

Project Number
18.01009



HUBBELL
Lighting

Date
6/19/2018

Lab 6
Sphere

Test Sample Description

Catalog Number: P540037-03030
Description: 1-Lt. LED White Post Lantern

Photometry

IES LM-31-95
Test Method: IES LM-79-08 §10

Preburn Time: 0:30

Time To Stabilize: 1:50

Total Operating Time: 3:40

Input Voltage (Volts): 120.0

Input Current (Amps): 0.152

Input Wattage (Watts): 18.0

Ambient Temp (°C): 24.1

Sphere

IES LM-16-93
Test Method: IES LM-79-08 §12.1

Preburn Time: 2:00

Time To Stabilize: 1:06

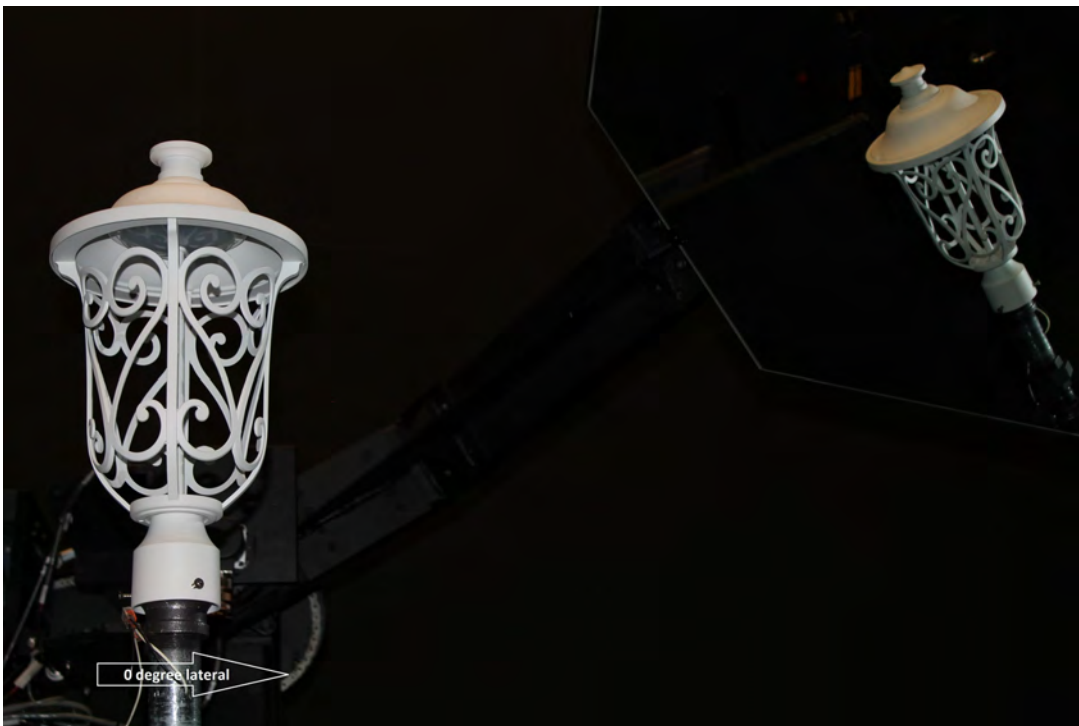
Total Operating Time: 3:06

Input Voltage (Volts): 120.0

Input Current (Amps): 0.150

Input Wattage (Watts): 17.7

Ambient Temp (°C): 24



Hubbell Lighting, Inc.

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

Checked (sphere): B. LEE
Checked (photometry): M. ELLMANN
Approved: P. McCARTHY

NVLAP[®]
TESTING
NVLAP LAB CODE: 201003-0

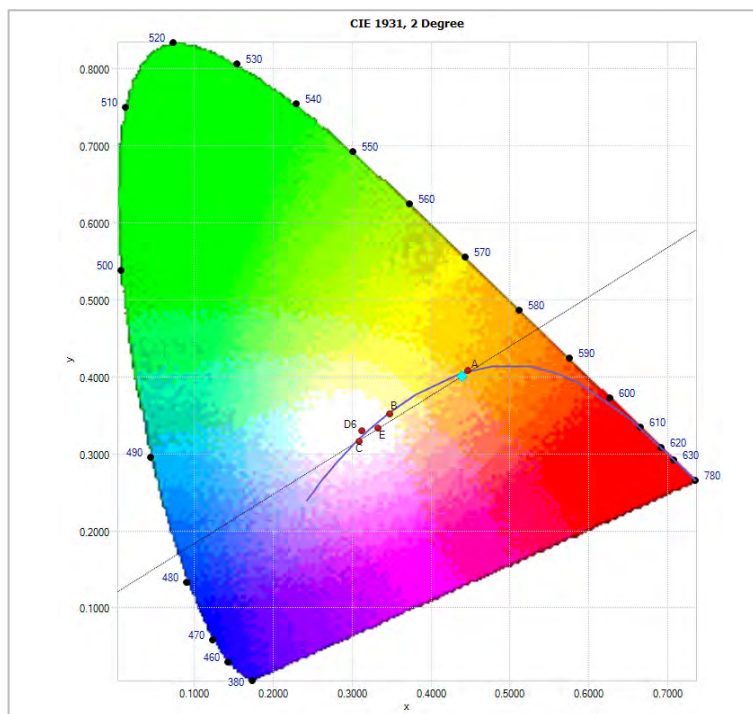
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Lamp Cat#: 93047261-5230
 Lamp Desc: 40 - 3000K LEDs
 Driver Desc:

