

Project Number  
17.03110



**HUBBELL**  
Lighting

Date  
12/11/2017

Lab#6  
Sphere

*Test Sample Description*

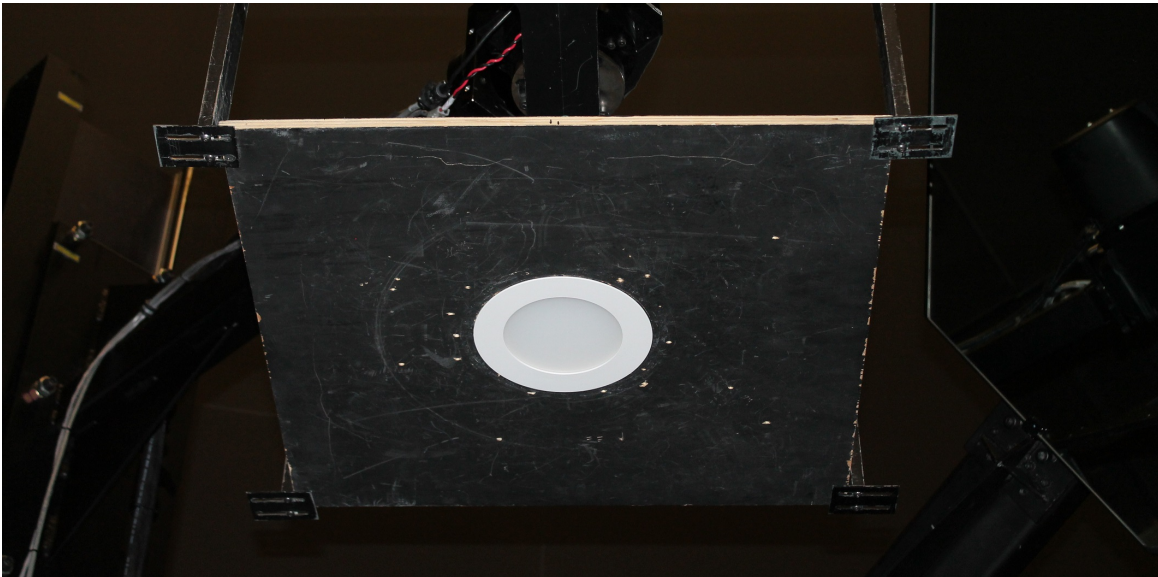
*Catalog Number:* P800005-028-30  
*Description:* 7" Recessed edgelit. T2 Sample. White.

*Photometry*

	IES LM-46-04
<i>Test Method:</i>	IES LM-79-08 § 10
<i>Preburn Time:</i>	3:30
<i>Time To Stabilize:</i>	0:40
<i>Total Operating Time:</i>	4:50
<i>Input Voltage (Volts):</i>	120.1
<i>Input Current (Amps):</i>	0.102
<i>Input Wattage (Watts):</i>	12.1
<i>Ambient Temp (°C):</i>	24.0

*Sphere*

	IES LM-16-93
<i>Test Method:</i>	IES LM-79-08 § 9.1 & 12.1
<i>Preburn Time:</i>	2:00
<i>Time To Stabilize:</i>	1:11
<i>Total Operating Time:</i>	3:11
<i>Input Voltage (Volts):</i>	120.0
<i>Input Current (Amps):</i>	0.101
<i>Input Wattage (Watts):</i>	12.1
<i>Ambient Temp (°C):</i>	24.0



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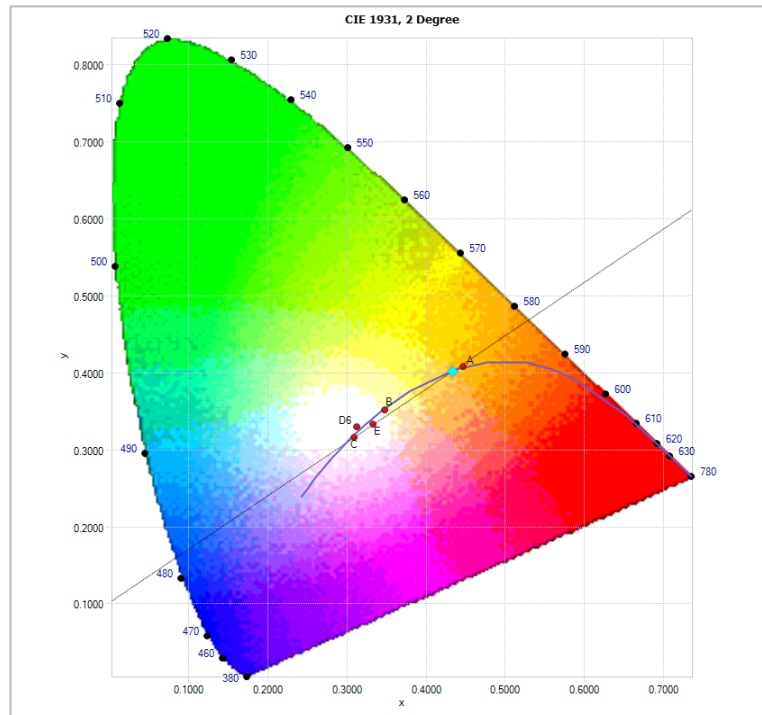
701 Millennium Boulevard  
Greenville, SC 29607  
www.hubbellighting.com

