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Indoor Distribution Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002

Prepared For
B-K LIGHTING INC

Chris McCarthy
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Madera, CA 93636-9515
United States

Catalog Number
HP2-LED-x60-WFL-9 CO2-LED-x60-WFL-9

Order Number
11353040
Test Number
11353040.49

Test Date

2016-10-03

Prepared By

Tony Rubio, Technician

Approved By

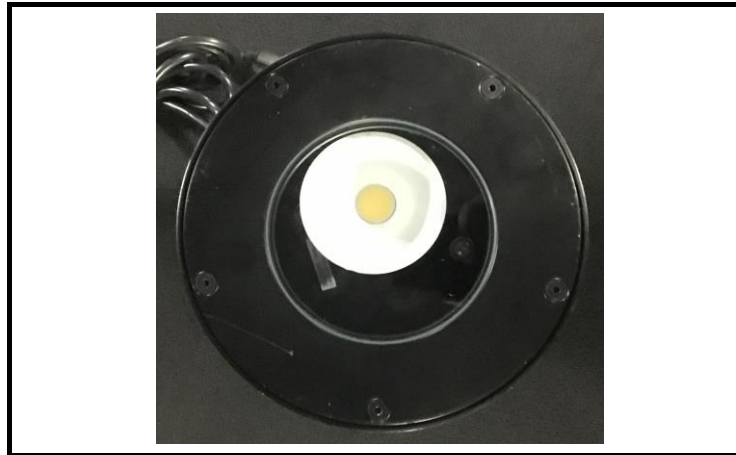
Eric Gaudreau, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Circular black plastic housing, white stepped reflector, and glass lens
Lamp: One (1) White LED
Mounting: Pole
Ballast/Driver: PowerSelect PS60U700C14T

Luminaire



Luminaire Characteristics
Luminous Diameter: 4.00 in.

Summary of Results

Total Luminaire Output:	863.1 Lumens
Luminaire Efficacy:	68.5 lm/w
Maximum Candela:	737 Candela

Test Conditions

Test Temperature:	25.5 °C
Voltage:	120.1 VAC
Current:	0.1080 A
Power:	12.60 W
Power Factor:	0.971
Frequency:	60 Hz
Current THD:	15.4 %

Laboratory results may not be representative of field performance
Ballast factors have not been applied



Distribution - Goniophotometer

Distribution Test Conditions

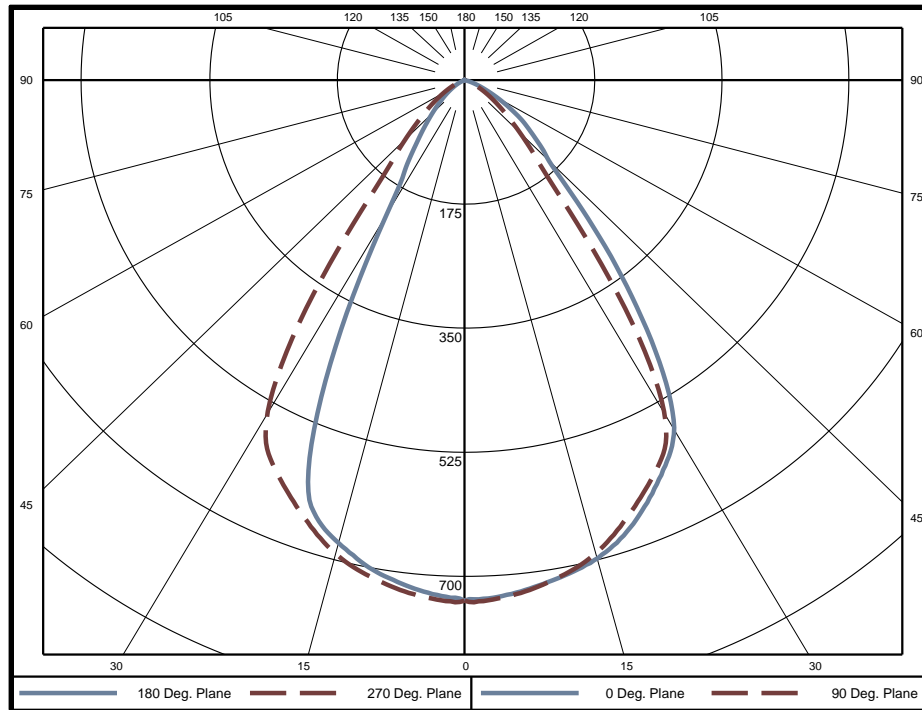
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.5 °C	120.1 VAC	0.1080 A	12.60 W	0.971	60 Hz	15.4 %

