

Project Number
17.01495



Date
8/11/2017

LAB 5
Sphere

Test Sample Description

Catalog Number: P560069-020-30
Description: Medium Led Wall Lantern with Frosted Inner Glass and Seeded Outer Glass Cylinders

Photometry

Test Method: IES LM-31-95
Preburn Time: 0:00
Time To Stabilize: 0:45
Total Operating Time: 1:45

Input Voltage (Volts): 120.1
Input Current (Amps): 0.777
Input Wattage (Watts): 9.2
Ambient Temp (°C): 24.9

Sphere

Test Method: IES LM-79-08 § 9.1 & 12.1
Preburn Time: 2:00
Time To Stabilize: 1:09
Total Operating Time: 3:09

Input Voltage (Volts): 120.0
Input Current (Amps): 0.079
Input Wattage (Watts): 9.4
Ambient Temp (°C): 24.3
PF @ 120V: 0.991
THD @ 120V (%): 12.0



Hubbell Lighting, Inc.

701 Millennium Boulevard
Greenville, SC 29607
www.hubbelllighting.com

Checked (sphere): B. LEE
Checked (photometry): R. WILLIAMS/M. HALL
Approved: P. McCARTHY



This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.



Lamp Cat#: 93070270-3330

Lamp Desc: 20 - Nichia 3000K LEDs

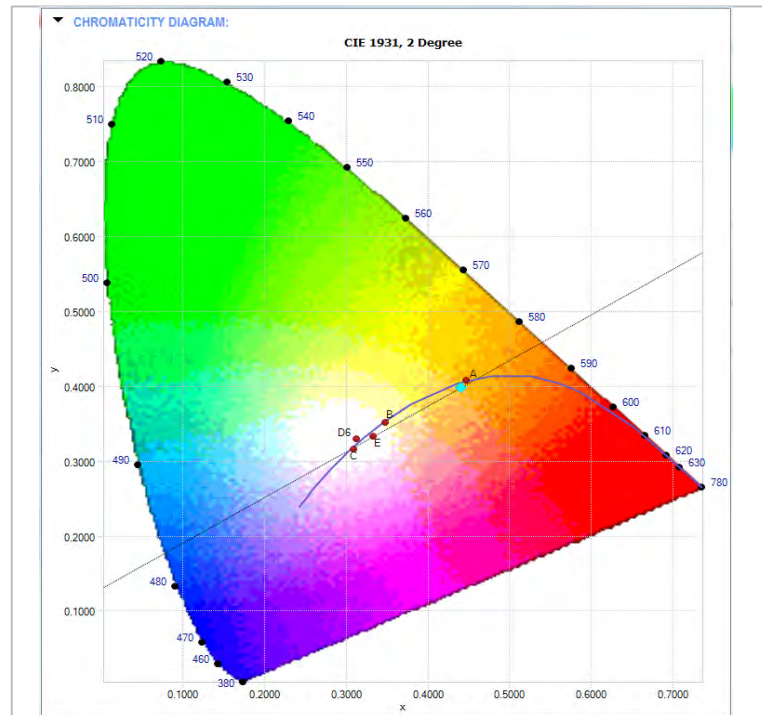
Driver Desc: n/a

Efficacy: 37.7 LPW

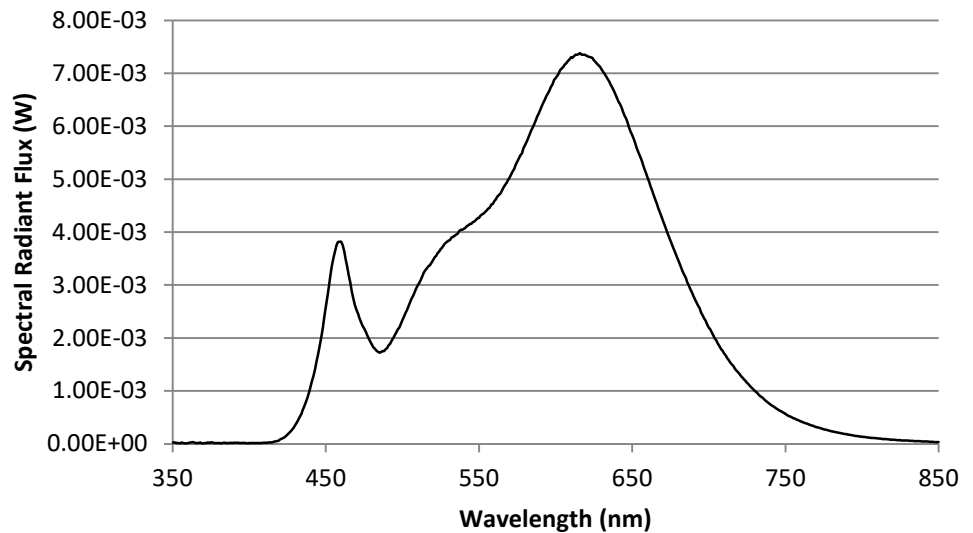
S/P Ratio: 1.4 LM/LM

Spectral Results

Name	Value	Unit
Φ	1.22	watts
$\Phi(v)$	351	lumens
$\Phi(v')$	494	lm'
Chrom x	0.4407	
Chrom y	0.3988	
Chrom u	0.2554	
Chrom v	0.3466	
Duv	0.003	
Chrom u'	0.2554	
Chrom v'	0.5199	
CCT	2891	K
Purity	52	%
λ (dom)	584.2	nm
FWHM	152	nm
λ (peak)	616	nm
λ (center)	601.1	nm
λ (centroid)	594.6	nm
SDCM	Cool White	
RA	92	
Corr. Coef.	0.002595015	
Correlation	0.0054	
R1	94.0	
R2	98.7	
R3	96.8	
R4	92.1	
R5	93.9	
R6	95.9	
R7	88.8	
R8	78.5	
R9	55.2	
R10	95.9	
R11	93.7	
R12	82.1	
R13	95.9	
R14	99.5	



Spectral Distribution of Radiant Flux



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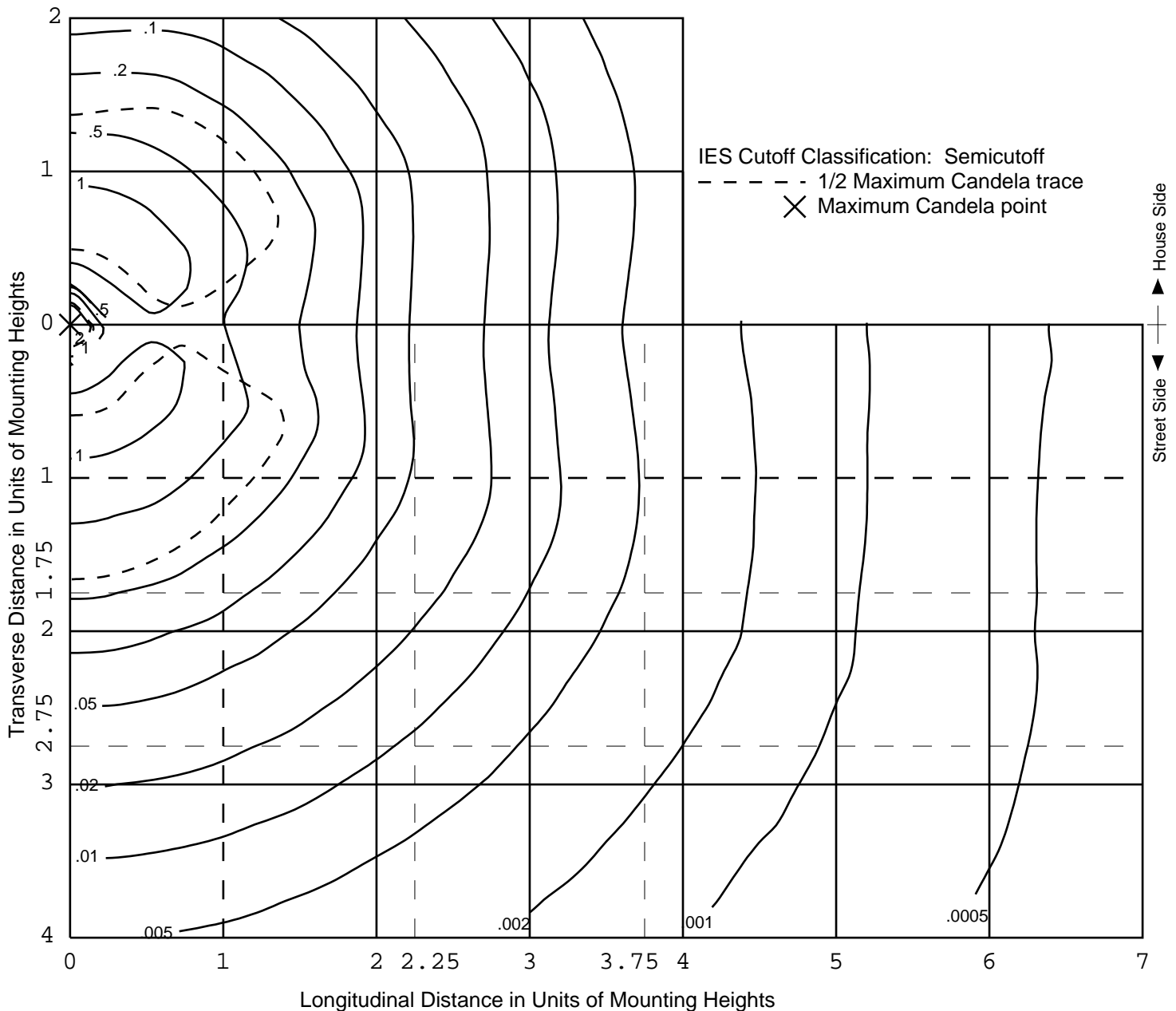
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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 6 foot mounting height.

