

Project Number
16.02060



Date
11/1/2016

Sphere

Test Sample Description

Catalog Number: P3696-2030K9

Description: 1-Lt. LED FLUSH MOUNT USE LIGHT ENGINE "A"

Test Method: IES LM-79-08 § 9.1 & 12.1

Preburn Time: 0:30

Time To Stabilize: 0:40

Total Operating Time: 1:36

Input Voltage (Volts): 120.2

Input Current (Amps): 0.149

Input Wattage (Watts): 17.6

Ambient Temp (°C): 24.0



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Greenville, SC 29607
www.hubbellighting.com

Checked: M. ELLMANN

Approved: _____

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Lamp Cat#: 93047261-5130

Lamp Desc: 40 - Nichia 3000K LEDs

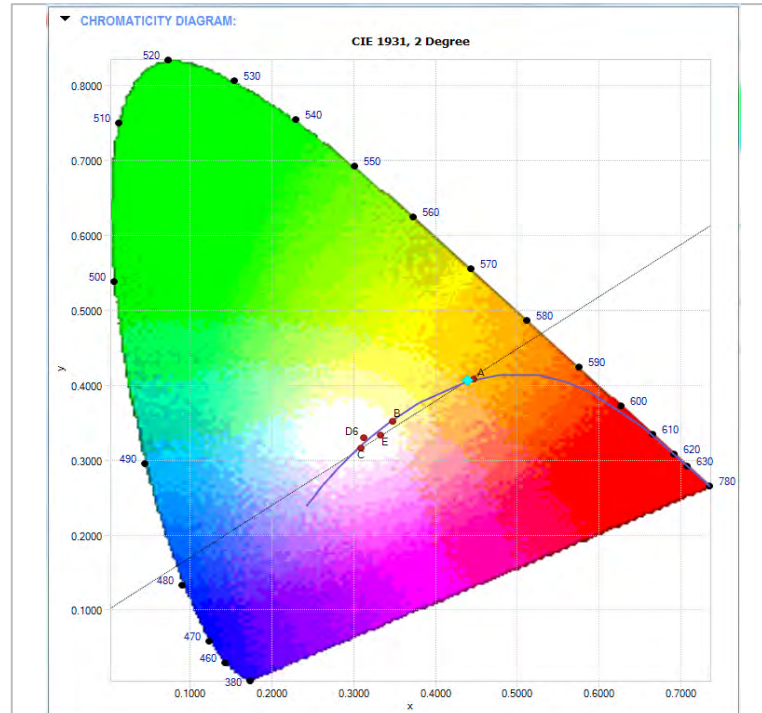
Driver Desc: n/a

Efficacy: 51.7 LPW

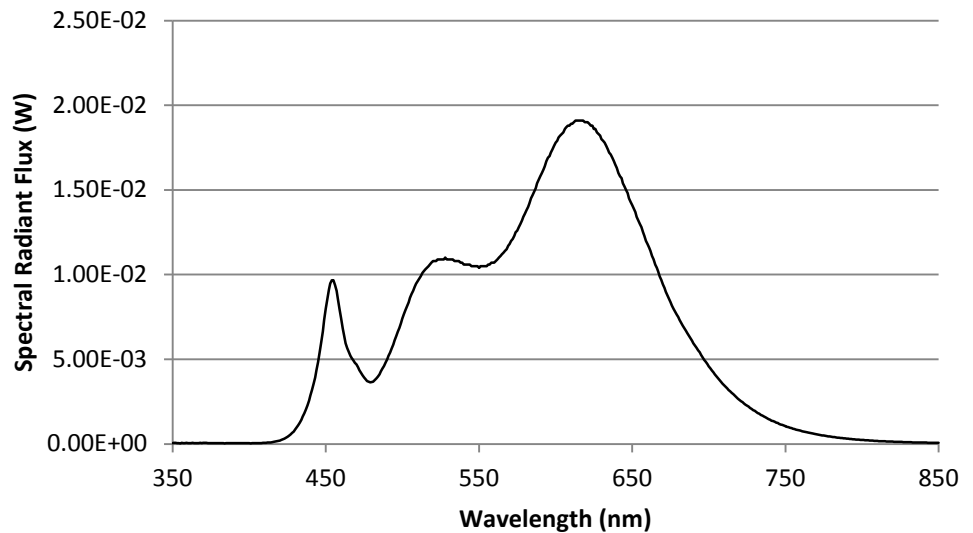
S/P Ratio: 1.5 LM'/LM

Spectral Results

Name	Value	Unit
Φ	3.02	watts
$\Phi(v)$	900	lumens
$\Phi(v')$	1310	lm'
Chrom x	0.4395	
Chrom y	0.4072	
Chrom u	0.2509	
Chrom v	0.3487	
Duv	0.0007	
Chrom u'	0.2509	
Chrom v'	0.523	
CCT	2980	K
Purity	54.1	%
λ (dom)	582.6	nm
FWHM	160	nm
λ (peak)	615.3	nm
λ (center)	589.6	nm
λ (centroid)	590.4	nm
SDCM	Cool White	
RA	95	
Corr. Coef.	0.000896742	
Correlation	0.0054	
R1	98.2	
R2	99.7	
R3	98.2	
R4	99.4	
R5	98.9	
R6	95.1	
R7	91.7	
