

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)

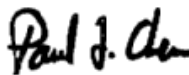
Test Report #: DON-0910-10296-FCCID

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

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

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 Nunber: L0579

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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.

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

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.

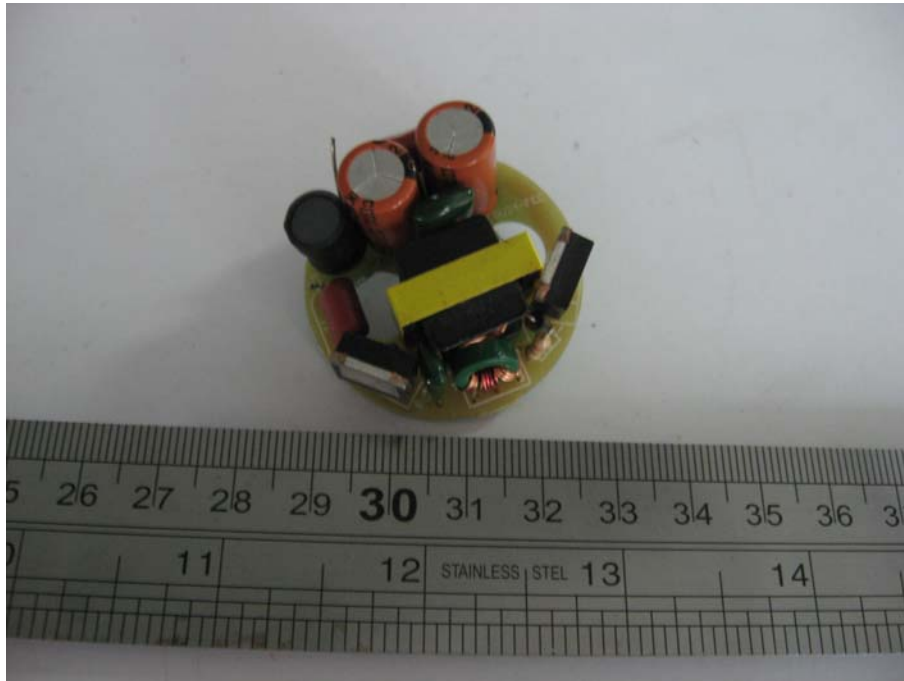
EUT Sample Photos for model SL2325B-120



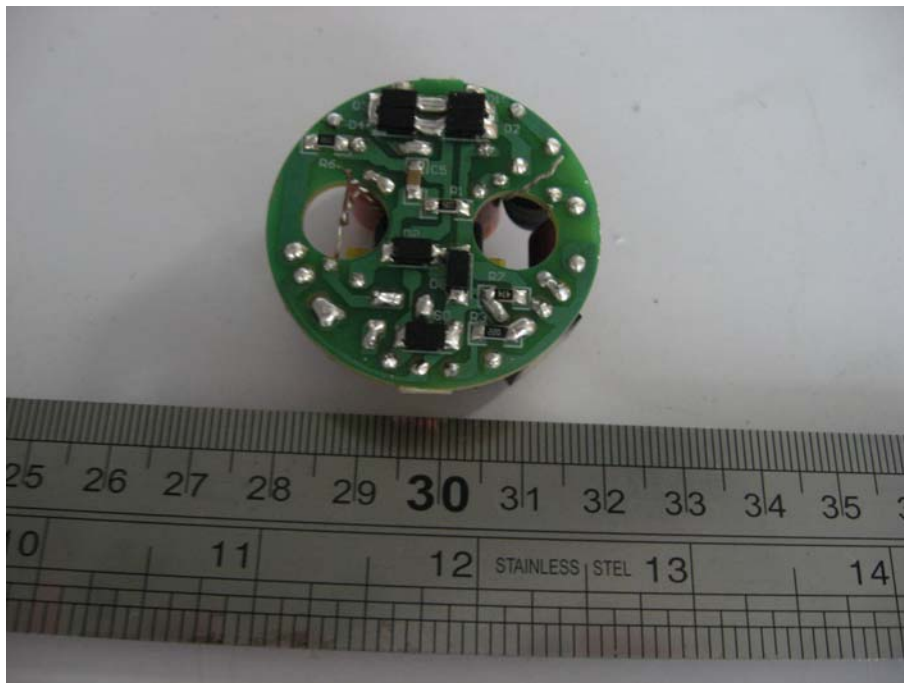