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LUMINAIRE: 1-Lt. Led Med Wall Lantern
with Frosted Inner Glass and Seeded
Outer Glass Cylinders
LAMP CAT. NO.: 93070270-3330
LAMP: 20- Nichia 3000K LEDs
MOUNTING: Wall
NOTE: DATA SHOWN IS ABSOLUTE FOR THE
SAMPLE PROVIDED.



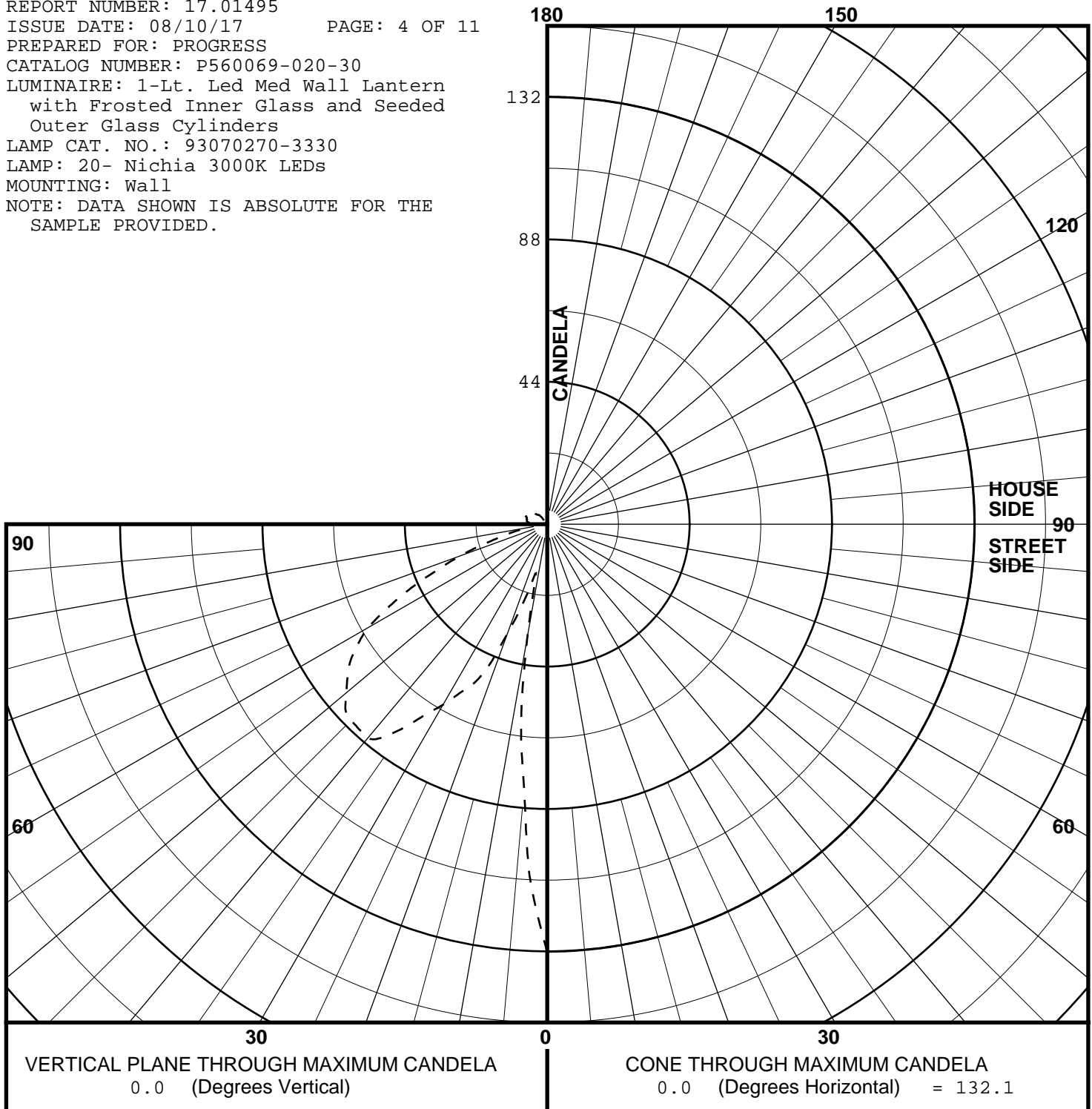


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MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

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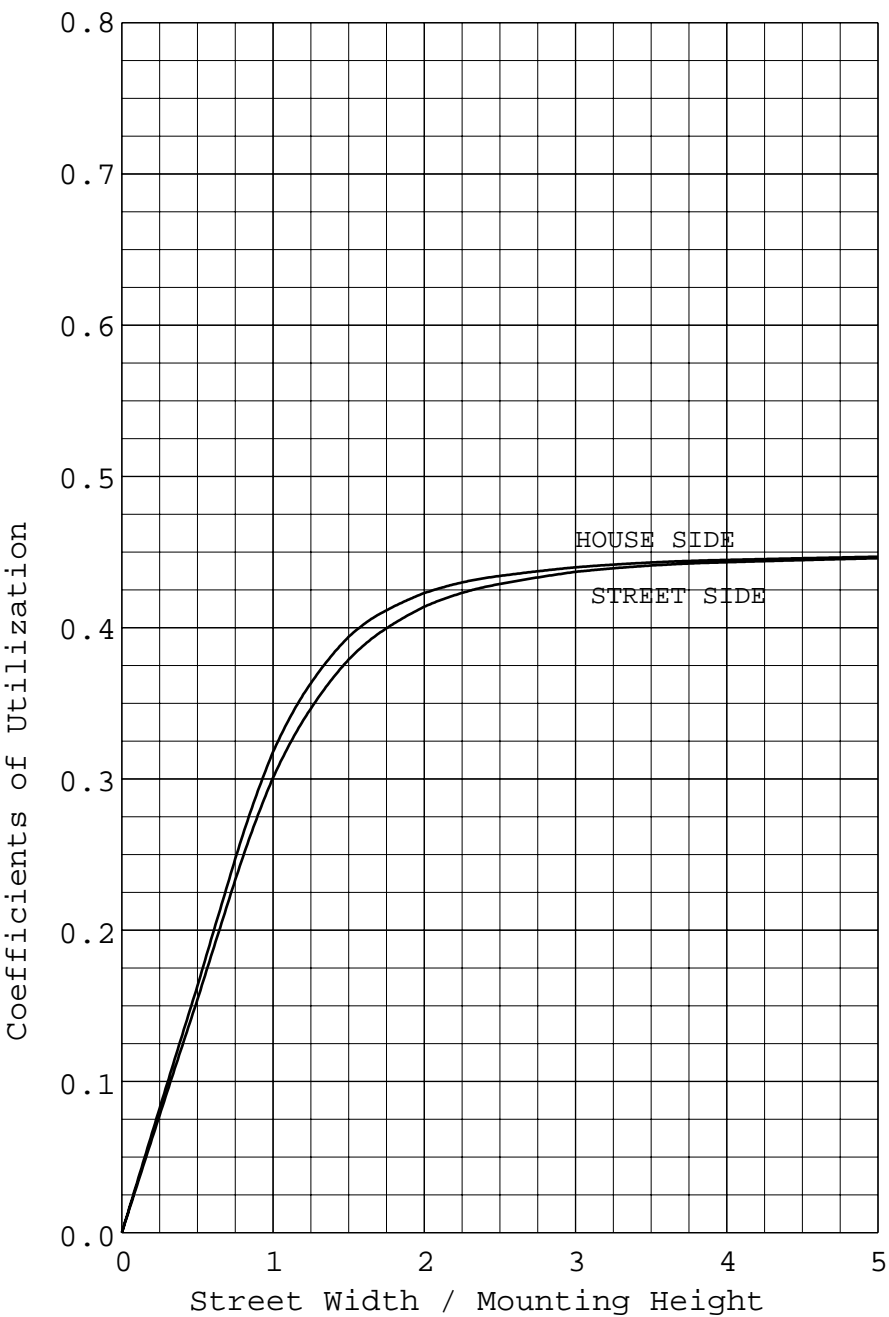




