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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  
**SRKS-X4-L31/830-X-XXX-UNV (Driver 1)**  
Order Number  
12118431  
Test Number  
12118431.21

Test Date

2018-01-09

Prepared By

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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:	2866 Lumens
Luminaire Efficacy:	141.8 lm/w
Maximum Candela:	1019 Candela

**Test Conditions**

Test Temperature:	26.0 °C
Voltage:	120.0 VAC
Current:	0.1693 A
Power:	20.21 W
Power Factor:	0.995
Frequency:	60 Hz
Current THD:	10.0 %

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
26.0 °C	120.0 VAC	0.1693 A	20.21 W	0.995	60 Hz	10.0 %

### Summary of Results

#### Spacing Criteria

0-180: 1.22

90-270: 1.18

#### Total Lumen Output:

2866 Lumens

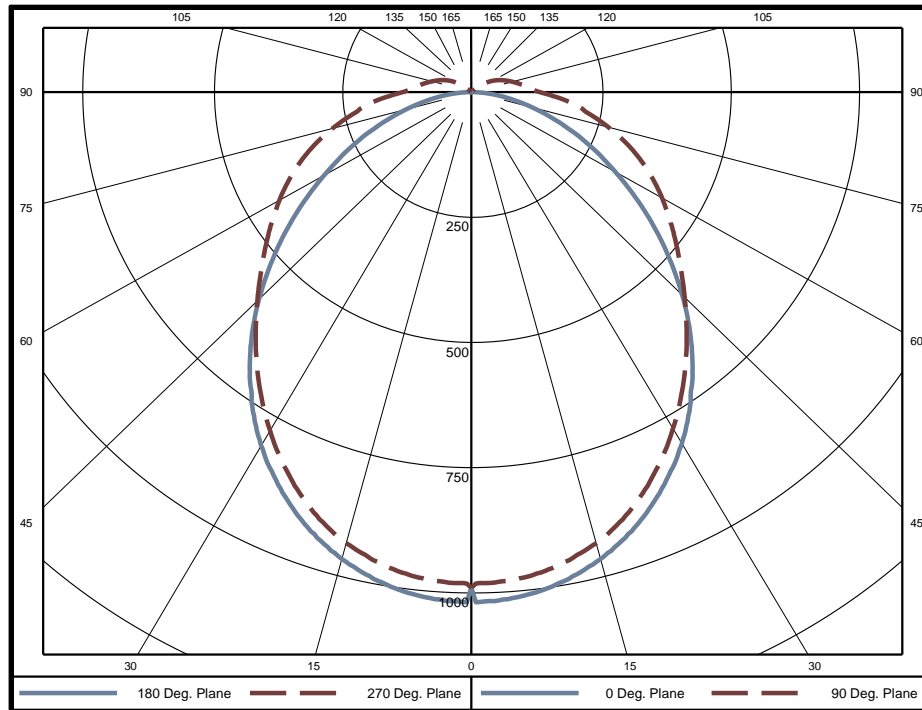
#### Luminaire Efficacy:

141.8 lm/w

#### Maximum Candela:

1019 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	23.6	0.8%	60-65	167.8	5.9%	120-125	6.3	0.2%
5-10	69.9	2.4%	65-70	146.3	5.1%	125-130	2.9	0.1%
10-15	113.3	4.0%	70-75	122.8	4.3%	130-135	0.6	0.0%
15-20	151.7	5.3%	75-80	98.6	3.4%	135-140	0.0	0.0%
20-25	183.5	6.4%	80-85	76.4	2.7%	140-145	0	0.0%
25-30	207.5	7.2%	85-90	54.9	1.9%	145-150	0	0.0%
30-35	222.8	7.8%	90-95	40.1	1.4%	150-155	0	0.0%
35-40	229.3	8.0%	95-100	33.8	1.2%	155-160	0	0.0%
40-45	227.6	7.9%	100-105	27.4	1.0%	160-165	0	0.0%
45-50	218.7	7.6%	105-110	21.0	0.7%	165-170	0	0.0%
50-55	204.9	7.1%	110-115	15.4	0.5%	170-175	0	0.0%
55-60	187.6	6.5%	115-120	10.8	0.4%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1202	41.9%
0-60	2040	71.2%
0-90	2707	94.5%
90-180	158	5.5%



