

Project Number
19.01585



HUBBELL
Lighting

Date
9/10/2019

Photometric Test Report

Lab 1
Sphere

Test Sample Description

Catalog Number: P810026-028-30

Description: 14" FSL 20W-M9 w/ Polycarbonate Refractor - Type V Lens

Photometry

Test Method: IES LM-46-04
IES LM-79-08 §10

Preburn Time: 0:45

Time To Stabilize: 0:41

Total Operating Time: 1:35

Input Voltage (Volts): 120.0

Input Current (Amps): 0.164

Input Wattage (Watts): 19.4

Ambient Temp (°C): 26.0

PF @ 120V: 0.988

THD @ 120V (%): 11:13

Sphere

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

Preburn Time: 0:45

Time To Stabilize: 0:55

Total Operating Time: 1:56

Input Voltage (Volts): 120.0

Input Current (Amps): 0.163

Input Wattage (Watts): 19.4

Ambient Temp (°C): 24



Hubbell Lighting, Inc.

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

Checked (sphere): M.ELLMANN
Checked (photometry): D.ROBBINS
Approved: N. DeVOL



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Lamp Cat#: SPMWH6229

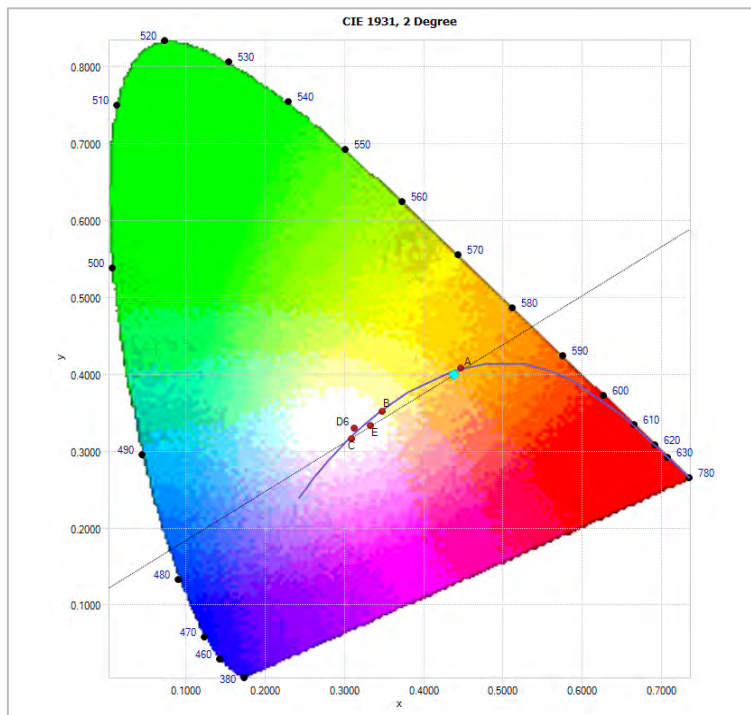
Lamp Desc: 26 - Samsung 3000K LEDs

Efficacy: 79.6 LPW

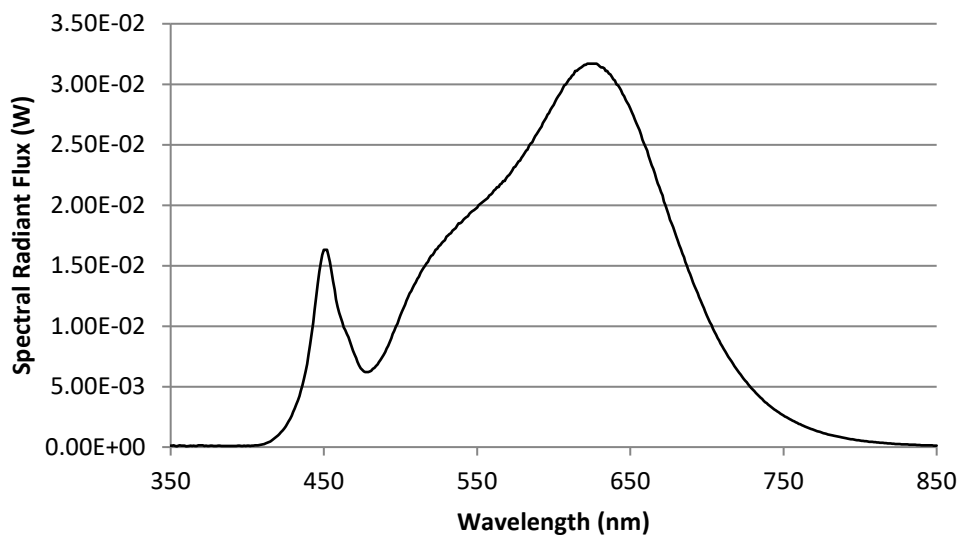
S/P Ratio: 1.4 LM'/LM

Spectral Results

Name	Value	Unit
Φ	5.52	watts
$\Phi(v)$	1545	lumens
$\Phi(v')$	2158	lm'
Chrom x	0.4378	
Chrom y	0.3998	
Chrom u	0.253	
Chrom v	0.3466	
Duv	0.0021	
Chrom u'	0.253	
Chrom v'	0.5198	
CCT	2948	K
Purity	51.4	%
λ (dom)	583.7	nm
FWHM	164	nm
λ (peak)	625.3	nm
λ (center)	602.5	nm
λ (centroid)	596.0	nm
