



LAB 1
Sphere

Test Sample Description

Catalog Number: P300187-015-30
Description: 3-Lt. LED Bath w/ Etched Opal Refractors

Photometry

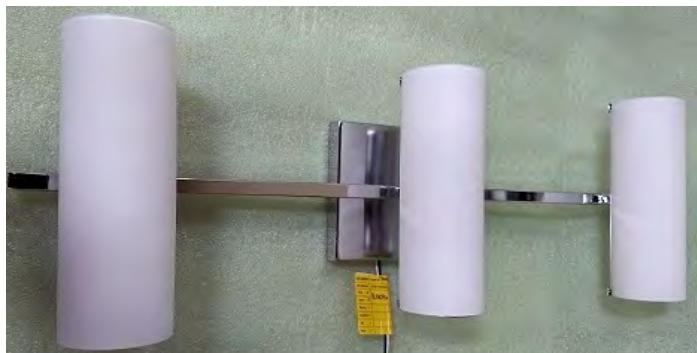
Test Method: IES LM-46-04
IES LM-79-08 §10
Preburn Time: 0:15
Time To Stabilize: 0:25
Total Operating Time: 1:04

Input Voltage (Volts): 120.1
Input Current (Amps): 0.247
Input Wattage (Watts): 29.4
Ambient Temp (°C): 26.1

Sphere

Test Method: IES LM-16-93
IES LM-79-08 §12.1
Preburn Time: 0:30
Time To Stabilize: 1:20
Total Operating Time: 1:50

Input Voltage (Volts): 120.0
Input Current (Amps): 0.245
Input Wattage (Watts): 29.2
Ambient Temp (°C): 24.0
PF @ 120V: 0.985
THD @ 120V (%): 11.9



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Checked (sphere): BEN LEE
Checked (photometry): D. ROBBINS
Approved: P. McCARTHY

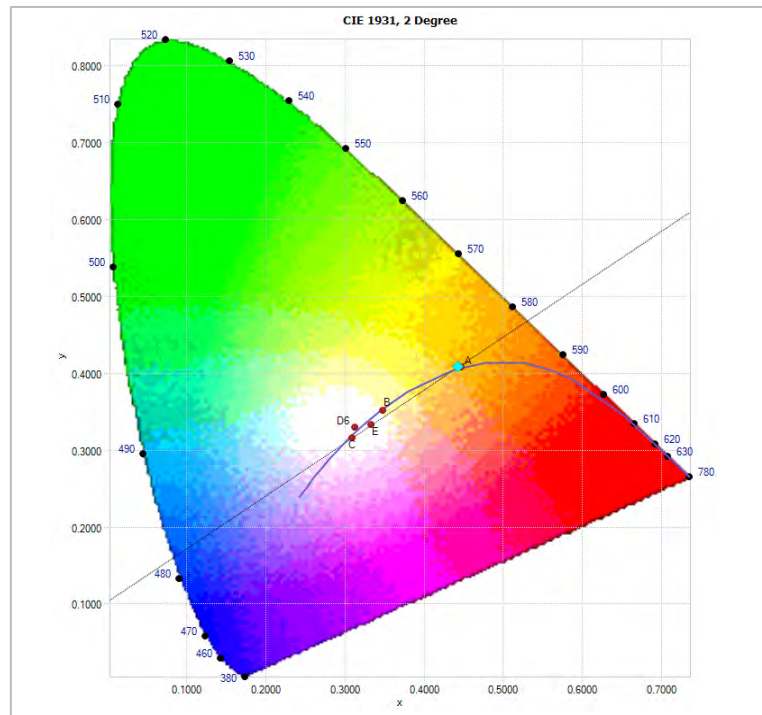




Lamp Cat#: EVAC120C-3528SE-L28-14S2P-201
 Lamp Desc: 84 - Seoul 3000K LEDs
 Driver Desc: NA

