

**Report No:** L121706542 **Issue Date: 1/23/2018**  
**Report Prepared For:** Number Eight Lighting Company  
 526 Portal Street, Cotati, CA 94931  
**Model Number:** MPT2-HI-R-6-BK/15/DIM1-M-700  
**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:** 1/20/18 - 1/23/18

**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.

**Test Summary**

<b>Manufacturer:</b>	Number Eight Lighting Company
<b>Model Number:</b>	MPT2-HI-R-6-BK/15/DIM1-M-700
<b>Driver Model Number:</b>	IntuitiveSystems ISD-701-1000-15-D
<b>Total Lumens:</b>	634.21
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.079
<b>Input Power (W):</b>	9.27
<b>Input Power Factor:</b>	0.98
<b>Current ATHD @ 120V(%):</b>	4%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	68
<b>Color Rendering Index (CRI):</b>	94
<b>Correlated Color Temperature (K):</b>	2943
<b>Chromaticity Coordinate x:</b>	0.4444
<b>Chromaticity Coordinate y:</b>	0.4122
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	1:05

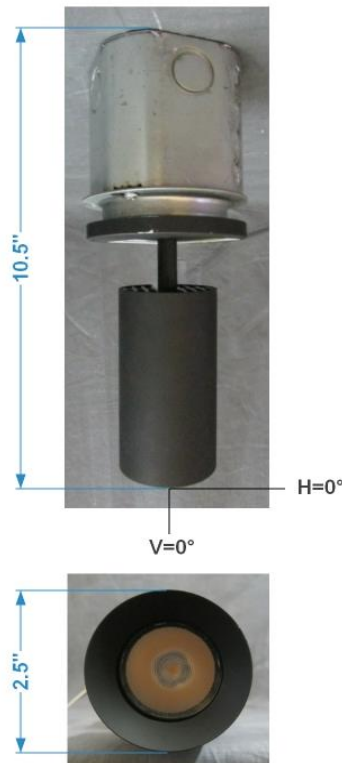
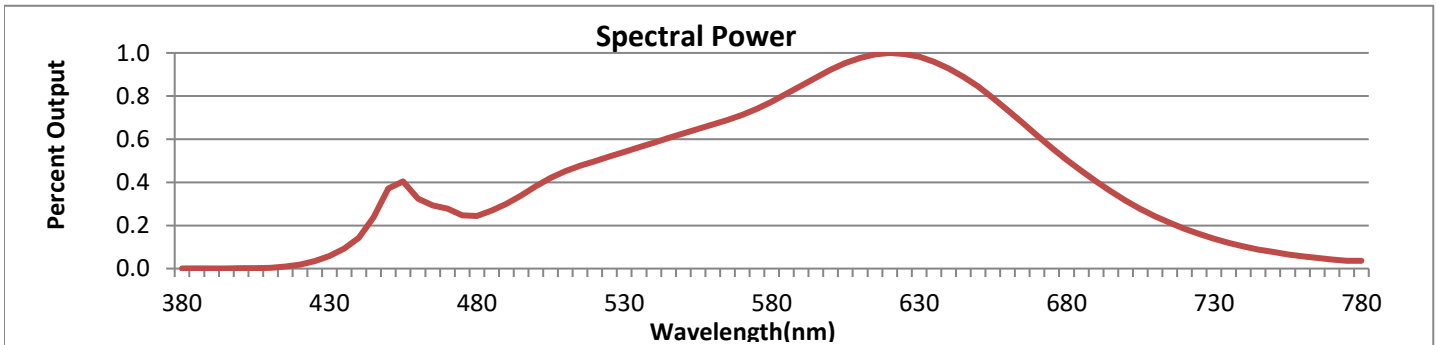


