

# FCC Test Report

On Model Name: Energy Saving Lamp

Model Number:

SL1315B-120,SL1820B-120,SL2325B-120

Brand Name: Apsunlighting

FCC ID Number: X22AP131518202325

Prepared for DONGGUAN APSUN LIGHTING  
TECHNOLOGY CO.,LTD

According to FCC Part 18(2007)

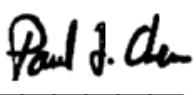
Test Report #: DON-0910-10296-FCCID

Prepared by: May Wang

Reviewed by: Jawen Yin

QC Manager: Paul Chen

Test Report Released by:



Paul Chen

Dec 21, 2009

Date

## List of Attached Files

<b>Exhibit Type</b>	<b>File Description</b>	<b>File Name</b>
731 Form	731 Form	X22AP131518202325_731 form.pdf
Test Report	Test Report	X22AP131518202325_Test report.pdf
Operational Description	Technical Description	X22AP131518202325_operational description.pdf
External Photos	External Photos	X22AP131518202325_External Photos.pdf
Internal Photos	Internal Photos	X22AP131518202325_Internal Photos.pdf
Block Diagram	Block Diagram	X22AP131518202325_Block Diagram.pdf
Schematics	Circuit Diagram	X22AP131518202325_Schematics.pdf
ID Label&Location	Label Artwork and Location	X22AP131518202325_Label & Location.pdf
User Manual	User Manual	X22AP131518202325_User Manual.pdf
Test setup photos	Test setup photos	X22AP131518202325_Test Setup Photos.pdf

### ***Test Location***

*Tests performed at ECMG Worldwide Certification Solution Inc. (China) in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.*

*Test Site Location:*      *Shenzhen Academy of Metrology and Quality Inspection.*

*Bldg. of Metrology & Quality Inspection,  
Longzhu Road, Shenzhen, Guangdong, China.*

*Tel:*                      *86-755-26941617*

*Fax:*                      *86-755-26941615*

*FCC Registration Number:* *274801*

*CNAS Registration Number:* *L0579*

# *Table of Contents*

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<b>GOVERNMENT DISCLAIMER NOTICE</b>	1
<b>REPRODUCTION CLAUSE</b>	1
<b>OPINIONS AND INTERPRETATIONS</b>	1
<b>STATEMENT OF MEASUREMENT UNCERTAINTY</b>	1
<b>ADMINISTRATIVE DATA</b>	2
<b>EUT DESCRIPTION</b>	2
<b>TYPE OF DERIVE</b>	2
<b>TEST SUMMARY</b>	3
<b>TEST MODE JUSTIFICATION</b>	4
<b>EUT EXERCISE SOFTWARE</b>	4
<b>EQUIPMENT MODIFICATION</b>	4
<b>EUT SAMPLE PHOTOS FOR MODEL SL2325B-120</b>	5
<b>TEST SYSTEM DETAILS</b>	7
<b>CONFIGURATION OF TESTED SYSTEM</b>	8
<b>ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS</b>	9
<b>ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS</b>	14

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### **Opinions and Interpretations**

*This test report relates to the abovementioned equipment under test (EUT). Without the permission of ECMG Worldwide Certification Solution Inc. Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.*

### **Statement of Measurement Uncertainty**

*The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.*

## **Administrative Data**

*Test Sample* : Energy Saving Lamp

*Model Number* : SL1315B-120,SL1820B-120,SL2325B-120

*Model Tested* : SL2325B-120

*Date Tested* : November 10, 2009

*Applicant* : DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD  
HUANG CAO LANG 2ND INDUSTRY  
CITY,DALANG,DONGGUAN,GUANDONG,CHINA

*Telephone* : 86-769-81116161

*Fax* : 86-769-81116162

## **EUT Description**

DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD model tested SL2325B-120 (referred to as the EUT in this report) is a Energy Saving Lamp.

## **Type of Derive**

Model of SL1315B-120, SL1820B-120 and SL2325B-120 are series products, they are the similar products except for appearance and power, they are named differently only for marketing purpose.