Efficacy: 53.7 LPW S/P Ratio: 1.5 LM/LM

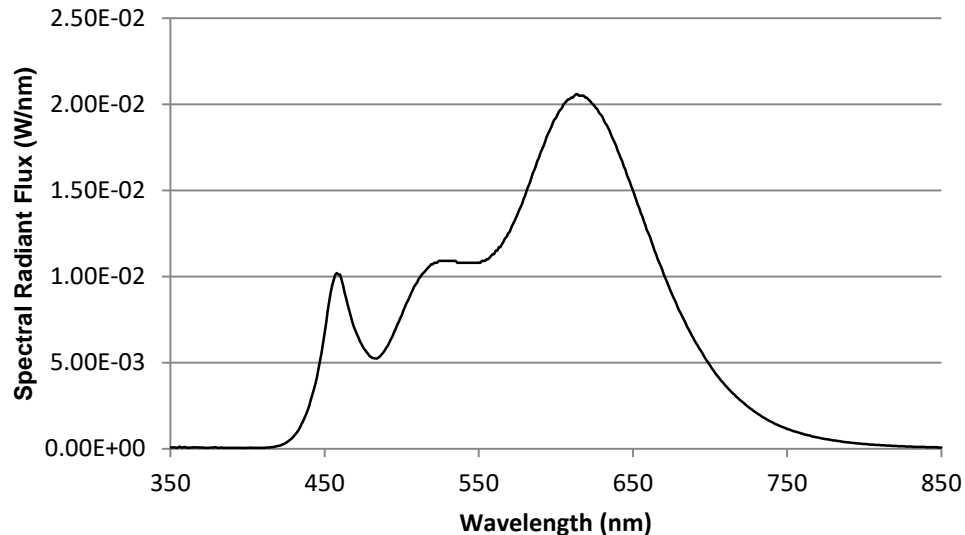
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	3.23	watts
$\Phi(v)$	951	lumens
$\Phi(v')$	1406	lm'
Chrom x	0.4391	
Chrom y	0.4011	
Chrom u	0.2533	
Chrom v	0.347	
Duv	0.0018	
Chrom u'	0.2533	
Chrom v'	0.5205	
CCT	2936	K
Purity	52.2	%
λ (dom)	583.6	nm
FWHM	154.8	nm
λ (peak)	614.3	nm
λ (center)	591.9	nm
λ (centroid)	590.1	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.001507187	
Correlation	0.0054	
R1	98.1	
R2	97.6	
R3	93.6	
R4	97.4	
R5	98.0	
R6	91.2	
R7	88.2	
R8	79.6	
R9	58.3	
R10	94.8	
R11	95.9	
R12	84.0	
R13	99.0	
R14	97.3	

Spectral Distribution of Radiant Flux





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LUMINAIRE: 1-Lt. LED White Post Lantern

