



## FCC CERTIFICATION TEST REPORT FOR

<b>Applicant</b>	:	KAILIN ELECTRICAL CO.,LTD
<b>Address</b>	:	FOXIN INDUSTRIAL, DISTRICT,DALNAG TOWN, DONGGUAN CITY, GUANGDONG CHINA
<b>Equipment under Test</b>	:	self ballasted lamps
<b>Model No</b>	:	KL1206-23W
<b>FCC ID</b>	:	QAKKL12062
<b>Manufacturer</b>	:	KAILIN ELECTRICAL CO.,LTD
<b>Address</b>	:	FOXIN INDUSTRIAL, DISTRICT,DALNAG TOWN, DONGGUAN CITY, GUANGDONG CHINA

**Issued By: Dongguan Dongdian Testing Service Co., Ltd.**

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**Report No:** DDT-RE120064

**Issued Date:** 2012/09/16

## TABLE OF CONTENTS

Test report declare.....	3
1. Summary of test results.....	4
2. General test information.....	5
2.1. Description of EUT.....	5
2.2. Accessories of EUT.....	5
2.3. Assistant equipment used for test.....	5
2.4. Block diagram EUT configuration for test.....	5
2.5. Test environment conditions.....	6
2.6. Test laboratory.....	6
2.7. Measurement uncertainty.....	6
3. Power Line Conducted Emission Test.....	7
3.1. Test equipment.....	7
3.2. Block diagram of test setup.....	7
3.3. Power Line Conducted Emission Limits(RF lighting devices).....	7
3.4. Test Procedure.....	7
3.5. Test Result.....	8
4. Radiated emission test.....	11
4.1. Test equipment.....	11
4.2. Block diagram of test setup.....	11
4.3. Radiated emission limit(RF lighting devices).....	11
4.4. Test Procedure.....	12
4.5. Test result.....	12
5. Test setup photograph.....	15
5.1. Photos of power line conducted emission test.....	15
5.2. Photos of radiated emission test.....	15
6. Photos of the EUT.....	16

## TEST REPORT DECLARE

<b>Applicant</b>	:	KAILIN ELECTRICAL CO.,LTD
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**Test Standard Used:**

FCC Part 18:2010; FCC/OST MP-5 (1986)

**We Declare:**

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

**After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.**

<b>Report No:</b>	DDT-RE120064		
<b>Date of Test:</b>	2012/09/12	<b>Date of Report:</b>	2012/09/16

*Prepared By:*



*Leo Liu/Engineer*



*Jenny Yu/EMC Manager*

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

## 1. Summary of test results

Description of Test Item	Standard	Results
Power Line Conducted Emission Test	FCC Part 18:2010; FCC/OST MP-5 (1986)	PASS
Radiated Emission Test	FCC Part 18:2010; FCC/OST MP-5 (1986)	PASS

## 2. General test information

### 2.1. Description of EUT

EUT* Name	:	self ballasted lamps
Model Number	:	KL1206-23W
EUT function description	:	Please reference user manual of this device
Power supply	:	AC 120V,60Hz
Work frequency	:	40KHz
Date of Receipt	:	2012/7/11
Sample Type	:	Series production

Note: EUT is the ab. of equipment under test.

### 2.2. Accessories of EUT

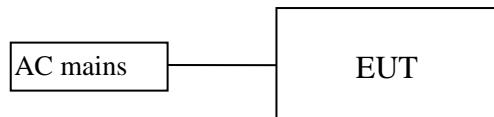
Description of Accessories	Manufacturer	Model number or Type	Other
/	/	/	/

### 2.3. Assistant equipment used for test

Description of Assistant equipment	Manufacturer	Model number or Type	Other
/	/	/	/

### 2.4. Block diagram EUT configuration for test

For EUT ON:



## 2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106kPa

## 2.6. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong

Province, China, 523808 Tel: +86-0769-22891499 <http://www.dgddt.com>

FCC Registration Number: 270092

## 2.7. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.94dB (9KHz-150KHz)
	2.44dB (150KHz-30MHz)
Uncertainty for Radiation Emission test	3.14 dB (Polarize: V)
	3.16 dB (Polarize: H)