EUT -Outside View



EUT- Uncovered View



PCB Board -Front View

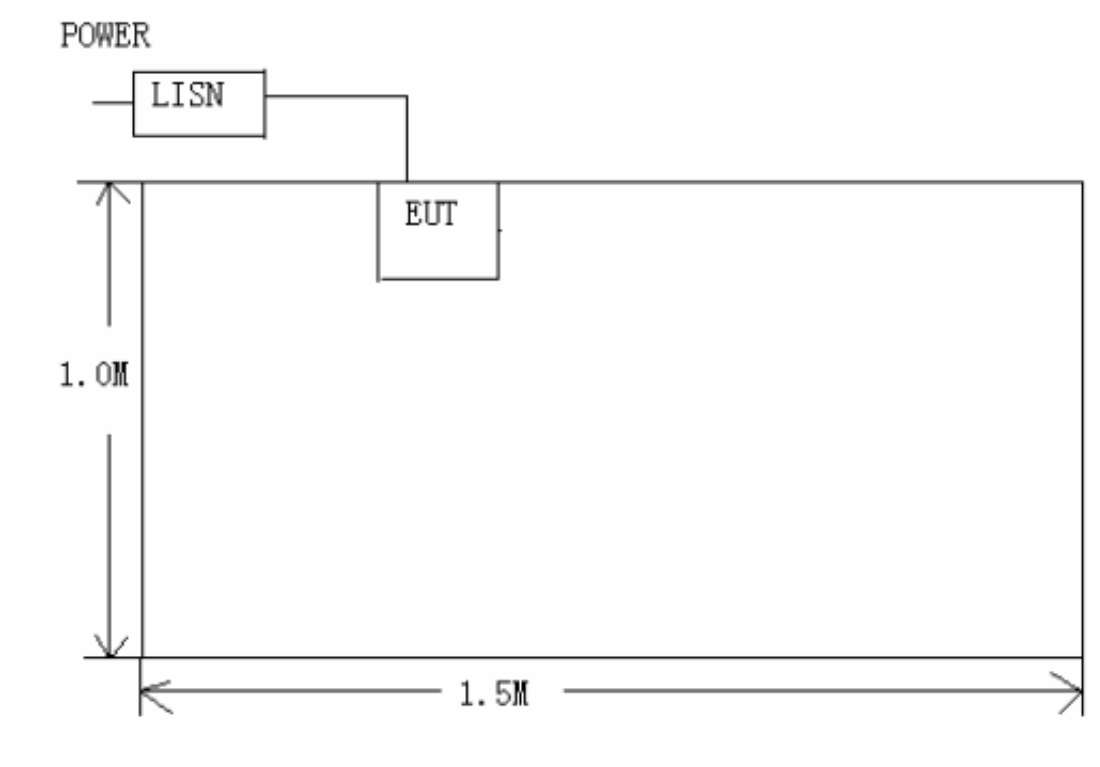


PCB Board- Rear View

Test System Details

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

Configuration of Tested System

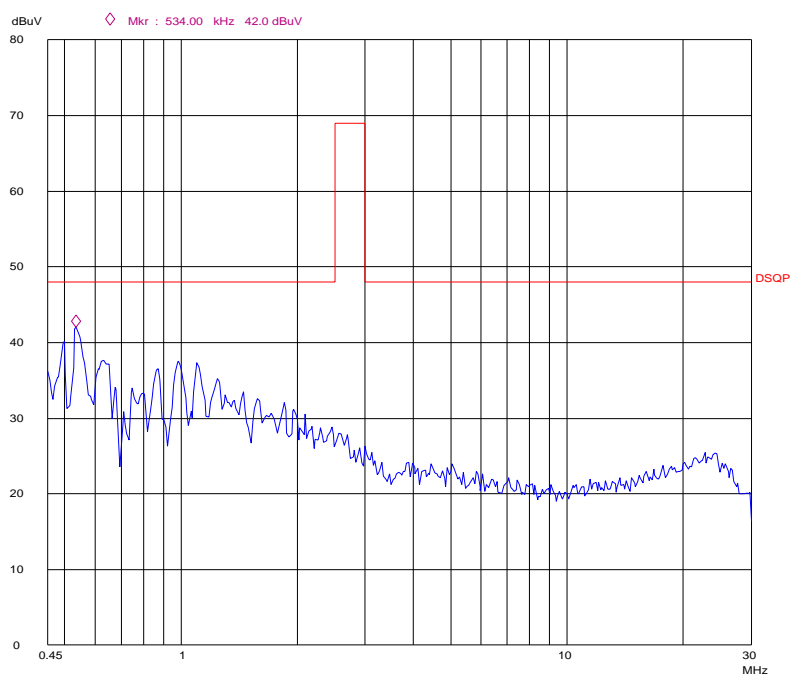


ATTACHMENT 1 - CONDUCTED EMISSION TEST RESULTS

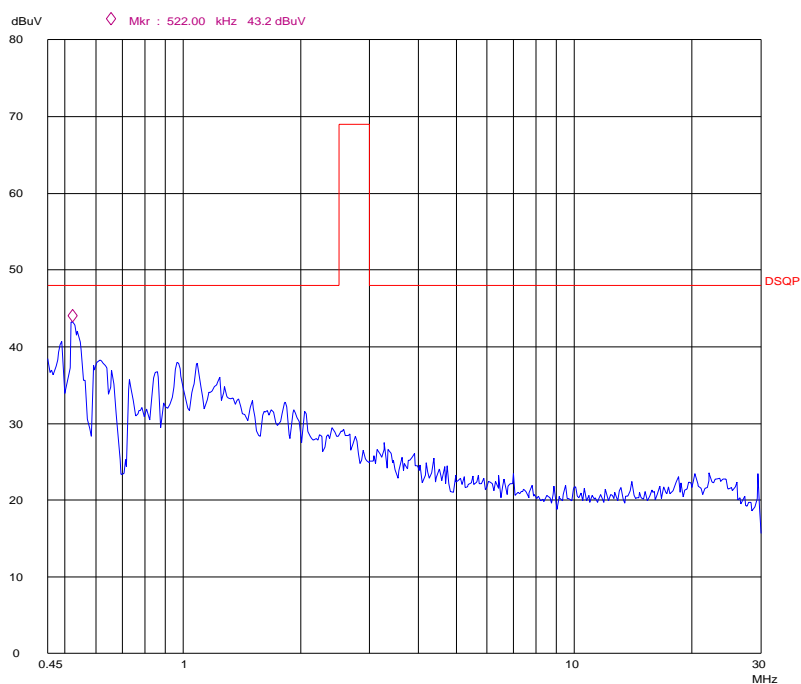
CLIENT:	DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD	TEST STANDERD:	FCC Part 18: 2007
MODEL NUMBERS:	SL1315B-120, SL1820B- 120, SL2325B-120	PRODUCT:	Energy Saving Lamp
EUT MODEL:	SL2325B-120	EUT DESIGNATION:	Lighting Equipment
TEMPERATURE:	23°C	HUMIDITY:	47%RH
ATM PRESSURE:	101.0kPa	GROUNDING:	None
TESTED BY:	May Wang	DATE OF TEST:	November 10, 2009
TEST REFERENCE:	FCC/OST MP-5 (1986)		
TEST PROCEDURE:	<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 conducted 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>		
TESTED RANGE:	450kHz to 30MHz		
TEST VOLTAGE:	120VAC / 60Hz		
RESULTS:	The EUT meets the requirements of test reference for Conducted Emissions .The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp ± 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
<i>Note :Emission Level dB (μ V) = 20 log Emission Level (μ V)</i>		



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 :