LAMP CAT. NO.: 93047261-5230

LAMP: 40- 3000K LEDs

MOUNTING: Post Top

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

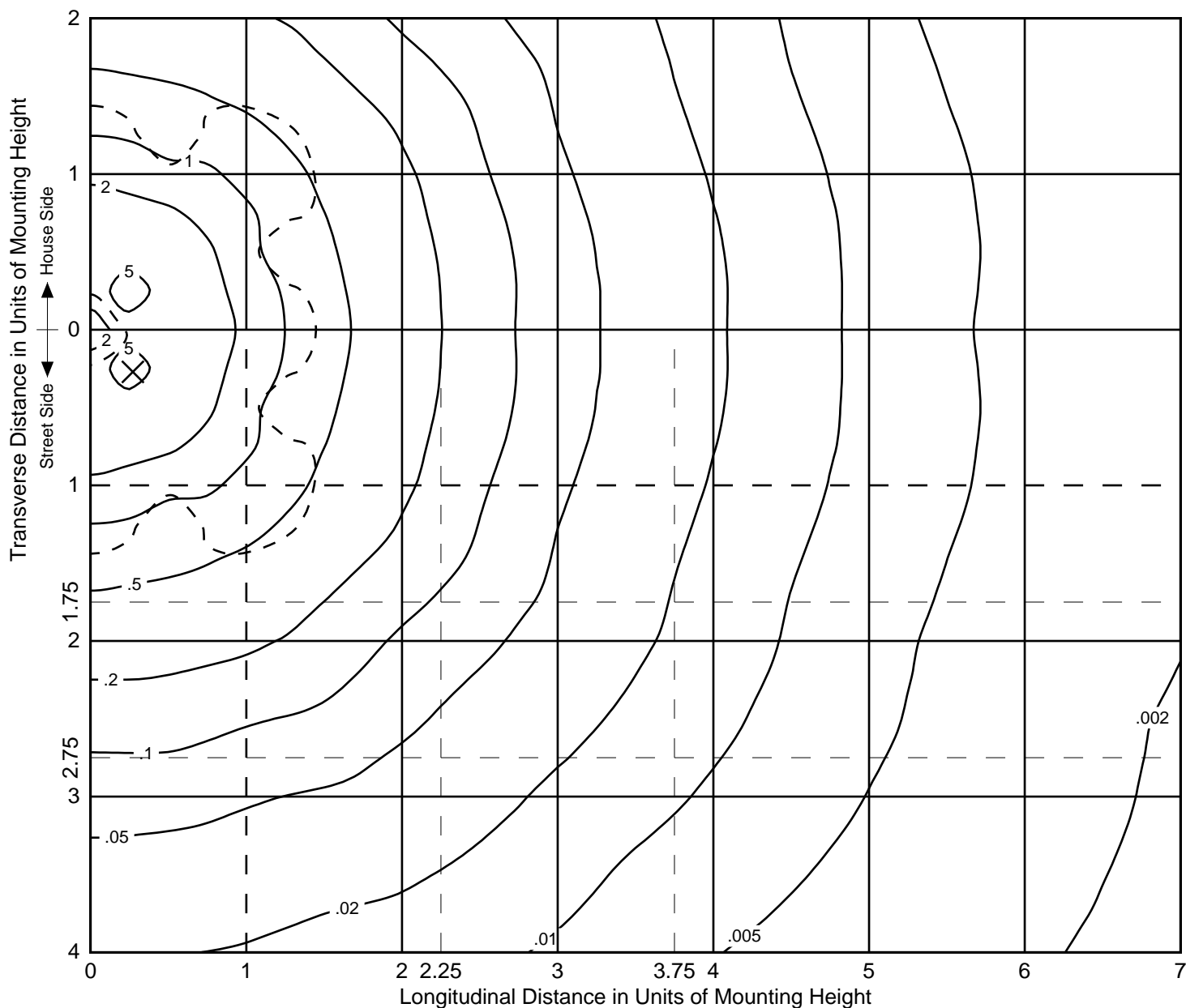
Values based on 6.5-foot mounting height

