LIGHT LABORATORY INC.
8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L121706501 **Issue Date: 1/17/2018**

Report Prepared For: Number Eight Lighting Company
526 Portal Street, Cotati, CA 94931

Model Number: 804/K2-WD-15/DIM1-8-1000-WD with FS-P-1-WH trim

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 1/2/18

Date of Tests: 1/11/18 - 1/17/18

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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Test Summary	
Manufacturer:	Number Eight Lighting Company
Model Number:	804/K2-WD-15/DIM1-8-1000-WD with FS-P-1-WH trim
Driver Model Number:	IntuitiveSystems ISD-701-350-15-D
Total Lumens:	861.59
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.12
Input Power (W):	14.59
Input Power Factor:	0.98
Current ATHD @ 120V(%):	5%
Current ATHD @ 277V(%):	N/A
Efficacy:	59
Color Rendering Index (CRI):	98
Correlated Color Temperature (K):	3060
Chromaticity Coordinate x:	0.4306
Chromaticity Coordinate y:	0.3980
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:50
Total Operating Time (Hours):	1:25

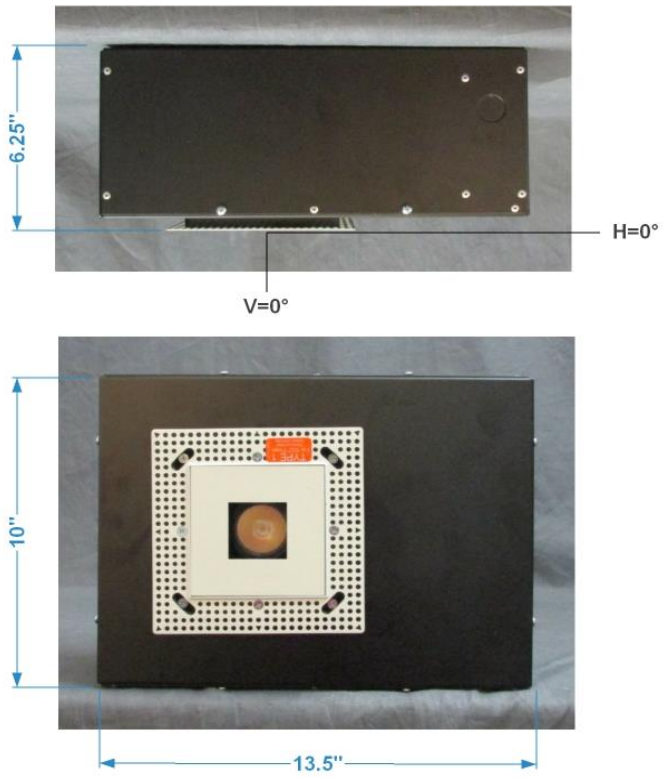

FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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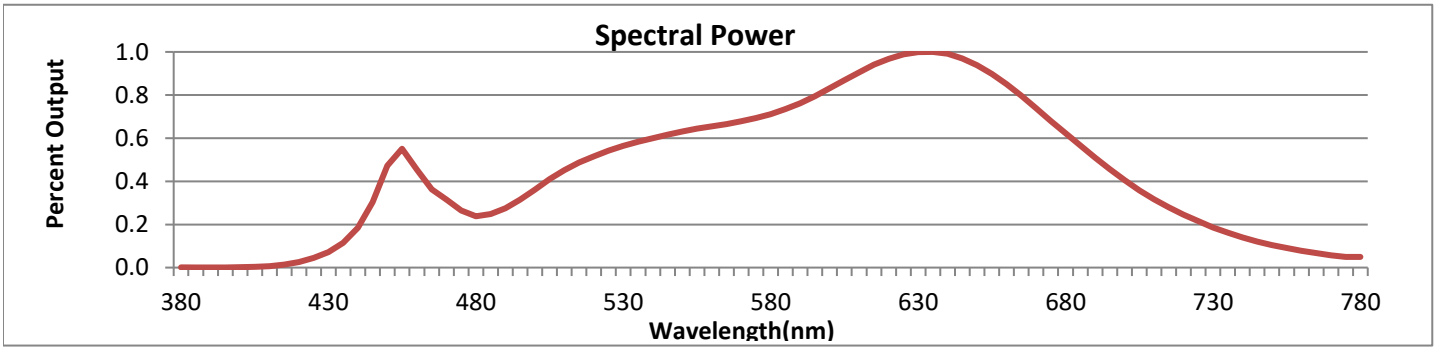