**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	990	990	990	990	990	990	990	990	990	990	990	990	990	990	990
	5	1012	990	978	978	977	978	978	990	1012	990	978	978	977	978	990
	10	994	974	962	962	961	962	962	974	994	974	962	962	961	962	974
	15	965	945	934	933	933	933	934	945	965	945	934	933	933	934	945
	20	925	905	894	894	893	894	894	905	925	905	894	894	893	894	905
	25	873	855	844	842	839	842	844	855	873	855	844	842	839	844	855
	30	814	796	787	782	779	782	787	796	814	796	787	782	779	782	796
	35	740	728	721	717	715	717	721	728	740	728	721	717	715	717	728
	40	664	653	649	649	649	649	649	653	664	653	649	649	649	649	653
	45	579	574	576	582	585	582	576	574	579	574	576	582	585	582	574
	50	492	491	503	519	527	519	503	491	492	491	503	519	527	519	491
	55	406	413	435	463	476	463	435	413	406	413	435	463	476	463	413
	60	325	339	372	412	428	412	372	339	325	339	372	412	428	412	339
	65	253	273	314	362	380	362	314	273	253	273	314	362	380	362	273
	70	187	214	262	313	330	313	262	214	187	214	262	313	330	313	214
	75	127	159	213	262	277	262	213	159	127	159	213	262	277	262	159
	80	76	113	168	212	225	212	168	113	76	113	168	212	225	212	113
	85	34	73	132	172	182	172	132	73	34	73	132	172	182	172	73
	90	0	40	92	125	133	125	92	40	0	40	92	125	133	125	92
	95	0	32	78	105	110	105	78	32	0	32	78	105	110	105	78
	100	0	23	66	90	95	90	66	23	0	23	66	90	95	90	66
	105	0	13	53	76	81	76	53	13	0	13	53	76	81	76	53
	110	0	2	40	63	68	63	40	2	0	2	40	63	68	63	40
	115	0	0	27	50	56	50	27	0	0	0	27	50	56	50	27
	120	0	0	14	36	43	36	14	0	0	0	14	36	43	36	14
	125	0	0	2	22	30	22	2	0	0	0	2	22	30	22	2
	130	0	0	0	7	15	7	0	0	0	0	0	7	15	7	0
	135	0	0	0	0	2	0	0	0	0	0	0	0	2	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/m<sup>2</sup>)**  
Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	7102	7102
	45	5873	5845
	55	5081	5438
	65	4299	5339
	75	3526	5896
	85	2793	10830



### 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	3374	3374	3374	3374	3277	3277	3277	3277	3096	3096	3096	2931	2931	2931	2779	2779	2779	2707
1	3048	2897	2763	2642	2952	2816	2694	2583	2664	2564	2472	2524	2443	2368	2395	2331	2270	2198
2	2766	2518	2312	2140	2674	2449	2261	2102	2321	2164	2028	2202	2073	1958	2093	1986	1891	1819
3	2521	2210	1970	1778	2435	2152	1930	1751	2044	1855	1700	1943	1784	1650	1850	1716	1602	1532
4	2310	1960	1704	1508	2231	1911	1673	1489	1818	1613	1451	1733	1557	1414	1653	1503	1379	1310
5	2126	1753	1493	1301	2054	1712	1468	1287	1633	1421	1258	1559	1375	1230	1491	1331	1202	1137
6	1965	1581	1323	1138	1899	1545	1303	1127	1477	1264	1104	1414	1226	1082	1355	1190	1060	998
7	1824	1435	1184	1007	1764	1405	1167	998	1346	1134	980	1291	1103	962	1239	1072	944	885
8	1699	1311	1068	900	1645	1285	1054	893	1234	1026	878	1186	999	863	1141	974	849	792
9	1589	1205	970	811	1540	1182	958	805	1137	935	793	1095	912	780	1055	890	768	714
10	1490	1113	887	737	1446	1092	877	731	1053	857	721	1016	837	710	981	818	700	649

