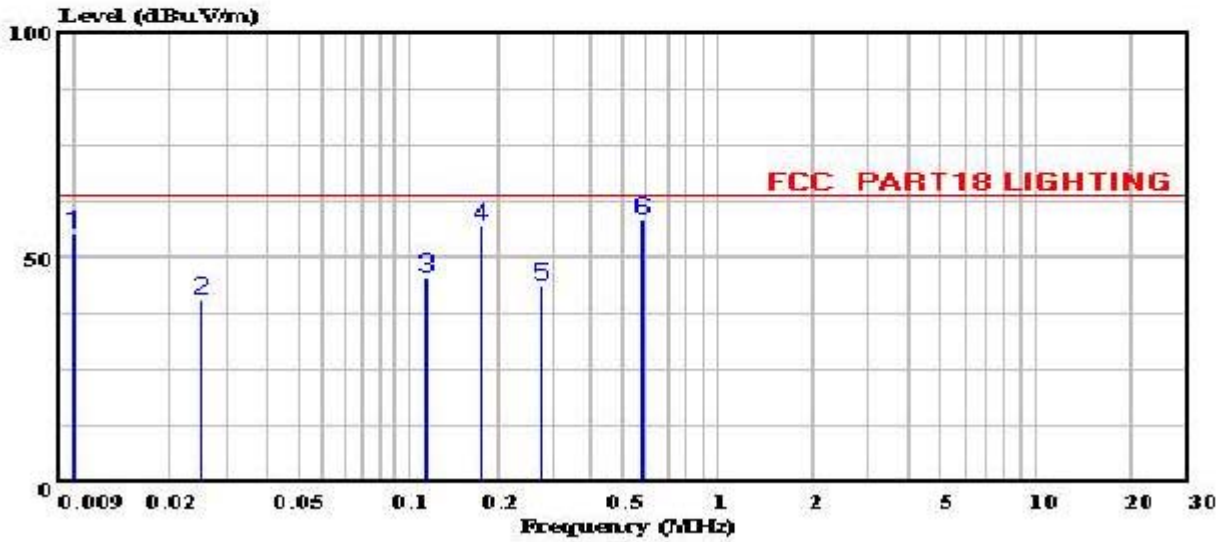

Site : Chamber 3
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000770
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
: CO., LTD.
EUT : Energy Saving Lamp
M/N : Tubular T3S 15W
S/N : F04101004
Power Supply : 120V/60Hz
Ambient : 23'C 55%
Test Mode : Lighting
Test Engineer:

Page: 1

	Freq	Level	Limit Line	Over Limit	Read Level	Probe Factor	Cable Loss
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB
1	0.010	55.14	63.50	-8.36	34.30	20.84	20.70	0.14
2	0.025	40.81	63.50	-22.69	20.00	20.81	20.60	0.21
3	0.126	45.65	63.50	-17.85	25.30	20.35	20.00	0.35
4	0.185	57.05	63.50	-6.45	36.60	20.45	20.07	0.38
5	0.286	44.12	63.50	-19.38	23.67	20.45	20.03	0.42
6	0.596	58.08	63.50	-5.42	37.60	20.48	20.00	0.48