Lab Code: 200707-0

FCC PART 18
MEASUREMENT AND TEST REPORT

For

ZHEJIANG NVC LAMPS CO., LTD.

NO 201-16, TONGDA ROAD, SOUTH ZONE, HUSHAN DISTRICT,
JIANGSHAN, ZHEJIANG, CHINA

FCC ID: VVOESP0913

Report Type: Original Report		**Product Type:** CFL
Test Engineer:	Abel Yang	Abel. Yang
Report Number:	RSZ10102552	
Report Date:	2011-01-20	
Reviewed By:	Lisa Zhu EMC Engineer	
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong,China Tel: +86-755-33320018 Fax: +86-755-33320008	

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *ZHEJIANG NVC LAMPS CO., LTD*'s model: *ESP-9W, ESP-13W (FCC ID: VVOESP0913)*, or the "EUT" as referred to in this report is a *CFL*, which measure approximately: 11.2 cm (L) x 5.0 cm (W) x 5.0 cm (H) for *ESP-13W* and 10.3 cm (L) x 5.0 cm (W) x 5.0 cm (H) for *ESP-9W*, rated input voltage: AC 120V/60Hz.

Note: the series product, model ESP-9W and ESP-13W are electrically identical, the are just named differently and have different output power, which was explained in the attached delclaration letter.

** All measurement and test data in this report was gathered from production sample serial number: 1010016 (Assigned by BACL, Shenzhen). The EUT was received on 2010-10-25.*

Objective

The following test report is prepared on behalf of *ZHEJIANG NVC LAMPS CO., LTD* in accordance with Part 2, Subpart J, and Part 18, Subparts A, B and C of the Federal Communication Commissions rules and regulations.

The objective of the manufacturer is to determine compliance with FCC Part 18 limits.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with MP-5, FCC Methods of Measurements of Radio Noise Emissions from ISM Equipment, February 1986. All measurement was performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06,2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2007070.htm

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

N/A

Special Accessories

The special accessories were supplied by Bay Area Compliance Laboratories Corp.

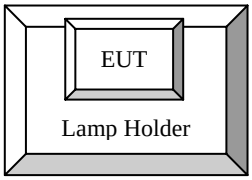
Equipment Modifications

No modifications were made to the unit tested.

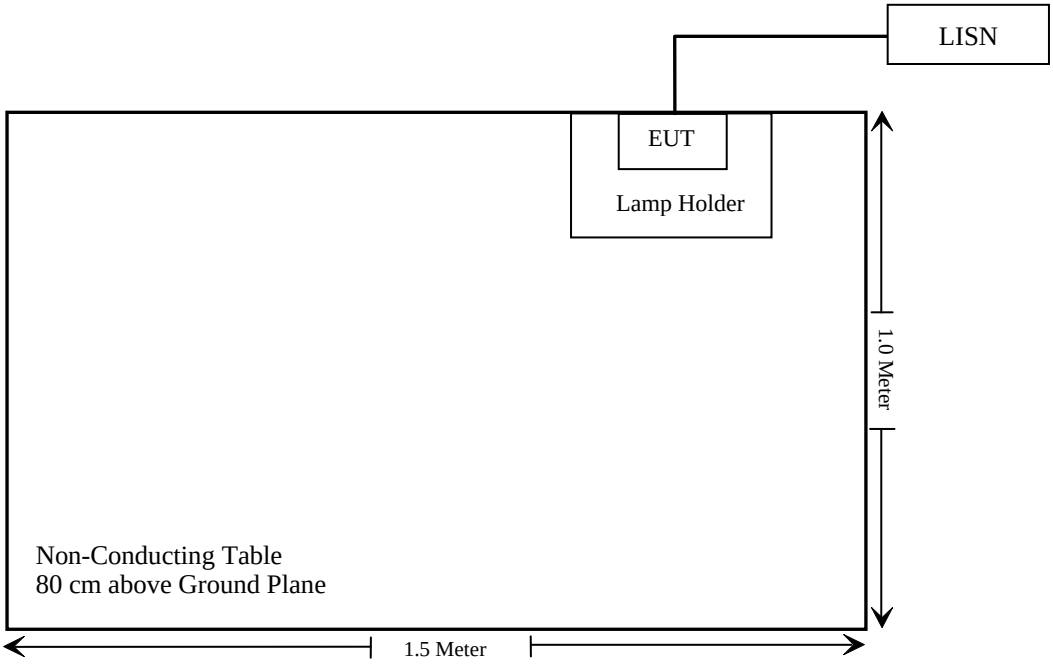
External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Undetachable AC Power Cable	1.2	EUT	LISN

