

Project Number  
16.03583



Date  
1/4/2017

LAB 5  
Sphere

### Test Sample Description

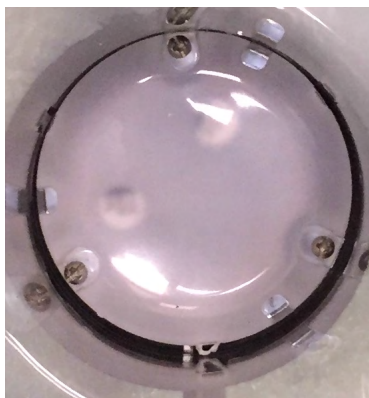
Catalog Number: P560056-020-30  
Description: 1-Lt. LED Med Wall Lantern

### Photometry

Test Method: IES LM-79-08 § 10  
Preburn Time: 0:00  
Time To Stabilize: 1:30  
Total Operating Time: 2:15  
  
Input Voltage (Volts): 120.3  
Input Current (Amps): 0.078  
Input Wattage (Watts): 9.4  
Ambient Temp (°C): 25.7

### Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1  
Preburn Time: 0:10  
Time To Stabilize: 0:58  
Total Operating Time: 1:08  
  
Input Voltage (Volts): 120.0  
Input Current (Amps): 0.079  
Input Wattage (Watts): 9.4  
Ambient Temp (°C): 24.0  
PF @ 120V: 0.991  
THD @ 120V (%): 11.9



### Hubbell Lighting, Inc.

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Checked (sphere): B. LEE  
Checked (photometry): R. WILLIAMS  
Approved: D. BLACK



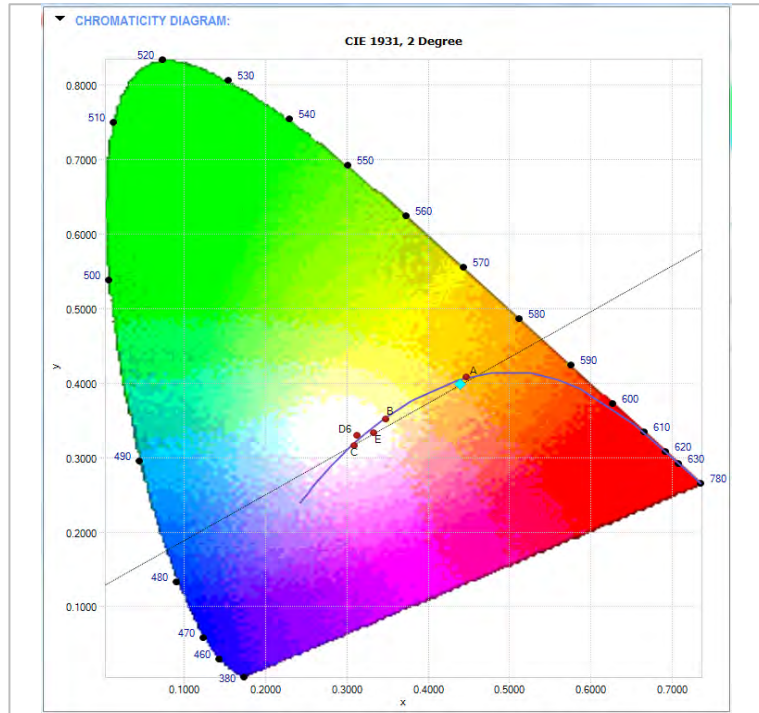


Lamp Cat#: 93070270-3330  
 Lamp Desc: 20 - Nichia 3000K LEDs  
 Driver Desc: n/a

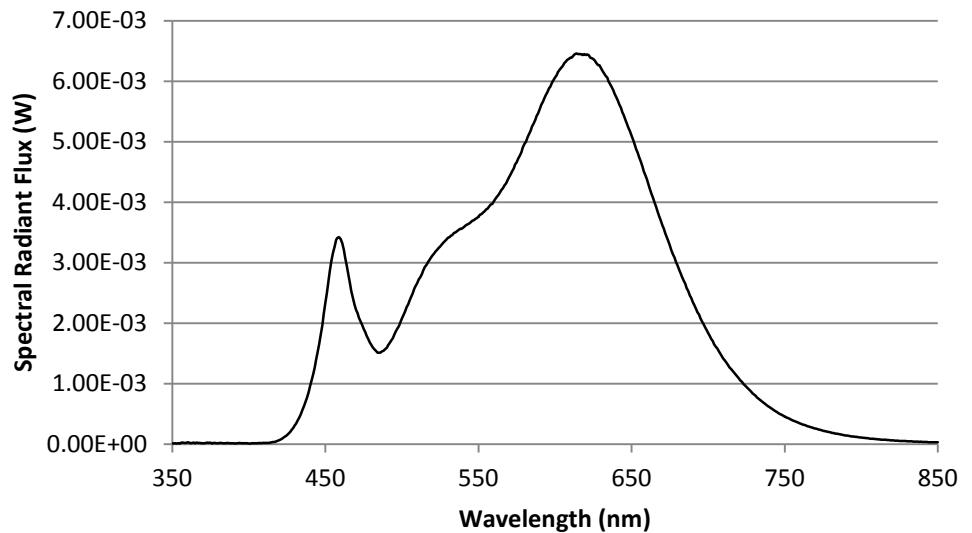
Efficacy: 32.9 LPW      S/P Ratio: 1.4 LM/LM

