

# FCC TEST REPORT

UNDER  
FCC Part 18 RF Lighting Device


PREPARED FOR :

**Zhongshan Tianpeng Electronic Lighting and Communication  
Equipment Factory**

Tian Peng Industrial District HengLan Town, Zhongshan, GuangDong, China

|   |
|---|
| <b>FCC ID: QXGSRS</b>                           |
| <b>EUT: Self-Ballasted Fluorescent Lamp</b>     |
| <b>Model: SRS-9W; SRS-11W; SRS-13W; SRS-15W</b> |

February 18, 2003

|   |
|---|
| <b>Report Type:</b> Original Report   |
| <b>Test Engineer:</b> <u>Peter Lin</u>  |
| <b>Test Date:</b> <u>January 16, 2003</u>   |
| <br><b>Review By:</b> <u>Apollo Liu</u> |

PREPARED BY :

**Shenzhen Academy of Metrology & Quality Inspection**  
Longzhu Road, Nanshan

FCC Registration Number: 97379

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## 1. Summary of Test Results

The EUT has been tested according to the following specifications:

| Standard    | Test Type      | Result | Notes                        |
|-------------|----------------|--------|------------------------------|
| FCC Part 18 | Conducted Test | PASS   | The test results meet limit  |
| FCC Part 18 | Radiated Test  | PASS   | The test results meet limit. |

## 2. Test Statement

### 2.1 Test Statement

- A. This statement explains the test condition of this project. The EUT was tested under the condition of each test item.
- B. The data shown in this report reflects the worst – case data for the condition as the summary of test result.
- C. EUT conditions.

**Note:** (1) The EUT is Self-Ballasted Fluorescent Lamp; Working Frequency: (0.040~0.045)MHz.  
(2) It is acknowledged by Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory the Selling Model No.: SRS-9W; SRS-11W; SRS-13W; SRS-15W are identical. The Model difference is for marketing purposes only.

| Model   | Rating           | Power(W) |
|---------|------------------|----------|
| SRS-9W  | 120V/60Hz, 150mA | 8.19     |
| SRS-11W | 120V/60Hz, 170mA | 9.63     |
| SRS-13W | 120V/60Hz, 200mA | 11.68    |
| SRS-15W | 120V/60Hz, 250mA | 13.12    |

### 2.2 Departure From Document Policies, Procedure or Specifications, The Statement

1. Did have Any departure from document policies & procedures or from specifications.  
Yes ☐ , No ☐  
If yes , the description as below.
2. The report must not be used by the client to claim product endorsement by any agency the government.
3. This product is a test sample that was shown as the photos of this test report only.
4. The effect that the results relate only to the items tested.

### **3. EUT Modifications**

No modification by Shenzhen Academy of Metrology & Quality Inspection.

## 4. Conducted Power Line Test

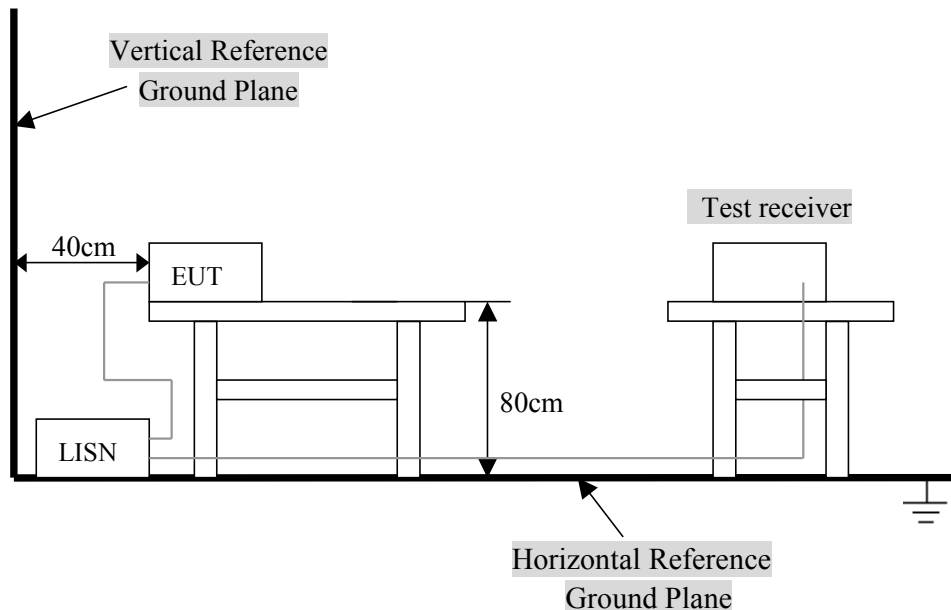
### 4.1 Test Equipment

Please refer to Section 8 this report.

### 4.2 Test Procedure

The EUT was tested according to ANSI C63.4 - 1992. The frequency spectrum from 0.45 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 uHenry as specified by section 5.1 OF ANSI C63.4 - 1992. cables and peripherals were moved to find the maximum emission levels for each frequency.

### 4.3 Test Setup



For the actual test configuration, Please refer to the related items – Photos of Testing.

#### 4. 4 Configuration of The EUT

The EUT was configured according to ANSI C63.4-1992. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

##### A. EUT

| DEVICE                             | MANUFACTURER  | MODEL #                              | FCCID / DoC |
|------------------------------------|---|--------------------------------------|-------------|
| Self-Ballasted<br>Fluorescent Lamp | Zhongshan Tianpeng<br>Electronic Lighting and<br>Communication Equipment<br>Factory | SRS-9W; SRS-11W;<br>SRS-13W; SRS-15W | QXGSRS      |

##### B. Internal Devices

| DEVICE | MANUFACTURER | MODEL # | FCCID / DoC |
|--------|--------------|---------|-------------|
| N/A    |              |         |             |
|        |              |         |             |
|        |              |         |             |
|        |              |         |             |
|        |              |         |             |
|        |              |         |             |

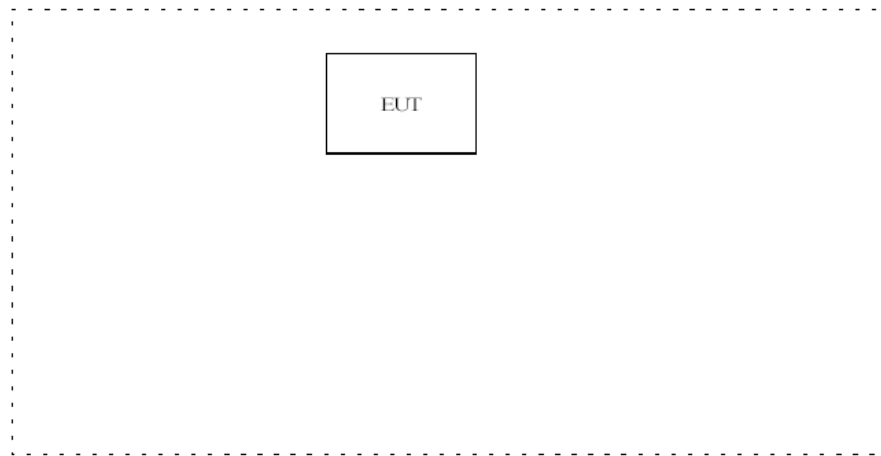
##### C. Peripherals

| DEVICE | MANUFAC-TURER | MODEL #<br>SERIAL # | FCC ID/<br>DoC | CABLE |
|--------|---------------|---------------------|----------------|-------|
| N/A    |               |                     |                |       |
|        |               |                     |                |       |
|        |               |                     |                |       |

#### 4.5 EUT Operating Condition

Operating condition is according to ANSI C63.4 - 1992.