Configuration of Test Setup



Block Diagram of Test Setup



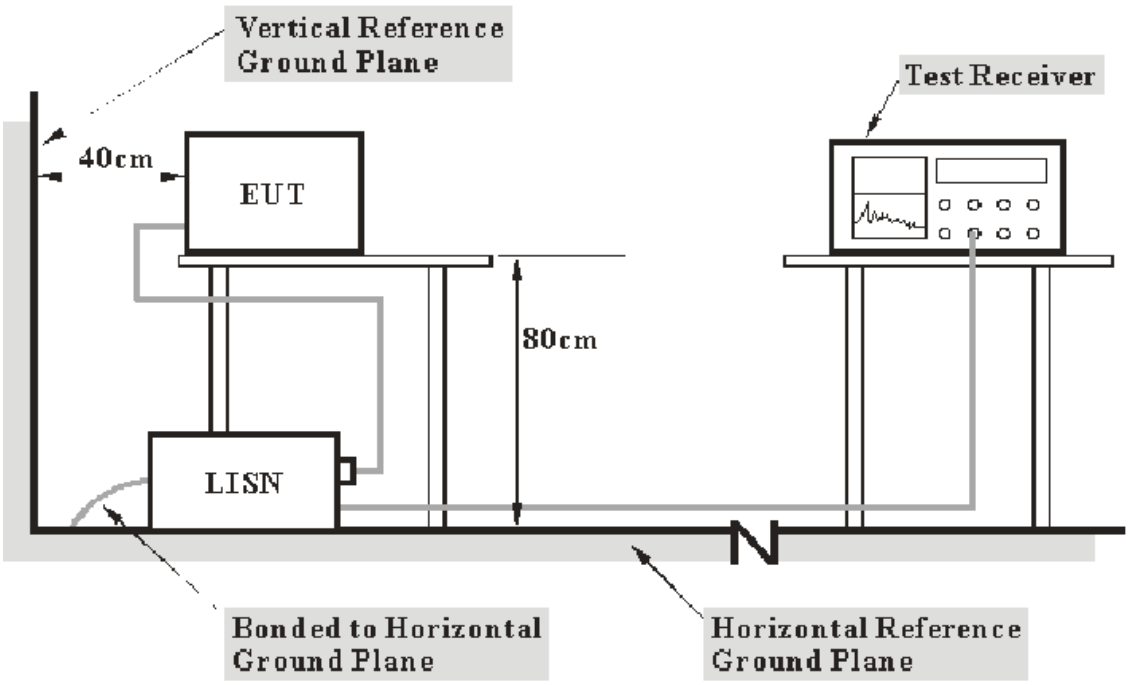
CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. is ±2.4 dB (k=2, 95% level of confidence).

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with MP-5: 1986 measurement procedure. Specification used was with the FCC Part 18 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The EUT was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 450 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	***IFBW***
450 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2010-03-03	2011-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2010-03-09	2011-03-08

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-Peak detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 18, with the worst margin reading of:

11.89 dB at **0.495 MHz** in the **Neutral** conductor mode for model ESP-9W
8.00 dB at **0.465 MHz** in the **Line** conductor mode for model ESP-13W