**Spectral Results**

Name	Value	Unit
$\Phi$	1.07	watts
$\Phi(v)$	309	lumens
$\Phi(v')$	437	lm'
Chrom x	0.4396	
Chrom y	0.3986	
Chrom u	0.2547	
Chrom v	0.3464	
Duv	0.0029	
Chrom u'	0.2547	
Chrom v'	0.5196	
CCT	2909	K
Purity	51.6	%
$\lambda$ (dom)	584.1	nm
FWHM	152.2	nm
$\lambda$ (peak)	614.8	nm
$\lambda$ (center)	599.6	nm
$\lambda$ (centroid)	593.3	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.002540299	
Correlation	0.0054	
R1	94.3	
R2	98.7	
R3	96.9	
R4	92.5	
R5	94.2	
R6	95.9	
R7	88.9	
R8	78.8	
R9	55.6	
R10	96.0	
R11	94.3	
R12	82.0	
R13	96.1	
R14	99.5	



**Spectral Distribution of Radiant Flux**



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**ISSUE DATE:** 01/04/17

**PREPARED FOR:** PROGRESS

**CATALOG NUMBER:** P560056-020-30

**LUMINAIRE:** 1-Lt. LED Med Wall Lantern

**LAMP CAT. NO.:** 93070270-3330

**LAMP:** 20- Nichia 3000K LEDs

**BALLAST CATALOG NUMBER:** N/A

**REFRACTOR:** #Clear/ Clear Seeded Glass

**MOUNTING:** Wall

**NOTE::** DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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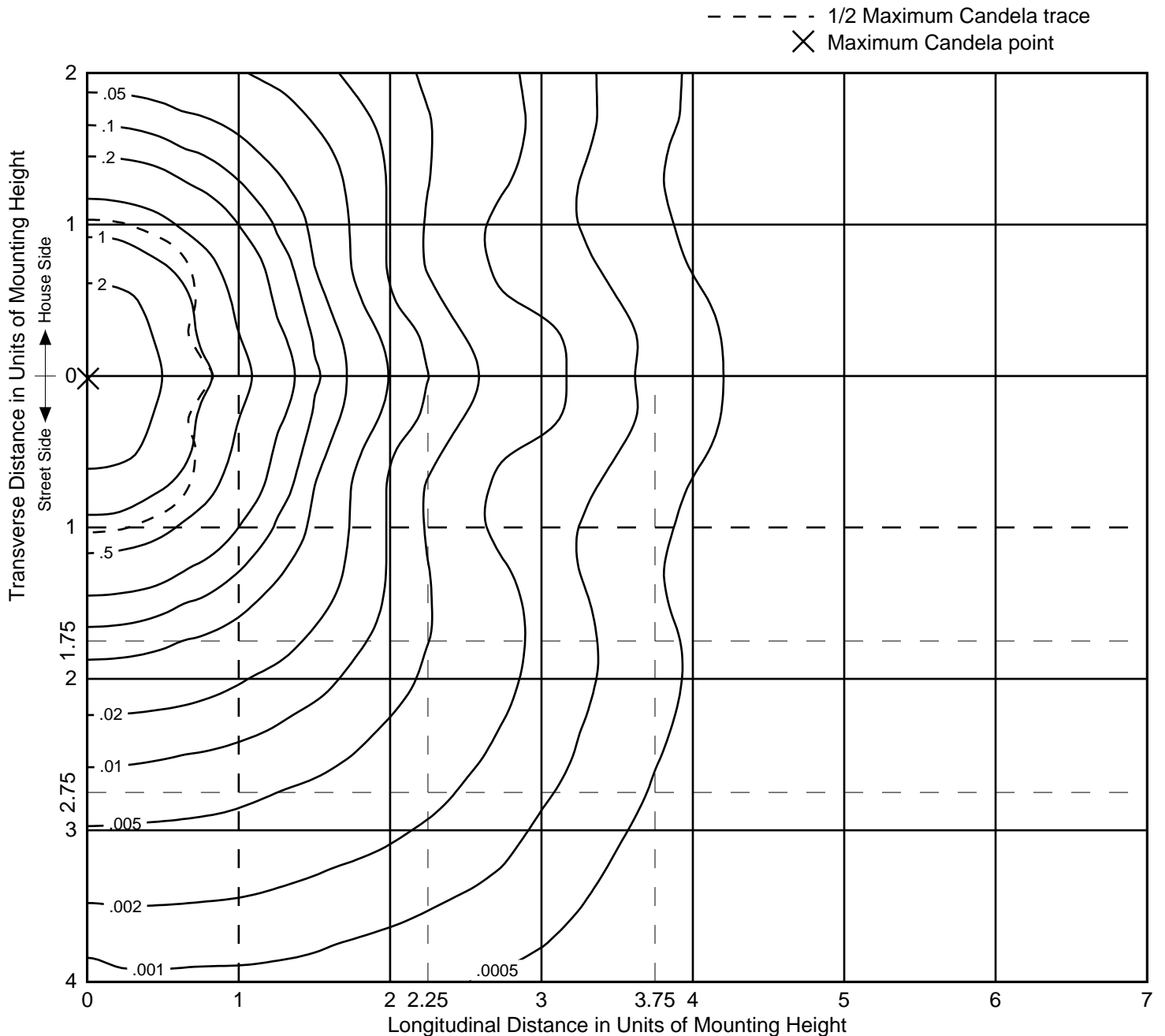
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**ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION**  
Values based on 6-foot mounting height