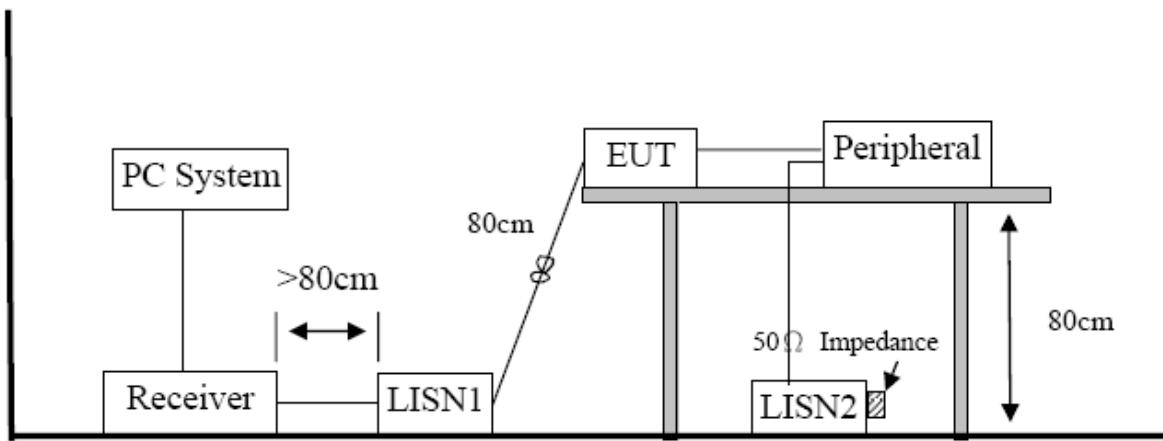
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 3. Power Line Conducted Emission Test

#### 3.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	R&S	ESU8	100316	2011/11/23	1 Year
2	LISN	R&S	ENV216	101109	2011/11/23	1 Year
3	Pulse Limiter	R&S	ESH3-Z2	101242	2011/11/23	1 Year

#### 3.2. Block diagram of test setup



#### 3.3. Power Line Conducted Emission Limits(RF lighting devices)

Frequency	Quasi-Peak Level dB(µV)	Average Level dB(µV)
450kHz ~ 2.51MHz	48	/
2.51MHz ~ 3MHz	70	/
3MHz ~ 30MHz	48	/

Note: The lower limit shall apply at the transition frequencies.

#### 3.4. Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 3.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per FCC/OST MP-5 (1986).

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 450 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 KHz.

### **3.5. Test Result**

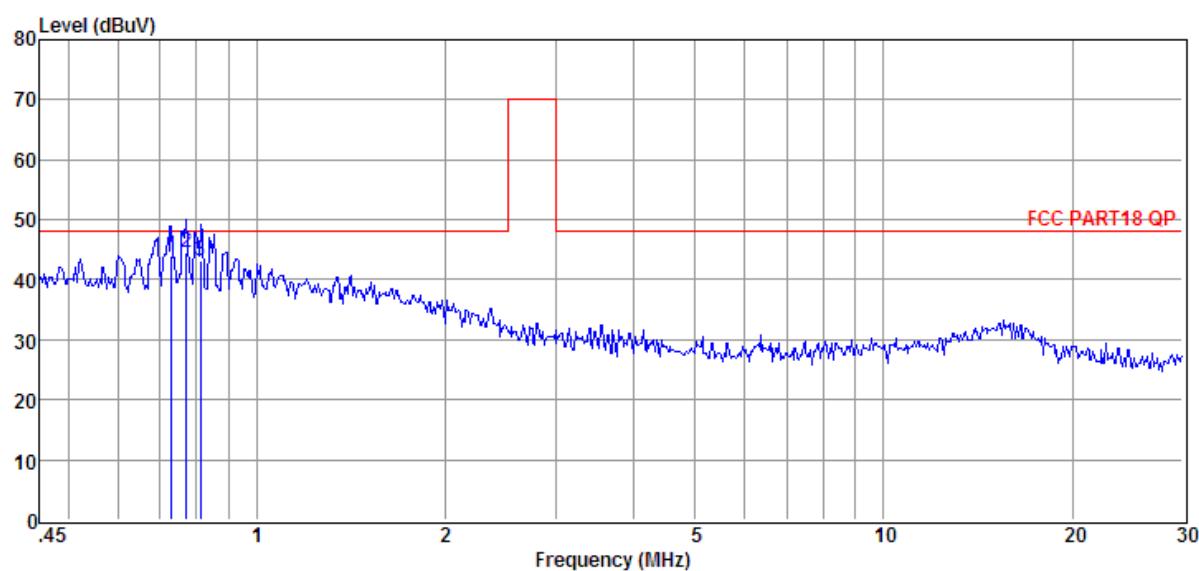
**PASS. (See below detailed test result)**