- A. Setup the EUT and simulators as shown on follow.
- B. The EUT was connected to the power main through a Line Impedance Stabilization Network (LISN).
- C. This provided a 50 ohm coupling impedance for the measuring equipment..



#### 4.6 Conducted Power Line Emission Limits

| FCC Part 18 (dBuV)    |               |
|-----------------------|---------------|
| FREQUENCY RANGE (MHz) | Limits (dBuV) |
| 0.45 – 2.51           | 48            |
| 2.51 – 3.0            | 69.5          |
| 3.0 – 30              | 48            |

**NOTE** : In the above table, the tighter limit applies at the band edges.



#### 4.7 Conducted Power Line Test Result

Product : Self-Ballasted Fluorescent Lamp  
 Test Item : General Conducted Emission Data  
 Test Voltage : 120V/60Hz AC  
 Test Mode : SRS-9W  
 Temperature : 24 °C  
 Humidity : 52%RH  
 Test Result : PASS

| FREQ.<br>(MHz) | EMISSION<br>(dBuV) | Va/Vb | LIMITS<br>QP (dBuV) | MARGIN<br>(dB) |
|----------------|--------------------|-------|---------------------|----------------|
| 0.516          | 37.1               | Va    | 48.0                | -10.9          |
| 0.558          | 39.9               | Va    | 48.0                | -8.1           |
| 0.669          | 36.7               | Va    | 48.0                | -11.3          |
| 0.566          | 41.4               | Vb    | 48.0                | -6.6           |
| 0.682          | 43.8               | Vb    | 48.0                | -4.2           |
| 0.760          | 36.6               | Vb    | 48.0                | -11.4          |

**Note:**

- 1.Uncertainty in conducted emission measured is  $\pm$  -2dB.
- 2.The emission levels of other frequencies were very low against the limit.
- 3.The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
- 4.Emission = Meter Reading + Factor ; Factor = Insertion Loss + Cable Loss.
- 5.Margin Value = EMISSION Level - LIMIT Value. All reading are Quasi-Peak Values.

Product : Self-Ballasted Fluorescent Lamp  
 Test Item : General Conducted Emission Data  
 Test Voltage : 120V/60Hz AC  
 Test Mode : SRS-11W  
 Temperature : 24 °C  
 Humidity : 52%RH  
 Test Result : PASS

| FREQ.<br>(MHz) | EMISSION<br>(dBuV) | Va/Vb | LIMITS<br>QP (dBuV) | MARGIN<br>(dB) |
|----------------|--------------------|-------|---------------------|----------------|
| 0.458          | 38.3               | Va    | 48.0                | -9.7           |
| 0.560          | 38.1               | Va    | 48.0                | -9.9           |
| 0.714          | 38.8               | Va    | 48.0                | -9.2           |
| 0.450          | 42.0               | Vb    | 48.0                | -6.0           |
| 0.547          | 39.1               | Vb    | 48.0                | -8.9           |
| 0.688          | 39.3               | Vb    | 48.0                | -8.7           |

**Note:**

- 1.Uncertainty in conducted emission measured is  $\pm$  -2dB.
- 2.The emission levels of other frequencies were very low against the limit.
- 3.The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
- 4.Emission = Meter Reading + Factor ; Factor = Insertion Loss + Cable Loss.
- 5.Margin Value = EMISSION Level - LIMIT Value. All reading are Quasi-Peak Values.

Product : Self-Ballasted Fluorescent Lamp  
 Test Item : General Conducted Emission Data  
 Test Voltage : 120V/60Hz AC  
 Test Mode : SRS-13W  
 Temperature : 24 °C  
 Humidity : 52%RH  
 Test Result : PASS

| FREQ.<br>(MHz) | EMISSION<br>(dBuV) | Va/Vb | LIMITS<br>QP (dBuV) | MARGIN<br>(dB) |
|----------------|--------------------|-------|---------------------|----------------|
| 0.463          | 43.1               | Va    | 48.0                | -4.9           |
| 0.624          | 37.9               | Va    | 48.0                | -10.1          |
| 0.806          | 37.0               | Va    | 48.0                | -11.0          |
| 0.459          | 40.0               | Vb    | 48.0                | -8.0           |
| 0.603          | 40.1               | Vb    | 48.0                | -7.9           |
| 0.714          | 35.7               | Vb    | 48.0                | -12.3          |

**Note:**

- 1.Uncertainty in conducted emission measured is  $\pm 2$ dB.
- 2.The emission levels of other frequencies were very low against the limit.
- 3.The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
- 4.Emission = Meter Reading + Factor ; Factor = Insertion Loss + Cable Loss.
- 5.Margin Value = EMISSION Level - LIMIT Value. All reading are Quasi-Peak Values.

Product : Self-Ballasted Fluorescent Lamp  
 Test Item : General Conducted Emission Data  
 Test Voltage : 120V/60Hz AC  
 Test Mode : SRS-15W  
 Temperature : 24 °C  
 Humidity : 52%RH  
 Test Result : PASS

| FREQ.<br>(MHz) | EMISSION<br>(dBuV) | Va/Vb | LIMITS<br>QP (dBuV) | MARGIN<br>(dB) |
|----------------|--------------------|-------|---------------------|----------------|
| 0.458          | 41.7               | Va    | 48.0                | -6.3           |
| 0.570          | 39.5               | Va    | 48.0                | -8.5           |
| 0.684          | 39.4               | Va    | 48.0                | -8.6           |
| 0.555          | 39.1               | Vb    | 48.0                | -8.9           |
| 0.683          | 36.0               | Vb    | 48.0                | -12.0          |
| 0.777          | 38.5               | Vb    | 48.0                | -9.5           |