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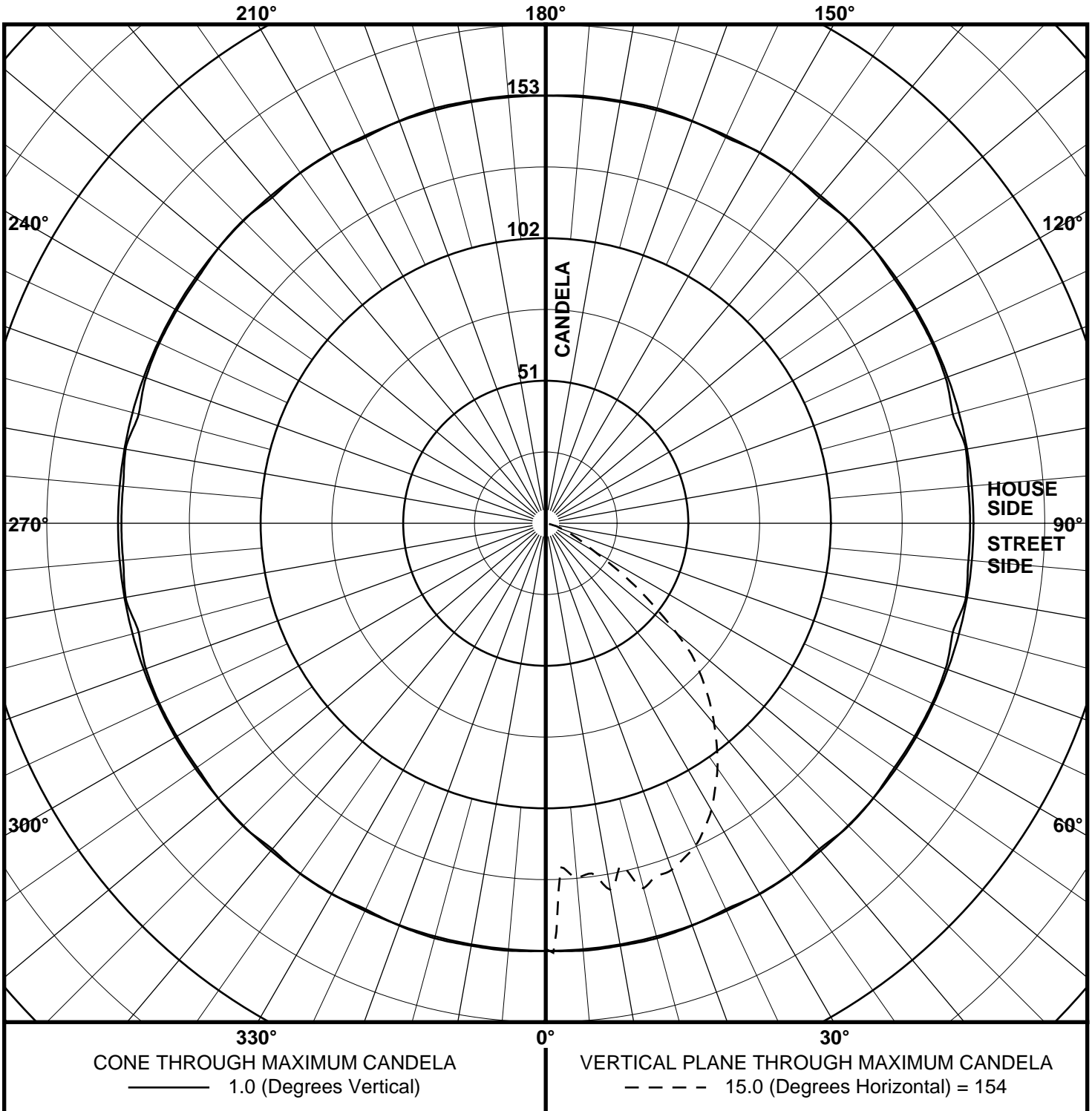
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MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA





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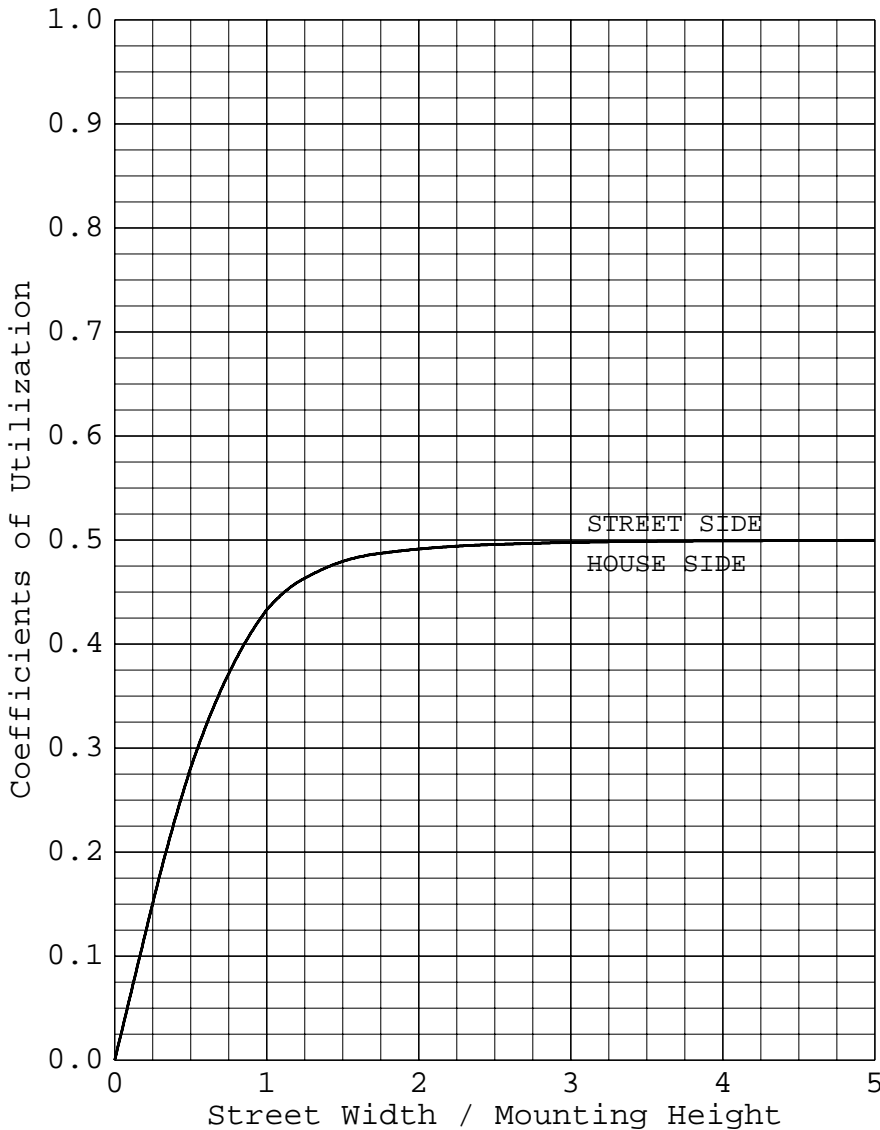
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**COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION**



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	127	50.0
DOWNWARD HOUSE SIDE	127	50.0
DOWNWARD TOTAL	254	100.0
UPWARD STREET SIDE	0	0.0
UPWARD HOUSE SIDE	0	0.0
UPWARD TOTAL	0	0.0
TOTAL FLUX	254	100.0

Total Input Watts = 9.4  
EFFICACY = 27.0 lm/W

ALL CANDELA AND LUMENS IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.



