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

Energy Saving Lamp

Model No.:	Globe T3S 7W	Candle T3S 7W
	R20 T3S 7W	Tubular T3S 7W
Serial No.:	F04072101	F04072102
	F04072103	F04072104

FCC ID: N6AFJEE0403

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

Prepared By :Audix Technology (Shanghai) Co., Ltd.
3F 34Bldg 680 Guiping Rd,
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Report No. : ACI-F04058
Date of Test : Aug 02-06, 2004
Date of Report : Aug 10, 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.: Globe T3S 7W, Candle T3S 7W, R20 T3S 7W, Tubular T3S 7W (B) Serial No.: F04072101, F04072102, F04072103, F04072104 (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 Aug 02-06, 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 : Aug 02-06, 2004

Prepared by : 2004.08.11 Test Engineer : 2004.8.11

CATHRIN YIN (Assistant)

CLOUD FENG (Engineer)

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

Reviewer : 2004.8.13 Approved Signatory : 13 Aug 04

SAMMY CHEN (Engineer)

BYRON KWO (Deputy Manager)

Authorized Signatory(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	:	Globe T3S 7W, Candle T3S 7W, R20 T3S 7W, Tubular T3S 7W
Serial Number	:	F04072101, F04072102, F04072103, F04072104
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)
Globe T3S 7W	14.07	8.05
Candle T3S 7W	14.60	8.52
R20 T3S 7W	14.71	8.55
Tubular T3S 7W	14.02	8.28

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

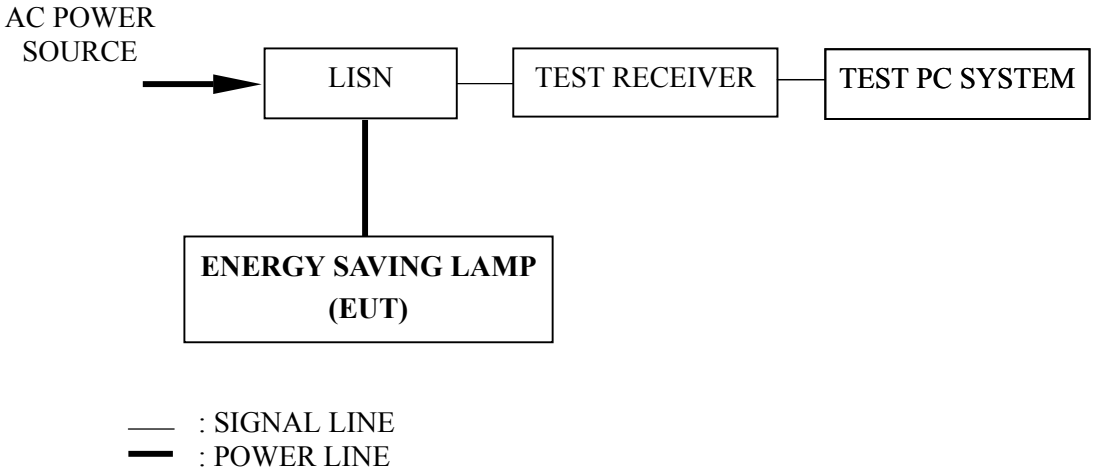
2 AC POWERLINE CONDUCTED EMISSION TEST

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.	50Ω Coaxial Switch	ANRITSU	MP59B	M73389	Mar 21, 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 7W. The worst emission is detected at 0.539 MHz with corrected signal level of 47.13 dB(μV) (limit is 48.00 dB(μV)), when the VB of the EUT is connected to LISN.

EUT	:	Energy Saving Lamp	Temperature :	23℃	
Model No.	:	Globe T3S 7W	Humidity	:	53%
Serial No.	:	F04072101	Date of Test	:	Aug 02, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	**0.456**	**44.01**	**0.28**	**44.29**	**48.00**	**3.71**
	0.548	42.86	0.28	43.14	48.00	4.86
	0.679	42.05	0.28	42.33	48.00	5.67
	0.958	38.39	0.29	38.68	48.00	9.32
	1.228	34.62	0.31	34.93	48.00	13.07
	1.483	31.74	0.31	32.05	48.00	15.95
VB	0.456	43.00	0.32	43.32	48.00	4.68
	0.539	40.87	0.31	41.18	48.00	6.82
	0.574	42.54	0.32	42.86	48.00	5.14
	0.679	42.35	0.33	42.68	48.00	5.32
	0.934	40.71	0.36	41.07	48.00	6.93
	1.124	37.20	0.37	37.57	48.00	10.43