*Details Please refer to differences statement letter.*

*The worst-case model SL2325B-120 was selected for the final test.*

## Test Summary

The Electromagnetic Compatibility requirements on model SL2325B-120 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

<b>Emission Tests</b>				
<b>Specifications</b>	<b>Description</b>	<b>Test Results</b>	<b>Test Point</b>	<b>Remark</b>
FCC Part 18.307 FCC/OST MP-5	Conducted Emission	Passed	AC Input Port	Attachment 1
FCC Part 18.305 FCC/OST MP-5	Radiated Emission	Passed	Enclosure	Attachment 2

### ***Test Mode Justification***

*This device complies with Part 18 of the FCC rules. The EUT was tested in the lighting mode.*

### ***EUT Exercise Software***

*This device is not programmable and does not software.*

### ***Equipment Modification***

*Any modifications installed previous to testing by DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD will be incorporated in each production model sold or leased in United States.*

*There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.*

***EUT Sample Photos for model SL2325B-120***



***EUT -Outside View***

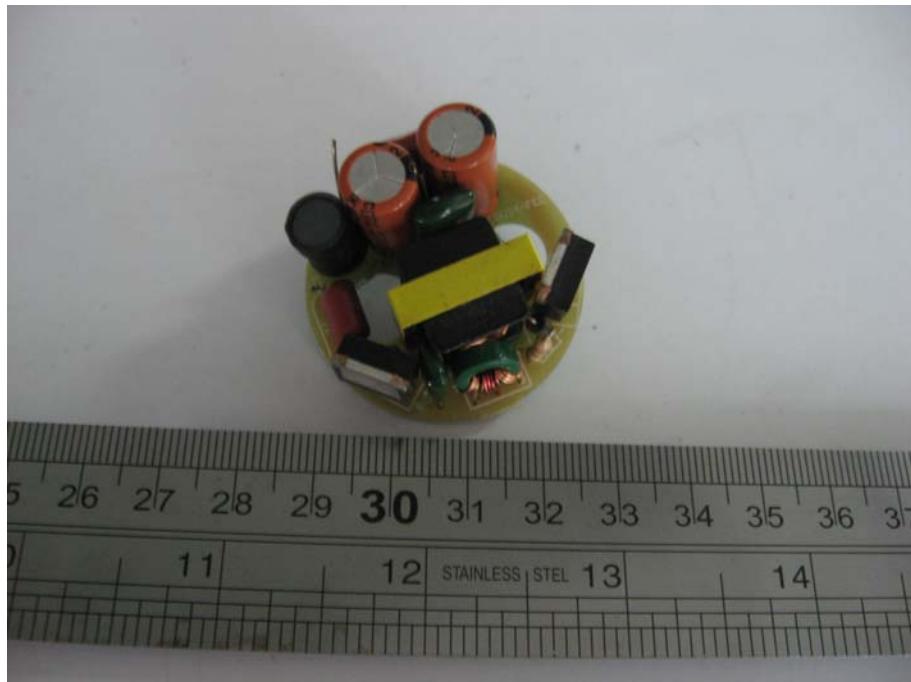


***EUT- Uncovered View***

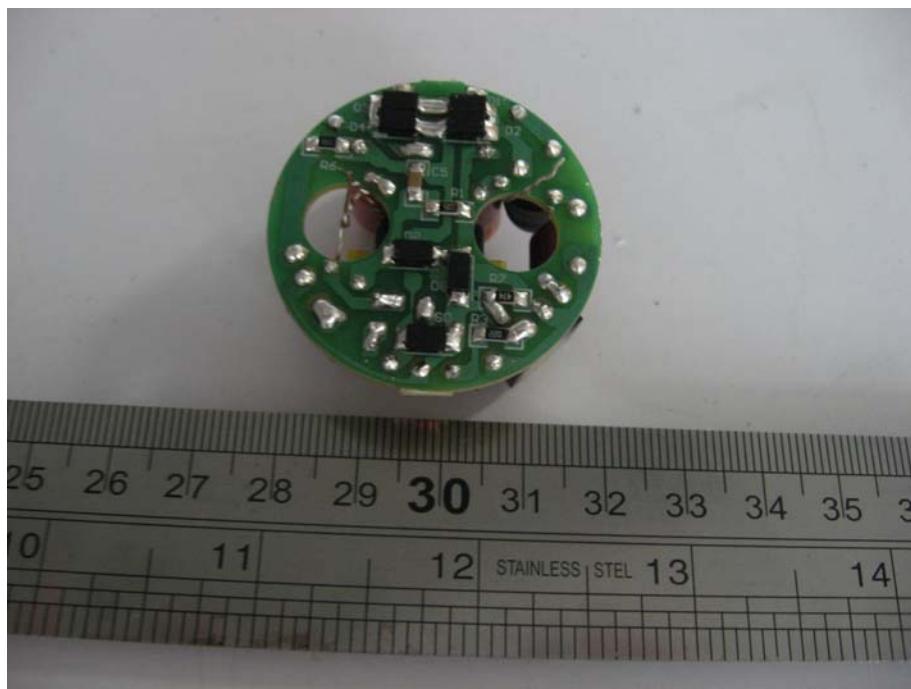
*FCC Test Report #: DON-0910-10296-FCCID*

*Prepared for DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD*

*Prepared by ECMG Worldwide Certification Solution Inc.*



**PCB Board -Front View**

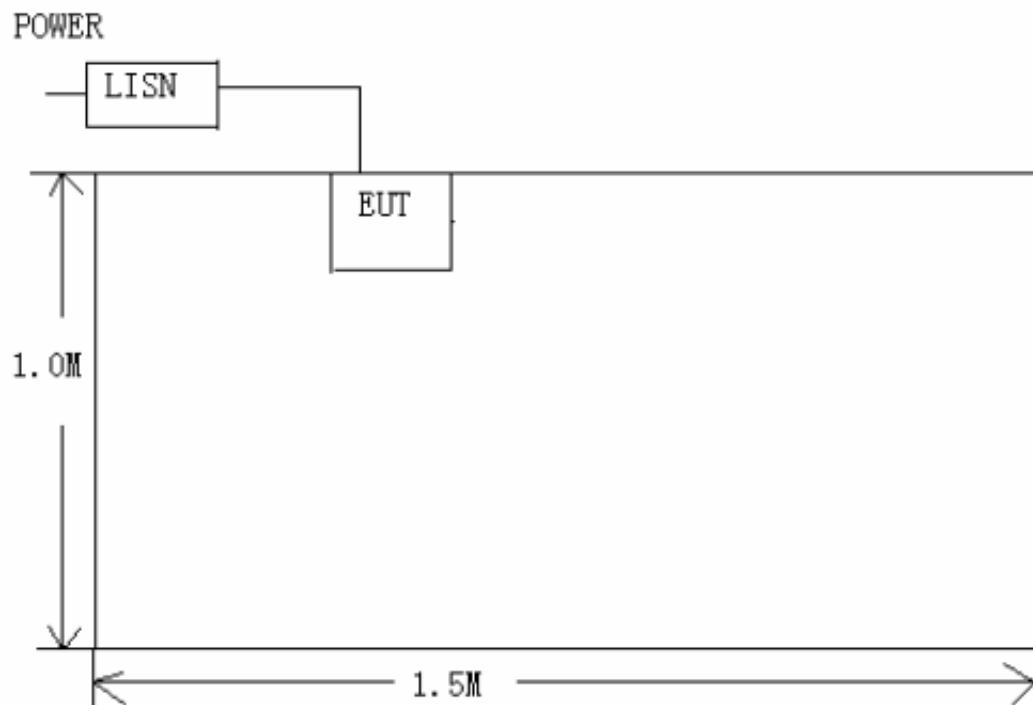


**PCB Board- Rear View**

## Test System Details

<b>EUT</b>			
<b>Model Number:</b>	<i>SL1315B-120,SL1820B-120,SL2325B-120</i>		
<b>Model Tested:</b>	<i>SL2325B-120</i>		
<b>Input Voltage:</b>	<i>120VAC/60Hz</i>		
<b>Description:</b>	<i>Energy Saving Lamp</i>		
<b>Manufacture:</b>	<i>DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD</i>		
<b>Support Equipment</b>			
<i>Description</i>	<i>Model Number</i>	<i>Serial Number</i>	<i>Manufacturer</i>
<i>None</i>			
<b>Cable Description</b>			
<i>Description</i>	<i>From</i>	<i>To</i>	<i>Length (Meters)</i>
<i>Shielded (Y/N)</i>	<i>Ferrite (Y/N)</i>		
<i>None</i>			