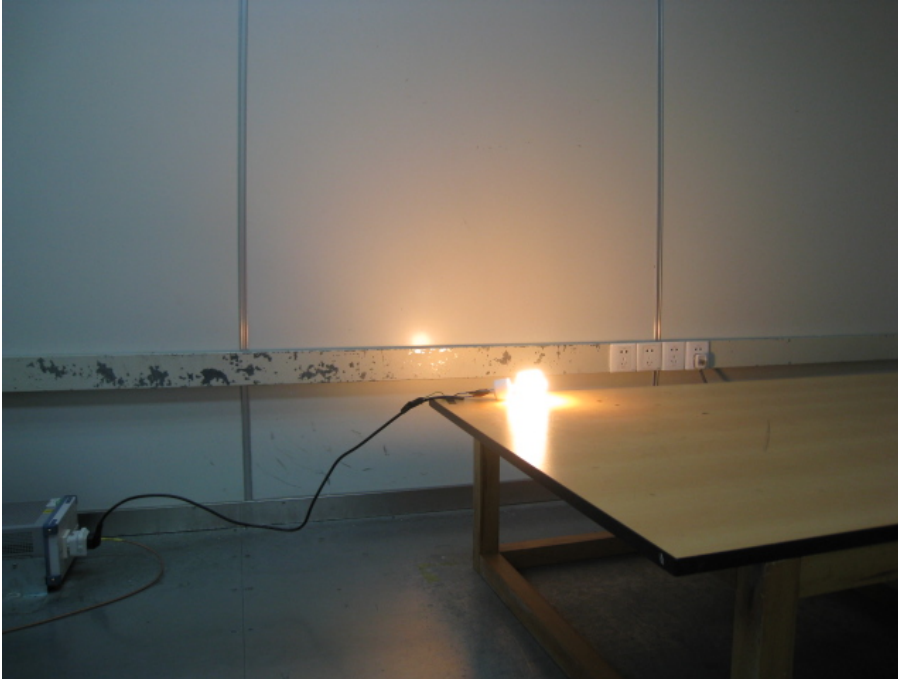
Test Equipment	Model No.	Manufacturer	Serial No.	Last Cal.	Cal. Interval
EMI test receiver	ESCS30	R&S	830245/009	01/22/2009	01/21/2010
AMN	ESH2-Z5	R&S	100002	01/22/2009	01/21/2010

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

SIGNED BY: May Wang
ENGINEER

REVIEWED BY: Janeym
SENIOR ENGINEER

For Model: SL2325B-120



Conducted Emissions Test Set-up

ATTACHMENT 2 - RADIATED EMISSION TEST RESULTS

CLIENT:	DONGGUAN APSUN LIGHTING TECHNOLOGY CO.,LTD	TEST STANDERD:	FCC Part 18:2007
MODEL NUMBERS:	SL1315B-120, SL1820B-120, SL2325B-120	PRODUCT:	Energy Saving Lamp
EUT MODEL:	SL2325B-120	EUT DESIGNATION:	RF Lighting Device
TEMPERATURE:	23°C	HUMIDITY:	47%RH
ATM PRESSURE:	101.0kPa	GROUNDING:	None
TESTED BY:	May Wang	DATE OF TEST:	November 10, 2009
TEST REFERENCE:	FCC/OST MP-5 (1986)		
TEST PROCEDURE:	<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>		
TESTED RANGE:	0.009MHz to 30MHz		
TEST VOLTAGE:	120VAC / 60Hz		

Continue on the next the page...

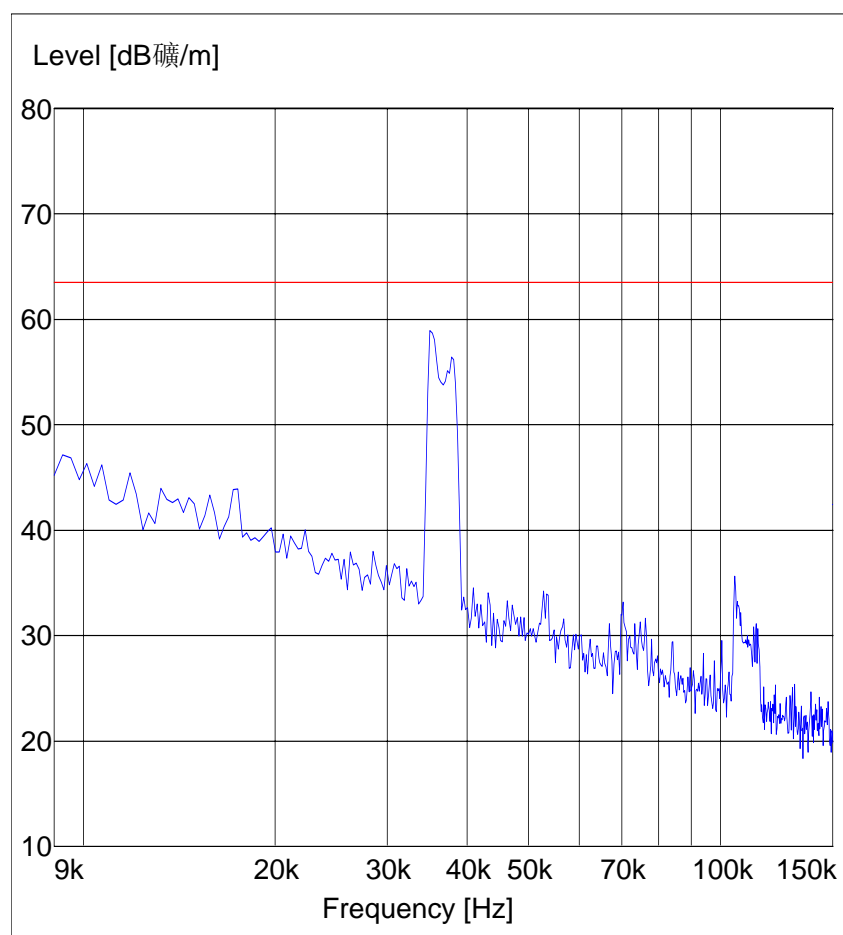
RESULTS:	The EUT meets the requirements of test reference for Radiated Emissions.The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution Inc. (China) test personnel.
M. UNCERTAINTY: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