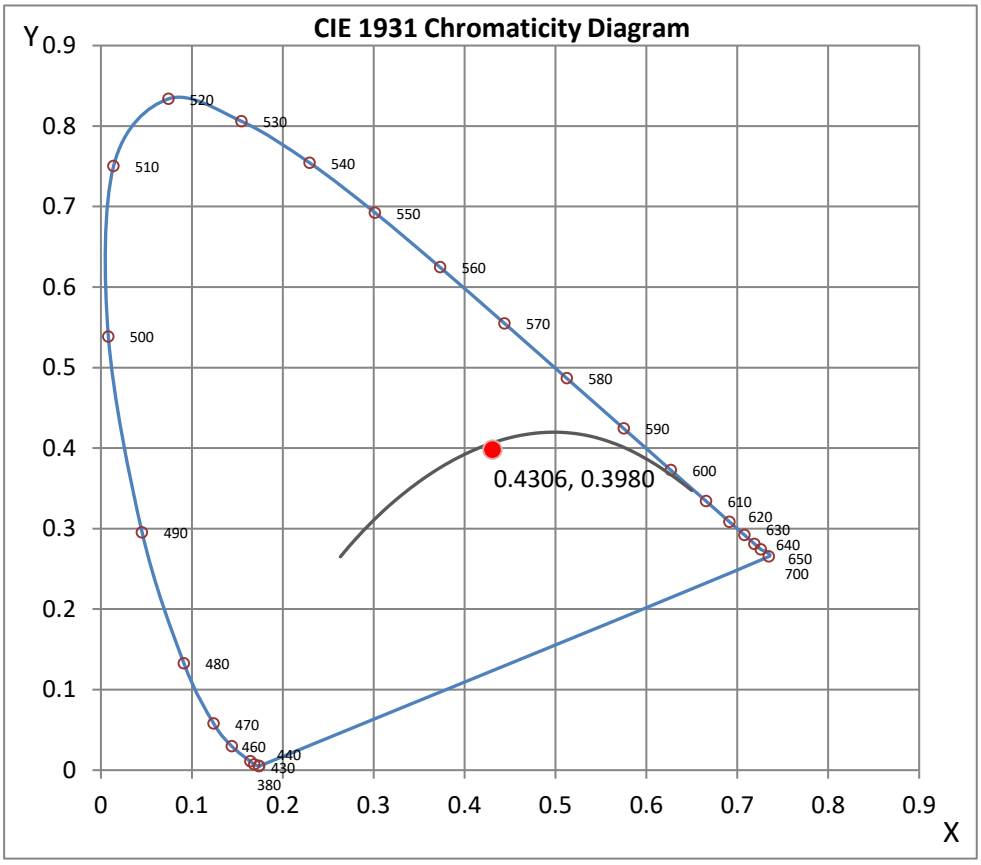
Wavelength	W/m²nm	440	0.1841	510	0.4518	580	0.7112	650	0.9381	720	0.2457
380	0.0010	450	0.4726	520	0.5162	590	0.7619	660	0.8503	730	0.1866
390	0.0010	460	0.4538	530	0.5638	600	0.8310	670	0.7392	740	0.1396
400	0.0017	470	0.3151	540	0.6005	610	0.9056	680	0.6234	750	0.1047
410	0.0071	480	0.2380	550	0.6316	620	0.9687	690	0.5092	760	0.0780
420	0.0262	490	0.2755	560	0.6556	630	0.9995	700	0.4059	770	0.0576
430	0.0723	500	0.3616	570	0.6786	640	0.9912	710	0.3164	780	0.0495