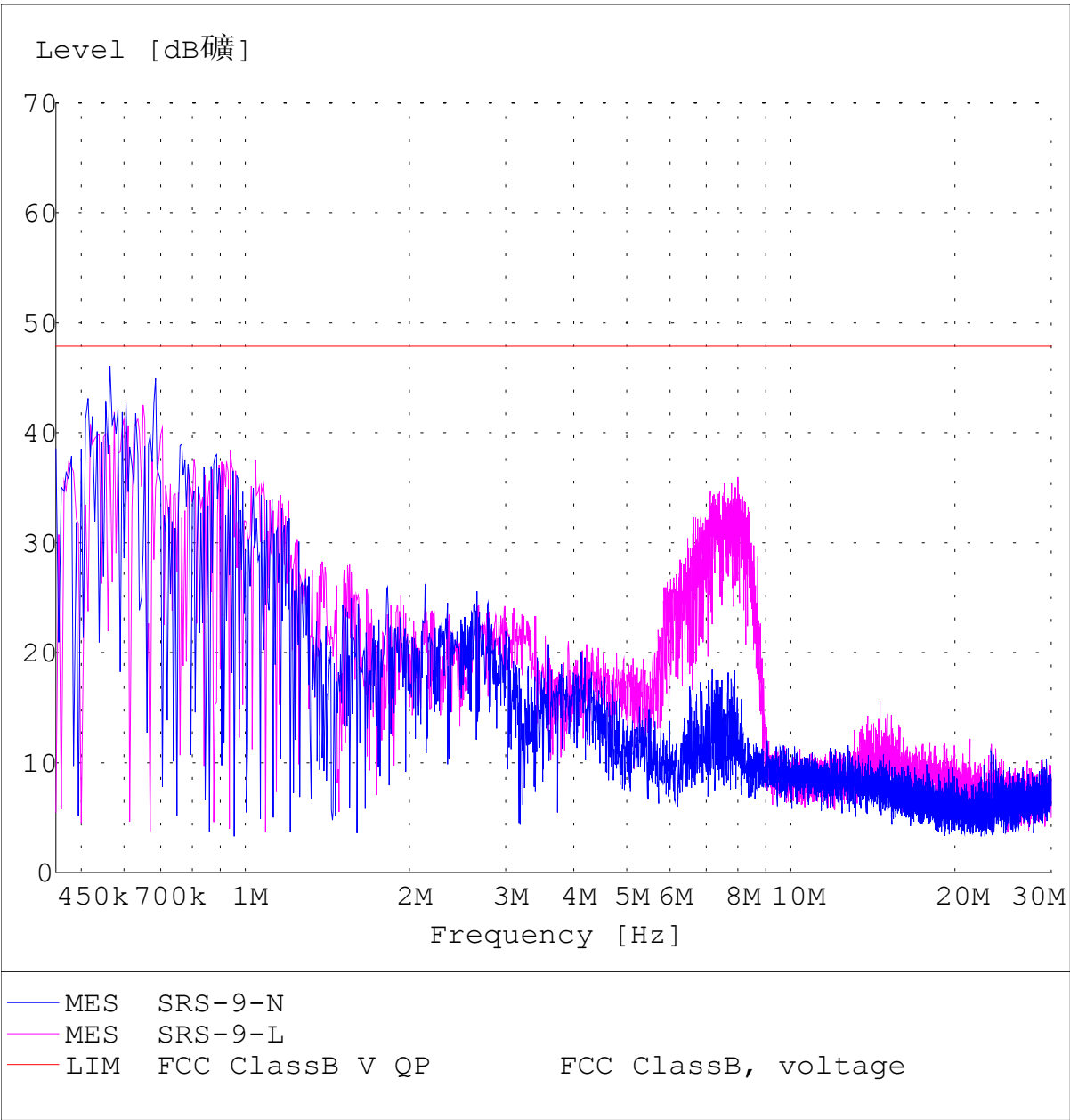
**Note:**

- 1.Uncertainty in conducted emission measured is  $\pm 2$ dB.
- 2.The emission levels of other frequencies were very low against the limit.
- 3.The Quasi-peak emission level also meets average limit and measurement with the average detector is unnecessary.
- 4.Emission = Meter Reading + Factor ; Factor = Insertion Loss + Cable Loss.
- 5.Margin Value = EMISSION Level - LIMIT Value. All reading are Quasi-Peak Values.

Conducted Emission

FCC Part 18

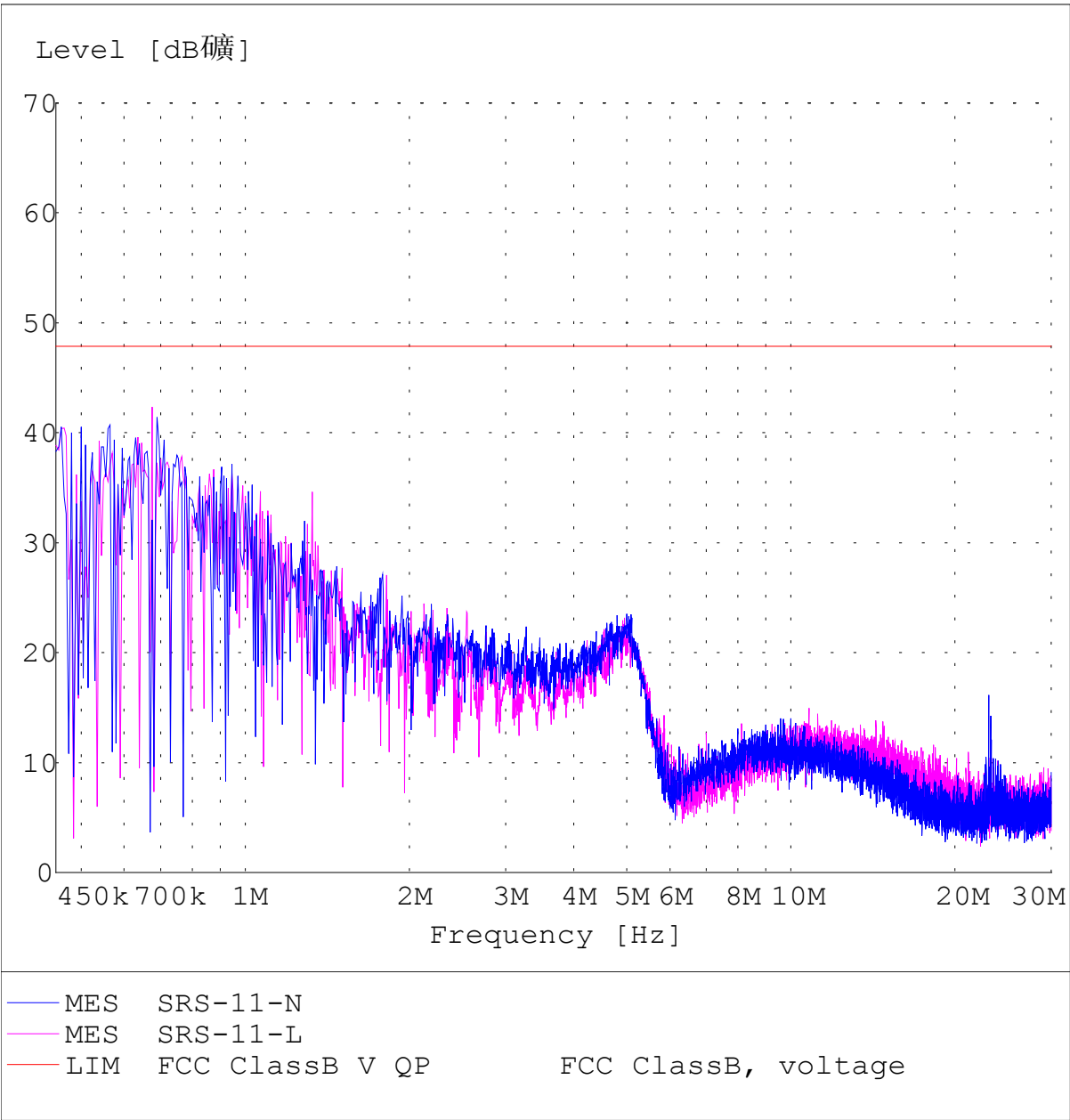
EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-9W  
Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory  
Operating Condition: Normal  
Test Site: SMQ EMC LAB.  
Operator: Peter Lin  
Test Specification: LINE&NEUTRAL  
Comment:



Conducted Emission

FCC Part 18

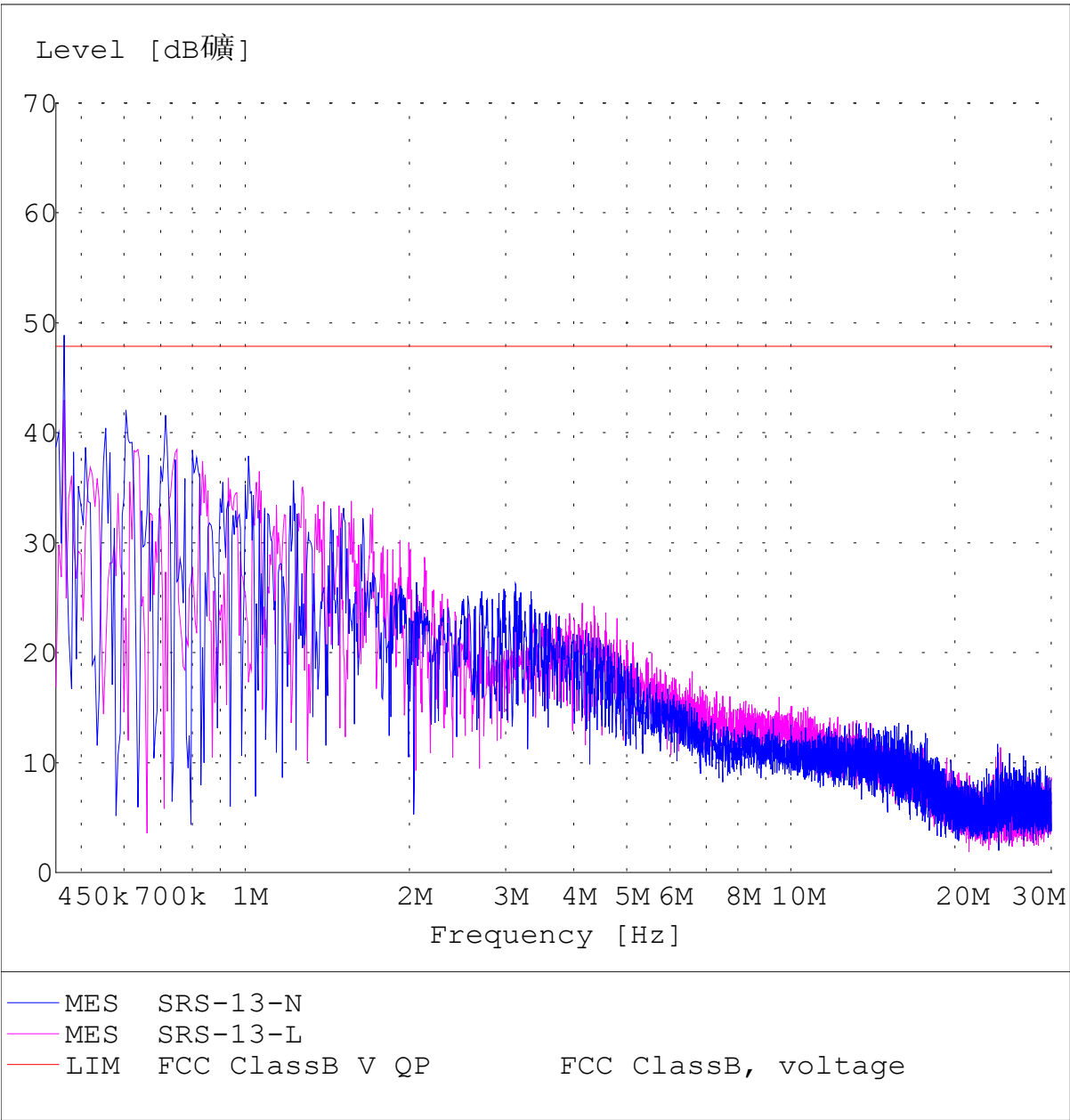
EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-11W  
Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory  
Operating Condition: Normal  
Test Site: SMQ EMC LAB.  
Operator: Peter Lin  
Test Specification: LINE&NEUTRAL  
Comment:



Conducted Emission

FCC Part 18

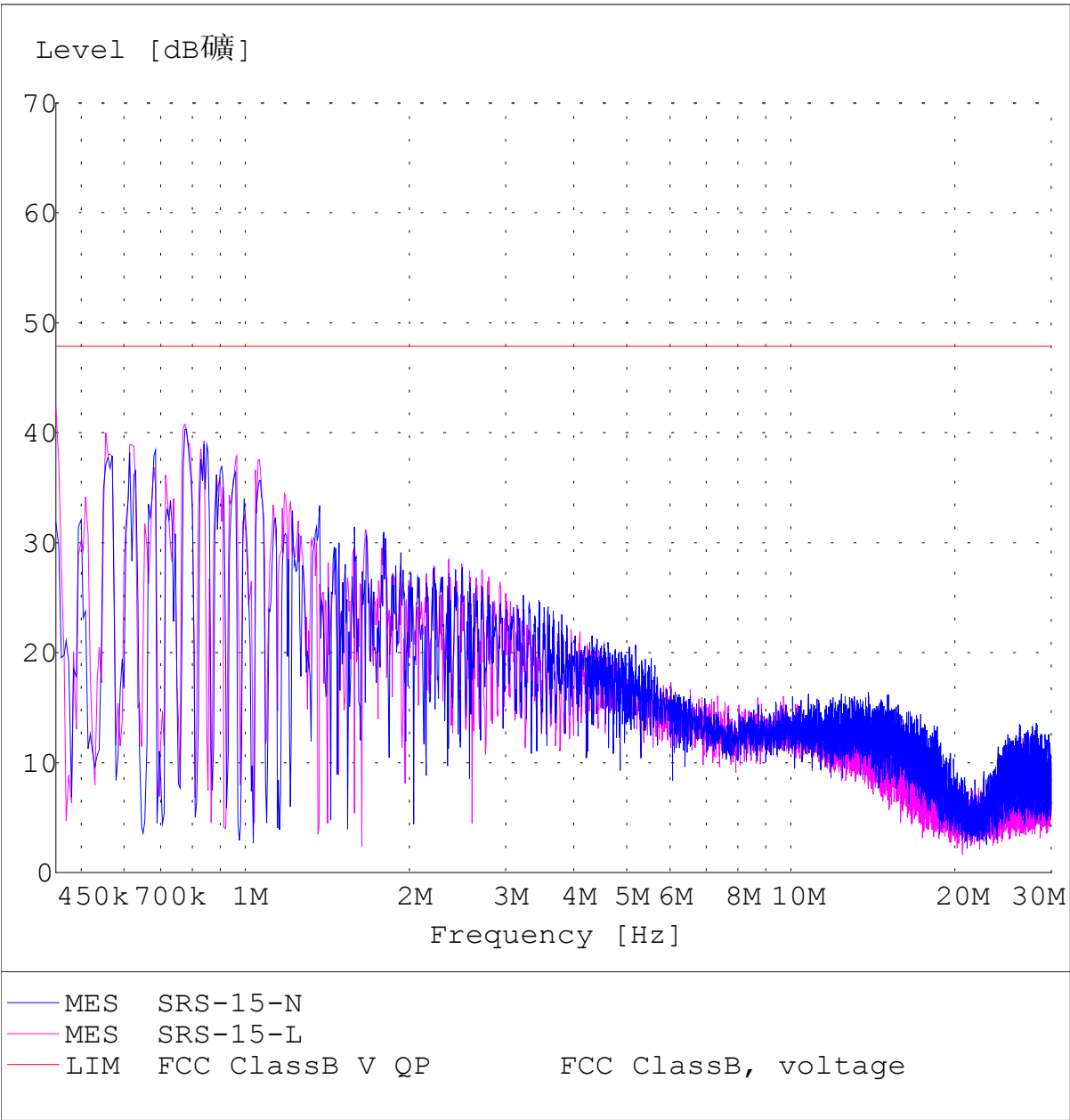
EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-13W  
Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory  
Operating Condition: Normal  
Test Site: SMQ EMC LAB.  
Operator: Peter Lin  
Test Specification: LINE&NEUTRAL  
Comment:



Conducted Emission

FCC Part 18

EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-15W  
Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory  
Operating Condition: Normal  
Test Site: SMQ EMC LAB.  
Operator: Peter Lin  
Test Specification: LINE&NEUTRAL  
Comment:



## 5. Radiated Emission Test

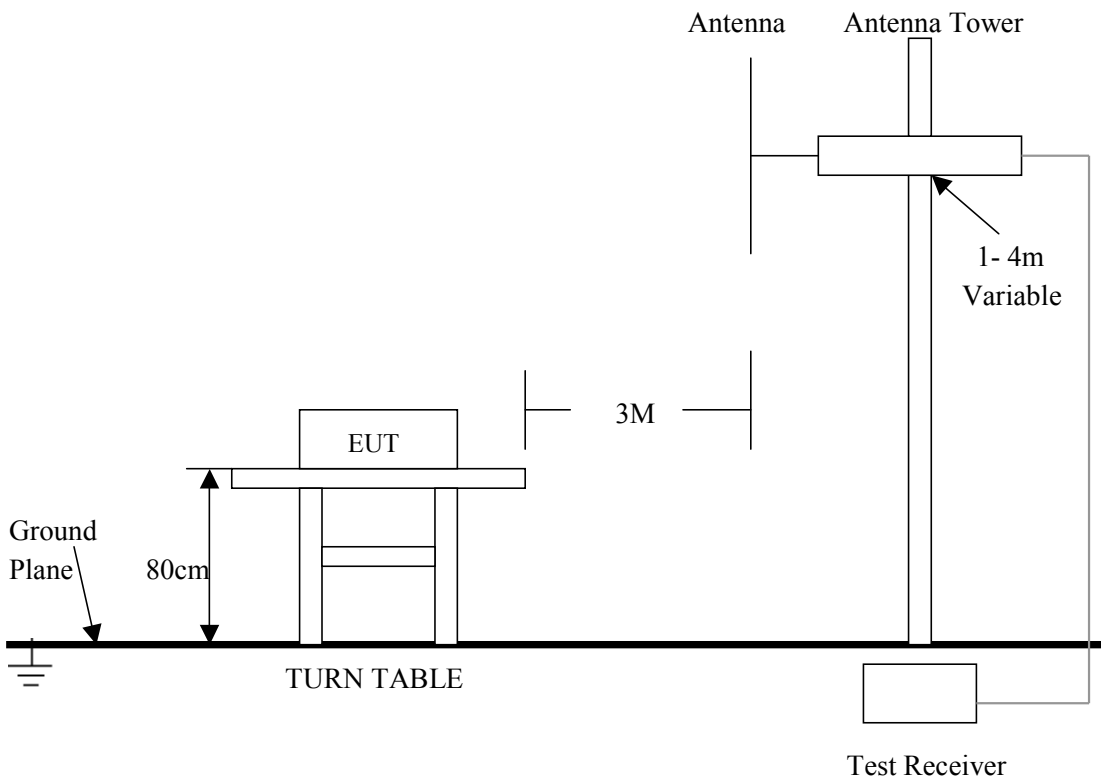
### 5.1 Test Equipment

Please refer to Section 8 this report.

### 5.2 Test Procedure

1. The EUT was tested according to ANSI C63.4 - 1992. The radiated test was performed at Shenzhen Academy of Metrology and Quality Inspection. This site is on file with the FCC laboratory division, Registration No. 97379.
2. The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-1992.
3. The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz , peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.
4. The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
5. Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
6. The antenna polarization : Vertical polarization and Horizontal polarization.

### 5.3 Radiated Test Setup



**For the actual test configuration , please refer to the related items – Photos of Testing.**

#### 5.4 Configuration of The EUT

Same as section 4.4 of this report

#### 5.5 EUT Operating Condition

Same as section 4.5 of this report.

#### 5.6 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below :

**Frequencies in restricted band are complied to limit on FCC Part 18.**

| Frequency (MHz) | Distance (m) | Field Strength (dBuV/m) |
|-----------------|--------------|-------------------------|
| 30 - 88         | 3            | 40.0                    |
| 88 - 216        | 3            | 43.5                    |
| 216 - 1000      | 3            | 46.0                    |

**Note:**

- (1) RF Voltage (dBuV) = 20 log RF Voltage (uV)
- (2) In the Above Table, the tighter limit applies at the band edges.
- (3) Distance refers to the distance in meters between the measuring instrument antenna and the



## 5. 7 Radiated Emission Test Result

Product : Self-Ballasted Fluorescent Lamp  
Test Item : General Conducted Emission Data  
Test Voltage : 120V/60Hz AC  
Test Mode : SRS-9W  
Temperature : 24 °C  
Humidity : 52%RH  
Test Result : PASS

**Note:** The RF voltages was scanned from 30MHz to 1000MHz on Radiated Emission of Self-Ballasted Fluorescent Lamp and no significant emissions were found in this frequency band. Test Results were under the required limit with 20dB margin or more.

Product : Self-Ballasted Fluorescent Lamp  
Test Item : General Conducted Emission Data  
Test Voltage : 120V/60Hz AC  
Test Mode : SRS-11W  
Temperature : 24 °C  
Humidity : 52%RH  
Test Result : PASS

**Note:** The RF voltages was scanned from 30MHz to 1000MHz on Radiated Emission of Self-Ballasted Fluorescent Lamp and no significant emissions were found in this frequency band. Test Results were under the required limit with 20dB margin or more.

Product : Self-Ballasted Fluorescent Lamp  
Test Item : General Conducted Emission Data  
Test Voltage : 120V/60Hz AC  
Test Mode : SRS-13W  
Temperature : 24 °C  
Humidity : 52%RH  
Test Result : PASS

**Note:** The RF voltages was scanned from 30MHz to 1000MHz on Radiated Emission of Self-Ballasted Fluorescent Lamp and no significant emissions were found in this frequency band. Test Results were under the required limit with 20dB margin or more.