#### Beam and Field Information

CIE Type:	Direct
Center Beam Intensity:	990 Candela
Central Cone Intensity:	988 Candela
Beam Flux:	1690.7 Lumens
Beam Angle (0-180):	99.6 Degrees
Beam Angle (90-270):	106.2 Degrees
Field Angle (0-180):	155.3 Degrees
Field Angle (90-270):	197.1 Degrees

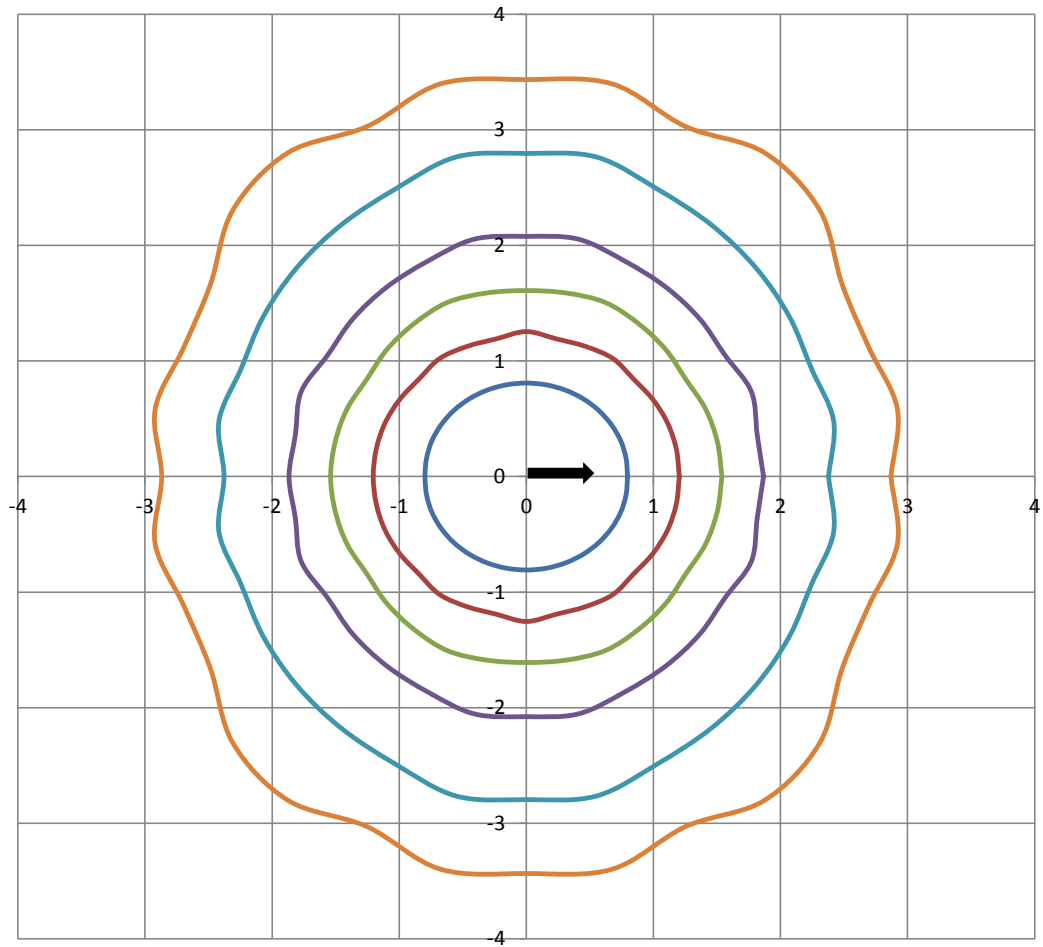
#### Cone of Light Tabulation

Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		61.9	4.76
6.00		27.5	7.15
8.00		15.5	9.53
10.0		9.90	11.9
12.0		6.87	14.3
14.0		5.05	16.7
16.0		3.87	19.1



## 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