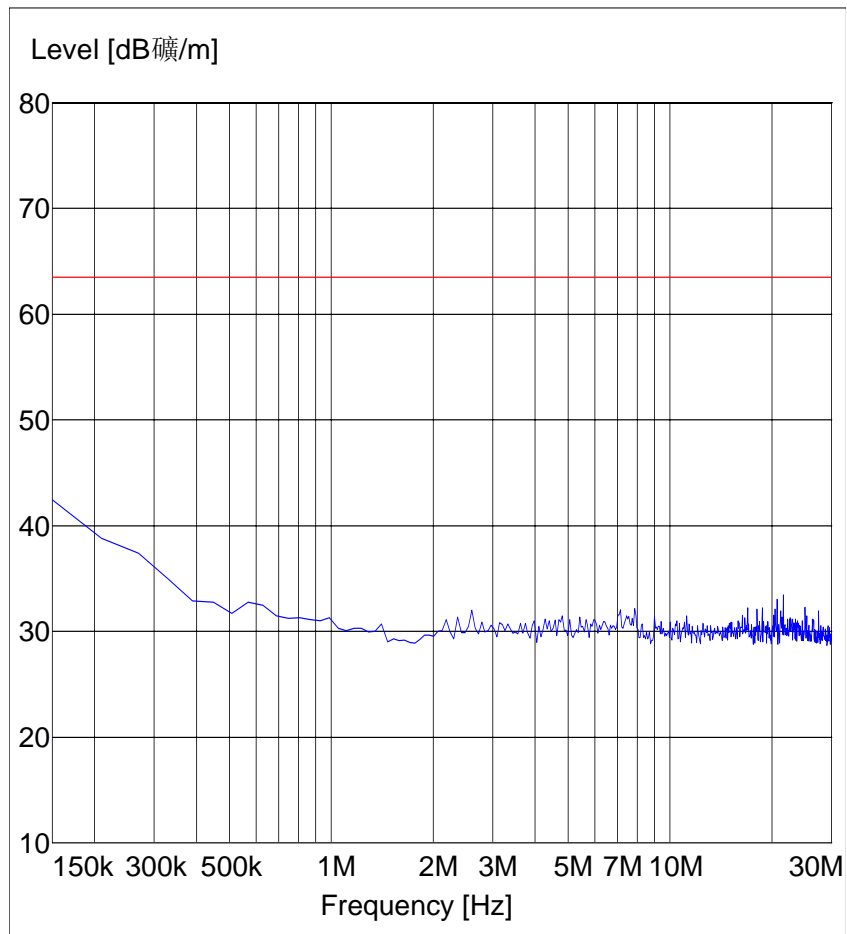
Frequency of Emission (MHz)	Field Strength (dB μ V/m)
0.009-30	63.5
Note : Emission Level dB (μ V/m) = 20 log Emission Level (μ V/m)	

Frequency Range:9KHz-150KHz



Field Strength Emission Plots(Peak,Max hold mode)

Frequency Range:150KHz-30MHz



Field Strength Emission Plots(Peak,Max hold mode)

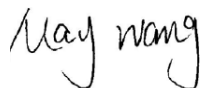
Test Data :

Test No.#	Frequency [KHz]	Corrected Reading [dB μ V/m]	Delta, QP [dB]	3 Meters Limits [dB μ V/m]
9KHz-150KHz				
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
150KHz-30MHz				
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
Note: 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 official 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