## ***Configuration of Tested System***



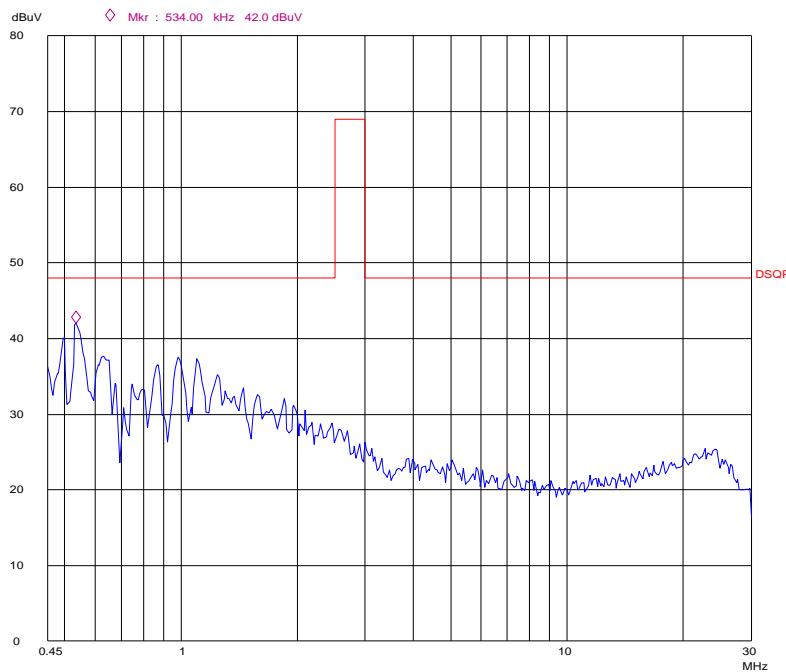
**ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS**

<b>CLIENT:</b>	DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD	<b>TEST STANDERD:</b>	FCC Part 18: 2007
<b>MODEL NUMBERS:</b>	SL1315B-120, SL1820B-120, SL2325B-120	<b>PRODUCT:</b>	Energy Saving Lamp
<b>EUT MODEL:</b>	SL2325B-120	<b>EUT DESIGNATION:</b>	Lighting Equipment
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	May Wang	<b>DATE OF TEST:</b>	November 10, 2009
<b>TEST REFERENCE:</b>	FCC/OST MP-5 (1986)		
<b>TEST PROCEDURE:</b>	<p>a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.</p> <p>b. Connect EUT to the power mains through a line impedance stabilization network (LISN) .</p> <p>c. The LISN provides 50ohm coupling impedance for the measuring instrument.</p> <p>d. Both sides of AC line were checked for maximum conduced interference.</p> <p>e. The frequency range from 150KHz to 30MHz was searched.</p> <p>f. Set the test-receiver system to Peak Detect Function and Specified bandwidth.</p> <p>g. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.</p>		
<b>TESTED RANGE:</b>	450kHz to 30MHz		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		
<b>RESULTS:</b>	The EUT meets the requirements of test reference for Conducted Emissions .The test results relate only to the equipment under test provided by client.		
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.		
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp $\pm 2.6$ dB		