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BUG Rating Zonal Summary	Lumens	% of Fixture	Zone Ratings		
			B0	U0	G0
			B	U	G
Forward	127	50.0			
FL (0° – 30°)	49.4	19.4			
FM (30° – 60°)	71.6	28.1			
FH (60° – 80°)	6.2	2.4			G0
FVH (80° – 90°)	0.1	0.0			G0
Backward	127	50.0			
BL (0° – 30°)	49.4	19.4	B0		
BM (30° – 60°)	71.6	28.1	B0		
BH (60° – 80°)	6.2	2.4	B0		G0
BVH (80° – 90°)	0.1	0.0			G0
Upward	0	0.0			
UL (90° – 100°)	0.0	0.0		U0	
UH (100° – 180°)	0.0	0.0		U0	
Trapped Light	0	0.0			
Total Flux	254	100.0			



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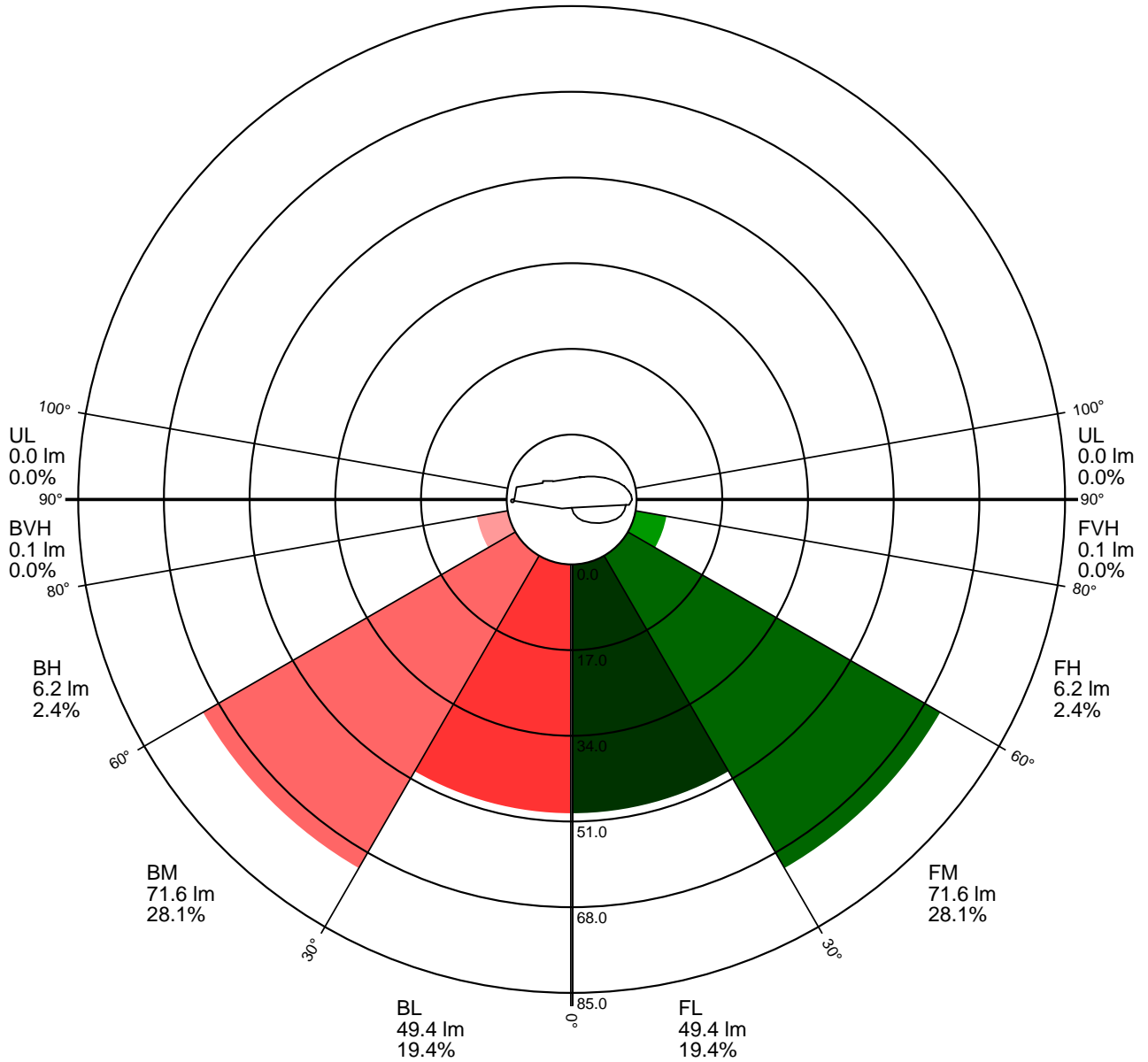
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## Zonal Lumen Summary