IES Classification: Type VS

Cutoff Classification (deprecated): Semicutoff

--- 1/2 Maximum Candela trace

× Maximum Candela point





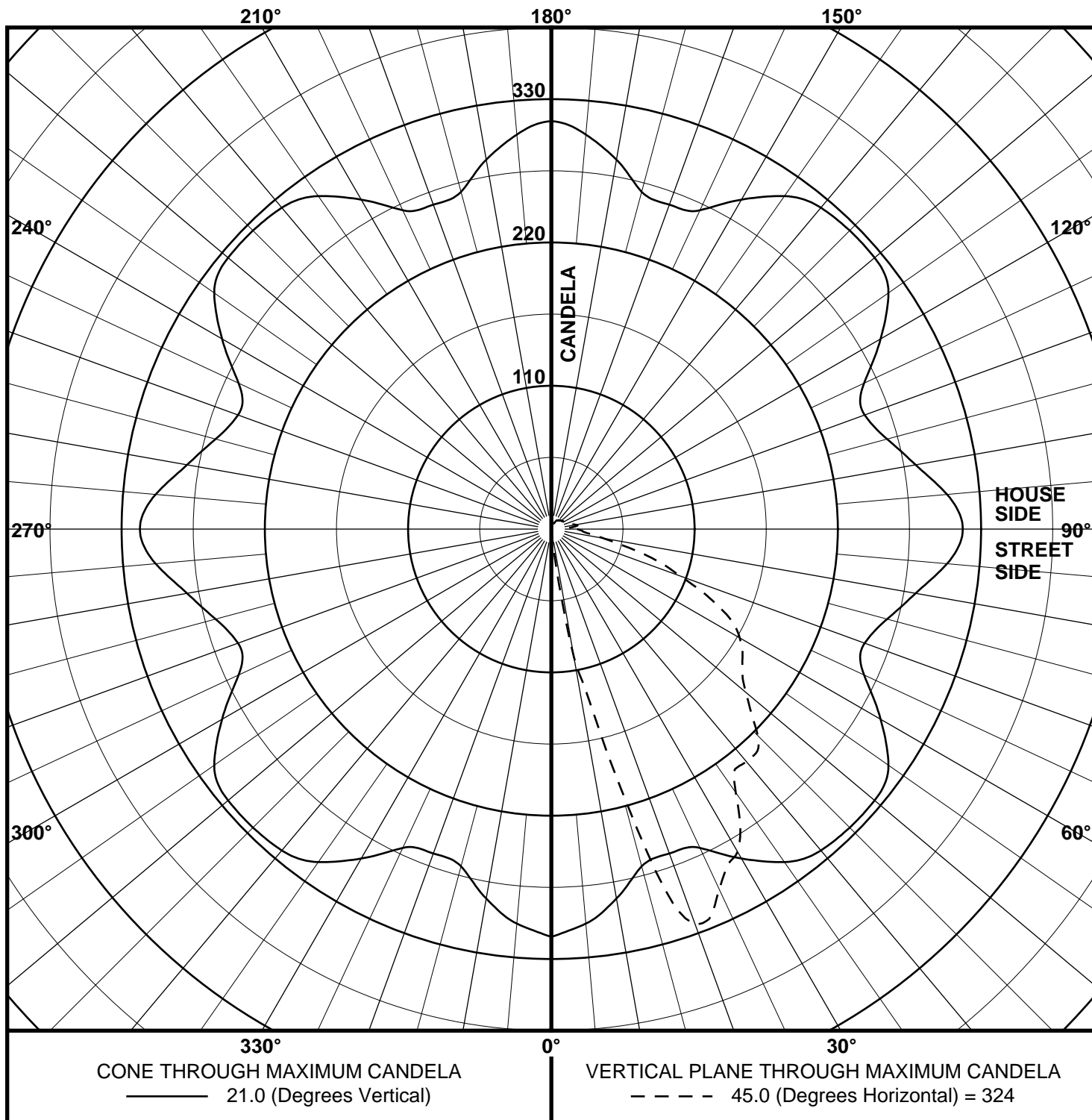
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MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA





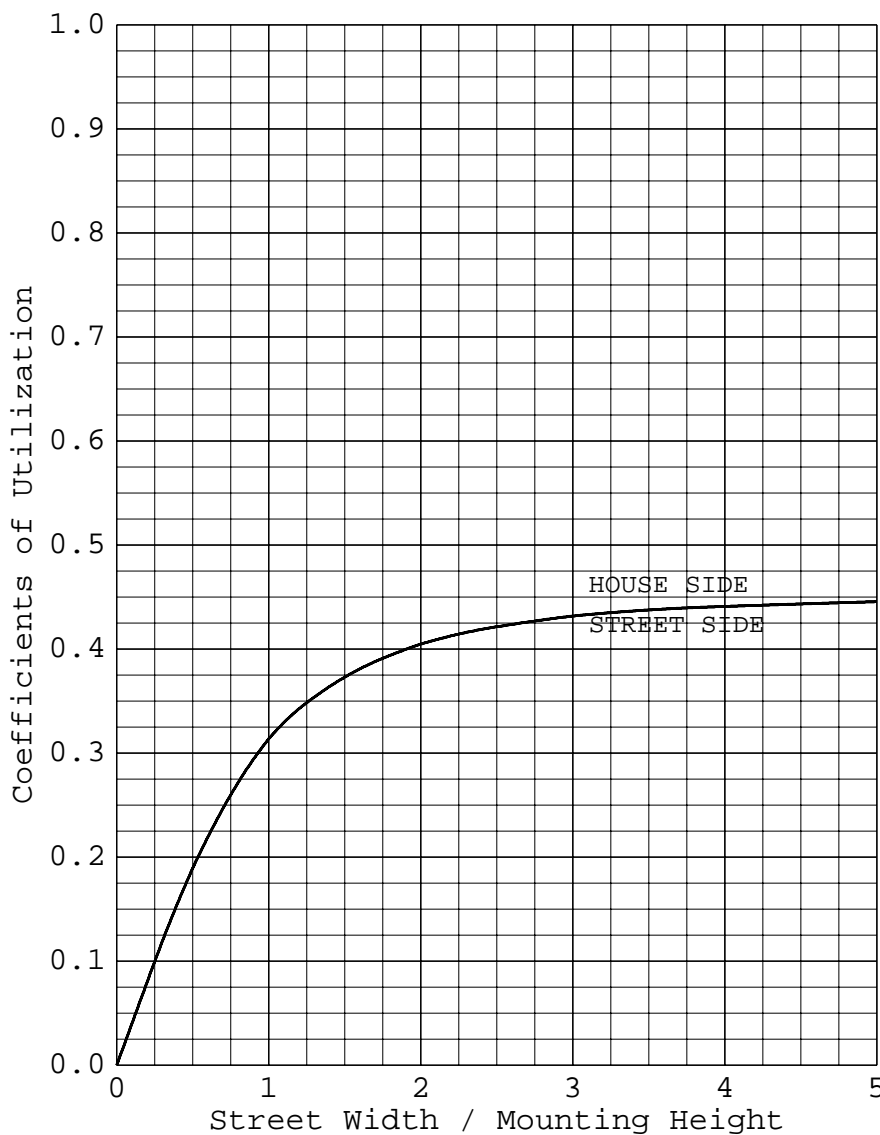
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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	443	45.8
DOWNWARD HOUSE SIDE	443	45.8
DOWNWARD TOTAL	885	91.7
UPWARD STREET SIDE	40	4.2
UPWARD HOUSE SIDE	40	4.2
UPWARD TOTAL	81	8.3
TOTAL FLUX	966	100.0
EFFICACY = 53.7 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			B1 U3 G1		
Zonal Summary			Zone Ratings		
			B	U	G
Forward					
FL	(0° – 30°)	443			
FM	(30° – 60°)	94.7			
FH	(60° – 80°)	225.4			
FVH	(80° – 90°)	105.9			G0
		16.6			G1
Backward					
BL	(0° – 30°)	443			
BM	(30° – 60°)	94.7			
BH	(60° – 80°)	225.4	B0		
BVH	(80° – 90°)	105.9	B1		
		16.6			G0
		1.7			G1
Upward					
UL	(90° – 100°)	81			
UH	(100° – 180°)	24.3			
		56.3		U2	
		0		U3	
Trapped Light					
Total Flux					
		966			
		100.0			