Efficacy: 56.9 LPW S/P Ratio: 1.4 LM/LM

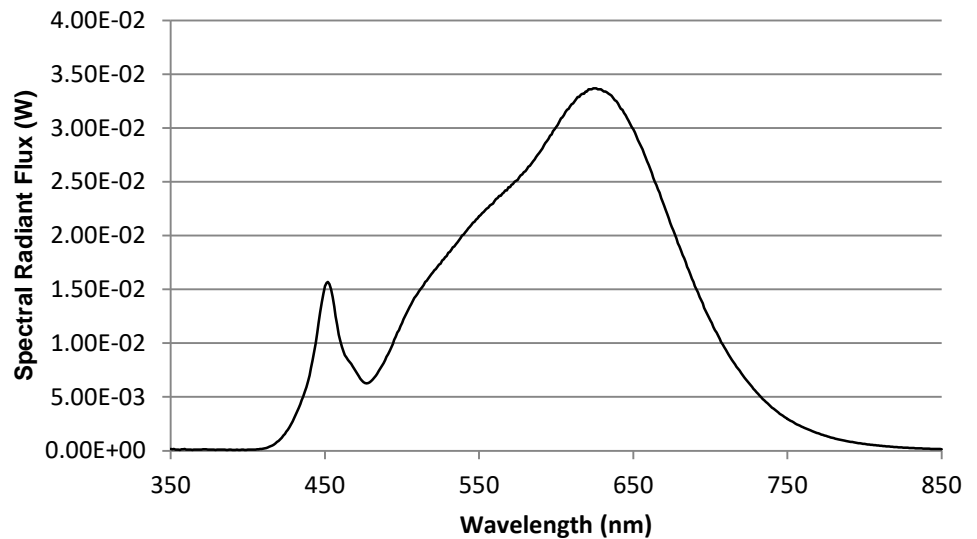
Chromaticity Diagram



Spectral Results

Name	Value	Unit
Φ	5.89	watts
Φ(v)	1661	lumens
Φ(v')	2271	lm'
Chrom x	0.4428	
Chrom y	0.4085	
Chrom u	0.2525	
Chrom v	0.3493	
Duv	0.0007	
Chrom u'	0.2525	
Chrom v'	0.524	
CCT	2937	K
Purity	55.5	%
λ (dom)	582.8	nm
FWHM	164.2	nm
λ (peak)	625.6	nm
λ (center)	603.7	nm
λ (centroid)	598.1	nm
SDCM	Cool White	
RA	93	
Corr. Coef.	0.000991448	
Correlation	0.0054	
R1	93.1	
R2	95.1	
R3	95.6	
R4	93.7	
R5	92.3	
R6	93.6	
R7	94.3	
R8	85.2	
R9	65.1	
R10	87.4	
R11	93.9	
R12	80.3	
R13	93.4	
R14	96.7	

Spectral Distribution of Radiant Flux





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LUMINAIRE: 3-Lt. LED Bath w/ Etched Opal Refractors

LAMP CAT. NO.: EVAC120C-3528SE-L28-14S2P-201

LAMP: 84- Seoul 3000K LEDs

MOUNTING: Wall

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.



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CANDELA DISTRIBUTION

	0.0	45.0	90.0	135.0	180.0
0	8	8	8	8	8
5	26	25	22	16	13
15	66	63	51	31	20
25	105	99	79	44	22
35	140	134	105	54	24
45	171	165	123	62	26
55	200	193	115	70	28
65	220	215	97	74	29
75	235	230	77	69	28
85	241	236	60	62	28
90	241	237	55	56	27
95	239	235	60	53	27
105	230	226	78	51	25
115	215	211	98	50	25
125	196	190	116	47	24
135	167	164	124	45	24
145	149	134	104	40	23
155	105	102	55	39	20
165	67	50	32	24	17
175	6	6	13	6	4
180	2	2	2	2	2

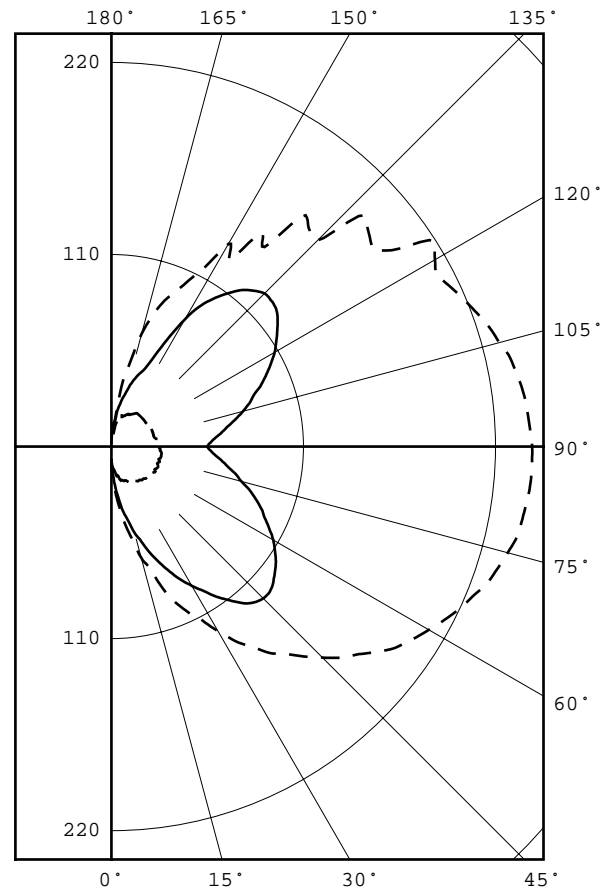
FLUX

2
13
33
59
87
113
133
146
150
148
141
128
110
86
58
31
11
1

ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	49	3.4
0- 40	108	7.4
0- 60	309	21.3
0- 90	738	50.9
90-120	417	28.7
90-130	526	36.3
90-150	670	46.2
90-180	713	49.1
0-180	1451	100.0

EFFICACY = 49.4 lm/W
CIE TYPE - GENERAL DIFFUSE
PLANE : 0-DEG 90-DEG
SHIELDING ANGLES : 90 90



LEGEND
0-deg - - - - -
90-deg - - - - -
180-deg - - - - -



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PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 6.000 6.000
HEIGHT OF SIDE : 7.500 7.500

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE AVERAGE AVERAGE
IN DEG 0-DEG 90-DEG 180-DEG
45 4628. 3329. 704.
55 5390. 3099. 755.
65 6090. 2685. 803.
75 6901. 2261. 822.
85 7788. 1939. 905.