(Linear scale)

UH  
0.0 lm  
0.0%







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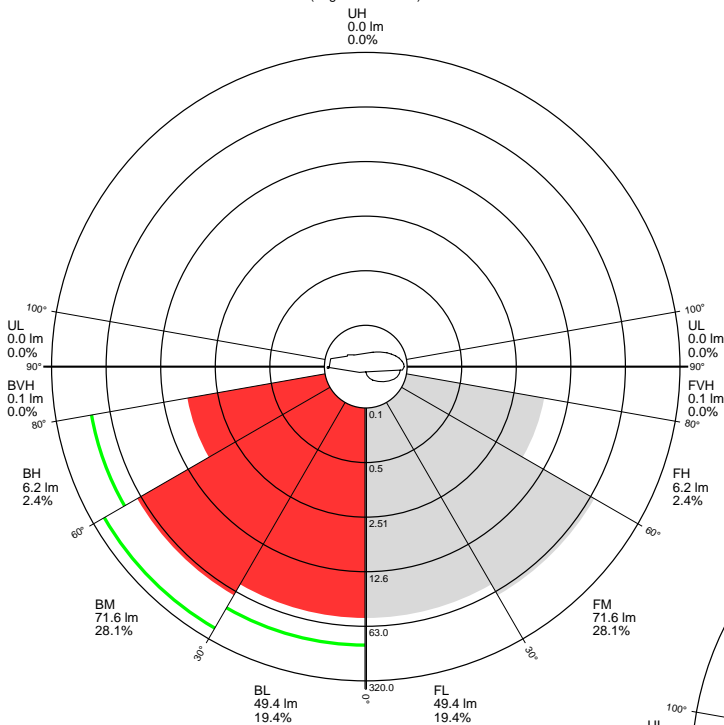


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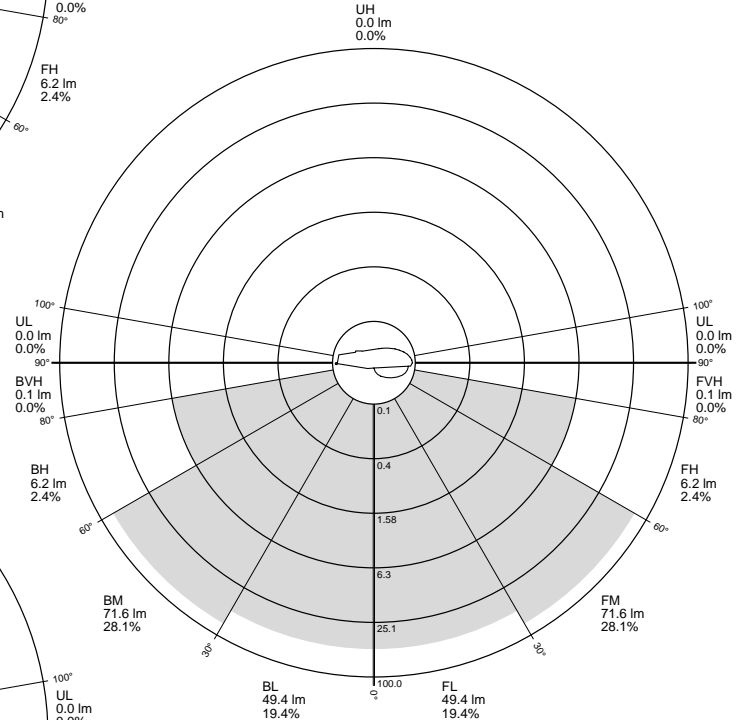
**Backlight Rating Details**

(Logarithmic scale)