CRI & CCT

x	0.4306
y	0.3980
u'	0.2491
v'	0.5180
CRI	97.90
CCT	3060
Duv	-0.00156

R Values

R1	99.33
R2	99.10
R3	95.82
R4	98.50
R5	98.91
R6	97.23
R7	97.84
R8	96.34
R9	91.00
R10	96.04
R11	96.69
R12	83.19
R13	99.70
R14	96.58



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Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Joseph Shin

Test Report Released by:

Jeff Ahn
Engineering Manager

Test Report Reviewed by:

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 10*

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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L121706501.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121706501
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/17/2018
[MANUFAC] Number Eight Lighting Company
[LUMCAT] 804/K2-WD-15/DIM1-8-1000-WD with FS-P-1-WH trim
[LUMINAIRE] LED Recessed Downlight, 15° Beam Spread, 0° Aiming Angle,
[MORE] 1.75" x 1.75" Aperture Trim
[BALLASTCAT] IntuitiveSystems ISD-701-350-15-D
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 14.59W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	862
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	59
Total Luminaire Watts	14.59
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.40
Spacing Criterion (90-270)	0.40
Spacing Criterion (Diagonal)	0.40
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.15 ft
Luminous Width (90-270)	0.15 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	4731	4731	4731
55	833	833	833
65	0	0	0
75	0	0	0
85	0	0	0

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

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CANDELA TABULATION

	0
0.0	3995
1.0	3979
2.0	3929
3.0	3850
4.0	3735
5.0	3577
6.0	3379
7.0	3148
8.0	2895
9.0	2627
10.0	2358
12.0	1849
14.0	1422
16.0	1084
18.0	819
20.0	618
22.5	432
25.0	307
27.5	221
30.0	157
35.0	71
40.0	24
45.0	7
50.0	3
55.0	1
60.0	1
65.0	0
70.0	0
75.0	0
80.0	0
85.0	0
90.0	0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	652.95	N.A.	75.80
0-30	802.83	N.A.	93.20
0-40	852.26	N.A.	98.90
0-60	861.35	N.A.	100.00
0-80	861.59	N.A.	100.00
0-90	861.59	N.A.	100.00
10-90	560.80	N.A.	65.10
20-40	199.31	N.A.	23.10
20-50	207.07	N.A.	24.00
40-70	9.34	N.A.	1.10
60-80	0.24	N.A.	0.00
70-80	0.00	N.A.	0.00
80-90	0.00	N.A.	0.00
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	861.59	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	300.80
10-20	352.15
20-30	149.89
30-40	49.42
40-50	7.76
50-60	1.33
60-70	0.24
70-80	0.00
80-90	0.00
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	115	113	111	109	113	111	109	107	107	105	104	103	102	101	100	99	98	96
2	111	107	104	102	109	106	103	101	103	100	99	100	98	96	97	96	94	93
3	107	103	99	96	106	101	98	95	99	96	94	97	94	92	94	93	91	90
4	104	98	94	91	102	97	94	91	95	92	90	94	91	89	92	90	88	87
5	101	95	91	87	99	94	90	87	92	89	86	91	88	86	89	87	85	84
6	98	91	87	84	96	91	87	84	89	86	83	88	85	83	87	84	82	81
7	95	88	84	81	94	88	84	81	87	83	80	86	82	80	85	82	80	79
8	92	85	81	78	91	85	81	78	84	80	78	83	80	78	82	79	77	76
9	90	83	79	76	89	82	78	76	82	78	76	81	78	75	80	77	75	74
10	87	80	76	74	86	80	76	74	79	76	73	79	75	73	78	75	73	72