Test Data

Environmental Conditions

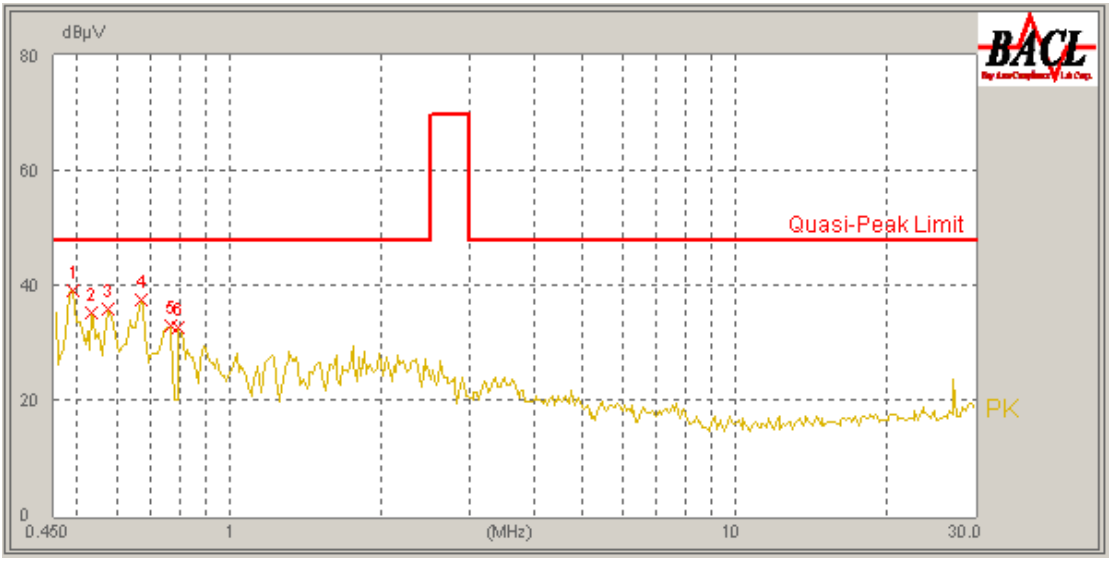
Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

Testing was performed by Abel Yang on 2010-11-05.

Test Mode: On

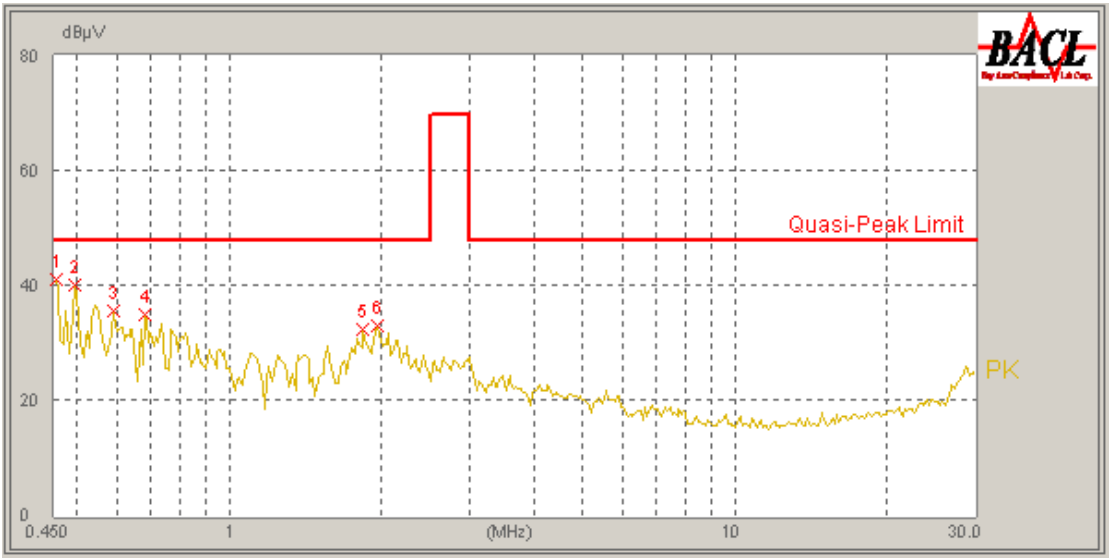
Model: ESP-9W

AC 120V/60 Hz, Line:



Frequency (MHz)	Correct Factor (dB)	Cord. Result (dBµV)	Limit (dBµV)	Margin (dB)	Remark
0.490	10.10	34.92	48.00	13.08	QP
0.575	10.10	31.84	48.00	16.16	QP
0.670	10.10	31.41	48.00	16.59	QP
0.765	10.10	30.91	48.00	17.09	QP
0.795	10.10	30.49	48.00	17.51	QP
0.535	10.10	30.29	48.00	17.71	QP

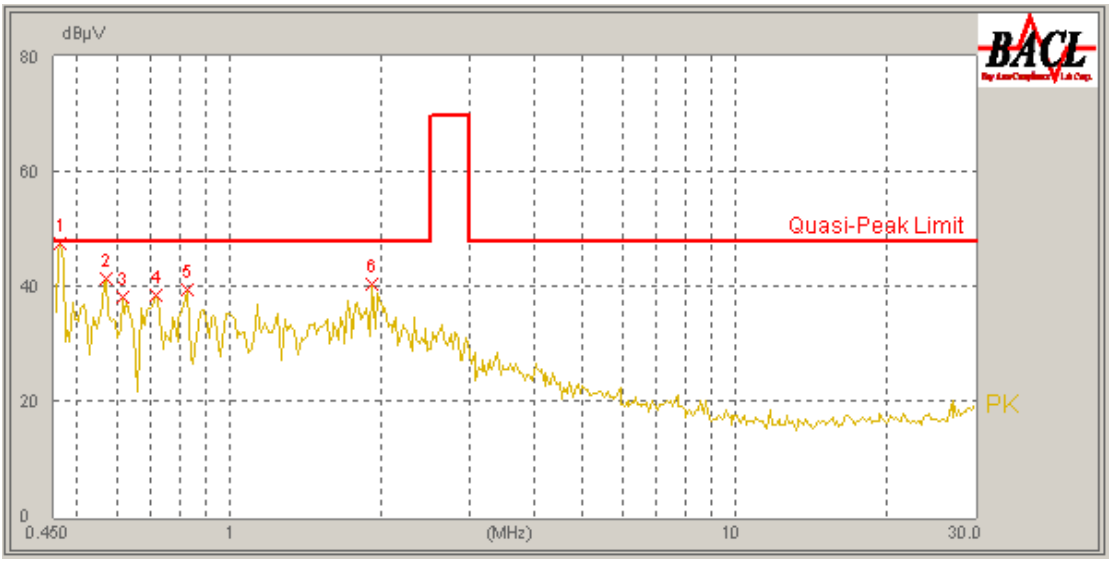
AC 120V/ 60 Hz, Neutral:



Frequency (MHz)	Correct Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Remark
0.495	10.10	36.11	48.00	11.89	QP
0.455	10.10	34.04	48.00	13.96	QP
0.680	10.10	31.43	48.00	16.57	QP
0.590	10.10	29.50	48.00	18.50	QP
1.840	10.10	26.97	48.00	21.03	QP
1.960	10.10	25.72	48.00	22.28	QP