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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	132.	45.3
DOWNWARD HOUSE SIDE	133.	45.5
DOWNWARD TOTAL	265.	90.8
UPWARD STREET SIDE	14.	4.7
UPWARD HOUSE SIDE	13.	4.5
UPWARD TOTAL	27.	9.2
TOTAL FLUX	291.	100.0
TOTAL INPUT WATTS = 9.27		
EFFICACY = 31.4 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.

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.



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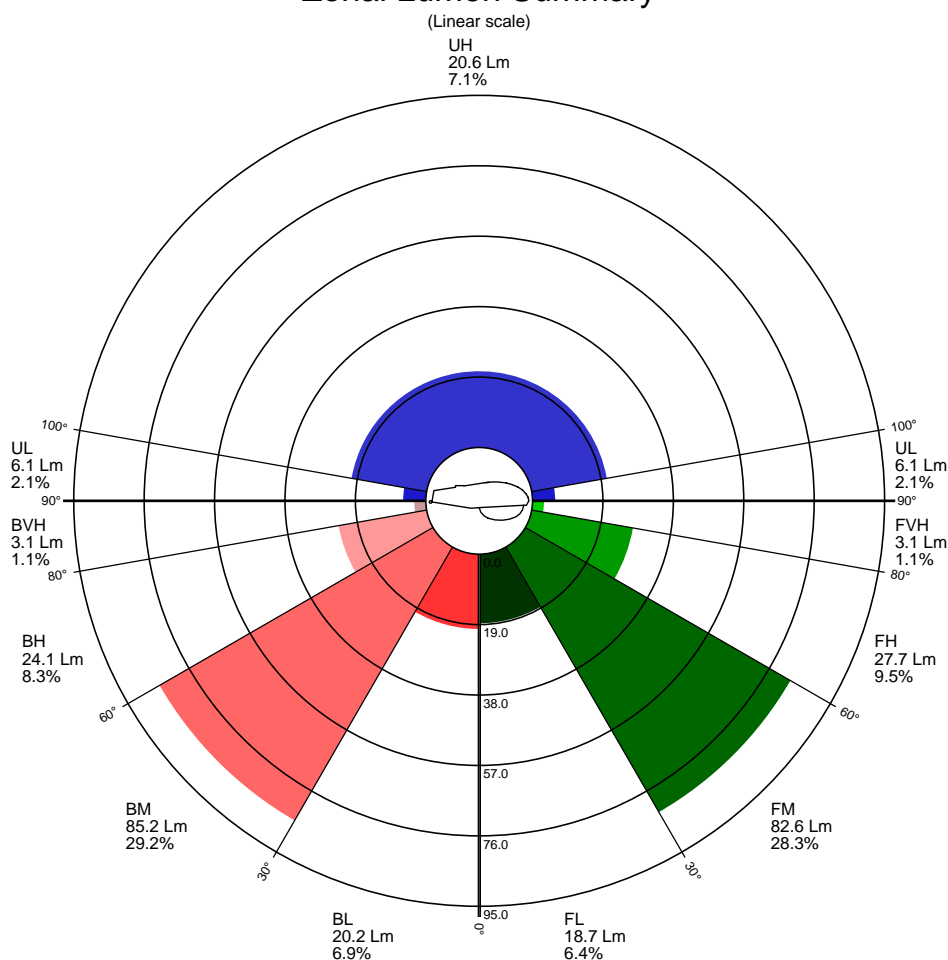
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BUG Rating:				Zone Ratings		
Zonal Summary				B	U	G
Forward		Lumens	% of Fixture			
FL	(0° - 30°)	18.7	45.3			
FM	(30° - 60°)	82.6	28.3			
FH	(60° - 80°)	27.7	9.5			G0
FVH	(80° - 90°)	3.1	1.1			G0
Backward		133	45.5			
BL	(0° - 30°)	20.2	6.9	B0		
BM	(30° - 60°)	85.2	29.2	B0		
BH	(60° - 80°)	24.1	8.3	B0		G0
BVH	(80° - 90°)	3.1	1.1			G0
Upward		27	9.2			
UL	(90° - 100°)	6.1	2.1		U1	
UH	(100° - 180°)	20.6	7.1		U2	
Trapped Light		0	0.0			
Total Flux		291	100.0			