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

TEST ENGINEER: 
(CLOUD FENG)

EUT	:	Energy Saving Lamp	Temperature :	23℃	
Model No.	:	Candle T3S 7W	Humidity	:	53%
Serial No.	:	F04072102	Date of Test	:	Aug 02, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.498	40.69	0.28	40.97	48.00	7.03
	0.539	41.75	0.28	42.03	48.00	5.97
	0.659	41.71	0.28	41.99	48.00	6.01
	0.767	40.47	0.29	40.76	48.00	7.24
	1.038	37.27	0.29	37.56	48.00	10.44
	1.308	33.50	0.31	33.81	48.00	14.19
VB	0.452	37.55	0.32	37.87	48.00	10.13
	0.539	43.47	0.31	43.78	48.00	4.22
	0.659	**43.78**	**0.33**	**44.11**	**48.00**	**3.89**
	0.767	42.88	0.34	43.22	48.00	4.78
	0.950	39.76	0.36	40.12	48.00	7.88
	1.187	35.13	0.37	35.50	48.00	12.50

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

TEST ENGINEER: (CLOUD FENG)

EUT	:	Energy Saving Lamp	Temperature :	23℃	
Model No.	:	R20 T3S 7W	Humidity	:	53%
Serial No.	:	F04072103	Date of Test	:	Aug 02, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.460	35.51	0.28	35.79	48.00	12.21
	0.553	40.18	0.28	40.46	48.00	7.54
	0.691	40.20	0.28	40.48	48.00	7.52
	0.783	38.04	0.29	38.33	48.00	9.67
	0.966	38.12	0.29	38.41	48.00	9.59
	1.187	35.80	0.30	36.10	48.00	11.90
VB	0.451	42.81	0.32	43.13	48.00	4.87
	0.502	42.70	0.31	43.01	48.00	4.99
	0.552	43.30	0.31	43.61	48.00	4.39
	0.670	42.10	0.33	42.43	48.00	5.57
	0.810	**43.79**	**0.34**	**44.13**	**48.00**	**3.87**
	0.966	40.22	0.36	40.58	48.00	7.42

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

TEST ENGINEER: 
(CLOUD FENG)

EUT	:	Energy Saving Lamp	Temperature	:	23℃
Model No.	:	Tubular T3S 7W	Humidity	:	53%
Serial No.	:	F04072104	Date of Test	:	Aug 02, 2004

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)
VA	0.451	44.78	0.28	45.06	48.00	2.94
	0.542	45.99	0.28	46.27	48.00	1.73
	0.579	42.10	0.29	42.39	48.00	5.61
	0.677	42.73	0.28	43.01	48.00	4.99
	0.810	43.34	0.29	43.63	48.00	4.37
	0.942	41.15	0.29	41.44	48.00	6.56
VB	0.451	45.56	0.32	45.88	48.00	2.12
	0.502	43.58	0.31	43.89	48.00	4.11
	0.539	**46.82**	**0.31**	**47.13**	**48.00**	**0.87**
	0.678	43.33	0.33	43.66	48.00	4.34
	0.810	42.77	0.34	43.11	48.00	4.89
	0.942	41.85	0.36	42.21	48.00	5.79

NOTE 1 - Probe Factor means insertion loss of LISN.
NOTE 2 - Factor = Cable Loss + Probe Factor.
NOTE 3 - Emission Level = Meter Reading + Factor.
NOTE 4 - All reading are Quasi-Peak Values.
NOTE 5 - At the frequency 0.542 MHz (VA), 0.451 MHz and 0.539 (VB), the measured results are 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.

TEST ENGINEER: 
(CLOUD FENG)