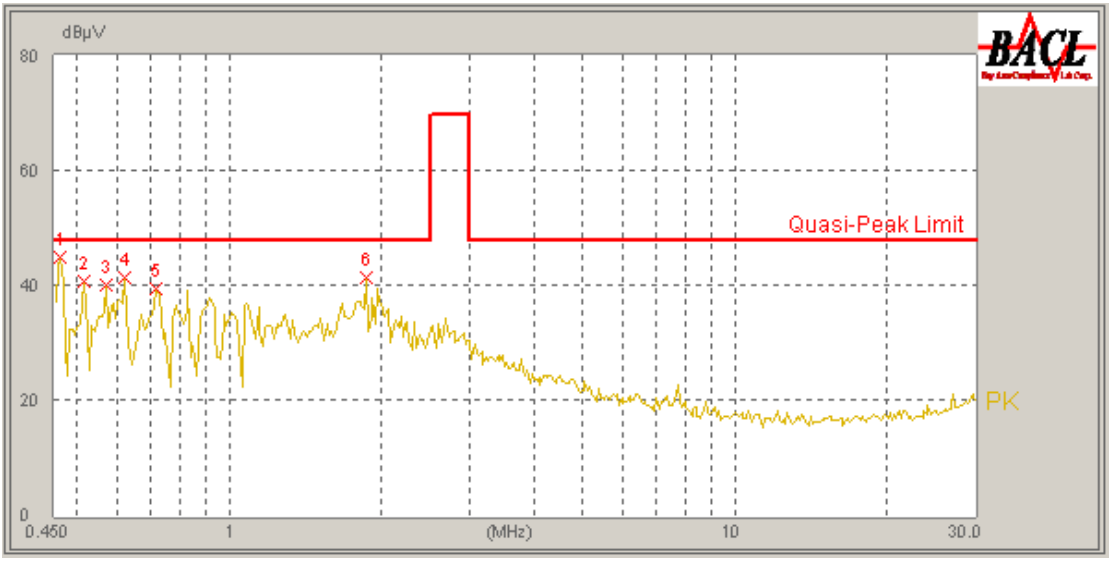
Model: ESP-13W

AC 120V/60 Hz, Line:



Frequency (MHz)	Correct Factor (dB)	Cord. Result (dBµV)	Limit (dBµV)	Margin (dB)	Remark
0.465	10.10	40.00	48.00	8.00	QP
0.615	10.10	35.54	48.00	12.46	QP
0.830	10.10	34.95	48.00	13.05	QP
0.715	10.10	33.97	48.00	14.03	QP
0.570	10.10	31.37	48.00	16.63	QP
1.920	10.10	28.23	48.00	19.77	QP

AC 120V/ 60 Hz, Neutral:



Frequency (MHz)	Correct Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Remark
0.465	10.10	37.17	48.00	10.83	QP
0.515	10.10	36.60	48.00	11.40	QP
0.720	10.10	36.37	48.00	11.63	QP
0.620	10.10	35.72	48.00	12.28	QP
0.570	10.10	33.82	48.00	14.18	QP
1.870	10.10	28.59	48.00	19.41	QP

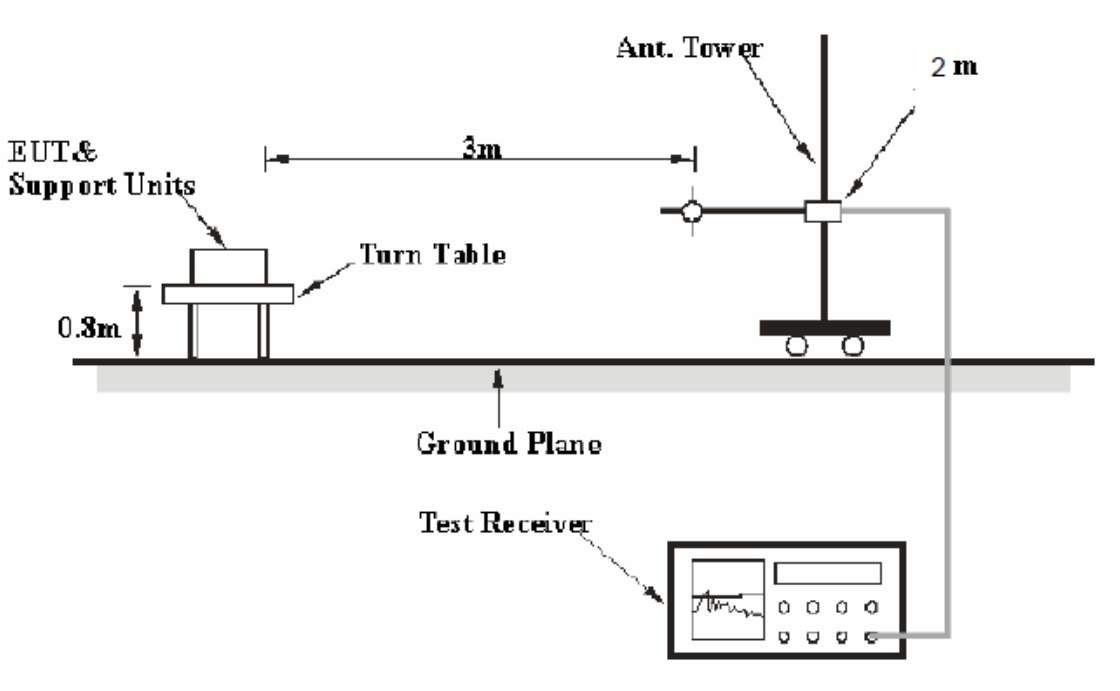
RADIATED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB.(k=2, 95% level of confidence)

