

Project Number
17.02935



Date
11/8/2017

Lab 6
Sphere

Test Sample Description

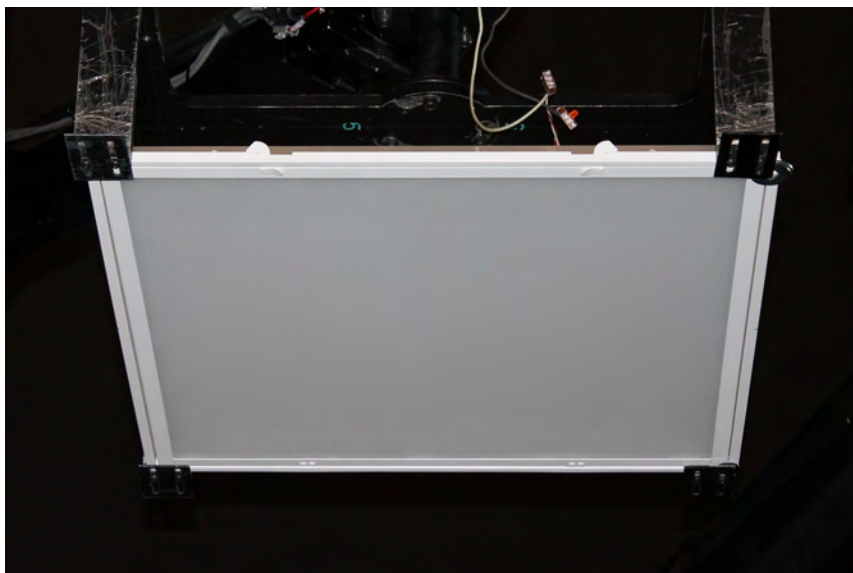
Catalog Number: PCIRT-LED-22-40K
Description: 2x2 Prismatic LED Troffer

Photometry
Test Method: IES LM-41-14
IES LM-79-08 § 10
Preburn Time: 0:30
Time To Stabilize: 0:40
Total Operating Time: 16:50

Input Voltage (Volts): 119.9
Input Current (Amps): 0.294
Input Wattage (Watts): 26.6
Ambient Temp (°C): 25.9

Sphere
Test Method: IES LM-16-93
IES LM-79-08 § 9.1 & 12.1
Preburn Time: 0:30
Time To Stabilize: 1:29
Total Operating Time: 1:59

Input Voltage (Volts): 120.0
Input Current (Amps): 0.261
Input Wattage (Watts): 26.7
Ambient Temp (°C): 24.0



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



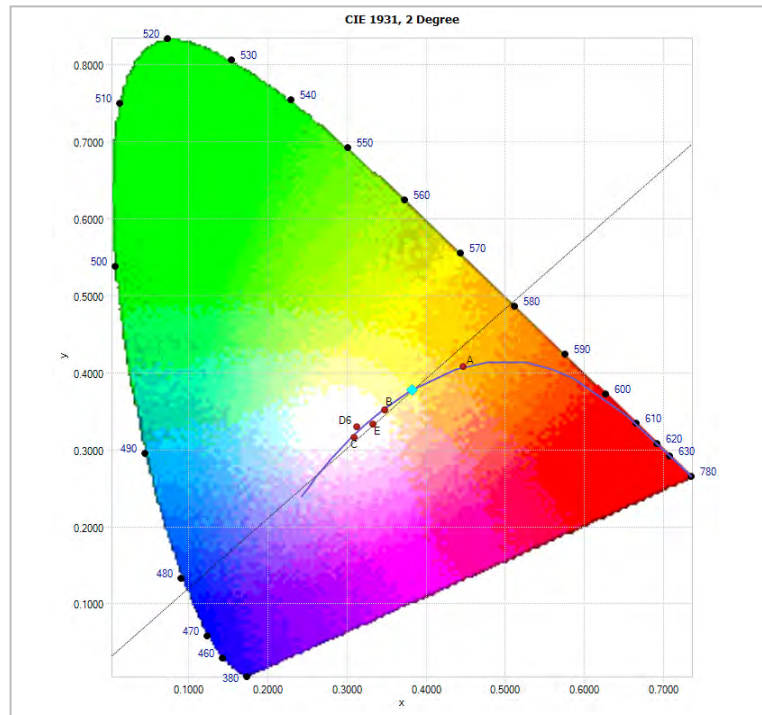
This report shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.