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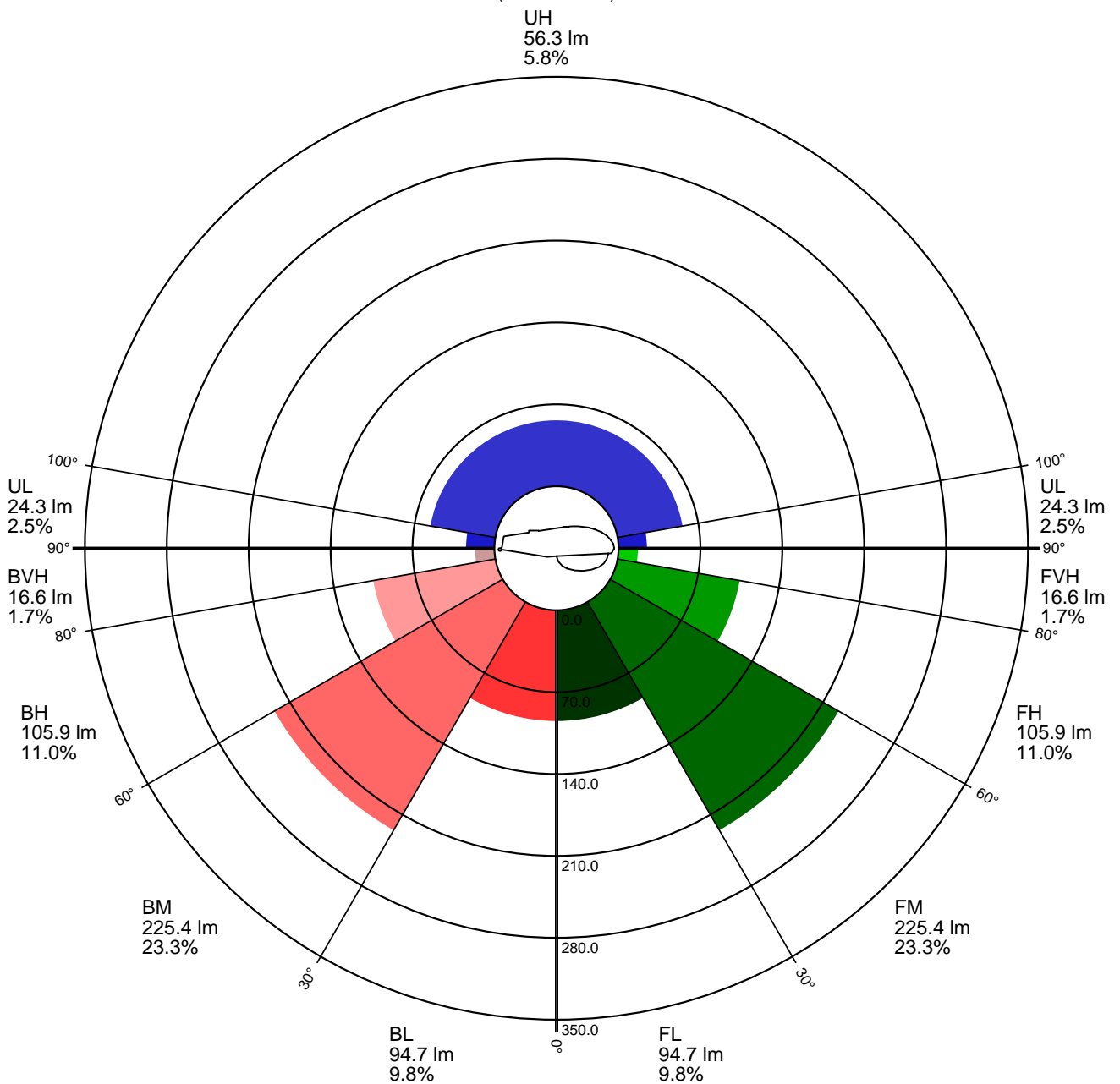
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Zonal Lumen Summary