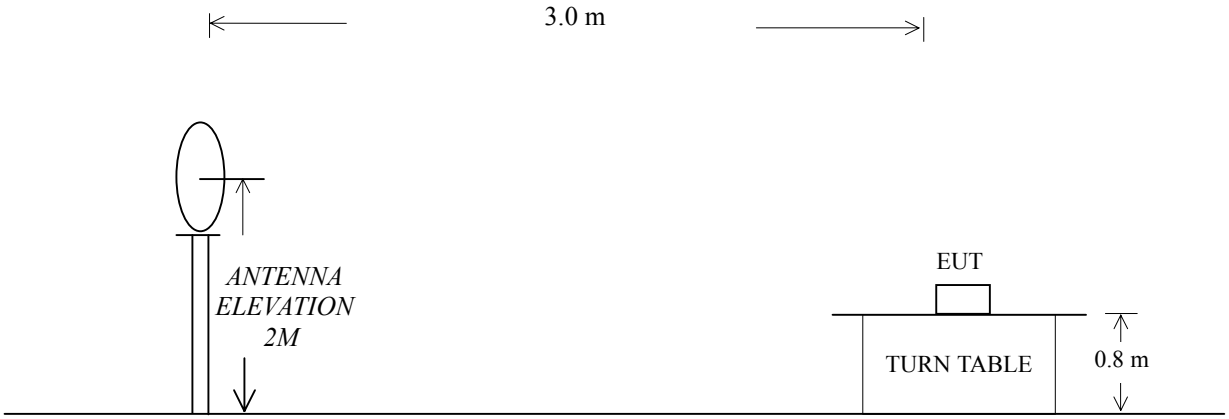
3 MAGNETIC FIELD EMISSION TEST

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	ESVS10	844594/001	Apr 20, 2004	1 Year
3.	50Ω Coaxial Switch	ANRITSU	MP59B	M74689	Mar 21, 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 requlations 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 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

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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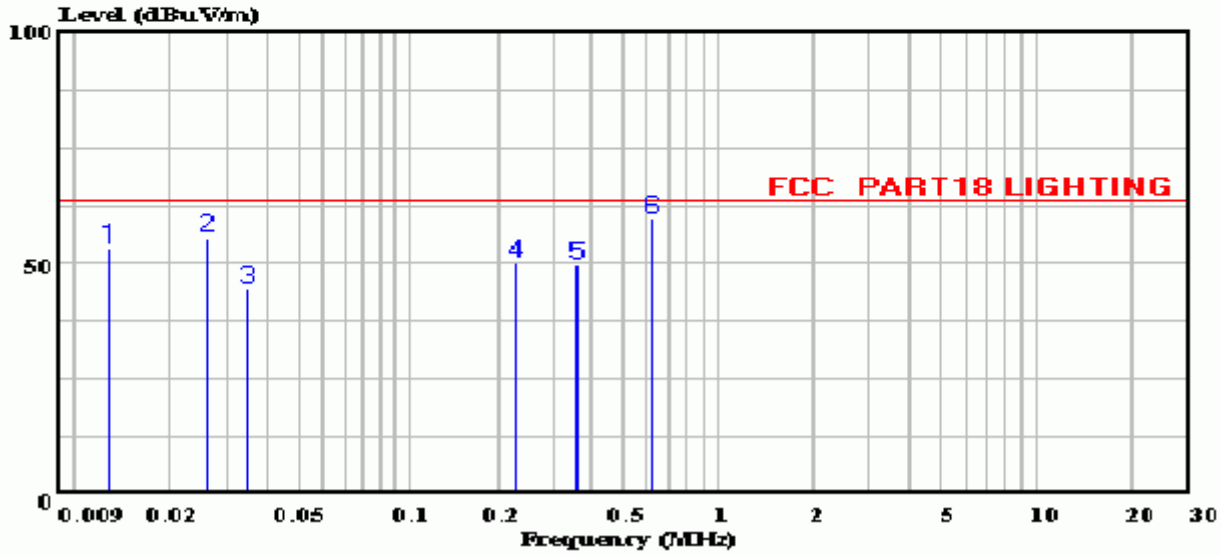

Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000707
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
Applicant2 : CO., LTD.
EUT : Energy Saving Lamp
M/N : GLobe T3S 7W
S/N : F04072101
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer:

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	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Probe Factor	Cable Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.013	32.34	53.17	63.50	-10.33	20.83	20.70	0.13
2	0.026	34.99	55.77	63.50	-7.73	20.78	20.59	0.19
3	0.034	23.84	44.52	63.50	-18.98	20.68	20.47	0.21
4	0.237	29.92	50.39	63.50	-13.11	20.47	20.10	0.37
5	0.370	29.38	49.79	63.50	-13.71	20.41	20.00	0.41
6	0.636	39.40	59.85	63.50	-3.65	20.45	20.00	0.45