FIG. 1 LUMINAIRE

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



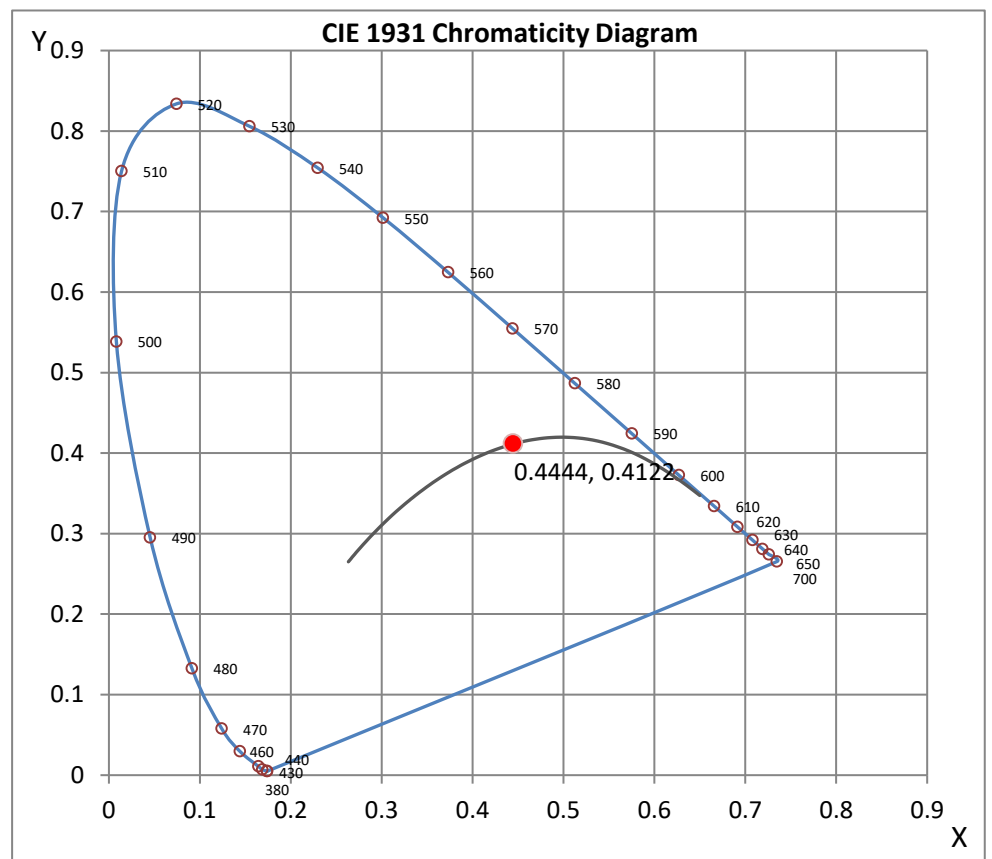
Wavelength	W/m <sup>2</sup> nm	440	0.1433	510	0.4516	580	0.7735	650	0.8446	720	0.1849
380	0.0008	450	0.3720	520	0.4983	590	0.8477	660	0.7357	730	0.1386
390	0.0008	460	0.3233	530	0.5402	600	0.9217	670	0.6180	740	0.1029
400	0.0012	470	0.2786	540	0.5837	610	0.9768	680	0.5057	750	0.0770
410	0.0040	480	0.2439	550	0.6266	620	1.0000	690	0.4037	760	0.0572
420	0.0186	490	0.3001	560	0.6676	630	0.9824	700	0.3154	770	0.0422
430	0.0589	500	0.3815	570	0.7132	640	0.9287	710	0.2418	780	0.0363

**CRI & CCT**

x	0.4444
y	0.4122
u'	0.2519
v'	0.5256
CRI	93.70
CCT	2943
Duv	0.00221

**R Values**

R1	93.75
R2	96.97
R3	99.43
R4	93.84
R5	93.41
R6	97.00
R7	92.65
R8	82.59
R9	60.75
R10	92.19
R11	95.37
R12	82.86
R13	94.69
R14	98.92



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

## 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 : L121706542.IES**

## DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
 [TEST] L121706542  
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
 [ISSUEDATE] 1/23/2018  
 [MANUFAC] Number Eight Lighting Company  
 [LUMCAT] MPT2-HI-R-6-BK/15/DIM1-M-700  
 [LUMINAIRE] LED Recessed Downlight, 15° Beam Spread, 0° Aiming Angle,  
 [BALLASTCAT] IntuitiveSystems ISD-701-1000-15-D  
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
 [INPUT] 120VAC, 9.27W  
 [TEST PROCEDURE] IESNA:LM-79-08

## CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	634
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	68
Total Luminaire Watts	9.27
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.30
Spacing Criterion (90-270)	0.30
Spacing Criterion (Diagonal)	0.34
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.21 ft (Diameter)
Luminous Width (90-270)	0.21 ft (Diameter)
Luminous Height	0.00 ft

## LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	3952	3952	3952
55	541	541	541
65	0	0	0
75	0	0	0
85	0	0	0

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L121706542.IES

CANDELA TABULATION

	<u>0</u>
0.0	4147
1.0	4099
2.0	3974
3.0	3777
4.0	3520
5.0	3220
6.0	2895
7.0	2566
8.0	2249
9.0	1955
10.0	1694
12.0	1269
14.0	956
16.0	725
18.0	546
20.0	410
22.5	284
25.0	194
27.5	136
30.0	97
35.0	49
40.0	23
45.0	9
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

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121706542.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	494.55	N.A.	78.00
0-30	590.78	N.A.	93.20
0-40	624.29	N.A.	98.40
0-60	633.97	N.A.	100.00
0-80	634.21	N.A.	100.00
0-90	634.21	N.A.	100.00
10-90	379.14	N.A.	59.80
20-40	129.74	N.A.	20.50
20-50	138.09	N.A.	21.80
40-70	9.92	N.A.	1.60
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	634.21	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	255.08
10-20	239.47
20-30	96.23
30-40	33.51
40-50	8.35
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

