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Indoor Distribution Test Report

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

Prepared For
B-K LIGHTING INC

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

Order Number
11353040
Test Number
11353040.10

Test Date

2016-09-02

Prepared By

Khang Nguyen, Technician

Approved By

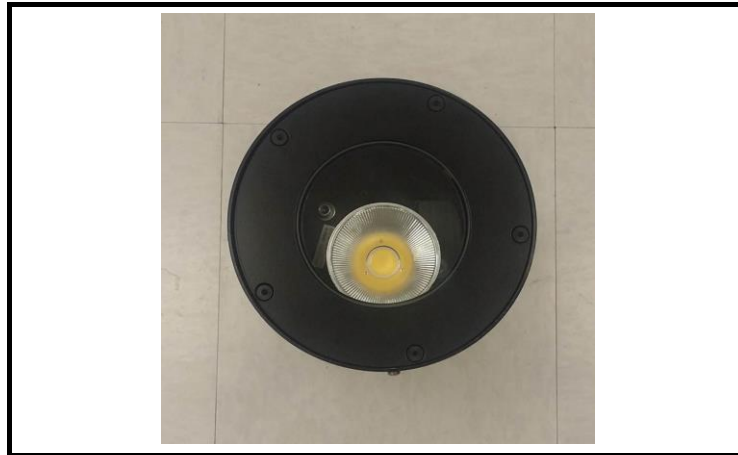
Eric Gaudreau, Senior Engineering Associate

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Luminaire Description: Circular formed black aluminum cylinder housing with an internal specular faceted plastic reflector and a clear glass lens
Lamp: One (1) White LED
Mounting: Surface
Ballast/Driver: One (1) POWERSELECT PS60U700C14T

Luminaire



Luminaire Characteristics

Luminous Diameter: 3.75 in.

Summary of Results

Total Luminaire Output:	972.4 Lumens
Luminaire Efficacy:	76 lm/w
Maximum Candela:	1755 Candela

Test Conditions

Test Temperature:	25.0 °C
Voltage:	120.1 VAC
Current:	0.1097 A
Power:	12.80 W
Power Factor:	0.972
Frequency:	60 Hz
Current THD:	15.1 %

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
25.0 °C	120.1 VAC	0.1097 A	12.80 W	0.972	60 Hz	15.1 %

Summary of Results

Spacing Criteria

0-180: 0.79

90-270: 0.63

Total Lumen Output:

972.4 Lumens

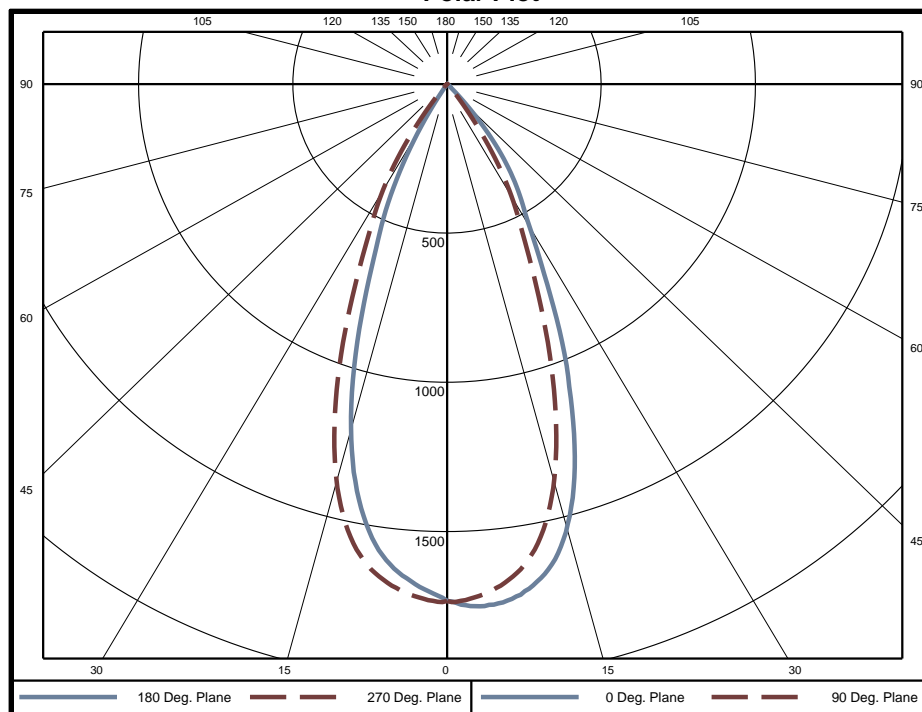
Luminaire Efficacy:

76.0 lm/w

Maximum Candela:

1755 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	41.1	4.2%	60-65	0.4	0.0%	120-125	0	0.0%
5-10	118.4	12.2%	65-70	0.3	0.0%	125-130	0	0.0%
10-15	176.6	18.2%	70-75	0.2	0.0%	130-135	0	0.0%
15-20	194.5	20.0%	75-80	0.1	0.0%	135-140	0	0.0%
20-25	168.8	17.4%	80-85	0.1	0.0%	140-145	0	0.0%
25-30	128.4	13.2%	85-90	0.0	0.0%	145-150	0	0.0%
30-35	83.8	8.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	40.0	4.1%	95-100	0	0.0%	155-160	0	0.0%
40-45	11.2	1.2%	100-105	0	0.0%	160-165	0	0.0%
45-50	4.0	0.4%	105-110	0	0.0%	165-170	0	0.0%
50-55	3.3	0.3%	110-115	0	0.0%	170-175	0	0.0%
55-60	1.3	0.1%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	952	97.9%
0-60	971	99.9%
0-90	973	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	1733	1733	1733	1733	1733	1733	1733	1733	1733	1733	1733	1733	1733	1733	1733
	5	1752	1744	1732	1721	1704	1687	1669	1663	1654	1663	1669	1687	1704	1721	1732
	10	1694	1676	1658	1634	1602	1570	1539	1522	1497	1522	1539	1570	1602	1634	1658
	15	1526	1495	1468	1422	1368	1313	1262	1238	1194	1238	1262	1313	1368	1422	1468
	20	1206	1164	1130	1069	1005	922	858	830	782	830	858	922	1005	1069	1130
	25	823	783	754	708	641	578	536	506	467	506	536	578	641	708	754
	30	522	516	500	472	409	341	293	240	191	240	293	341	409	472	500
	35	363	345	328	264	179	125	70	27	13	27	70	125	179	264	328
	40	178	157	124	62	39	21	6	5	4	5	6	21	39	62	124
	45	32	23	13	10	10	8	7	6	6	7	8	10	10	13	23
	50	12	12	11	11	10	9	8	7	6	7	8	9	10	11	11
	55	9	9	8	7	5	4	2	2	1	2	2	4	5	7	8
	60	3	2	2	1	1	1	1	1	1	1	1	1	1	2	2
	65	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1
	70	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1
	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	90	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
	100	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
	110	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
	120	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
	130	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
	140	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
	150	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
	160	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
	170	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
	180	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	243200	243200
	45	6288	2513
	55	2293	2057
	65	299	250
	75	253	198
	85	157	126



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	1158	1158	1158	1158	1131	1131	1131	1131	1080	1080	1080	1034	1034	1034	992	992	992	972
1	1110	1086	1064	1045	1087	1065	1046	1028	1026	1011	997	990	978	967	957	948	939	923
2	1064	1022	987	958	1043	1005	974	947	974	949	926	946	925	907	920	903	888	873
3	1019	964	921	888	1000	951	912	880	926	893	867	903	876	853	882	859	840	826
4	976	912	865	829	959	901	857	824	881	844	814	862	830	805	845	818	796	783
5	935	864	815	778	920	855	809	775	839	799	768	823	789	761	809	779	755	742
6	896	821	770	734	883	813	766	731	800	758	726	787	750	722	775	742	717	705
7	860	781	730	694	848	775	727	693	763	720	689	752	714	686	742	708	682	670
8	825	745	694	659	815	739	691	658	729	686	655	720	681	652	711	676	650	638
9	793	711	661	627	783	707	659	626	698	654	624	690	650	622	682	646	620	609
10	762	680	631	598	754	676	629	597	669	625	595	662	622	594	655	619	592	581