Zonal Lumen Summary





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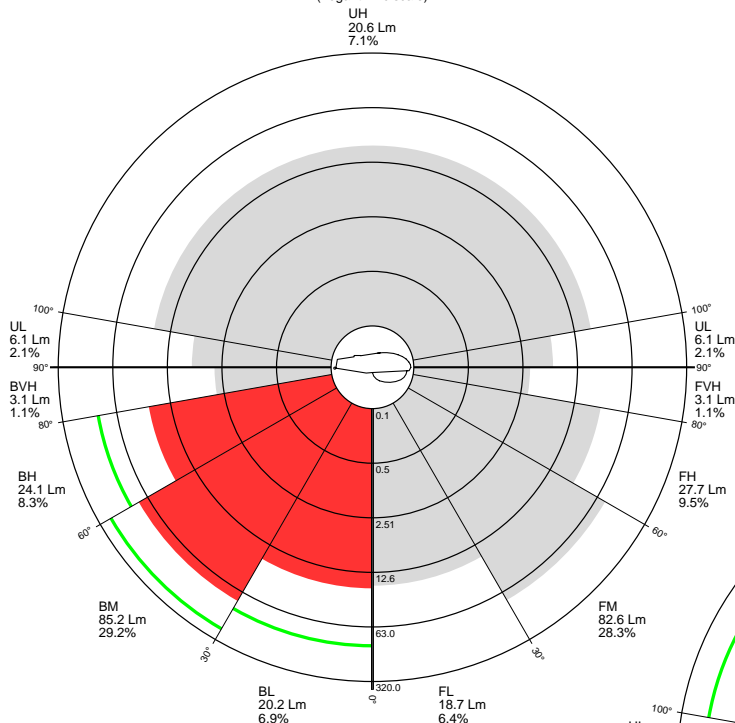
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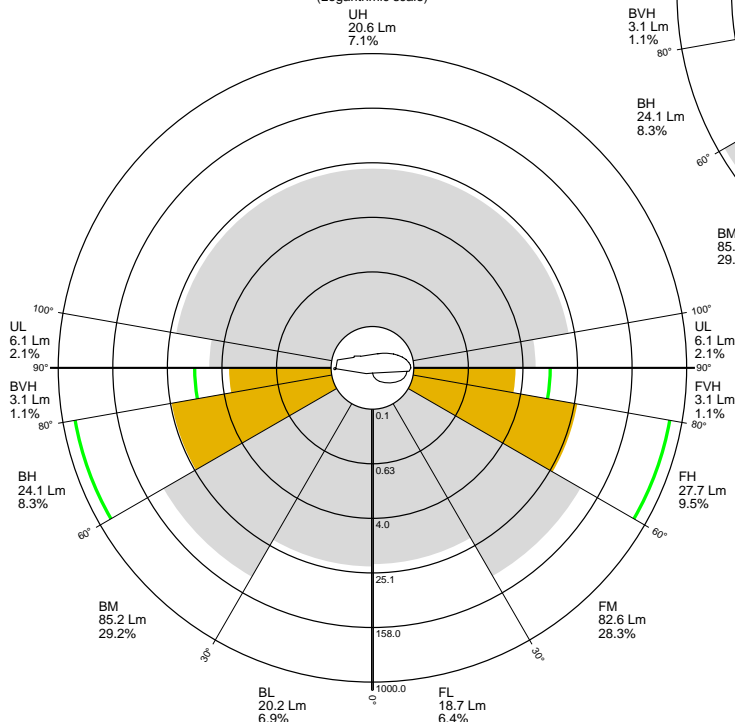
Backlight Rating Details

(Logarithmic scale)