Note1: All emissions not reported below are too low against the prescribed limits.

## Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room      E:\2012 report data\12QE0103\CE.EM6  
**Test Date** : 2012-09-12      **Tested By** : Leo  
**EUT** : self ballasted lamps      **Model Number** : KL1206-23W  
**Power Supply** : AC 120V/60Hz      **Test Mode** : EUT ON  
**Condition** : Temp:24.5'C,Humi:55%      **LISN** : 2012 ENV216/NEUTRAL  
**Memo** :

Data : 3



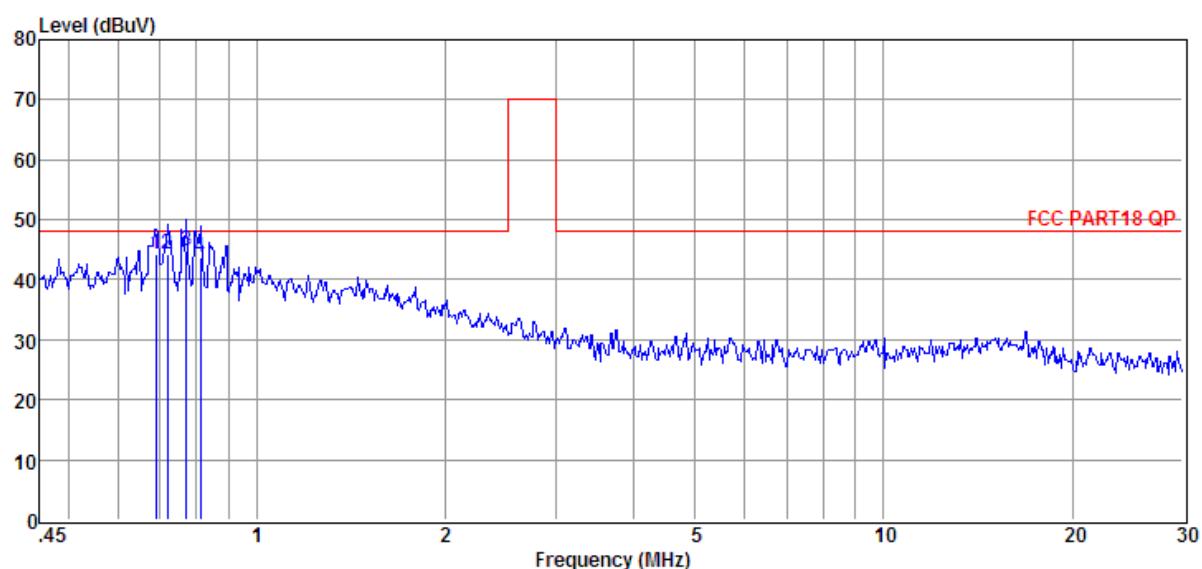
Item (Mark)	Freq (MHz)	Read Level (dB $\mu$ V)	LISN Factor	Cable Loss (dB)	Pluse Limiter Factor (dB)	Result Level (dB $\mu$ V)	Limit Line (dB $\mu$ V)	Over Limit (dB)	Detector	Phase
1	0.73	24.41	9.65	0.05	9.88	43.99	48.00	-4.01	QP	NEUTRAL
2	0.77	24.94	9.65	0.05	9.88	44.52	48.00	-3.48	QP	NEUTRAL
3	0.81	23.60	9.66	0.05	9.88	43.19	48.00	-4.81	QP	NEUTRAL