Product : Self-Ballasted Fluorescent Lamp  
 Test Item : General Conducted Emission Data  
 Test Voltage : 120V/60Hz AC  
 Test Mode : SRS-15W  
 Temperature : 24 °C  
 Humidity : 52%RH  
 Test Result : PASS

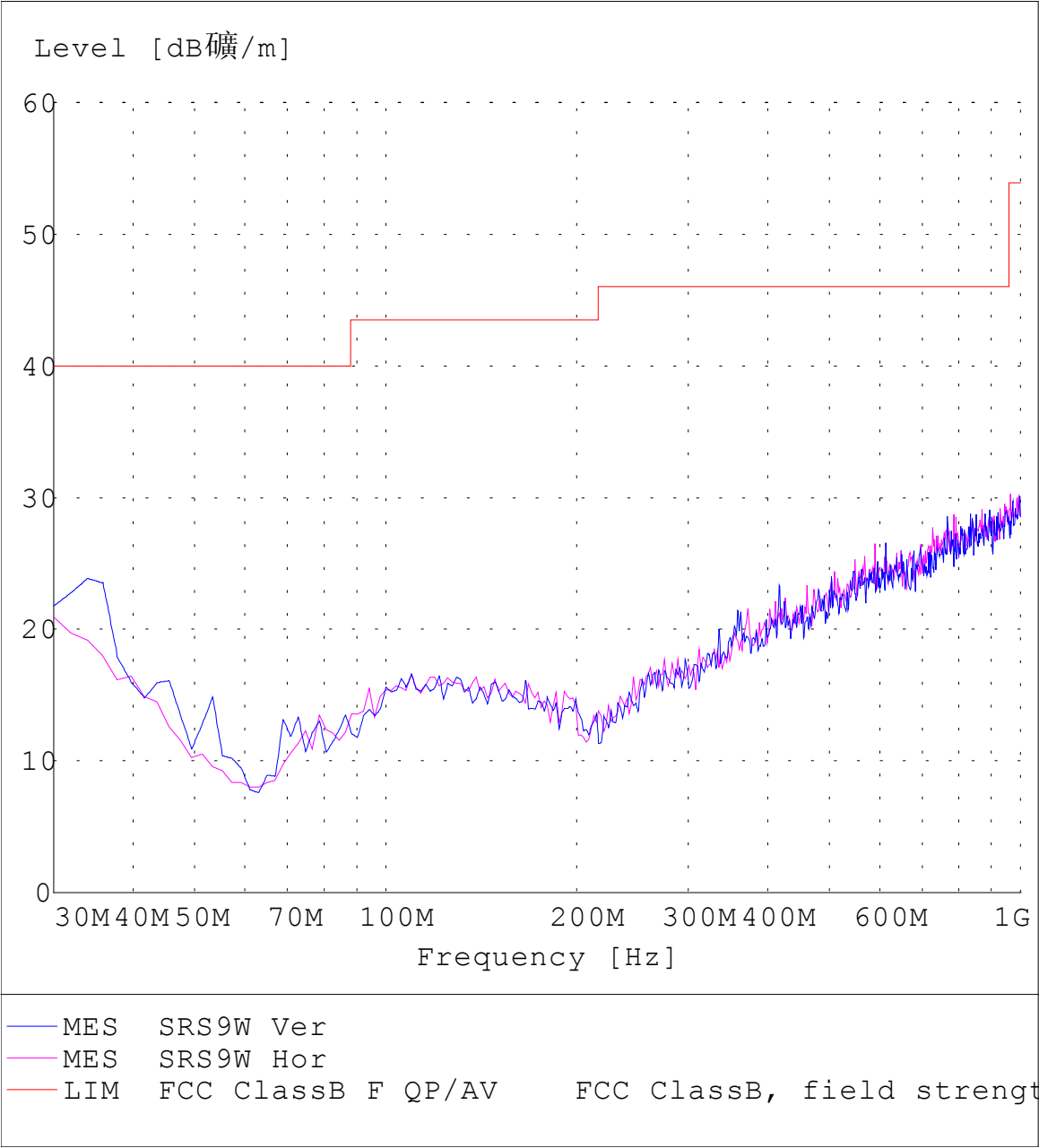
| FREQ.<br>(MHz) | EMISSION<br>(dBuV/m) | HORIZ /<br>VERT | LIMITS<br>(dBuV/m) | MARGIN<br>(dB) |
|----------------|----------------------|-----------------|--------------------|----------------|
| 32.010         | 20.1                 | VERT            | 40.0               | -19.9          |
| 39.990         | 19.8                 | VERT            | 40.0               | -20.2          |

- Note:**
- (1) All Reading Levels below 1GHz are Quasi-Peak, above are peak and average value.
  - (2) Emission = Reading Level + Probe Factor + Cable Loss.
  - (3) Margin Value = EMISSION Level - LIMIT Value. All reading are Quasi-Peak Values.

### ***Radiated Emission***

FCC Part 18

EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-9W  
Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory  
Operating Condition: Normal  
Test Site: SMQ EMC Laboratory, SAC  
Operator: Peter Lin  
Test Specification: Vertical & Horizontal  
Comment: 120V/60Hz