(Linear scale)





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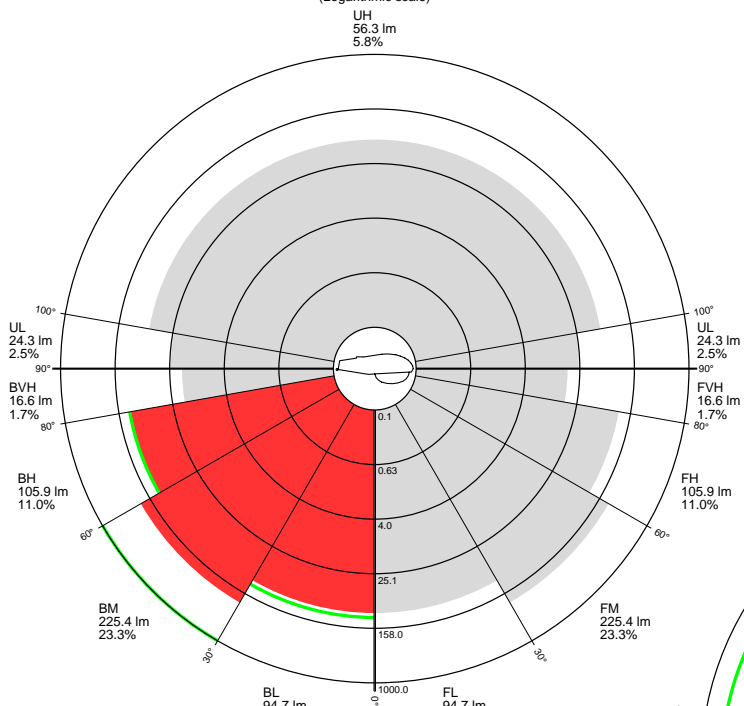
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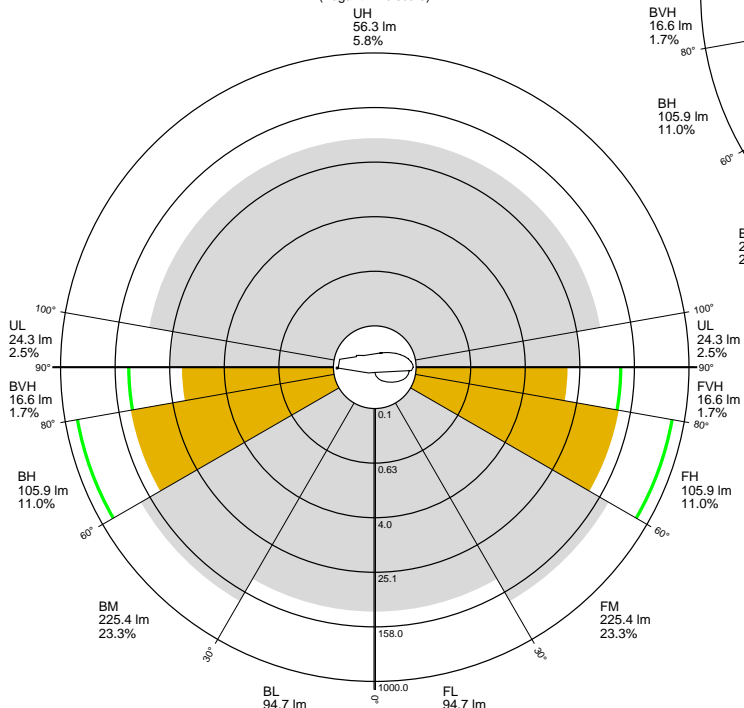
Backlight Rating Details

(Logarithmic scale)