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CANDELA DISTRIBUTION
LATERAL ANGLE

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
0.0	8	8	8	8	8	8	8	8	8
5.0	26	26	25	24	22	19	16	13	13
10.0	45	44	44	41	37	30	24	19	17
15.0	66	65	63	58	51	40	31	23	20
20.0	87	86	81	74	65	51	37	25	21
25.0	105	104	99	91	79	62	44	27	22
30.0	122	122	118	107	92	72	49	29	24
35.0	140	140	134	122	105	81	54	31	24
40.0	155	157	150	137	117	90	58	32	25
45.0	171	173	165	150	123	98	62	33	26
50.0	185	188	180	163	121	103	66	35	27
55.0	200	202	193	175	115	107	70	36	28
60.0	210	215	205	185	107	108	74	37	29
65.0	220	225	215	195	97	108	74	37	29
70.0	229	234	223	202	88	108	72	38	28
75.0	235	241	230	209	77	107	69	39	28
80.0	239	245	234	214	68	106	67	39	29
85.0	241	247	236	216	60	105	62	38	28
90.0	241	248	237	216	55	105	56	37	27
95.0	239	245	235	214	60	105	53	37	27
100.0	236	243	232	211	68	105	52	36	26
105.0	230	237	226	205	78	106	51	35	25
110.0	223	229	219	198	87	106	51	34	25
115.0	215	220	211	191	98	107	50	34	25
120.0	214	217	201	181	108	106	49	34	25
125.0	196	204	190	172	116	105	47	33	24
130.0	192	193	181	161	123	102	46	28	24
135.0	167	176	164	149	124	96	45	27	24
140.0	173	154	149	136	117	89	43	30	24
145.0	149	143	134	122	104	80	40	30	23
150.0	134	126	118	107	84	70	37	28	21
155.0	105	106	102	87	55	50	39	27	20
160.0	89	87	75	55	43	34	34	25	18
165.0	67	61	50	39	32	26	24	19	17
170.0	38	32	31	24	22	17	14	12	11
175.0	6	9	6	10	13	9	6	4	4
180.0	2	2	2	2	2	2	2	2	2



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5-DEGREE ZONAL LUMEN SUMMARY		
0- 5		0
5- 10		2
10- 15		5
15- 20		9
20- 25		14
25- 30		20
30- 35		26
35- 40		33
40- 45		40
45- 50		47
50- 55		54
55- 60		60
60- 65		65
65- 70		69
70- 75		72
75- 80		74
80- 85		75
85- 90		75
90- 95		74
95-100		73
100-105		72
105-110		69
110-115		66
115-120		62
120-125		58
125-130		52
130-135		46
135-140		40
140-145		32
145-150		25
150-155		19
155-160		12
160-165		7
165-170		3
170-175		1
175-180		0

10-DEGREE ZONAL LUMEN SUMMARY		
0- 10		2
0- 20		16
0- 30		49
0- 40		108
0- 50		195
0- 60		309
0- 70		442
0- 80		588
0- 90		738
0-100		886
0-110		1026
0-120		1154
0-130		1264
0-140		1350
0-150		1408
0-160		1439
0-170		1449
0-180		1451



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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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	51
1	93	86	80	75	85	79	74	69	66	61	58	53	50	47	42	40	37	32
2	82	72	64	57	75	66	59	52	54	49	44	44	39	35	34	30	27	22
3	74	62	52	45	67	56	48	41	46	40	34	37	32	28	28	24	21	17
4	67	53	44	36	60	49	40	33	40	33	28	32	26	22	24	20	17	13
5	61	47	37	30	55	43	34	28	35	28	23	28	22	18	21	17	14	10
6	55	41	32	25	50	38	29	23	31	24	19	25	19	15	19	15	11	8
7	51	37	28	22	46	34	26	20	28	21	16	22	17	13	17	13	10	7
8	47	33	25	19	43	30	23	17	25	19	14	20	15	11	15	11	8	6
9	44	30	22	16	40	28	20	15	23	17	12	18	13	10	14	10	7	5
10	41	27	19	14	37	25	18	13	21	15	11	17	12	8	13	9	6	4

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.



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: 07/10/2017

Test Equipment Used

<i>Instrument</i>	<i>Manufacturer / Model</i>	<i>S/N</i>	<i>Calibration Due:</i>
<i>Goniophotometer</i>	ITL/HLI LAB 1 - Test Distance: 31.74'	N/A	N/A
<i>Power Analyzer</i>	Yokogawa / WT 332	C2QA27071V	10/25/2018
<i>Power Source</i>	Voltage-Regulated House Power	N/A	N/A
<i>Thermometer</i>	National Instruments / USB-TC01	176F4E3	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>Power Supply PF/THD</i>	Voltage-Regulated House Power	N/A	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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