Note: 1. Result Level = Read Level +LISN Factor + Pluse Limiter Factor + Cable loss  
 2. If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

## Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room      E:\2012 report data\12QE0103\CE.EM6  
**Test Date** : 2012-09-12      **Tested By** : Leo  
**EUT** : self ballasted lamps      **Model Number** : KL1206-23W  
**Power Supply** : AC 120V/60Hz      **Test Mode** : EUT ON  
**Condition** : Temp:24.5'C,Humi:55%      **LISN** : 2012 ENV216/LINE  
**Memo** :

Data : 4



Item (Mark)	Freq (MHz)	Read Level (dB $\mu$ V)	LISN Factor	Cable Loss (dB)	Pluse Limiter Factor (dB)	Result Level (dB $\mu$ V)	Limit Line (dB $\mu$ V)	Over Limit (dB)	Detector	Phase
1	0.69	24.76	9.68	0.05	9.88	44.37	48.00	-3.63	QP	LINE
2	0.72	24.64	9.68	0.05	9.88	44.25	48.00	-3.75	QP	LINE
3	0.77	25.21	9.68	0.05	9.88	44.82	48.00	-3.18	QP	LINE
4	0.81	24.22	9.69	0.05	9.88	43.84	48.00	-4.16	QP	LINE

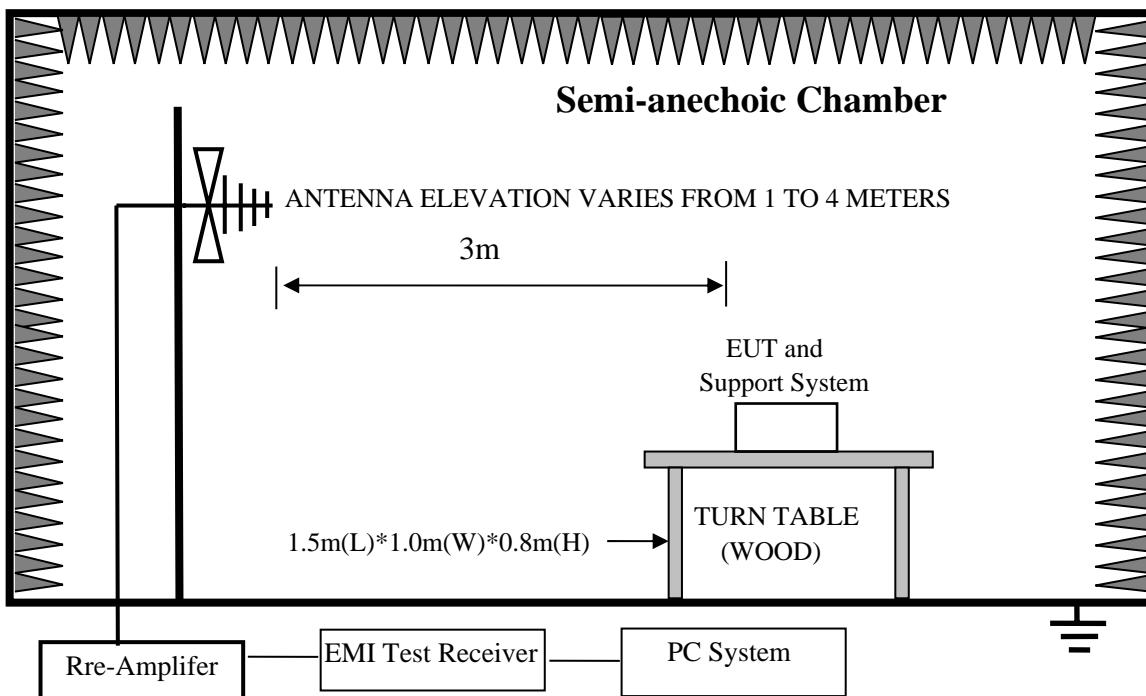
Note: 1. Result Level = Read Level +LISN Factor + Pluse Limiter Factor + Cable loss  
 2. If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