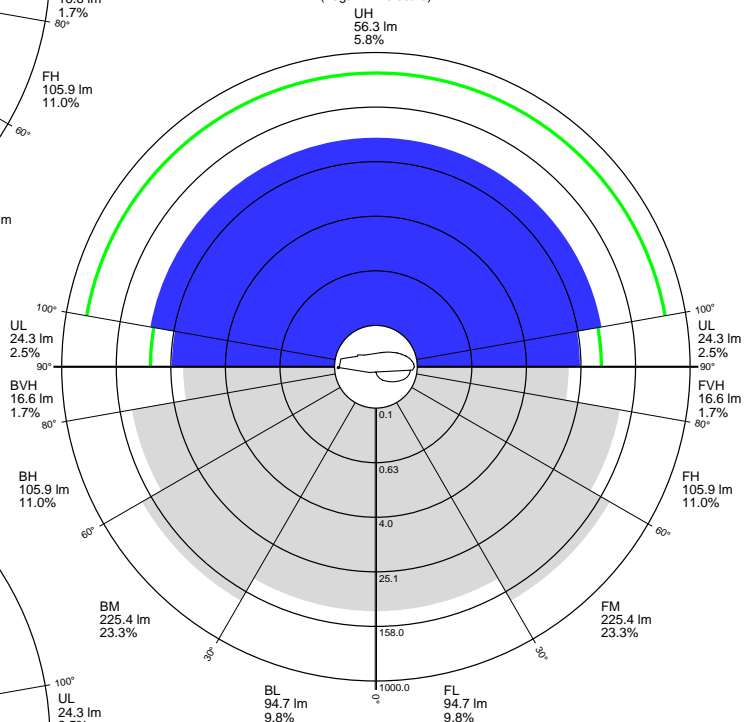
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



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CANDELA TABULATION

LATERAL ANGLE

	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
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	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
155.0	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.
145.0	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.
135.0	9.	9.	9.	9.	9.	9.	9.	10.	9.	9.	9.
125.0	10.	10.	10.	11.	11.	10.	11.	11.	11.	11.	11.
115.0	12.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.
105.0	16.	17.	19.	19.	17.	18.	18.	19.	18.	16.	18.
95.0	13.	22.	23.	23.	21.	21.	24.	23.	23.	16.	23.
92.5	9.	23.	23.	24.	21.	21.	25.	24.	25.	13.	24.
90.0	17.	26.	26.	27.	24.	24.	28.	26.	27.	19.	27.
87.5	22.	27.	27.	29.	27.	28.	29.	28.	27.	23.	27.
85.0	25.	27.	28.	30.	28.	29.	30.	30.	28.	25.	28.
V 82.5	29.	31.	33.	33.	31.	33.	34.	34.	33.	31.	33.
E 80.0	38.	40.	41.	41.	39.	42.	43.	44.	43.	41.	43.
R 77.5	52.	54.	54.	54.	51.	55.	57.	58.	57.	54.	57.
T 75.0	70.	70.	69.	68.	67.	69.	75.	74.	74.	73.	75.
I 72.5	87.	87.	86.	85.	82.	88.	95.	94.	93.	90.	93.
C 70.0	100.	102.	107.	104.	102.	107.	117.	116.	110.	105.	110.
A 67.5	116.	119.	122.	123.	121.	128.	135.	133.	127.	125.	129.
L 65.0	133.	135.	133.	136.	137.	144.	147.	144.	144.	143.	145.
62.5	147.	145.	140.	142.	147.	153.	153.	153.	156.	158.	157.
A 60.0	154.	151.	146.	148.	154.	158.	159.	162.	167.	167.	166.
N 57.5	156.	156.	153.	155.	158.	160.	163.	168.	174.	174.	173.
G 55.0	160.	162.	159.	156.	154.	153.	162.	173.	181.	179.	180.
L 52.5	167.	170.	167.	152.	140.	147.	168.	183.	188.	185.	186.
E 50.0	177.	180.	176.	157.	140.	149.	178.	198.	201.	195.	198.
47.5	188.	189.	186.	171.	153.	160.	188.	213.	216.	208.	213.
45.0	198.	198.	196.	186.	175.	178.	198.	222.	227.	224.	227.
42.5	210.	207.	207.	201.	194.	199.	214.	228.	233.	233.	232.
40.0	223.	218.	217.	215.	209.	215.	230.	238.	235.	233.	234.
37.5	238.	233.	227.	226.	222.	228.	241.	251.	238.	232.	243.
35.0	249.	242.	235.	232.	231.	235.	246.	253.	247.	247.	255.
30.0	243.	245.	246.	250.	252.	246.	247.	263.	278.	286.	279.
25.0	270.	265.	261.	253.	246.	251.	276.	300.	306.	305.	307.
21.0<<	313.	304.	288.	268.	265.	270.	292.	312.	322.	324.	324.
20.0	319.	310.	294.	275.	264.	268.	284.	304.	316.	322.	322.
15.0	196.	197.	196.	191.	190.	184.	189.	200.	206.	206.	203.
10.0	112.	111.	112.	112.	112.	107.	103.	99.	98.	100.	101.
5.0	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.
0.0	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.