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121706542.IES**

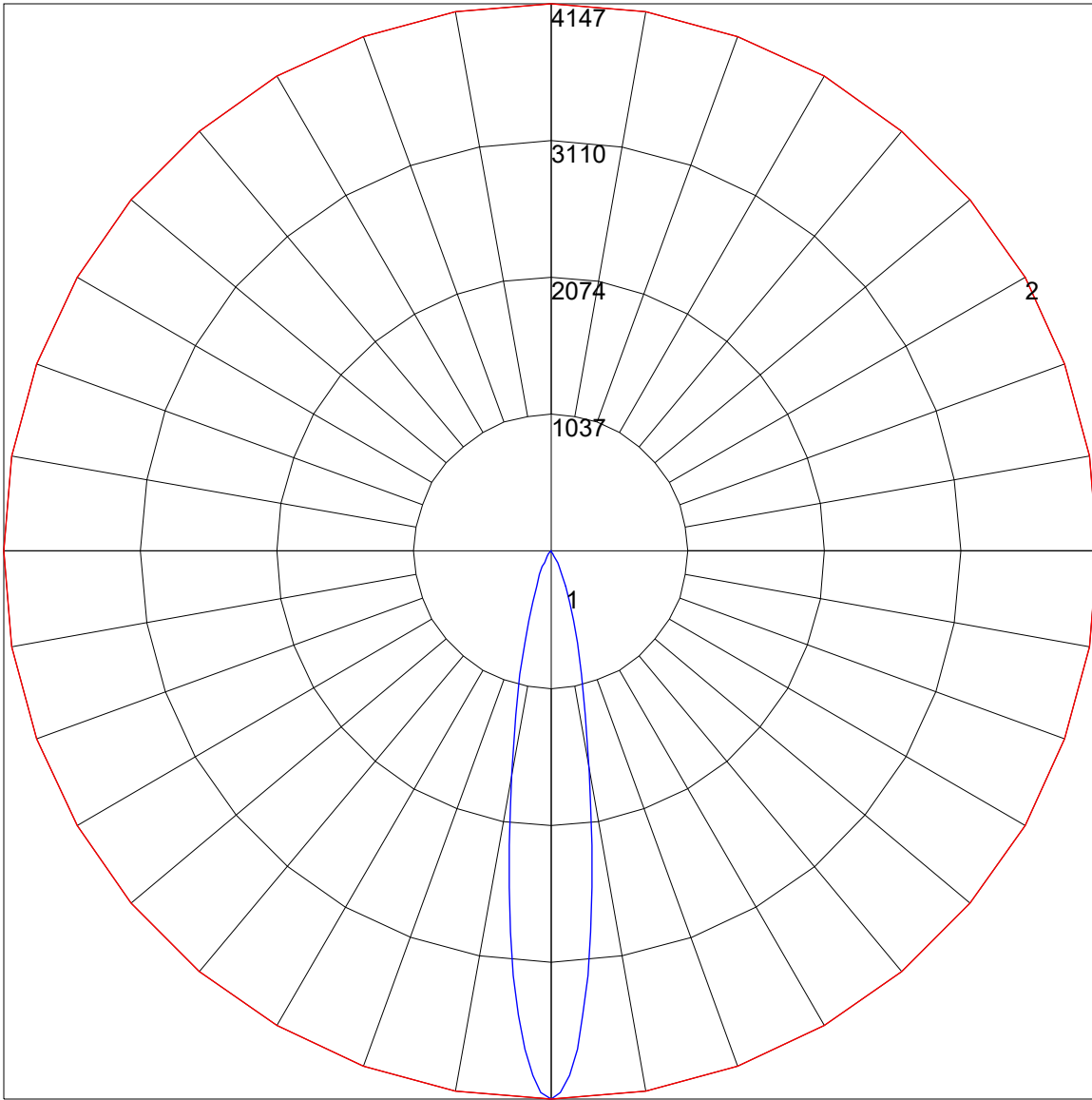
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	108	107	106	104	103	102	101	100	99	98	97
2	111	108	105	102	109	106	104	101	103	101	99	100	98	97	98	96	95	94
3	108	103	100	97	106	102	99	96	100	97	95	97	95	93	95	93	92	91
4	105	99	95	92	103	98	95	92	96	93	91	94	92	90	93	91	89	88
5	102	96	92	89	100	95	91	88	93	90	88	92	89	87	90	88	86	85
6	99	93	88	85	97	92	88	85	91	87	85	89	86	84	88	86	84	83
7	96	90	86	83	95	89	85	82	88	85	82	87	84	82	86	83	81	80
8	93	87	83	80	93	87	83	80	86	82	80	85	82	79	84	81	79	78
9	91	85	81	78	90	84	80	78	83	80	78	83	80	77	82	79	77	76
10	89	82	78	76	88	82	78	76	81	78	76	81	78	75	80	77	75	74



POLAR GRAPH



Maximum Candela = 4147 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.)

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

