



UL Verification Services Inc.
7036 Snowdrift Road
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Indoor Distribution Test Report

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

Prepared For
H E Williams Inc
831 W Fairview Ave
PO Box 837
Carthage, MO 64836-0837
United States

Catalog Number
SRKR-X4-L31/830-X-XXX-UNV (Driver 1)
Order Number
12118431
Test Number
12118431.20

Test Date

2018-01-10

Prepared By

Dane Hernandez-Adams, Technician

Approved By

Alexa Lambert, Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: White formed steel housing, frosted plastic lens enclosure. Tested in Columbia CS Bi-Pin 2L reference housing.
Lamp: 112 white LEDs
Mounting: Surface – Ceiling
Ballast/Driver: One Philips CI024C045V052CNN1 driver

Luminaire



Luminaire Characteristics

Luminous Length: 48.00 in.
Luminous Width: 4.500 in.
Luminous Height: 1.00 in.

Summary of Results

Total Luminaire Output: 2877 Lumens
Luminaire Efficacy: 145.3 lm/w
Maximum Candela: 956 Candela

Test Conditions

Test Temperature: 25.9 °C
Voltage: 120.0 VAC
Current: 0.1658 A
Power: 19.80 W
Power Factor: 0.995
Frequency: 60 Hz
Current THD: 9.79 %

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
25.9 °C	120.0 VAC	0.1658 A	19.80 W	0.995	60 Hz	9.79 %

Summary of Results

Spacing Criteria

0-180: 1.22

90-270: 1.28

Total Lumen Output:

2877 Lumens

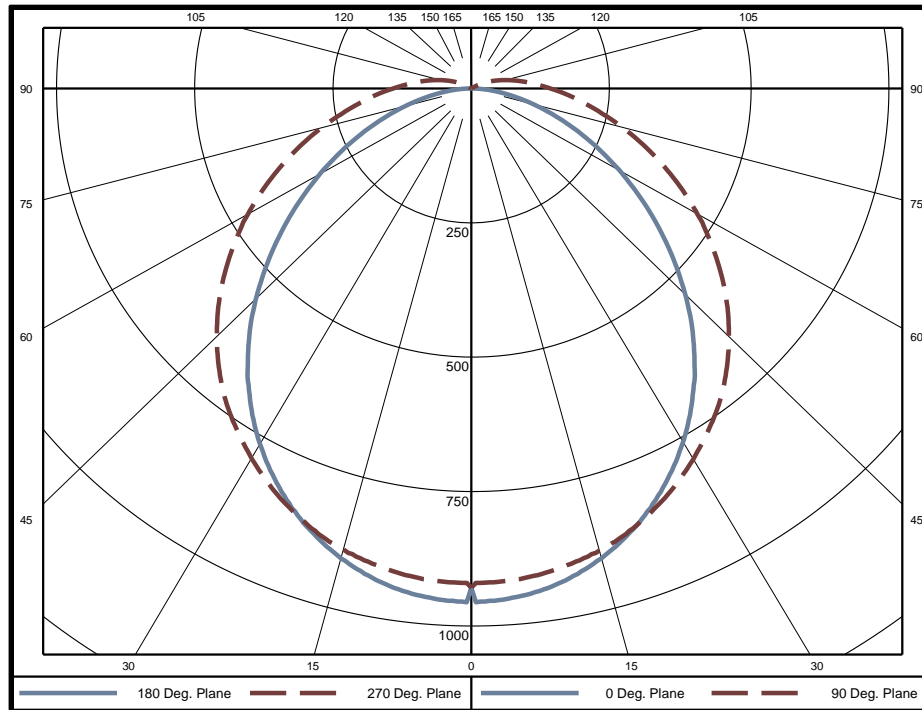
Luminaire Efficacy:

145.3 lm/w

Maximum Candela:

956 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	22.2	0.8%	60-65	178.3	6.2%	120-125	0.5	0.0%
5-10	65.7	2.3%	65-70	153.7	5.3%	125-130	0	0.0%
10-15	106.9	3.7%	70-75	128.5	4.5%	130-135	0	0.0%
15-20	144.1	5.0%	75-80	103.6	3.6%	135-140	0	0.0%
20-25	176.0	6.1%	80-85	80.7	2.8%	140-145	0	0.0%
25-30	201.7	7.0%	85-90	60.8	2.1%	145-150	0	0.0%
30-35	220.4	7.7%	90-95	44.6	1.6%	150-155	0	0.0%
35-40	231.5	8.0%	95-100	32.0	1.1%	155-160	0	0.0%
40-45	234.6	8.2%	100-105	21.1	0.7%	160-165	0	0.0%
45-50	229.7	8.0%	105-110	12.9	0.4%	165-170	0	0.0%
50-55	217.7	7.6%	110-115	7.0	0.2%	170-175	0	0.0%
55-60	200.1	7.0%	115-120	2.7	0.1%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1169	40.6%
0-60	2051	71.3%
0-90	2756	95.8%
90-180	121	4.2%



