



FOR THE SCOPE OF  
ACCREDITATION UNDER NVLAP LAB  
CODE 100402-0.

# REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Project No. G100572494

Original Issue Date: January 3, 2012

Revision Date: May 10, 2012

REPORT NO. 100572494CRT-016

TEST OF ONE FLUORESCENT FIXTURE

FIXTURE MODEL NO. 105-TWG-48-HE-AL

## RENDERED TO

VODE LIGHTING LLC  
1206 EAST MACARTHUR SUITE 3  
SONOMA, CA 95476

Revision Note May 10, 2012: This report was revised to add lamp efficiency.

TEST: Electrical and Photometric tests as required to the IESNA test standard.

LABORATORY NOTE: The laboratory that conducted the testing detailed in this report has been Qualified, Verified, and Recognized for LM-79 Testing for ENERGY STAR for SSL by US DOE's CALiPER program.

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number 500339719.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-54: 1999 Guide to Lamp Seasoning

IESNA LM-41: 1998 Approved Method for Photometric Testing of Indoor Fluorescent Luminaires

DESCRIPTION OF SAMPLE: The client submitted one sample of model number 105-TWG-48-HE-AL. The sample was received by Intertek on November 23, 2011, in undamaged condition, and one sample was tested as received. The sample designation was V238803-1.

DATES OF TESTS: December 16, 2011.

SUMMARY

Model No.: 105-TWG-48-HE-AL
Description: Fluorescent Fixture

Criteria	Result
Total Lumen Output	1548 Lumens
Total Power	30.53 W
Luminaire Efficacy	50.70
Power Factor	0.959

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Calibration Date	Calibration Due Date
Elgar AC Power Supply	CW1251	--	--	--
Xitron Power Analyzer	2503H	E235	04/20/11	04/20/12
Fluke Temperature Meter	53 II	T1318	02/25/11	02/25/12
Kikusui DC Power Supply	35-10L	E160	---	---
Sorenson DC Power Supply	DLM150-20E	--	---	---
Yokogawa Power Meter	WT210	E464	04/19/11	04/19/12
LSI High Speed Mirror Goniometer	6440	--	w/use	w/use
Cole Parmer Hygro Thermometer	445703	T1359	10/26/11	10/26/12

TEST METHODS

Seasoning in Each Burn Orientation

The photometric tests were performed after the lamps were seasoned. Before the photometric tests, each lamp was operated in its designated orientation on the appropriate ballast for a time period greater than 100 hours in accordance with IESNA LM-54 Guide to Lamp Seasoning.

Photometric and Electrical measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

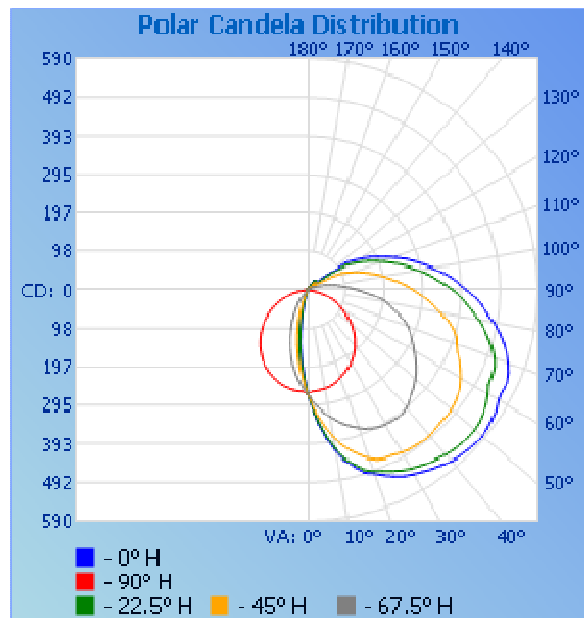
## RESULTS OF TESTS

### Photometric and Electrical Measurements – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
105-TWG-48-HE-AL							
V238803-1	LINEAR	277.0	114.9	30.53	0.959	1548	50.70