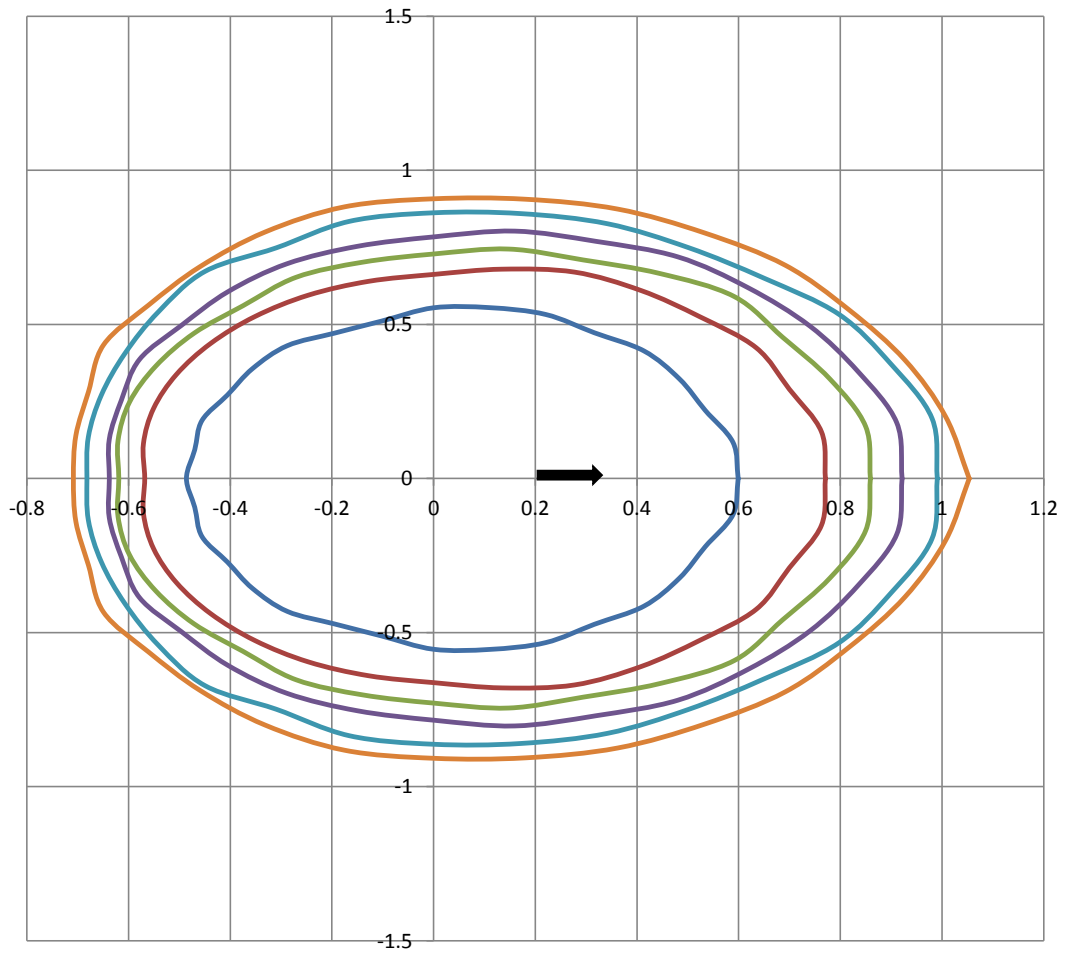
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	1733 Candela
Central Cone Intensity:	1723 Candela
Beam Flux:	598.9 Lumens
Beam Angle (0-180):	43.5 Degrees
Beam Angle (90-270):	43.5 Degrees
Field Angle (0-180):	70.5 Degrees
Field Angle (90-270):	70.3 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		108	2.84
6.00		48.1	4.25
8.00		27.1	5.67
10.0		17.3	7.09
12.0		12.0	8.51
14.0		8.84	9.93
16.0		6.77	11.3



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