R8	82.3	
R9	59.9	
R10	99.4	
R11	93.0	
R12	86.6	
R13	99.5	
R14	99.2	



Spectral Distribution of Radiant Flux



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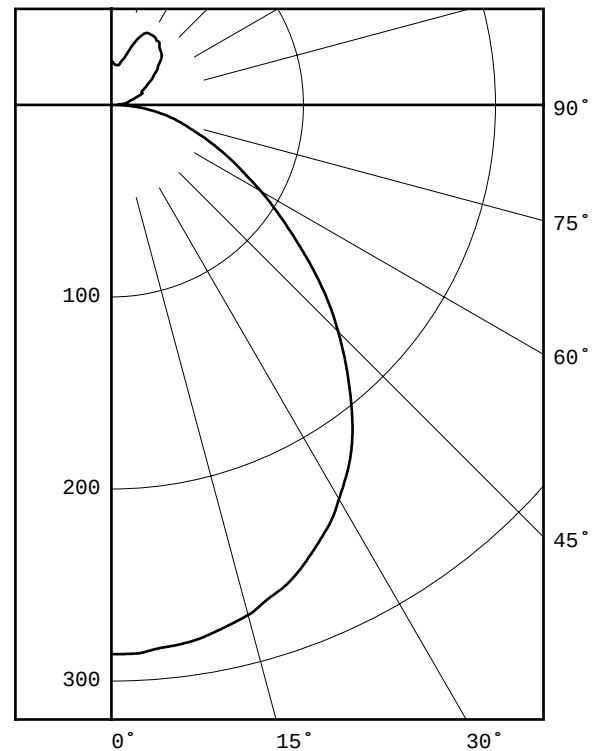
REPORT NUMBER: 16.02060
ISSUE DATE: 11/01/16
PREPARED FOR: PROGRESS
CATALOG NUMBER: P3696-2030K9
LUMINAIRE: 1-Lt. LED FLUSH MOUNT
LAMP CAT. NO.: 93047261-5130
LAMP: 40-3000K NICHIA LED's
MOUNTING: Ceiling
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

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DEG	CANDELA	LUMENS
0	286	
5	284	27
15	275	77
25	253	117
35	218	136
45	167	129
55	113	102
65	70	70
75	39	41
85	14	16
90	3	
95	6	7
105	12	13
115	18	18
125	27	24
135	37	28
145	41	26
155	41	19
165	25	8
175	21	2
180	23	

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	221	25.8
0- 40	357	41.6
0- 60	587	68.4
0- 90	714	83.2
90-120	38	4.4
90-130	62	7.3
90-150	116	13.5
90-180	144	16.8
0-180	858	100.0

TOTAL INPUT WATTS = 17.6
EFFICACY = 48.8 Lm/W
CIE TYPE - SEMI-DIRECT
LUMINAIRE SPACING CRITERION = 1.2





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LUMINOUS DIAMETER: 13.000
HEIGHT OF SIDE : 4.500

LUMINANCE DATA IN CANDELA/SQ METER
ANGLE AVERAGE
IN DEG

45	1914.
55	1411.
65	994.
75	665.
85	311.