*Checked (sphere):* B.LEE  
*Checked (photometry):* M.ELLMANN  
*Approved:* \_\_\_\_\_

Lamp Cat#: 2835  
 Lamp Desc: 28 - Seoul 3000K LEDs  
 Driver Desc: 1 - Alpha D-PL-A53-01-A V2.0-Y2  
 Programmed to 100mA

Efficacy: 76.9 LPW      S/P Ratio: 1.4 LM/LM

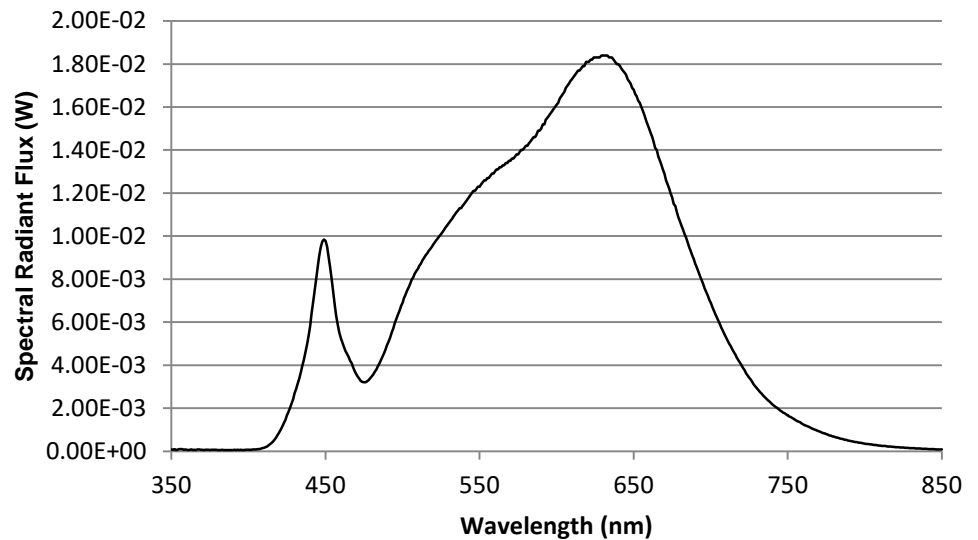
**Chromaticity Diagram**



**Spectral Results**

Name	Value	Unit
$\Phi$	3.31	watts
$\Phi(v)$	923	lumens
$\Phi(v')$	1303	lm'
Chrom x	0.4333	
Chrom y	0.4026	
Chrom u	0.2489	
Chrom v	0.3468	
Duv	0.0001	
Chrom u'	0.2489	
Chrom v'	0.5202	
CCT	3047	K
Purity	50.9	%
$\lambda$ (dom)	582.7	nm
FWHM	171.7	nm
$\lambda$ (peak)	629.8	nm
$\lambda$ (center)	601.7	nm
$\lambda$ (centroid)	596.0	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.000204524	
Correlation	0.0054	
R1	94.4	
R2	94.7	
R3	93.2	
R4	94.2	
R5	93.5	
R6	92.8	
R7	94.7	
R8	89.0	
R9	73.0	
R10	86.5	
R11	94.6	
R12	81.8	
R13	94.3	
R14	95.4	