Summary of Results

Spacing Criteria
 0-180: 1.16
 90-270: 0.90

Total Lumen Output: 863.1 Lumens
Luminaire Efficacy: 68.5 lm/w
Maximum Candela: 737 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	17.5	2.0%	60-65	10.7	1.2%	120-125	0	0.0%
5-10	51.4	6.0%	65-70	5.3	0.6%	125-130	0	0.0%
10-15	83.1	9.6%	70-75	1.9	0.2%	130-135	0	0.0%
15-20	110.6	12.8%	75-80	0.6	0.1%	135-140	0	0.0%
20-25	129.6	15.0%	80-85	0.3	0.0%	140-145	0	0.0%
25-30	130.5	15.1%	85-90	0.1	0.0%	145-150	0	0.0%
30-35	109.4	12.7%	90-95	0	0.0%	150-155	0	0.0%
35-40	77.9	9.0%	95-100	0	0.0%	155-160	0	0.0%
40-45	51.4	6.0%	100-105	0	0.0%	160-165	0	0.0%
45-50	37.5	4.3%	105-110	0	0.0%	165-170	0	0.0%
50-55	27.2	3.2%	110-115	0	0.0%	170-175	0	0.0%
55-60	18.1	2.1%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	710	82.3%
0-60	844	97.8%
0-90	863	100.0%
90-180	0	0.0%



Candela Tabulation
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
	0	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2	734.2
	5	727.5	727.7	727.5	728.8	729.8	728.0	726.5	726.0	722.1	726.0	726.5	728.0	729.8	728.8	727.5
	10	714.2	712.4	712.2	714.0	713.7	711.1	709.3	709.3	704.3	709.3	709.3	711.1	713.7	714.0	712.2
	15	697.5	693.8	690.9	690.8	689.8	687.6	685.0	683.6	675.9	683.6	685.0	687.6	689.8	690.8	690.9
	20	666.1	659.0	653.6	652.0	651.6	653.3	651.6	646.2	630.2	646.2	651.6	653.3	651.6	652.0	653.6
	25	621.0	613.6	606.2	605.9	610.0	603.1	553.4	492.5	440.6	492.5	553.4	603.1	610.0	605.9	606.2
	30	566.0	562.4	551.9	547.1	539.5	438.9	318.5	250.1	208.4	250.1	318.5	438.9	539.5	547.1	551.9
	35	428.9	428.0	418.7	408.6	341.1	213.1	158.4	142.1	130.2	142.1	158.4	213.1	341.1	408.6	418.7
	40	270.5	258.6	253.1	236.8	166.6	129.2	105.9	94.3	86.8	94.3	105.9	129.2	166.6	236.8	253.1
	45	161.4	156.9	156.0	137.9	108.1	84.8	70.7	63.4	58.4	63.4	70.7	84.8	108.1	137.9	156.0
	50	121.4	119.0	109.6	89.7	70.4	55.8	46.4	41.4	38.2	41.4	46.4	55.8	70.4	89.7	109.6
	55	88.2	81.0	70.3	57.3	45.0	35.4	29.2	25.9	23.7	25.9	29.2	35.4	45.0	57.3	70.3
	60	55.0	49.0	42.3	34.3	26.6	20.7	16.7	14.5	12.9	14.5	16.7	20.7	26.6	34.3	42.3
	65	29.9	26.9	23.0	18.2	13.7	10.1	7.7	6.3	5.3	6.3	7.7	10.1	13.7	18.2	23.0
	70	14.2	12.2	10.0	7.4	5.2	3.3	2.1	1.5	1.0	1.5	2.1	3.3	5.2	7.4	10.0
	75	4.6	3.7	2.8	2.0	1.2	0.9	0.7	0.7	0.6	0.7	0.7	0.9	1.2	2.0	2.8
	80	1.7	1.5	1.3	1.0	0.7	0.5	0.4	0.4	0.3	0.4	0.4	0.5	0.7	1.0	1.3
	85	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3
	90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	125	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	90560	90560
	45	28150	18850
	55	18960	9666
	65	8725	4008
	75	2211	578
	85	591	440