### Intensity (Candlepower) Summary at 25°C - Candelas

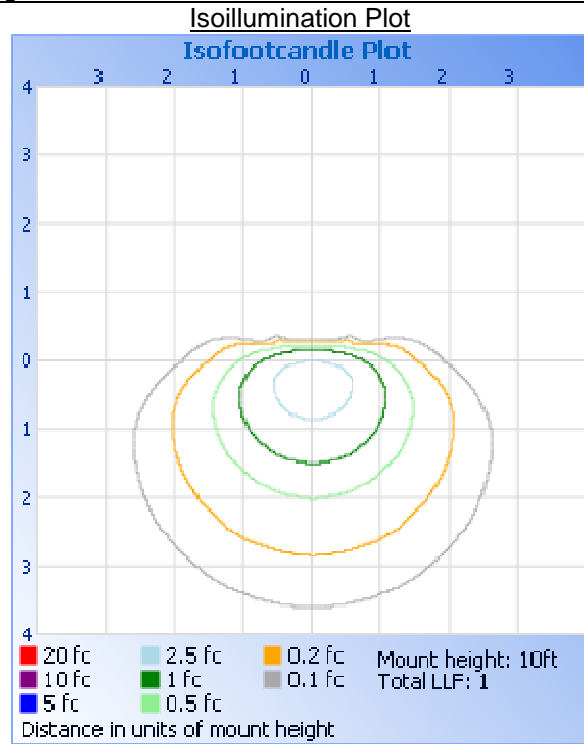
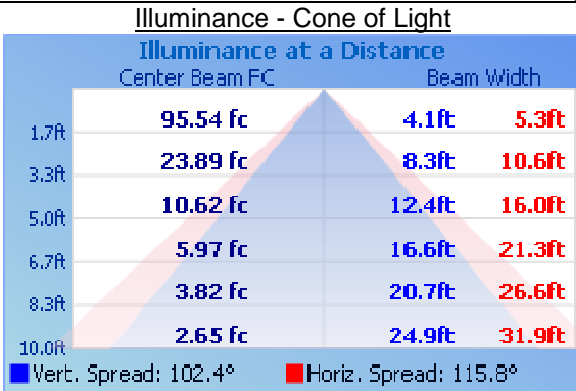
Angle	0	22.5	45	67.5	90
105-TWG-48-HE-AL					
0	265	265	265	265	265
5	344	340	324	298	258
10	418	412	380	328	255
15	469	462	425	353	250
20	499	493	456	374	241
25	525	511	473	390	231
30	543	528	480	398	219
35	558	539	485	400	205
40	570	549	485	392	188
45	578	556	481	376	170
50	582	557	477	360	151
55	577	549	469	340	130
60	563	534	453	317	110
65	562	521	429	295	88
70	546	509	405	273	65
75	518	480	385	242	44
80	484	446	350	213	24
85	447	408	309	172	7
90	408	372	273	130	0
95	367	329	234	96	0
100	326	289	198	71	0
105	284	250	164	49	0
110	241	211	132	25	0
115	200	173	101	17	0
120	160	136	33	12	0
125	122	64	17	6	0
130	6	11	28	2	0
135	3	17	20	0	0
140	32	28	11	0	0
145	22	19	5	0	0
150	11	8	0	0	0
155	4	2	0	0	0
160	0	0	0	0	0
165	0	0	0	0	0
170	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0



## RESULTS OF TESTS (cont'd)

### Illumination Plots

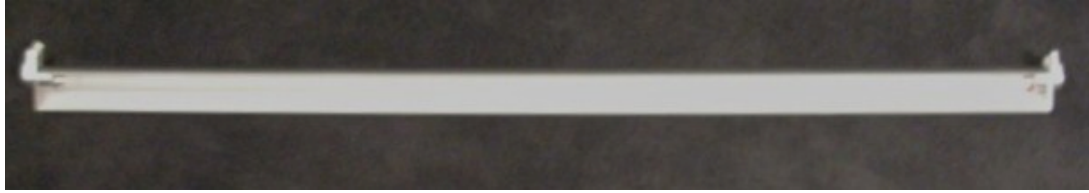
Model No.: 105-TWG-48-HE-AL  
Mounting Height: 10 ft.



### Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Lamp	% Luminaire
105-TWG-48-HE-AL			
0-30	210.2	7.2	13.6
0-40	362.0	12.5	23.4
0-60	741.9	25.6	47.9
60-90	538.7	18.6	34.8
0-90	1281	44.2	82.7
90-180	267.6	9.2	17.3
0-180	1548	53.4	100.0

Pictures (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:

A handwritten signature in black ink, appearing to read "Kenda Branch".

Kenda Branch  
Engineer  
Lighting Division

Attachment: None

Report Reviewed By:

A handwritten signature in black ink, appearing to read "Jacki Swiernik".

Jacki Swiernik  
Staff Engineer  
Lighting Division