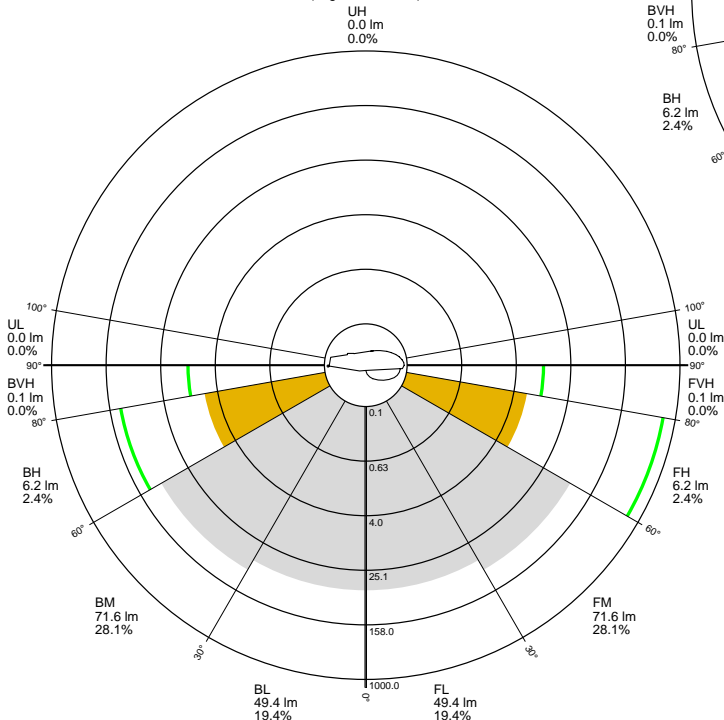
**Uplight Rating Details**

(Logarithmic scale)



**Glare Rating Details**

(Logarithmic scale)





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CANDELA TABULATION

LATERAL ANGLE

	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	85.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	82.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	80.0	0.	0.	1.	1.	1.	1.	1.	1.	1.	1.
	77.5	1.	1.	1.	2.	2.	2.	2.	3.	2.	2.
	75.0	2.	3.	3.	3.	3.	4.	4.	4.	4.	3.
	72.5	5.	5.	5.	5.	5.	5.	6.	6.	5.	5.
	70.0	6.	6.	6.	7.	7.	7.	7.	7.	6.	6.
	67.5	9.	9.	9.	9.	9.	9.	9.	9.	8.	7.
	65.0	12.	12.	12.	12.	12.	12.	12.	12.	11.	10.
	62.5	15.	15.	15.	15.	16.	16.	16.	15.	14.	12.
V	60.0	20.	20.	20.	20.	21.	21.	21.	20.	19.	17.
E	57.5	28.	28.	28.	29.	29.	29.	29.	28.	26.	24.
R	55.0	39.	39.	39.	39.	39.	39.	39.	38.	36.	34.
T	52.5	49.	49.	49.	49.	49.	50.	50.	49.	48.	44.
I	50.0	61.	61.	61.	61.	61.	61.	61.	60.	59.	54.
C	47.5	73.	72.	72.	72.	72.	72.	71.	70.	67.	64.
A	45.0	79.	79.	79.	79.	79.	80.	79.	77.	75.	71.
L	42.5	87.	87.	87.	87.	87.	86.	86.	84.	81.	77.
	40.0	94.	93.	94.	94.	94.	94.	93.	91.	88.	84.
A	37.5	100.	100.	100.	101.	101.	101.	100.	98.	95.	90.
N	35.0	106.	107.	107.	107.	107.	108.	107.	107.	105.	96.
G	32.5	113.	112.	113.	113.	113.	114.	113.	112.	111.	102.
L	30.0	118.	118.	118.	119.	119.	120.	119.	118.	117.	107.
E	27.5	122.	122.	122.	123.	124.	124.	123.	123.	121.	111.
	25.0	126.	126.	127.	127.	128.	128.	128.	127.	125.	115.
	22.5	129.	128.	129.	130.	131.	131.	130.	130.	128.	118.
	20.0	131.	131.	131.	132.	133.	134.	133.	132.	130.	120.
	17.5	131.	130.	131.	132.	134.	135.	134.	133.	131.	121.
	15.0	133.	133.	134.	135.	137.	137.	136.	136.	134.	126.
	12.5	127.	127.	126.	126.	125.	125.	123.	123.	122.	117.
	10.0	127.	127.	130.	133.	137.	140.	141.	140.	138.	131.
	7.5	119.	120.	123.	126.	131.	133.	135.	135.	135.	130.
	5.0	119.	119.	123.	127.	133.	136.	139.	138.	137.	130.
	2.5	125.	124.	124.	123.	123.	123.	123.	123.	122.	120.
	1.0<<	153.	154.	154.	154.	153.	152.	153.	153.	152.	153.
	0.0	152.	152.	152.	152.	152.	152.	152.	152.	152.	152.