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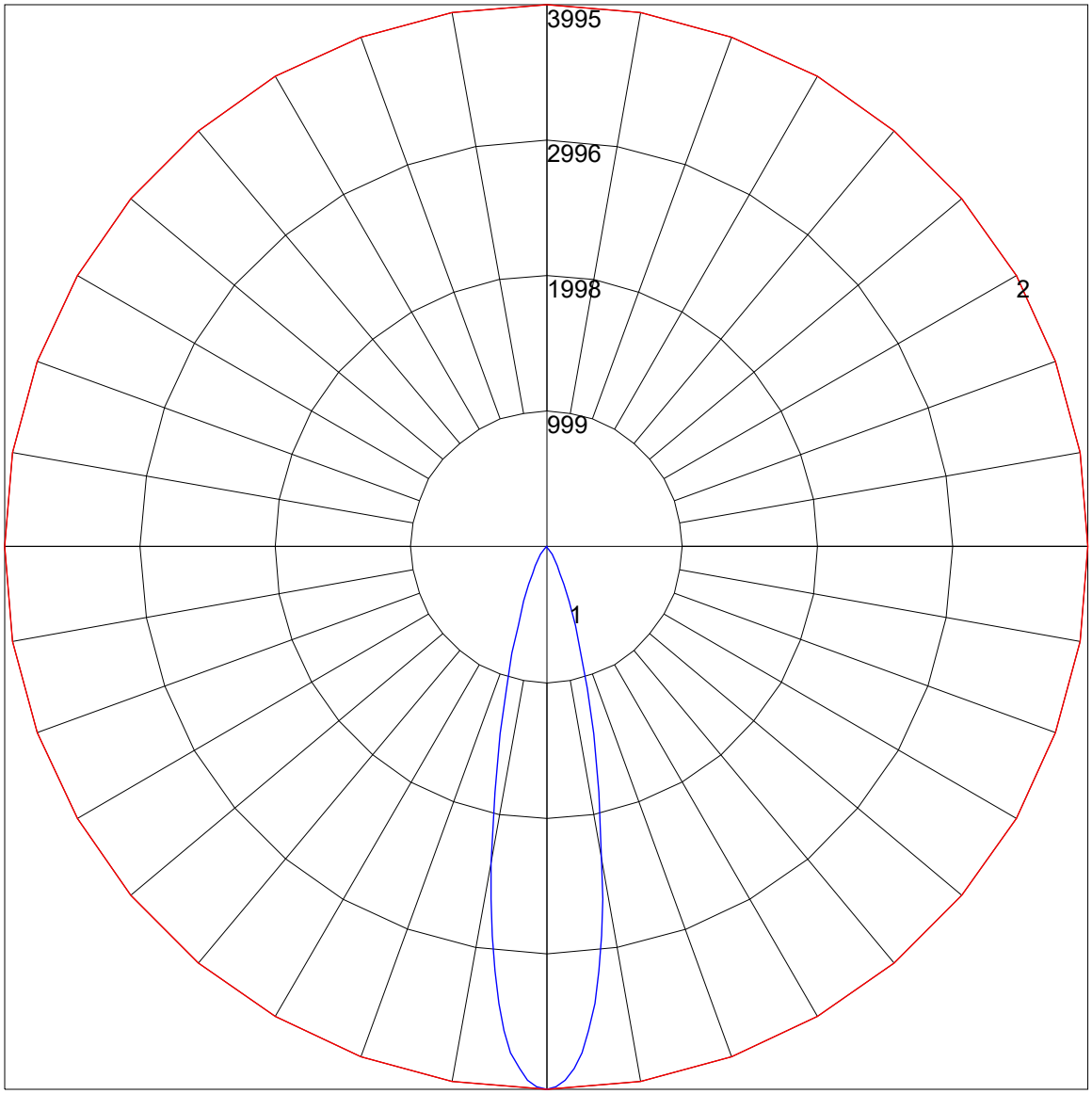
POLAR GRAPH



Maximum Candela = 3995 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

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PHOTOMETRIC FILENAME : L121706501.IES

ILLUMINANCE CONE DIAGRAM: BEAM (50%)
MOUNT HEIGHT(Ft): 12