SDCM	Cool White	
RA	94	
Corr. Coef.	0.001820491	
Correlation	0.0054	
R1	95.1	
R2	96.6	
R3	96.2	
R4	94.5	
R5	94.5	
R6	95.4	
R7	93.5	
R8	86.3	
R9	68.8	
R10	90.7	
R11	95.0	
R12	83.5	
R13	95.6	
R14	97.0	



Spectral Distribution of Radiant Flux



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ISSUE DATE: 09/06/19

PREPARED FOR: PROGRESS

CATALOG NUMBER: P810026-028-30

LUMINAIRE: 14" FSL 20W-M9 w/ Polycarbonate Refractor - Type V Lens

LAMP CAT. NO.: SPMWH6229

LAMP: 26- Samsung 3000K LEDs

MOUNTING: Surface

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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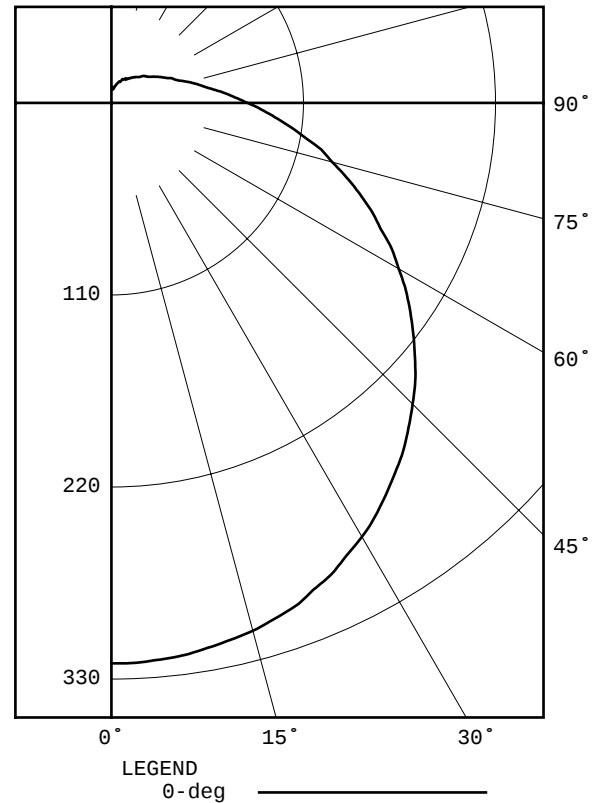
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DEG	CANDELA	LUMENS
0	321	
5	320	30
15	313	88
25	298	137
35	274	172
45	244	189
55	209	187
65	170	169
75	131	139
85	94	103
90	78	
95	65	71
105	46	49
115	34	34
125	26	24
135	21	16
145	17	11
155	15	7
165	11	3
175	8	1
180	9	

ZONAL ZONE	LUMEN	SUMMARY LUMENS	%FIXT
0- 30		256	17.9
0- 40		428	29.9
0- 60		804	56.2
0- 90		1215	84.9
90-120		154	10.8
90-130		178	12.4
90-150		205	14.3
90-180		216	15.1
0-180		1431	100.0

EFFICACY = 73.8 lm/W
CIE TYPE - SEMI-DIRECT
SPACING CRITERION: 1.33
PLANE : 0-DEG 90-DEG
SHIELDING ANGLES : 90 90





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LUMINOUS DIAMETER: 14.000
HEIGHT OF SIDE : 4.000

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	2548.
55	2415.
65	2275.
75	2162.
85	2105.