||  
PLANE OF MAXIMUM CANDELA

└─┬─┘  
CONE OF MAXIMUM CANDELA



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CANDELA TABULATION

LATERAL ANGLE

	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0
90.0	0.	0.	0.	0.	0.	0.	0.	0.
87.5	0.	0.	0.	0.	0.	0.	0.	0.
85.0	0.	0.	0.	0.	0.	0.	0.	0.
82.5	0.	0.	0.	0.	0.	0.	0.	0.
80.0	1.	1.	1.	1.	1.	1.	1.	1.
77.5	2.	2.	2.	1.	1.	1.	1.	1.
75.0	3.	3.	2.	1.	1.	2.	2.	2.
72.5	4.	3.	3.	2.	2.	2.	3.	3.
70.0	5.	4.	2.	2.	2.	2.	3.	3.
67.5	6.	5.	3.	3.	3.	3.	4.	4.
65.0	8.	6.	5.	4.	4.	5.	6.	6.
62.5	11.	9.	7.	6.	6.	6.	8.	9.
V 60.0	15.	12.	10.	9.	9.	10.	12.	12.
E 57.5	22.	19.	17.	15.	16.	17.	19.	19.
R 55.0	31.	28.	25.	24.	24.	26.	28.	28.
T 52.5	40.	37.	34.	32.	33.	34.	37.	37.
I 50.0	50.	46.	43.	42.	42.	44.	46.	47.
C 47.5	60.	56.	52.	51.	51.	53.	56.	57.
A 45.0	66.	61.	58.	56.	56.	59.	62.	63.
L 42.5	72.	67.	63.	61.	62.	64.	68.	69.
40.0	78.	73.	68.	66.	67.	70.	74.	75.
A 37.5	84.	78.	74.	71.	72.	75.	80.	81.
N 35.0	90.	84.	79.	76.	77.	80.	84.	86.
G 32.5	95.	89.	83.	81.	81.	84.	89.	90.
L 30.0	101.	93.	87.	85.	85.	88.	93.	95.
E 27.5	104.	96.	90.	88.	88.	92.	97.	98.
25.0	108.	100.	94.	91.	92.	95.	101.	102.
22.5	110.	102.	96.	93.	94.	98.	103.	105.
20.0	113.	105.	99.	97.	98.	101.	107.	108.
17.5	114.	107.	101.	99.	100.	103.	108.	110.
15.0	119.	113.	108.	106.	107.	110.	113.	114.
12.5	114.	110.	106.	103.	102.	103.	105.	106.
10.0	126.	121.	118.	117.	120.	125.	130.	131.
7.5	126.	121.	119.	120.	122.	125.	127.	127.
5.0	127.	125.	125.	128.	132.	134.	137.	138.
2.5	120.	120.	119.	120.	120.	119.	119.	121.
1.0<<	152.	152.	153.	152.	151.	153.	152.	152.
0.0	152.	152.	152.	152.	152.	152.	152.	152.

CONE OF MAXIMUM CANDELA



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		3
5- 10		9
10- 15		14
15- 20		20
20- 25		24
25- 30		28
30- 35		30
35- 40		30
40- 45		28
45- 50		25
50- 55		19
55- 60		11
60- 65		6
65- 70		3
70- 75		2
75- 80		1
80- 85		0
85- 90		0

10-DEGREE ZONAL LUMEN SUMMARY		
0- 10		12
10- 20		34
20- 30		52
30- 40		59
40- 50		54
50- 60		30
60- 70		9
70- 80		3
80- 90		0

Project Number  
16.03583



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Date  
1/4/2017

### *Goniophotometer Calibration*

Calibration Lamp: GE 1000W, 120V, T6, CL (FEL)

Lamp Number: ITL78966-1000-38

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 25889.0 Lumens

Calibration Date: 09/08/16

### *Test Equipment Used*

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL / HLI LAB 5 - Test Distance: 56.0'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27072V	11/2/2017
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	1912722	11/2/2017

### *Sphere Calibration*

Calibration Lamp: EIKO 28V75W/E10

Lamp Number: SCL-1400-J136

Calibration Current: 2.679 Amps

Total Luminous Flux: 1427 Lumens

### *Test Equipment Used - Color & SPD; THD & Power Factor*

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>3-Meter Sphere</i>	Labsphere / LMS-3M	N/A	Calibrated Weekly
<i>Thermometer</i>	National Instruments / USB TC01	1912751	11/2/2017
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	11/1/2017
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Power Supply PF/THD</i>	Voltage-Regulated House Power	N/A	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	031159372	10/31/2017
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	12/1/2017
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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