**Spectral Distribution of Radiant Flux**



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



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**REPORT NUMBER:** 17.03110

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**ISSUE DATE:** 12/12/17

**PREPARED FOR:** PROGRESS

**CATALOG NUMBER:** P800005-028-30

**LUMINAIRE:** 7" Recessed edgelit. T2 Sample. White.

**LAMP CAT. NO.:** 2835

**LAMP:** 28 - Seoul 3000K LEDs

**BALLAST CATALOG NUMBER:** D-PL-A53-01-A V2.0-Y2

**BALLAST:** 1-Alpha- set to 100mA

**MOUNTING:** Recessed

**REFLECTOR:** PET

**REFRACTOR:** Polycarbonate

**NOTE:** DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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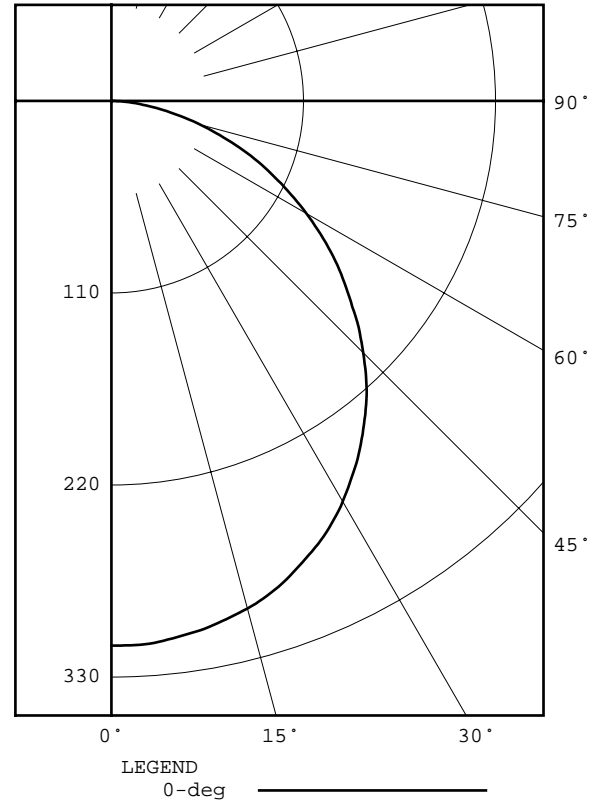
**PAGE:** 4 OF 8

DEG	CANDELA	LUMENS
0	312	
5	311	30
15	301	85
25	280	129
35	247	154
45	204	157
55	155	138
65	103	102
75	53	56
85	12	14
90	0	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	243	28.1
0- 40	398	45.9
0- 60	693	80.1
0- 90	866	100.0
90-180	0	0.0
0-180	866	100.0

EFFICACY = 71.6 lm/W  
CIE TYPE - DIRECT  
SPACING CRITERION: 1.26  
LUMINOUS DIAMETER: 4.625

LUMINANCE DATA IN CANDELA/SQ M	
ANGLE	AVERAGE
IN DEG	
45	26617.
55	24932.
65	22486.
75	18893.
85	12703.





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CANDELA DISTRIBUTION

0.0	312
2.5	312
5.0	311
7.5	309
10.0	307
12.5	304
15.0	301
17.5	297
20.0	292
22.5	286
25.0	280
27.5	273
30.0	265
32.5	256
35.0	247
37.5	237
40.0	227
42.5	216
45.0	204
47.5	192
50.0	179
52.5	167
55.0	155
57.5	142
60.0	129
62.5	116
65.0	103
67.5	91
70.0	78
72.5	65
75.0	53
77.5	41
80.0	30
82.5	20
85.0	12
87.5	5
90.0	0



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		7
5- 10		22
10- 15		36
15- 20		49
20- 25		60
25- 30		69
30- 35		75
35- 40		79
40- 45		80
45- 50		77
50- 55		73
55- 60		66
60- 65		56
65- 70		46
70- 75		34
75- 80		22
80- 85		11
85- 90		3

10-DEGREE ZONAL LUMEN SUMMARY		
0- 10		30
0- 20		114
0- 30		243
0- 40		398
0- 50		555
0- 60		693
0- 70		796
0- 80		852
0- 90		866



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	84	79	97	89	83	78	86	80	76	82	78	74	79	76	72	70
3	90	80	72	65	88	78	71	65	75	69	64	73	67	63	70	65	62	59
4	83	71	62	56	81	70	61	55	67	60	54	65	59	54	63	57	53	51
5	76	63	54	48	74	62	54	48	60	53	47	58	52	47	56	51	46	44
6	70	57	48	42	68	56	48	42	54	47	41	53	46	41	51	45	41	38
7	65	52	43	37	64	51	43	37	49	42	37	48	41	36	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	32	43	37	32	30
9	57	43	35	30	55	43	35	30	42	34	29	41	34	29	40	34	29	27
10	53	40	32	27	52	40	32	27	39	32	27	38	31	27	37	31	26	25

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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