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CANDELA DISTRIBUTION

0.0	321
5.0	320
10.0	317
15.0	313
20.0	307
25.0	298
30.0	287
35.0	274
40.0	260
45.0	244
50.0	227
55.0	209
60.0	190
65.0	170
70.0	151
75.0	131
80.0	112
85.0	94
90.0	78
95.0	65
100.0	54
105.0	46
110.0	39
115.0	34
120.0	30
125.0	26
130.0	24
135.0	21
140.0	19
145.0	17
150.0	16
155.0	15
160.0	13
165.0	11
170.0	9
175.0	8
180.0	9



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5-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 5		8
5- 10		23
10- 15		37
15- 20		51
20- 25		63
25- 30		74
30- 35		83
35- 40		89
40- 45		93
45- 50		95
50- 55		95
55- 60		92
60- 65		88
65- 70		81
70- 75		74
75- 80		65
80- 85		56
85- 90		47
90- 95		39
95-100		32
100-105		27
105-110		22
110-115		19
115-120		16
120-125		13
125-130		11
130-135		9
135-140		7
140-145		6
145-150		5
150-155		4
155-160		3
160-165		2
165-170		1
170-175		1
175-180		0

10-DEGREE		
ZONAL	LUMEN	SUMMARY
0- 10		30
0- 20		119
0- 30		256
0- 40		428
0- 50		616
0- 60		804
0- 70		973
0- 80		1112
0- 90		1215
0-100		1286
0-110		1335
0-120		1369
0-130		1393
0-140		1409
0-150		1420
0-160		1427
0-170		1430
0-180		1431



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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	115	115	115	115	111	111	111	111	103	103	103	95	95	95	88	88	88	85
1	102	96	91	86	98	93	88	83	85	82	78	79	76	73	73	70	68	65
2	92	82	75	68	88	79	72	66	73	67	62	67	63	58	62	58	55	52
3	83	71	62	55	79	69	60	54	63	57	51	59	53	48	54	49	45	42
4	76	63	53	46	72	60	52	45	56	48	43	52	45	40	48	43	38	35
5	69	56	46	39	66	54	45	38	50	42	36	46	40	35	43	37	33	30
6	64	50	40	34	61	48	39	33	45	37	31	42	35	30	39	33	29	26
7	59	45	36	29	56	43	35	29	40	33	28	38	31	26	35	29	25	23
8	55	41	32	26	52	39	31	25	37	30	24	34	28	23	32	27	22	20
9	51	37	29	23	49	36	28	23	34	27	22	32	25	21	30	24	20	18
10	48	34	26	21	46	33	26	20	31	24	20	29	23	19	27	22	18	16

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

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Goniophotometer Calibration

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

Lamp Number: ITL78966-1000-66

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 23013.0 Lumens

Calibration Date: 08/20/2019

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
Goniophotometer	ITL/HLI LAB 1 - Test Distance: 31.74'	N/A	N/A
Power Analyzer	Yokogawa / WT 332	C2QA27071V	10/31/2019
Power Source	Voltage-Regulated House Power	N/A	N/A
Thermometer	National Instruments / USB-TC01	176F4E3	10/31/2019

3-Meter-Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10

Lamp Number: SCL-1400-K136

Calibration Current: 2.679 Amps

Total Luminous Flux: 1429 Lumens

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

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
3-Meter Sphere	Labsphere / LMS-3M	N/A	Calibration Checked Daily
Thermometer	National Instruments / USB TC01	1912751	10/31/2019
Power Analyzer	Yokogawa / WT332	C2QA27074V	10/31/2019
Power Supply	Chroma / 61602	616020002113	N/A
Aux Lamp Supply	GW Instek / PSU 150-10	GER221028	N/A
Cal Lamp Supply	Labsphere / LPS-150-0268	1218148505	N/A
Spectrometer	Labsphere / CDS 1100	0624117792	N/A

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