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the FCC MP - 5.

The EUT was connected to 120 VAC/60 Hz power source.

EMI Test Receiver Setup and Spectrum Analyzer Setup

The system was investigated from 9 kHz to 30 MHz.

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	***R B/W***	***Video B/W***	***IF B/W***
9kHz– 150kHz	300 Hz	1 kHz	200Hz
150kHz– 30 MHz	100 kHz	300 kHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS	Passive Loop Antenna	6512	00029604	2010-05-27	2011-05-27
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-24	2011-11-23
Sunol Sciences	System Controller	SC99V	041304-1	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

For the radiated emissions test, the EUT was connected to the AC floor outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure that the EUT complied with all installation combinations.

The EUT was in the normal operating mode during the final qualification test to represent the worst results.

All data was recorded in the Quasi-peak detection mode from 9 kHz to 30 MHz.

Corrected Amplitude Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	101.0 kPa

The testing was performed by Abel Yang on 2011-01-19

Test Mode: On (model ESP-9W)

Frequency (kHz)	Receiver Reading (dBµV/m)	Detector	Direction (Degree)	Ant. Polarity	Height (m)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Amplitude (dBµV/m)
93.98	17.77	QP	0.00	V	2.00	63.5	0.1	71.37
78.11	22.88	QP	0.00	V	2.00	66.4	0.1	80.38
46.77	19.56	QP	0.00	V	2.00	71.8	0.1	81.46
62.39	25.89	QP	0.00	V	2.00	66.1	0.1	82.09
15.48	16.45	QP	0.00	V	2.00	80.0	0.1	86.55
31.27	21.00	QP	0.00	V	2.00	78.2	0.1	89.30

Test Mode: On (model ESP-13W)

Frequency (kHz)	Receiver Reading (dBµV/m)	Detector	Direction (Degree)	Ant. Polarity	Height (m)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Amplitude (dBµV/m)
15.48	16.58	QP	0.00	V	2.00	80.0	0.1	87.68
31.27	21.09	QP	0.00	V	2.00	78.2	0.1	89.39
46.77	19.66	QP	0.00	V	2.00	71.8	0.1	81.56
62.39	25.78	QP	0.00	V	2.00	66.1	0.1	81.98
78.11	22.84	QP	0.00	V	2.00	66.4	0.1	79.34
93.98	17.86	QP	0.00	V	2.00	63.5	0.1	71.46

PRODUCT SIMILARITY DECLARATION LETTER

Zhejiang NVC Lamps Co.,Ltd

ZHEJIANG NVC LAMPS CO.,LTD

2010-10-25

Different Declaration

We, ZHEJIANG NVC LAMPS CO.,LTD, declare that the CFL, the ESP-9W, ESP-13W (trade name: NVC)， which have the same circuit diagram, PCB layout in side, and only different in output power.

Sincerely.

Signature:

Company: ZHEJIANG NVC LAMPS CO.,LTD

Title: Engineer

******* END OF REPORT *******