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	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0	929.0
	5	949.6	929.4	917.4	918.3	916.5	918.3	917.4	929.4	949.6	929.4	917.4	918.3	916.5	918.3	917.4
	10	933.0	914.4	905.3	907.2	906.2	907.2	905.3	914.4	933.0	914.4	905.3	907.2	906.2	907.2	905.3
	15	905.6	888.1	884.1	888.8	889.3	888.8	884.1	888.1	905.6	888.1	884.1	888.8	889.3	888.8	884.1
	20	867.2	852.2	852.4	862.7	865.3	862.7	852.4	852.2	867.2	852.2	852.4	862.7	865.3	862.7	852.4
	25	818.7	808.1	815.2	829.4	833.5	829.4	815.2	808.1	818.7	808.1	815.2	829.4	833.5	829.4	815.2
	30	762.4	756.3	771.2	789.3	796.4	789.3	771.2	756.3	762.4	756.3	771.2	789.3	796.4	789.3	771.2
	35	696.4	696.8	721.7	746.3	754.9	746.3	721.7	696.8	696.4	696.8	721.7	746.3	754.9	746.3	721.7
	40	624.9	630.8	665.9	697.0	707.3	697.0	665.9	630.8	624.9	630.8	665.9	697.0	707.3	697.0	665.9
	45	547.5	560.2	605.6	642.0	653.7	642.0	605.6	560.2	547.5	560.2	605.6	642.0	653.7	642.0	605.6
	50	466.9	486.4	540.3	582.5	595.3	582.5	540.3	486.4	466.9	486.4	540.3	582.5	595.3	582.5	540.3
	55	388.0	413.0	474.5	520.1	532.6	520.1	474.5	413.0	388.0	413.0	474.5	520.1	532.6	520.1	474.5
	60	312.5	342.5	409.7	456.6	468.6	456.6	409.7	342.5	312.5	342.5	409.7	456.6	468.6	456.6	409.7
	65	240.9	276.1	346.9	392.5	404.0	392.5	346.9	276.1	240.9	276.1	346.9	392.5	404.0	392.5	346.9
	70	176.6	217.2	288.4	331.3	341.0	331.3	288.4	217.2	176.6	217.2	288.4	331.3	341.0	331.3	288.4
	75	119.5	165.8	235.0	273.5	281.5	273.5	235.0	165.8	119.5	165.8	235.0	273.5	281.5	273.5	235.0
	80	70.6	121.5	187.8	221.6	227.6	221.6	187.8	121.5	70.6	121.5	187.8	221.6	227.6	221.6	187.8
	85	31.2	84.8	146.5	176.8	182.7	176.8	146.5	84.8	31.2	84.8	146.5	176.8	182.7	176.8	146.5
	90	0.0	55.7	112.3	137.9	142.4	137.9	112.3	55.7	0.0	55.7	112.3	137.9	142.4	137.9	112.3
	95	0.0	33.7	83.2	106.5	110.6	106.5	83.2	33.7	0.0	33.7	83.2	106.5	110.6	106.5	83.2
	100	0.0	15.3	58.0	79.6	83.9	79.6	58.0	15.3	0.0	15.3	58.0	79.6	83.9	79.6	58.0
	105	0.0	0.7	36.2	56.6	61.0	56.6	36.2	0.7	0.0	0.7	36.2	56.6	61.0	56.6	36.2
	110	0.0	0.0	17.6	37.1	41.9	37.1	17.6	0.0	0.0	0.0	17.6	37.1	41.9	37.1	17.6
	115	0.0	0.0	2.9	20.4	25.7	20.4	2.9	0.0	0.0	0.0	2.9	20.4	25.7	20.4	2.9
	120	0.0	0.0	0.0	5.8	11.1	5.8	0.0	0.0	0.0	0.0	0.0	5.8	11.1	5.8	0.0
	125	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	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	6666	6666
	45	5556	6146
	55	4854	5936
	65	4091	5890
	75	3314	6515
	85	2572	12060