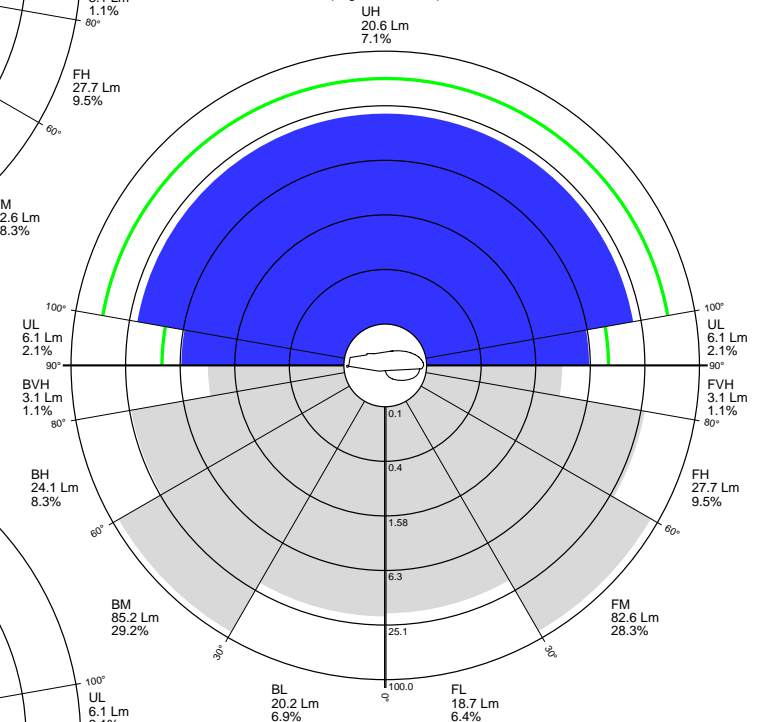
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)





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CANDELA TABULATION
STREET SIDE

		LATERAL ANGLE									
		0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	4.	4.	4.	4.	4.	4.	4.	4.	3.	3.
	125.0	6.	6.	6.	6.	6.	6.	6.	6.	5.	5.
	115.0	7.	7.	7.	7.	7.	7.	7.	7.	5.	5.
	105.0	7.	7.	7.	7.	7.	7.	7.	6.	5.	5.
	95.0	6.	6.	6.	6.	6.	6.	6.	5.	4.	4.
	90.0	5.	5.	5.	5.	6.	5.	5.	5.	4.	4.
	87.5	6.	6.	6.	6.	6.	6.	6.	5.	5.	4.
	85.0	6.	6.	6.	6.	6.	6.	6.	5.	5.	4.
V	82.5	6.	7.	7.	7.	6.	7.	6.	6.	5.	5.
R	80.0	7.	7.	7.	7.	7.	7.	7.	6.	5.	5.
	77.5	10.	10.	10.	10.	10.	10.	10.	10.	8.	7.
T	75.0	15.	15.	15.	15.	14.	15.	14.	14.	12.	9.
I	72.5	21.	21.	20.	21.	20.	20.	20.	20.	16.	12.
C	70.0	29.	28.	28.	27.	27.	27.	26.	26.	21.	17.
A	67.5	37.	37.	37.	36.	35.	35.	34.	33.	26.	22.
L	65.0	46.	46.	45.	45.	43.	43.	43.	41.	32.	27.
	62.5	55.	55.	54.	53.	53.	53.	52.	52.	40.	33.
A	60.0	64.	63.	63.	62.	60.	61.	60.	60.	47.	38.
N	57.5	70.	70.	69.	69.	67.	66.	66.	66.	52.	42.
G	55.0	74.	74.	73.	73.	72.	71.	71.	71.	55.	45.
L	52.5	78.	78.	77.	77.	75.	75.	74.	74.	59.	46.
E	50.0	81.	81.	80.	80.	78.	78.	78.	78.	61.	49.
	47.5	85.	84.	82.	82.	81.	82.	80.	81.	64.	50.
	45.0	86.	86.	85.	83.	84.	84.	83.	83.	66.	52.
	42.5	86.	87.	87.	85.	85.	85.	84.	84.	66.	53.
	40.0	86.	86.	86.	84.	85.	84.	83.	84.	66.	53.
	37.5	83.	82.	82.	82.	83.	83.	83.	84.	65.	54.
	35.0	77.	77.	76.	77.	78.	78.	79.	80.	62.	53.
	30.0	64.	65.	65.	65.	65.	66.	66.	66.	49.	46.
	25.0	55.	54.	53.	53.	52.	52.	51.	52.	39.	38.
	20.0	36.	36.	38.	38.	39.	40.	43.	43.	34.	30.
	15.0	19.	19.	20.	21.	22.	22.	23.	24.	19.	17.
	10.0	35.	36.	36.	35.	33.	31.	31.	33.	34.	33.
	5.0	82.	82.	80.	81.	81.	83.	85.	86.	83.	82.
	0.0<<	132.	132.	132.	132.	132.	132.	132.	132.	132.	132.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA



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CANDELA TABULATION
HOUSE SIDE

	LATERAL ANGLE										
	90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	180.0
180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
135.0	3.	3.	3.	3.	4.	4.	4.	3.	2.	1.	1.
125.0	5.	4.	5.	5.	6.	6.	6.	5.	4.	3.	3.
115.0	5.	5.	5.	7.	7.	7.	7.	6.	5.	4.	4.
105.0	5.	5.	5.	6.	7.	7.	7.	7.	6.	6.	5.
95.0	4.	4.	4.	5.	6.	6.	6.	6.	6.	6.	6.
90.0	4.	4.	4.	5.	5.	6.	6.	6.	6.	6.	6.
87.5	4.	4.	5.	5.	6.	6.	6.	6.	6.	6.	6.
85.0	5.	5.	5.	6.	6.	6.	6.	6.	6.	6.	6.
V 82.5	5.	5.	5.	6.	6.	7.	7.	7.	6.	6.	6.
E 80.0	5.	5.	5.	6.	7.	7.	7.	7.	7.	6.	6.
R 77.5	6.	7.	7.	8.	9.	9.	9.	8.	7.	7.	7.
T 75.0	9.	9.	11.	13.	13.	13.	13.	12.	10.	7.	7.
I 72.5	12.	13.	15.	18.	19.	19.	19.	17.	13.	9.	8.
C 70.0	16.	17.	21.	25.	25.	25.	25.	24.	18.	12.	10.
A 67.5	22.	22.	27.	33.	33.	33.	33.	31.	24.	17.	15.
L 65.0	27.	28.	33.	41.	42.	42.	41.	39.	32.	25.	23.
62.5	32.	33.	39.	49.	50.	50.	50.	49.	41.	33.	32.
A 60.0	37.	38.	47.	58.	59.	59.	59.	58.	52.	43.	42.
N 57.5	40.	42.	52.	65.	66.	66.	66.	65.	62.	52.	52.
G 55.0	43.	45.	56.	70.	72.	72.	72.	71.	70.	64.	63.
L 52.5	45.	47.	59.	74.	75.	76.	75.	75.	75.	73.	72.
E 50.0	47.	50.	62.	78.	79.	80.	80.	79.	79.	77.	77.
47.5	49.	52.	65.	81.	82.	83.	83.	83.	82.	81.	80.
45.0	52.	54.	68.	85.	85.	86.	86.	87.	86.	84.	84.
42.5	53.	56.	70.	87.	88.	89.	89.	89.	88.	88.	87.
40.0	54.	57.	71.	88.	90.	91.	91.	90.	90.	89.	90.
37.5	55.	58.	71.	88.	92.	92.	92.	92.	91.	91.	92.
35.0	55.	56.	68.	86.	90.	90.	91.	91.	90.	91.	91.
30.0	48.	48.	56.	73.	76.	76.	79.	80.	79.	81.	81.
25.0	40.	39.	44.	57.	60.	59.	61.	63.	63.	63.	63.
20.0	30.	30.	34.	41.	43.	43.	41.	41.	44.	44.	45.
15.0	17.	17.	18.	20.	21.	23.	23.	23.	23.	22.	22.
10.0	34.	33.	34.	36.	38.	38.	34.	32.	29.	29.	30.
5.0	81.	79.	77.	77.	75.	76.	76.	75.	73.	71.	71.
0.0<<	132.	132.	132.	132.	132.	132.	132.	132.	132.	132.	132.

CONE OF MAXIMUM CANDELA



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5-DEGREE

ZONAL LUMEN SUMMARY

0- 5	2
5- 10	4
10- 15	3
15- 20	5
20- 25	10
25- 30	15
30- 35	21
35- 40	27
40- 45	30
45- 50	31
50- 55	30
55- 60	28
60- 65	23
65- 70	15
70- 75	9
75- 80	5
80- 85	3
85- 90	3
90- 95	3
95-100	3
100-105	3
105-110	3
110-115	3
115-120	3
120-125	3
125-130	2
130-135	2
135-140	1
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE

ZONAL LUMEN SUMMARY

0- 10	6
0- 20	14
0- 30	39
0- 40	87
0- 50	148
0- 60	207
0- 70	245
0- 80	258
0- 90	265
0-100	271
0-110	277
0-120	284
0-130	288
0-140	291
0-150	291
0-160	291
0-170	291
0-180	291

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Date
8/11/2017

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: 09/08/2016

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	11/7/2017

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>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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