## 4. Radiated emission test

### 4.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	EMI Test Receiver	R&S	ESU8	100316	2011/11/23	1 Year
2	Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	2010/11/09	2 Year
3	Pre-Amplifier	R&S	SCU-01	10049	2011/11/23	1 Year
4	RF Cable	R&S	R01	10403	2011/11/23	1 Year

### 4.2. Block diagram of test setup



### 4.3. Radiated emission limit(RF lighting devices)

Frequency (MHz)	Field Strengths Limits dB( $\mu$ V)/m at 30m distance	Field Strengths Limits dB( $\mu$ V)/m at 3m distance
30--88	20	40.0
88--216	23.5	43.5
216--1000	26	46.0

Note: (1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

(3) Limit at 3m distance(dB $\mu$ V/m)= Limit at 30m distance (dB $\mu$ V/m) + 20log(30m/3m)

## 4.4. Test Procedure

### Procedure of Preliminary Test

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 4.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per FCC/OST MP-5 (1986).

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable. No extension cords shall be used to mains receptacle.

The antenna was placed at 3 meter away from the EUT as stated in FCC/OST MP-5 (1986). The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The test mode(s) described in clause 2.4 were scanned during the preliminary test:

After the preliminary scan, we found the test mode producing the highest emission level. The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

### Procedure of Final Test

EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.

The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

The test data of the worst-case condition(s) was recorded.

The bandwidth setting of the test receiver is 120 kHz.

## 4.5. Test result

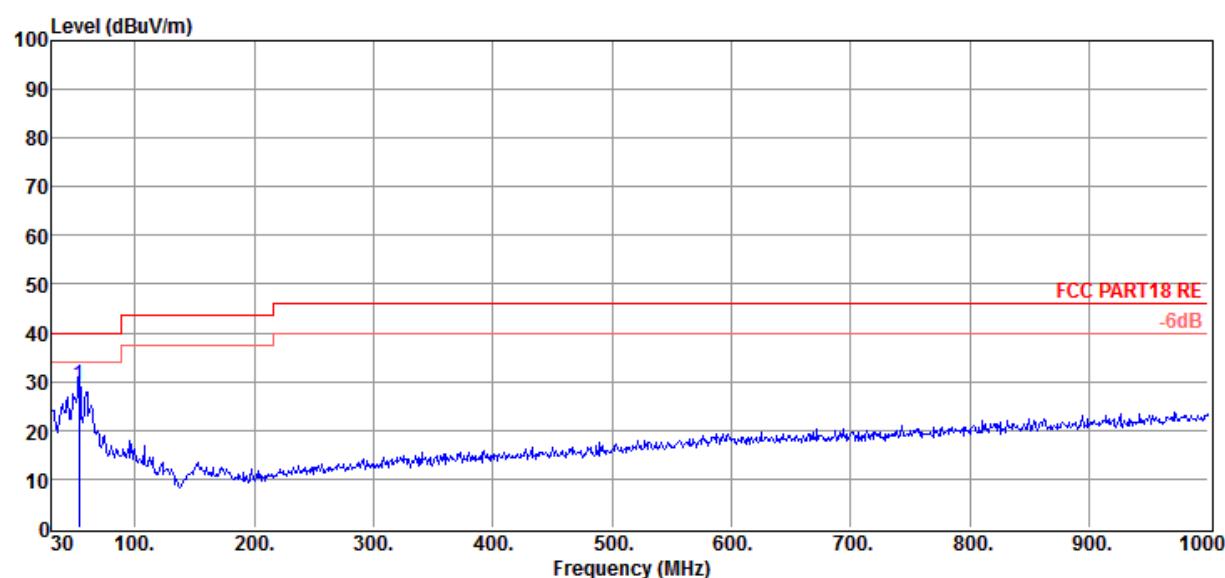
### PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