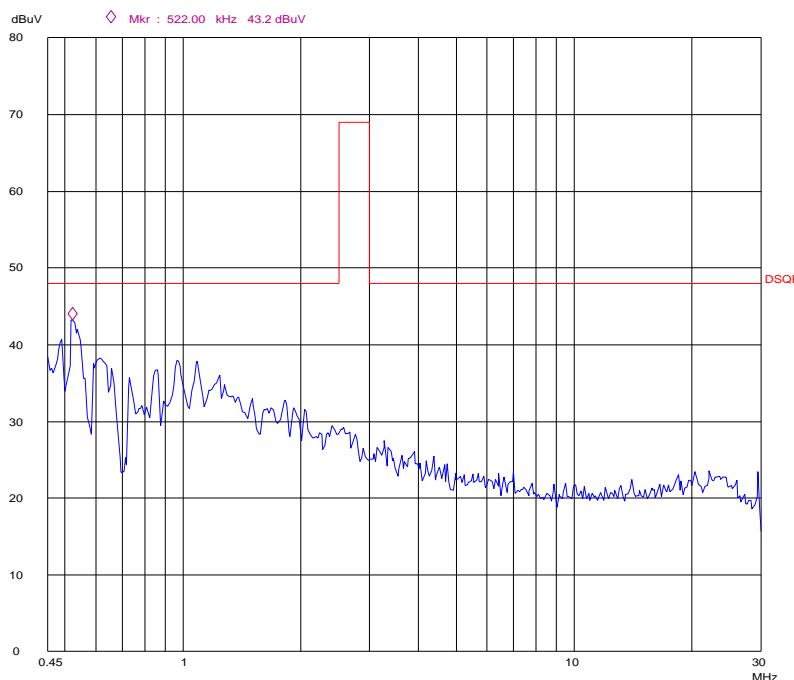
### 18.307 Conducted Emission limit:

<i>Frequency of Emission (MHz)</i>	<i>Consumer Equipment</i>	
	<i>Maximum RF line voltage measured with a 50 uH/50 ohm LISN (uV)</i>	<i>Quasi-Peak (dBuV)</i>
0.45-2.51	250	48
2.51-3.0	3000	70
3.0-30	250	48

*Note :Emission Level dB ( μ V) = 20 log Emission Level ( μ V )*



**Line L Conducted Emission Graph**



**Line N Conducted Emission Graph**

### Test Data :

Line	Frequency (MHz)	Corrected QP Level (dBuV)	Limits QP (dBuV)	Margin QP (dB)	Frequency (MHz)	Corrected AV Level (dBuV)	Limits AV (dBuV)	Margin QP (dB)
L	0.494	37.4	48	-10.6	/	/	/	/
L	0.530	40.5	48	-7.5	/	/	/	/
L	0.627	34.8	48	-13.2	/	/	/	/
N	0.500	40.9	48	-7.1	/	/	/	/
N	0.541	40.1	48	-7.9	/	/	/	/
N	0.621	37.4	48	-10.6	/	/	/	/

**Note :**

- 1) All readings are using a bandwidth of 9 kHz, with a 600 ms sweep time. A video filter was not used.
- 2) "QP" means "Quasi-Peak" values, "AV" means "Average" values.
- 3) The other emission levels are too low against official limit that are not be recorded.

### Test Equipment List :

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Interval
EMI test receiver	ESCS30	R&S	830245/009	01/22/2009	01/21/2010
AMN	ESH2-Z5	R&S	100002	01/22/2009	01/21/2010

**Note:** All testing were performed using internationally recognized standards. All test instruments were calibrated.

SIGNED BY:



ENGINEER

REVIEWED BY:



SENIOR ENGINEER

**For Model: SL2325B-120**



***Conducted Emissions Test Set-up***

## ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

<b>CLIENT:</b>	DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD	<b>TEST STANDERD:</b>	FCC Part 18:2007
<b>MODEL NUMBERS:</b>	SL1315B-120, SL1820B-120, SL2325B-120	<b>PRODUCT:</b>	Energy Saving Lamp
<b>EUT MODEL:</b>	SL2325B-120	<b>EUT DESIGNATION:</b>	RF Lighting Device
<b>TEMPERATURE:</b>	23°C	<b>HUMIDITY:</b>	47%RH
<b>ATM PRESSURE:</b>	101.0kPa	<b>GROUNDING:</b>	None
<b>TESTED BY:</b>	May Wang	<b>DATE OF TEST:</b>	November 10, 2009
<b>TEST REFERENCE:</b>	FCC/OST MP-5 (1986)		
<b>TEST PROCEDURE:</b>	<p>a. The EUT was placed on a rotatable table with 1.0 meters above ground.</p> <p>b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower.</p> <p>c. For each suspected emission the EUT was arranged to its worst case and turn table (from 0 degree to 360 degree) to find the maximum reading.</p> <p>d. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported. Explanation of the Correction Factor are given as follows:</p> <p>FS= RA + AF + CF - AG</p> <p>Where: FS = Field Strength</p> <p>RA = Receiver Amplitude</p> <p>AF = Antenna Factor</p> <p>CF = Cable Attenuation Factor</p> <p>AG = Amplifier Gain</p>		
<b>TESTED RANGE:</b>	0.009MHz to 30MHz		
<b>TEST VOLTAGE:</b>	120VAC / 60Hz		

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<b>RESULTS:</b>	The EUT meets the requirements of test reference for Radiated Emissions. The test results relate only to the equipment under test provided by client.
<b>CHANGES OR MODIFICATIONS:</b>	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.
<b>M. UNCERTAINTY:</b>	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp $\pm 2.6$ dB

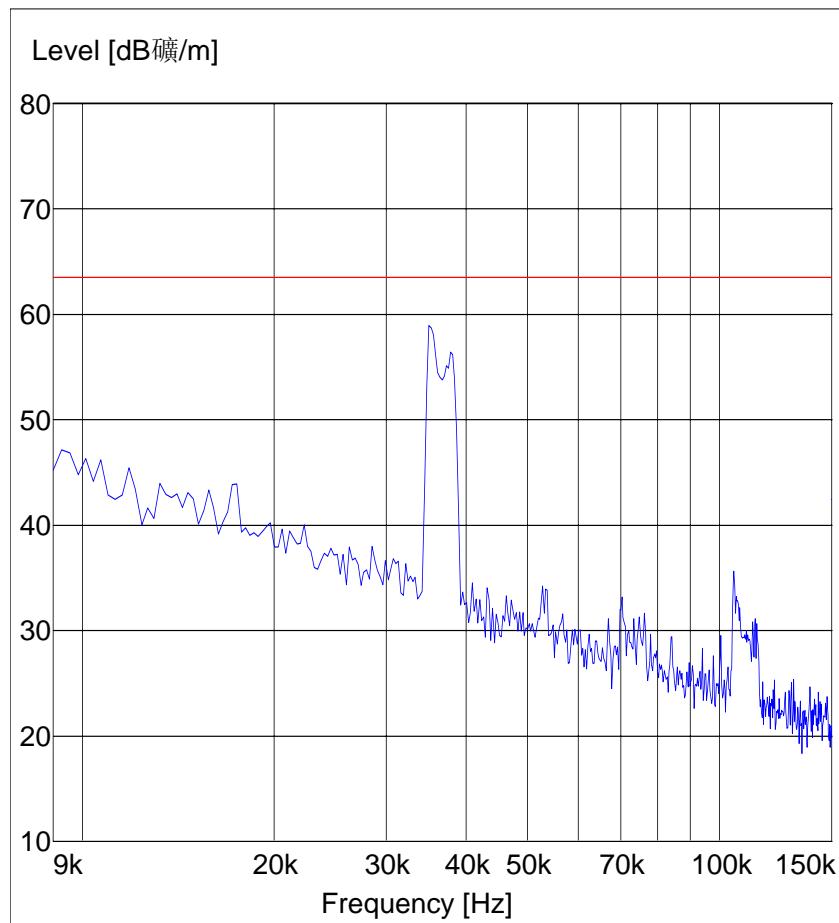
### 15.109 Limits of Radiated Emission :

The field strength of radiated emissions at a distance of 3.0 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (dB $\mu$ V/m)
0.009-30	63.5