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	3396	3396	3396	3396	3303	3303	3303	3303	3129	3129	3129	2971	2971	2971	2825	2825	2825	2756
1	3060	2906	2768	2643	2967	2828	2702	2588	2682	2578	2484	2547	2463	2386	2424	2356	2293	2222
2	2772	2518	2307	2130	2683	2452	2259	2095	2329	2167	2027	2215	2081	1963	2110	1999	1901	1829
3	2522	2204	1958	1762	2439	2149	1921	1738	2044	1850	1691	1948	1784	1646	1858	1720	1602	1532
4	2307	1950	1688	1488	2230	1903	1659	1471	1814	1604	1437	1732	1551	1404	1655	1500	1372	1304
5	2121	1741	1475	1279	2050	1701	1452	1266	1625	1407	1240	1555	1365	1216	1489	1324	1191	1126
6	1958	1566	1303	1115	1894	1532	1285	1105	1467	1248	1085	1407	1213	1066	1350	1180	1047	984
7	1815	1420	1163	983	1757	1390	1148	975	1334	1118	960	1282	1089	944	1233	1061	929	869
8	1690	1295	1047	876	1637	1270	1034	870	1221	1009	857	1176	984	844	1133	961	832	775
9	1579	1188	949	788	1531	1166	938	782	1124	917	772	1084	896	761	1047	876	751	697
10	1480	1096	867	714	1437	1077	857	709	1040	839	700	1005	821	692	972	804	683	631

Beam and Field Information

CIE Type:	Direct
Center Beam Intensity:	929.0 Candela
Central Cone Intensity:	928 Candela
Beam Flux:	1881.7 Lumens
Beam Angle (0-180):	100.3 Degrees
Beam Angle (90-270):	120.7 Degrees
Field Angle (0-180):	155.2 Degrees
Field Angle (90-270):	196.5 Degrees

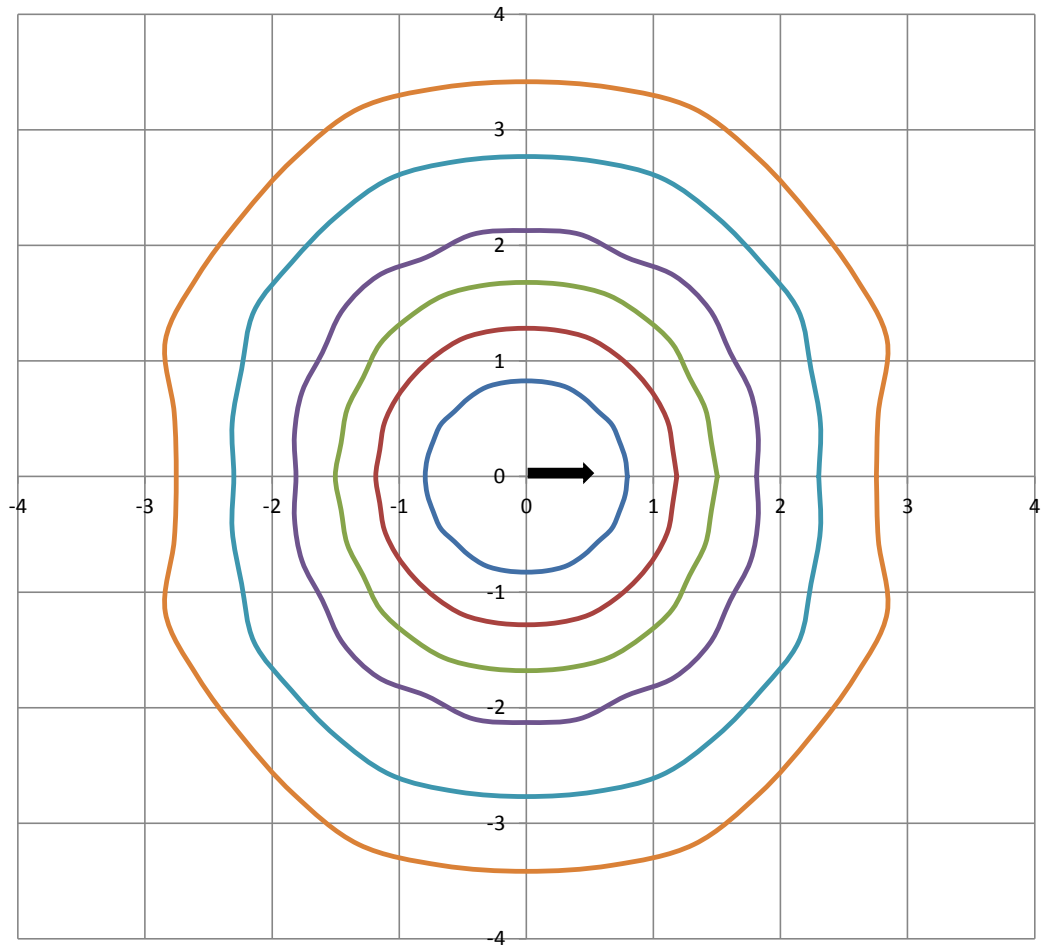
Cone of Light Tabulation

Mounting Height (Feet)			Footcandles at Nadir	Diameter (Feet)
4.00			58.1	4.96
6.00			25.8	7.44
8.00			14.5	9.91
10.0			9.29	12.4
12.0			6.45	14.9
14.0			4.74	17.4
16.0			3.63	19.8



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