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CANDELA DISTRIBUTION

	0.0
0.0	286
5.0	284
10.0	281
15.0	275
20.0	266
25.0	253
30.0	237
35.0	218
40.0	193
45.0	167
50.0	140
55.0	113
60.0	90
65.0	70
70.0	53
75.0	39
80.0	27
85.0	14
90.0	3
95.0	6
100.0	9
105.0	12
110.0	17
115.0	18
120.0	22
125.0	27
130.0	32
135.0	37
140.0	39
145.0	41
150.0	42
155.0	41
160.0	34
165.0	25
170.0	21
175.0	21
180.0	23



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ZONAL LUMEN SUMMARY

0- 5	7.
5- 10	20.
10- 15	33.
15- 20	45.
20- 25	54.
25- 30	62.
30- 35	67.
35- 40	69.
40- 45	67.
45- 50	62.
50- 55	55.
55- 60	47.
60- 65	39.
65- 70	31.
70- 75	24.
75- 80	18.
80- 85	11.
85- 90	5.
90- 95	2.
95-100	4.
100-105	5.
105-110	7.
110-115	9.
115-120	10.
120-125	11.
125-130	13.
130-135	14.
135-140	14.
140-145	14.
145-150	12.
150-155	11.
155-160	8.
160-165	5.
165-170	3.
170-175	2.
175-180	1.



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**5-DEGREE
ZONAL LUMEN SUMMARY**

0- 5	7
5- 10	20
10- 15	33
15- 20	45
20- 25	54
25- 30	62
30- 35	67
35- 40	69
40- 45	67
45- 50	62
50- 55	55
55- 60	47
60- 65	39
65- 70	31
70- 75	24
75- 80	18
80- 85	11
85- 90	5
90- 95	2
95-100	4
100-105	5
105-110	7
110-115	9
115-120	10
120-125	11
125-130	13
130-135	14
135-140	14
140-145	14
145-150	12
150-155	11
155-160	8
160-165	5
165-170	3
170-175	2
175-180	1

**10-DEGREE
ZONAL LUMEN SUMMARY**

0- 10	27
0- 20	105
0- 30	221
0- 40	357
0- 50	485
0- 60	587
0- 70	657
0- 80	698
0- 90	714
0-100	720
0-110	733
0-120	751
0-130	776
0-140	804
0-150	830
0-160	848
0-170	856
0-180	858



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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	110	110	110	110	102	102	102	94	94	94	87	87	87	83
1	105	101	97	93	101	97	93	90	90	87	84	83	81	79	77	75	74	70
2	96	89	82	77	92	85	79	75	79	74	70	73	70	66	68	65	62	60
3	88	78	71	65	84	75	68	63	70	64	60	65	61	57	61	57	54	51
4	81	70	61	55	77	67	60	54	63	56	51	58	53	49	54	50	47	44
5	75	62	54	48	71	60	53	47	56	50	45	53	47	43	49	45	41	38
6	69	56	48	42	66	55	47	41	51	44	39	48	42	38	45	40	36	34
7	64	51	43	37	61	50	42	36	47	40	35	44	38	34	41	36	32	30
8	60	47	39	33	57	45	38	33	43	36	31	40	34	30	38	33	29	27
9	56	43	35	30	53	42	34	29	39	33	28	37	31	27	35	30	26	24
10	52	40	32	27	50	38	31	27	36	30	26	34	29	25	33	28	24	22

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 LUMINAIRE SAMPLE.

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Sphere Calibration

Calibration Lamp: EIKO 28V75W/E10

Lamp Number: SCL-1400-J136

Calibration Current: 2.679 Amps

Total Luminous Flux: 1427 Lumens 07/18/2015

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / IITL/HLI LAB 6 - Test Dis</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>3-Meter Sphere</i>	Labsphere / LMS-3M	C2QA27076V	Calibrated Weekly
<i>Temperature Meter</i>	National Instruments / USB TC01	1912751	11/10/2016
<i>LAMP Power Meter</i>	Yokogawa / WT332	1912745	11/10/2016
<i>Power Supply</i>	Chroma / 61602	616020002113	N/A
<i>Aux Lamp Supply</i>	Labsphere / LPS-100-0833	0331159372	11/10/2016
<i>Cal Lamp Supply</i>	Labsphere / LPS-150-0268	1218148505	11/10/2016
<i>Spectrometer</i>	Labsphere / CDS 1100	0624117792	N/A

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