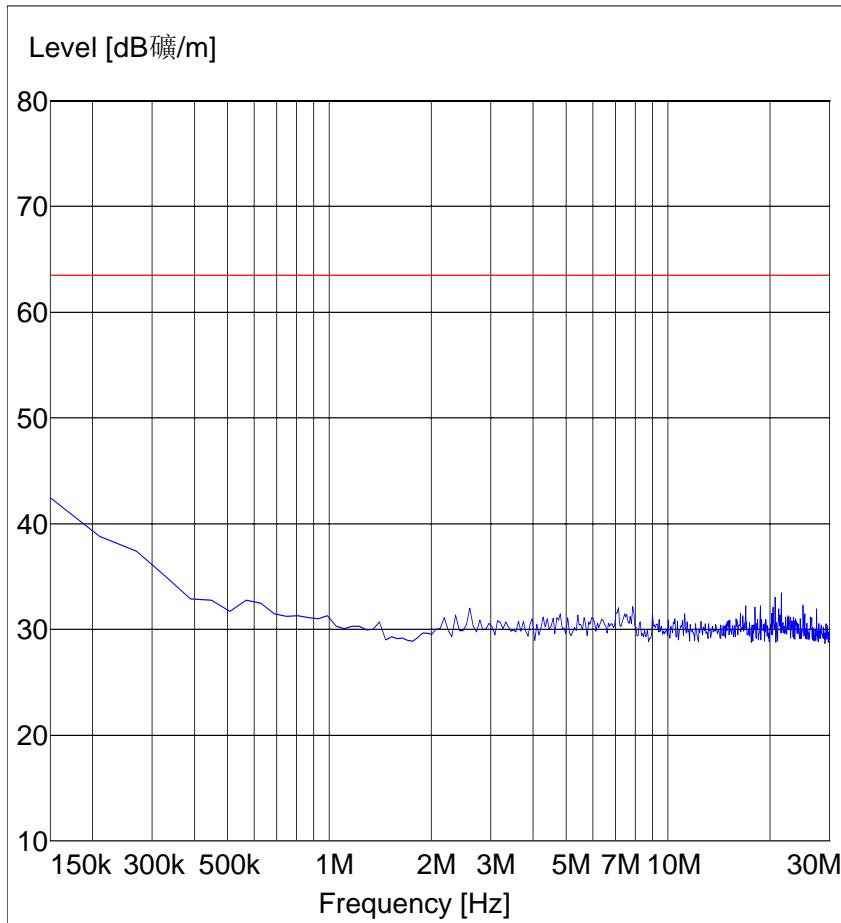
Note : Emission Level dB ( $\mu$ V/m) = 20 log Emission Level ( $\mu$ V/m)

**Frequency Range:9KHz-150KHz**



**Field Strength Emission Plots(Peak,Max hold mode)**

**Frequency Range: 150KHz-30MHz**



**Field Strength Emission Plots(Peak,Max hold mode)**

### Test Data :

Test No.#	Frequency [KHz]	Corrected Reading [dB $\mu$ V/m]	Delta, QP [dB]	3 Meters Limits [dB $\mu$ V/m]
<b>9KHz-150KHz</b>				
1	9.495	41.9	-21.6	63.5
2	35.058	57.9	-5.6	63.5
3	37.767	55.6	-7.9	63.5
<b>150KHz-30MHz</b>				
1	150.000	40.5	-23.0	63.5
2	568.737	31.7	-31.8	63.5
3	260.260	29.8	-33.7	63.5
<i>Note:</i>				
1) All reading are quasi-peak detector unless stated otherwise, using a QPA bandwidth of 200Hz at 0.009 to 0.15MHz, using a QPA bandwidth of 9kHz at 0.15 to 30MHz.				
2) The other emission levels are too low against offical limit that are not be recorded.				

### Test Equipment List :

Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Due
EMI Test Receiver	ESI26	R&S	838736/013	2009/01/25	2010/01/24
Triple Loop Antenna	HXYZ9170	Schwarzbeck	SB2662	2009/01/25	2010/01/24
3m SEMI-ANECHOIC CHAMBER	9X6X6	Albatross projects	---	2009/03/21	2010/03/20

*Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.*

SIGNED BY:



ENGINEER

REVIEWED BY:



SENIOR ENGINEER

**For Model: SL2325B-120**



***Radiated Emission Test Set-up***