Lamp Cat#: 2835
 Lamp Desc: 80 - Samsung 4000K LEDs
 Driver Desc: 1 - GoPro SMT039W-800-UNV-27

Efficacy: 113.1 LPW S/P Ratio: 1.7 LM/LM

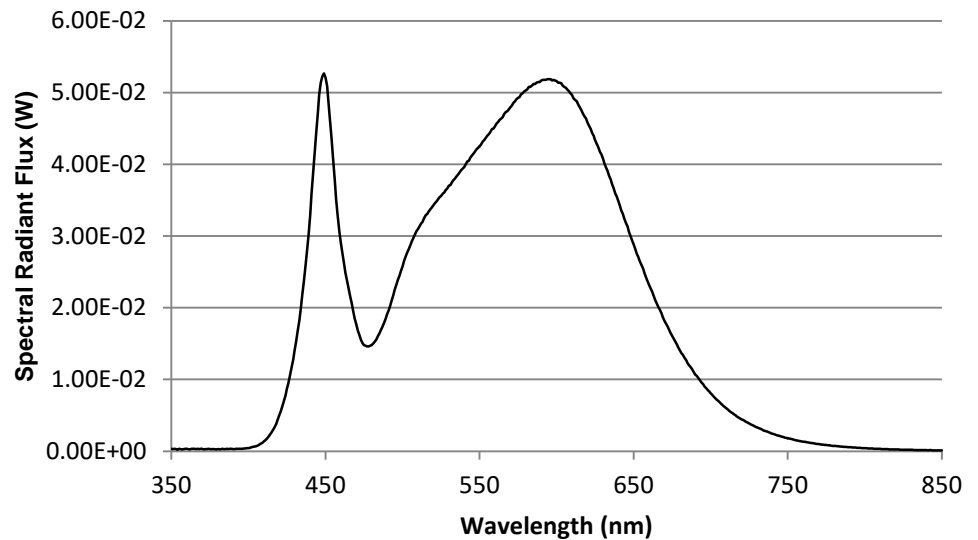
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	9.42	watts
Φ(v)	3031	lumens
Φ(v')	5051	lm'
Chrom x	0.3821	
Chrom y	0.3775	
Chrom u	0.2259	
Chrom v	0.3348	
Duv	0.0002	
Chrom u'	0.2259	
Chrom v'	0.5022	
CCT	3957	K
Purity	28	%
λ (dom)	579.3	nm
FWHM	24.6	nm
λ (peak)	448.8	nm
λ (center)	449.6	nm
λ (centroid)	565.0	nm
SDCM	Cool White	
RA	83	
Corr. Coef.	0.000190703	
Correlation	0.0054	
R1	81.8	
R2	88.6	
R3	93.8	
R4	83.1	
R5	82.1	
R6	84.4	
R7	86.8	
R8	67.0	
R9	14.4	
R10	73.1	
R11	82.1	
R12	66.6	
R13	83.2	
R14	96.6	