**Radiated Emission****FCC Part 18**

EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-11W

Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory

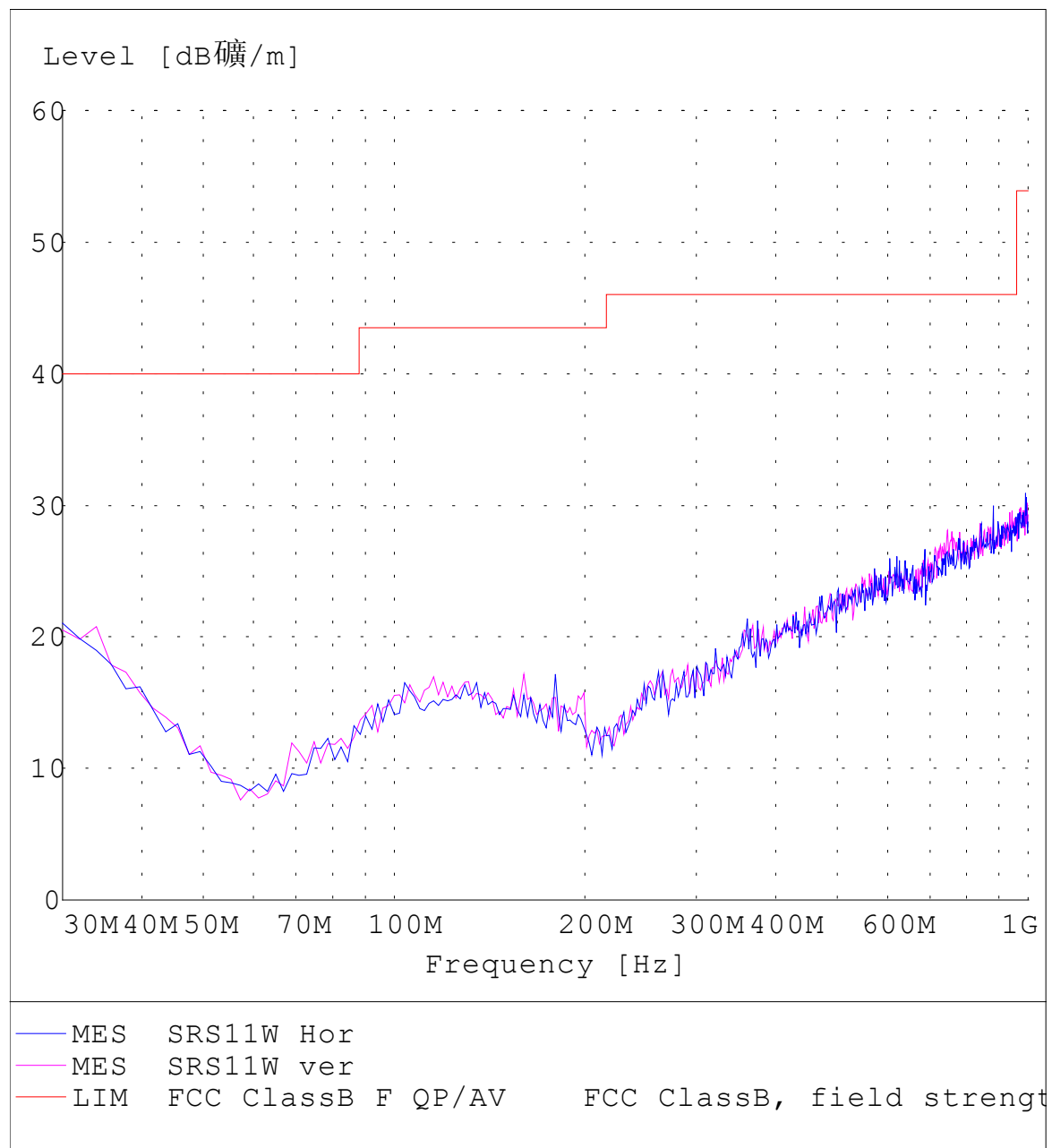
Operating Condition: Normal

Test Site: SMQ EMC Laboratory, SAC

Operator: Peter Lin

Test Specification: Vertical & Horizontal

Comment: 120V/60Hz



**Radiated Emission****FCC Part 18**

EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-13W

Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory

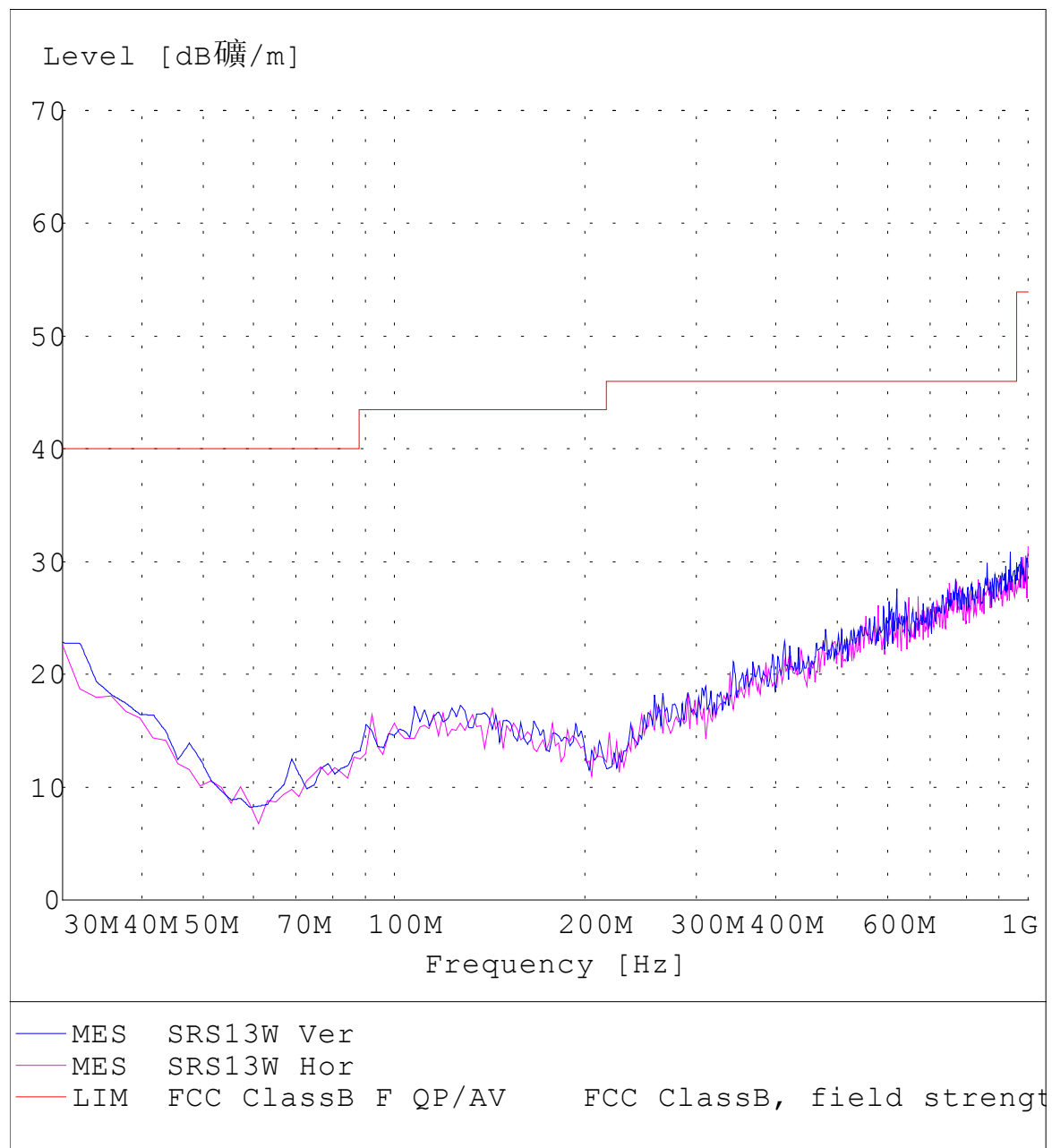
Operating Condition: Normal

Test Site: SMQ EMC Laboratory, SAC

Operator: Peter Lin

Test Specification: Vertical & Horizontal

Comment: 120V/60Hz



**Radiated Emission****FCC Part 18**

EUT: Self-Ballasted Fluorescent Lamp M/N: SRS-15W

Manufacturer: Zhongshan Tianpeng Electronic Lighting and Communication Equipment Factory