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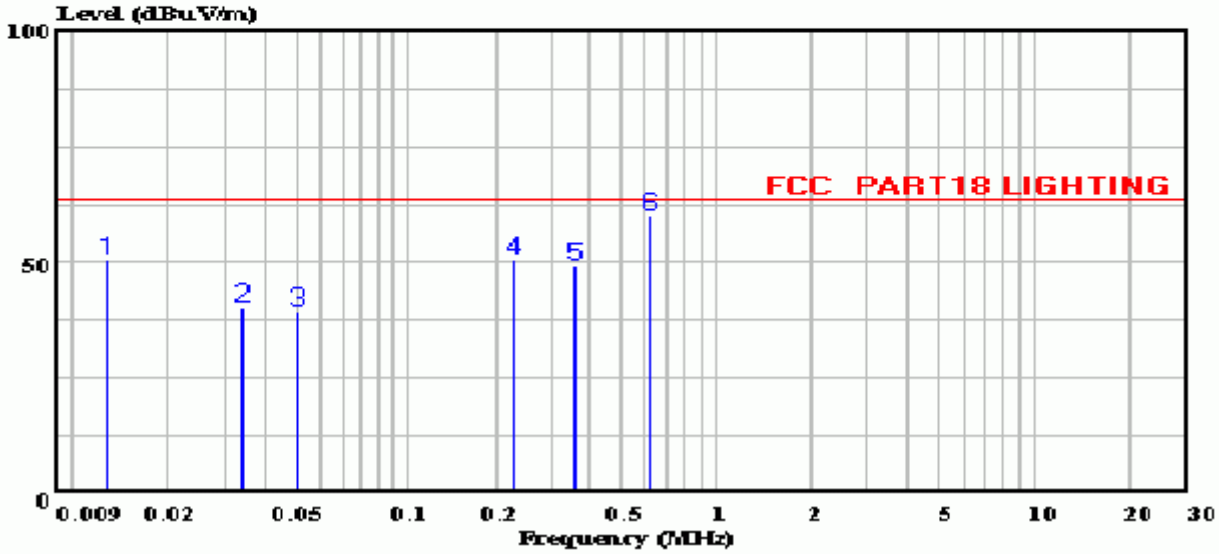

Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000707
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
Applicant2 : CO., LTD.
EUT : Energy Saving Lamp
M/N : Cadle T3S 7W
S/N : F04072102
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer:

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Probe Factor	Cable Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.013	30.03	50.86	63.50	-12.64	20.83	20.70	0.13
2	0.034	19.48	40.16	63.50	-23.34	20.68	20.47	0.21
3	0.050	18.80	39.54	63.50	-23.96	20.74	20.50	0.24
4	0.237	30.28	50.75	63.50	-12.75	20.47	20.10	0.37
5	0.373	29.10	49.51	63.50	-13.99	20.41	20.00	0.41
6	0.636	39.48	59.93	63.50	-3.57	20.45	20.00	0.45

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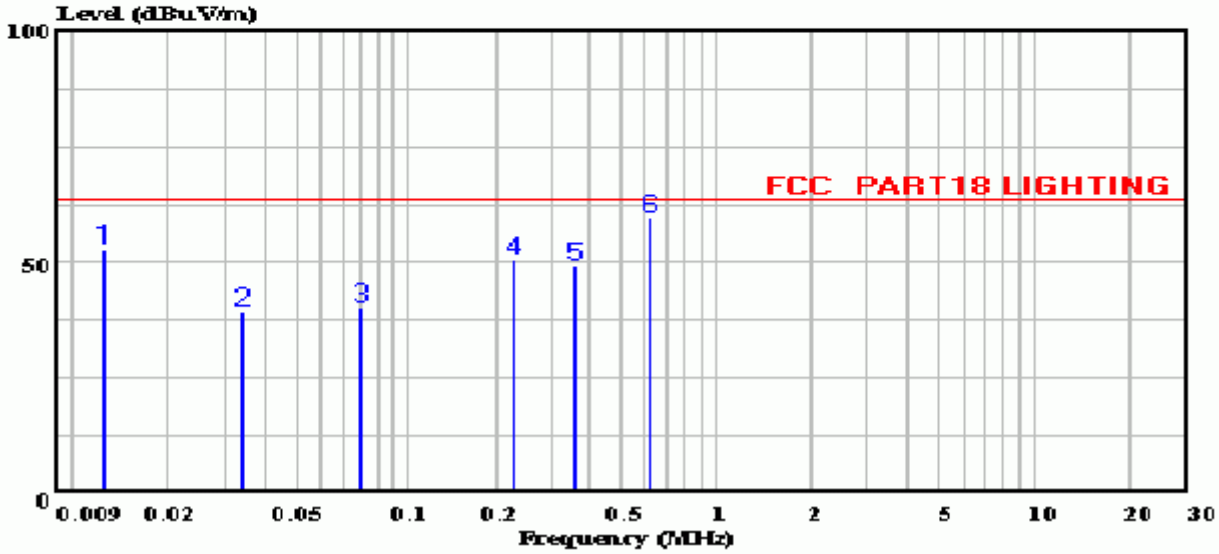

Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000707
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
Applicant2 : CO., LTD.
EUT : Energy Saving Lamp
M/N : R20 T3S 7W
S/N : F04072103
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer:

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Probe Factor	Cable Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB
1	0.013	32.20	53.03	63.50	-10.47	20.83	20.70	0.13
2	0.034	18.92	39.60	63.50	-23.90	20.68	20.47	0.21
3	0.079	19.76	40.30	63.50	-23.20	20.54	20.26	0.28
4	0.237	30.24	50.71	63.50	-12.79	20.47	20.10	0.37
5	0.370	29.00	49.41	63.50	-14.09	20.41	20.00	0.41
6	0.636	39.20	59.65	63.50	-3.85	20.45	20.00	0.45

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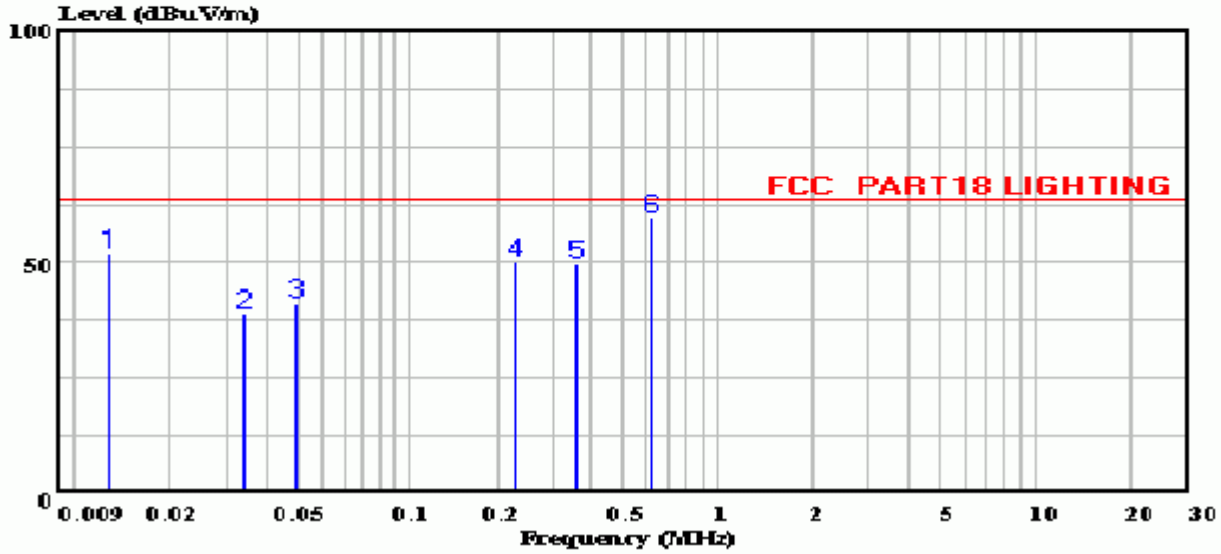

Site : audix-aci NO.3 CHAMBER
Condition : FCC PART18 LIGHTING 3m HLA6120
Project No : AOE-000707
Applicant : FUJIAN JOINLUCK ELECTRONIC ENTERPRISE
Applicant2 : CO., LTD.
EUT : Energy Saving Lamp
M/N : Tubular T3S 7W
S/N : F04072104
Power Supply : 120V/60Hz
Ambient : 23'C 53%
Test Mode : Lighting
Test Engineer:

Page: 1

	Freq	Read Level	Level	Limit Line	Over Limit	Factor	Probe Factor	Cable Loss
	MHz	dBuV	dBuV/m	dBuV/m	dB	dB	dB	dB
1	0.013	31.32	52.15	63.50	-11.35	20.83	20.70	0.13
2	0.034	18.42	39.10	63.50	-24.40	20.68	20.47	0.21
3	0.049	20.46	41.20	63.50	-22.30	20.74	20.50	0.24
4	0.237	29.62	50.09	63.50	-13.41	20.47	20.10	0.37
5	0.370	29.28	49.69	63.50	-13.81	20.41	20.00	0.41
6	0.636	39.22	59.67	63.50	-3.83	20.45	20.00	0.45