## Radiated Emission Test Result

**Test Site** : DDT 3m Chamber E:\2012 Report Data\12QE0103\RE.EM6  
**Test Date** : 09-12-2012 **Tested By** : Leo  
**EUT** : self ballasted lamps **Model Number** : KL1206-23W  
**Power Supply** : AC 120V/60Hz **Test Mode** : EUT ON  
**Condition** : Temp:24.5°C,Humi:55% **Antenna/Distance** : VULB 9163/3m/VERTICAL  
**Memo** :

Data : 1



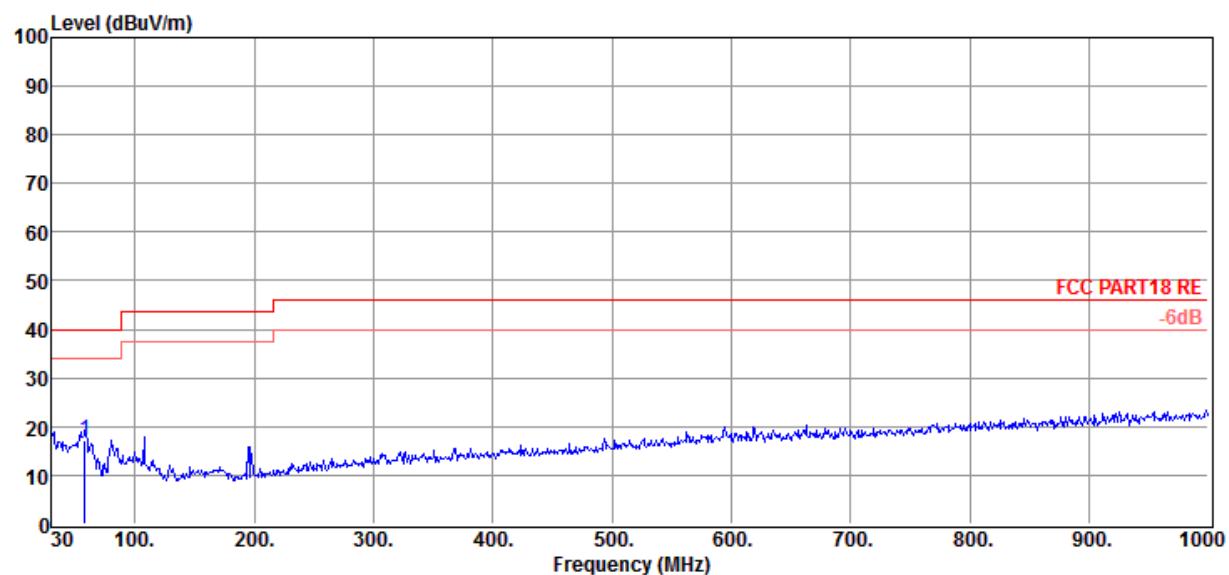
Item (Mark)	Freq (MHz)	Read Level (dB $\mu$ V)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dB $\mu$ V/m)	Limit Line (dB $\mu$ V/m)	Over Limit (dB)	Detector	Polarization
1	53.28	53.17	13.14	38.03	0.84	29.12	40.00	-10.88	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor  
 2. If Peak Result comply with QP limit, QP Result is deemed to comply with QP limit

## Radiated Emission Test Result

**Test Site** : DDT 3m Chamber E:\2012 Report Data\12QE0103\RE.EM6  
**Test Date** : 09- 12-2012 **Tested By** : Leo  
**EUT** : self ballasted lamps **Model Number** : KL1206-23W  
**Power Supply** : AC 120V/60Hz **Test Mode** : EUT ON  
**Condition** : Temp:24.5'C,Humi:55% **Antenna/Distance** : VULB 9163/3m/HORIZONTAL  
**Memo** :

Data : 2



Item (Mark)	Freq (MHz)	Read Level (dB $\mu$ V)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dB $\mu$ V/m)	Limit Line (dB $\mu$ V/m)	Over Limit (dB)	Detector	Polarization
1	58.13	41.28	13.02	38.03	0.89	17.16	40.00	-22.84	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor  
 2. If Peak Result comply with QP limit, QP Result is deemed to comply with QP limit