Utilization of Lumens - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	1027	1027	1027	1027	1004	1004	1004	1004	959	959	959	918	918	918	881	881	881	863
1	974	947	924	902	952	929	907	888	893	876	861	861	847	835	831	821	811	795
2	918	871	833	800	899	856	821	791	828	799	773	802	778	757	778	758	741	726
3	865	803	755	717	847	791	746	711	767	730	699	746	715	688	726	700	677	663
4	814	742	689	648	798	732	682	644	712	670	636	695	658	628	678	647	621	607
5	767	687	631	590	753	679	626	587	663	617	582	648	608	576	634	599	571	557
6	724	639	581	540	710	631	578	538	618	570	535	605	563	531	593	556	527	513
7	684	595	538	498	671	589	535	496	578	529	494	567	523	491	557	518	488	475
8	647	556	500	461	635	551	497	460	541	492	457	532	488	455	523	483	453	440
9	612	521	466	428	602	517	464	427	508	460	426	500	456	424	493	452	422	410
10	581	490	435	399	572	486	434	398	479	430	397	471	427	396	465	424	395	383

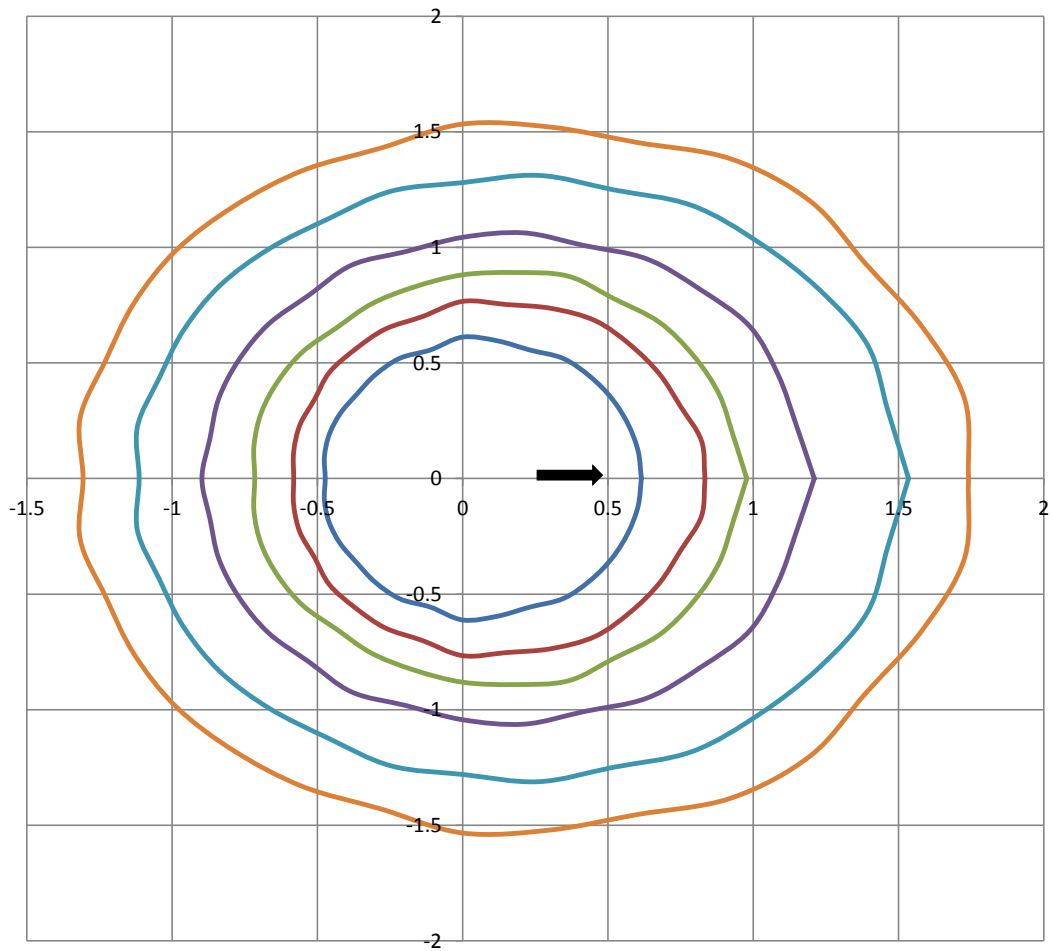
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	734.2 Candela
Central Cone Intensity:	732 Candela
Beam Flux:	612.2 Lumens
Beam Angle (0-180):	63.4 Degrees
Beam Angle (90-270):	68.9 Degrees
Field Angle (0-180):	99.2 Degrees
Field Angle (90-270):	99.0 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		45.9	4.13
6.00		20.4	6.20
8.00		11.5	8.27
10.0		7.34	10.3
12.0		5.10	12.4
14.0		3.75	14.5
16.0		2.87	16.5



ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

5 fc 2 fc 1 fc 0.5 fc 0.2 fc 0.1 fc