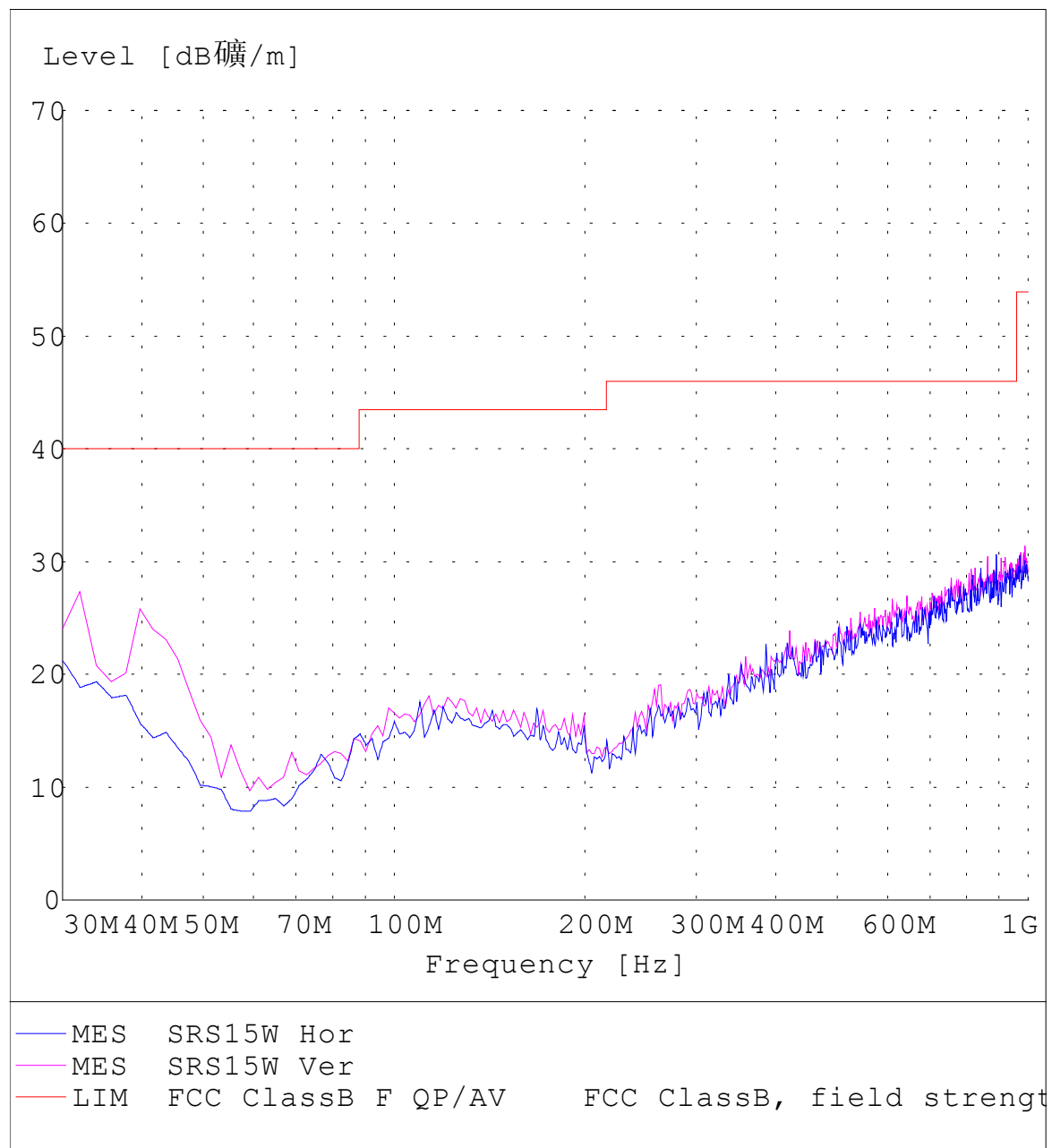
Operating Condition: Normal

Test Site: SMQ EMC Laboratory, SAC

Operator: Peter Lin

Test Specification: Vertical & Horizontal

Comment: 120V/60Hz



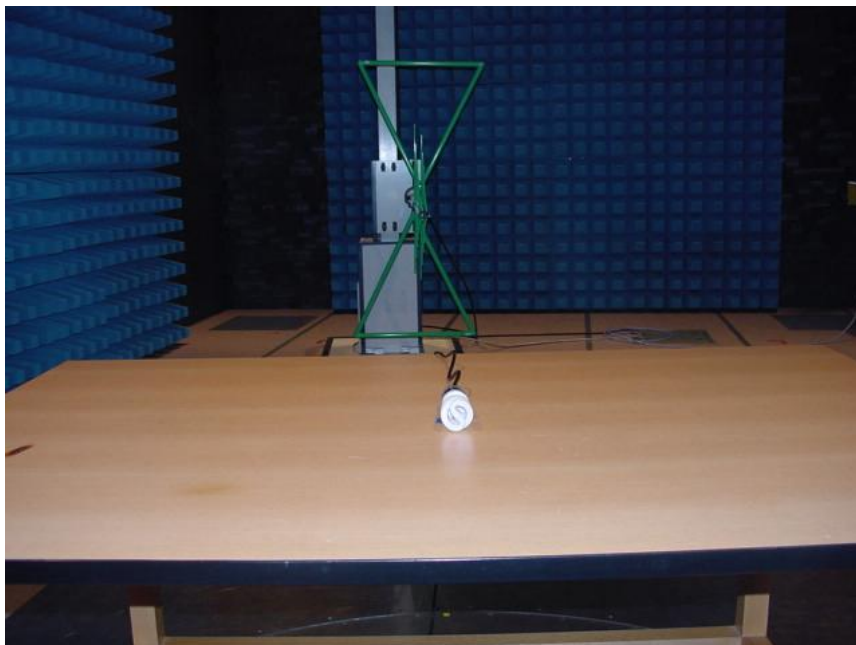
## 6. Photos of Testing

### 6.1 EUT Test Photographs

Conducted Emission Test View



Radiated emission test view



## **6. 2 EUT Detailed Photographs**



## 7. FCC ID Label

**FCC ID: QXGSRS**

The Label shown shall be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

The Label must not be a stick-on paper label. The Label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

### Proposed Label Location on EUT

EUT Bottom View/Proposed FCC ID Label Location



## 8. Test Equipment

The following test equipments were used during the radiated & conducted emission test:

| Equipment/<br>Facilities    | Manufacturer       | Model #  | Serial No. | Date of Cal. | Due Date        |
|-----------------------------|--------------------|----------|------------|--------------|-----------------|
| EMI Test Receiver           | Rohde & Schwarz    | ESCS30   | 100003     | Feb27, 2002  | Feb 27,<br>2003 |
| AMN                         | Rohde & Schwarz    | ESH3-Z5  | 100002     | Feb 01, 2002 | Feb 01,<br>2003 |
| LISN                        | Kyoritsu           | KNW-407  | 8-1441-8   | Feb 23, 2002 | Feb 23,<br>2003 |
| EMI Test Receiver           | Rohde & Schwarz    | ESI26    | 838786/013 | Feb 01, 2002 | Feb 01,<br>2003 |
| Bilog Antenna               | Chase              | CBL6112B | 2591       | Feb 01, 2002 | Feb 01,<br>2003 |
| Horn Antenna                | Rohde & Schwarz    | HF906    | 100014     | Feb 01, 2002 | Feb 01,<br>2003 |
| 3m Semi-Anechoic<br>Chamber | Albatross Projects | 9mX6mX6m | N/A        | Feb 01, 2002 | Feb 01,<br>2003 |