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
180.0	0.	0.	0.	0.	0.	0.	0.	0.
175.0	0.	0.	0.	0.	0.	0.	0.	0.
165.0	1.	1.	1.	1.	1.	1.	1.	1.
155.0	5.	5.	5.	5.	5.	5.	5.	5.
145.0	8.	8.	8.	8.	8.	8.	8.	8.
135.0	9.	9.	9.	9.	9.	9.	9.	9.
125.0	11.	11.	10.	11.	11.	10.	10.	10.
115.0	13.	13.	13.	13.	13.	13.	12.	12.
105.0	19.	19.	18.	17.	19.	19.	17.	16.
95.0	23.	24.	21.	21.	23.	22.	22.	14.
92.5	24.	25.	22.	21.	25.	24.	23.	12.
90.0	26.	27.	24.	24.	27.	26.	25.	17.
87.5	28.	29.	28.	27.	29.	27.	26.	22.
85.0	29.	31.	29.	29.	30.	29.	27.	25.
V 82.5	35.	35.	34.	32.	34.	34.	33.	30.
E 80.0	44.	44.	43.	40.	41.	42.	42.	40.
R 77.5	58.	58.	56.	53.	54.	56.	55.	55.
T 75.0	75.	76.	71.	68.	69.	70.	72.	70.
I 72.5	95.	96.	88.	85.	86.	89.	89.	88.
C 70.0	115.	116.	109.	104.	106.	106.	105.	102.
A 67.5	133.	134.	128.	122.	122.	122.	120.	118.
L 65.0	145.	147.	143.	136.	135.	132.	133.	134.
62.5	154.	153.	152.	148.	143.	140.	143.	145.
A 60.0	162.	160.	157.	154.	148.	147.	150.	152.
N 57.5	169.	162.	157.	155.	152.	153.	156.	156.
G 55.0	175.	165.	153.	148.	151.	159.	163.	161.
L 52.5	182.	171.	150.	142.	152.	167.	170.	168.
E 50.0	198.	180.	152.	142.	158.	177.	179.	177.
47.5	214.	189.	162.	154.	172.	186.	188.	188.
45.0	222.	199.	182.	175.	187.	197.	198.	199.
42.5	228.	216.	200.	192.	201.	207.	208.	210.
40.0	239.	234.	215.	207.	214.	219.	220.	220.
37.5	253.	245.	229.	222.	227.	229.	231.	236.
35.0	256.	250.	237.	232.	233.	235.	238.	240.
30.0	266.	253.	243.	246.	250.	247.	243.	241.
25.0	300.	277.	251.	245.	253.	257.	268.	275.
21.0<<	316.	292.	265.	256.	267.	284.	305.	316.
20.0	310.	283.	258.	257.	269.	289.	308.	318.
15.0	192.	185.	189.	197.	205.	204.	207.	206.
10.0	103.	104.	105.	104.	105.	104.	104.	103.
5.0	5.	5.	5.	5.	5.	5.	5.	5.
0.0	3.	3.	3.	3.	3.	3.	3.	3.

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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		0
5- 10		3
10- 15		18
15- 20		42
20- 25		60
25- 30		66
30- 35		73
35- 40		78
40- 45		78
45- 50		75
50- 55		73
55- 60		74
60- 65		72
65- 70		63
70- 75		47
75- 80		30
80- 85		18
85- 90		15
90- 95		12
95-100		12
100-105		10
105-110		9
110-115		7
115-120		6
120-125		5
125-130		4
130-135		4
135-140		3
140-145		3
145-150		2
150-155		2
155-160		1
160-165		0
165-170		0
170-175		0
175-180		0

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		4
0- 20		63
0- 30		189
0- 40		340
0- 50		493
0- 60		640
0- 70		775
0- 80		852
0- 90		885
0-100		910
0-110		929
0-120		942
0-130		951
0-140		958
0-150		963
0-160		966
0-170		966
0-180		966

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Lighting

Date
6/19/2018

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: 04/24/2018

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL / HLI LAB 6 - Test Distance: 31.3'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27076V	10/25/2018
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	1912745	10/26/2018

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	Checked Daily
<i>Thermometer</i>	National Instruments / USB TC01	1912751	10/26/2018
<i>LAMP Power Meter</i>	Yokogawa / WT332	C2QA27075V	10/25/2018
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	0331159372	N/A
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	N/A
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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