Spectral Distribution of Radiant Flux



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PREPARED FOR: PROGRESS

CATALOG NUMBER: PCIRT-LED-22-40K

LUMINAIRE: 2x2 Prismatic LED Troffer

LAMP CAT. NO.: 3835

LAMP: 80- 4000K Samsung LEDs

BALLAST CATALOG NUMBER: SMT039W-800-UNV-27

BALLAST: 1-GoPro-

REFRACTOR: Prismatic Acrylic

MOUNTING: Recessed

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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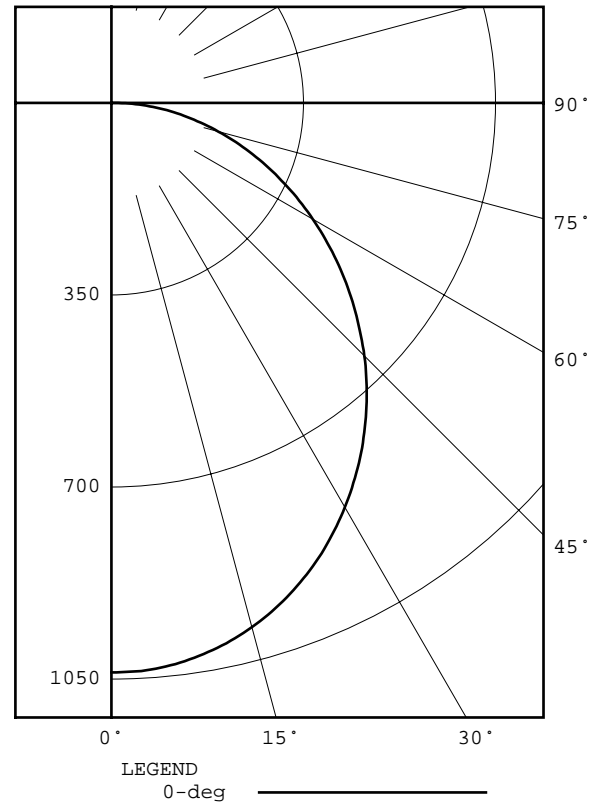
DEG	CANDELA	LUMENS
0	1038	
5	1033	98
15	989	279
25	906	417
35	790	494
45	652	503
55	501	448
65	348	345
75	202	214
85	70	76
90	7	
95	0	1
105	0	0
115	0	0
125	0	0
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	794	27.6
0- 40	1288	44.8
0- 60	2238	77.9
0- 90	2874	100.0
90-120	1	0.0
90-130	1	0.0
90-150	1	0.0
90-180	1	0.0
0-180	2875	100.0

EFFICACY = 108.1 lm/W
CIE TYPE - DIRECT
PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 21.500 21.500

LUMINANCE DATA IN CANDELA/SQ M

ANGLE IN DEG	AVERAGE
45	3092.
55	2929.
65	2761.
75	2617.
85	2693.





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CANDELA DISTRIBUTION

0.0	1038
5.0	1033
10.0	1016
15.0	989
20.0	952
25.0	906
30.0	851
35.0	790
40.0	723
45.0	652
50.0	577
55.0	501
60.0	424
65.0	348
70.0	274
75.0	202
80.0	134
85.0	70
90.0	7
95.0	0
100.0	0
105.0	0
110.0	0
115.0	0
120.0	0
125.0	0
130.0	0
135.0	0
140.0	0
145.0	0
150.0	0
155.0	0
160.0	0
165.0	0
170.0	0
175.0	0
180.0	0



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	25
5- 10	73
10- 15	119
15- 20	160
20- 25	195
25- 30	222
30- 35	242
35- 40	252
40- 45	255
45- 50	248
50- 55	234
55- 60	214
60- 65	188
65- 70	157
70- 75	124
75- 80	90
80- 85	55
85- 90	21
90- 95	1
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
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	98
0- 20	377
0- 30	794
0- 40	1288
0- 50	1791
0- 60	2238
0- 70	2583
0- 80	2797
0- 90	2874
0-100	2875
0-110	2875
0-120	2875
0-130	2875
0-140	2875
0-150	2875
0-160	2875
0-170	2875
0-180	2875



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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	119	119	119	119	119	116	116	116	116	111	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	95	106	101	97	93	97	94	90	90	93	90	88	89	87	85	83
2	98	90	83	77	77	96	88	82	76	85	79	74	74	81	77	73	78	74	71	69
3	90	79	71	64	64	87	77	70	64	74	68	62	62	72	66	61	69	64	60	58
4	82	70	61	54	54	80	69	60	54	66	59	53	53	64	58	52	62	56	52	50
5	76	63	54	47	47	73	61	53	47	59	52	46	46	57	51	46	55	50	45	43
6	70	56	47	41	41	68	55	47	41	54	46	40	40	52	45	40	50	44	40	38
7	65	51	42	36	36	63	50	42	36	49	41	36	36	47	41	35	46	40	35	33
8	60	47	38	32	32	59	46	38	32	45	37	32	32	43	37	32	42	36	32	30
9	56	43	35	29	29	55	42	34	29	41	34	29	29	40	33	29	39	33	29	27
10	53	40	32	26	26	52	39	31	26	38	31	26	26	37	31	26	36	30	26	24

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: ITL78966-1000-38

Calibration Current: 8.300 Amps DC

Total Luminous Flux: 25889.0 Lumens

Calibration Date: 09/02/16

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL / HLI LAB 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	Calibration 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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