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## Photometric Test Report

### Relevant Standards

IES LM-79-2008, ANSI C82.77-2002, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2015, IES TM-30-2015

### Prepared For

#### **H E Williams Inc**

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United States

### Catalog Number

**MDSG-24-L200/950-AS4**

Order Number

**12186363**

Test Number

**12186363.02**

### Test Date

2018-02-21 - 2018-02-22

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

Testing was performed in a 3-meter integrating sphere using the  $4\pi$  geometry method.  
Absorption correction was employed for Sphere measurement



**Luminaire Description:** White formed steel housing, frosted plastic internal lens enclosures, clear plastic patterned external lens enclosure  
**Lamp:** 510 white LEDs  
**Mounting:** Recessed  
**Ballast/Driver:** Philips XI095C275V054BSF1

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 20.00 in.  
Luminous Width: 44.00 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 15260 Lumens  
Efficacy: 92.7 lm/w  
CCT: 5100 K  
CRI (Ra): 93.2

**Distribution**

Total Luminaire Output: 15080 Lumens  
Luminaire Efficacy: 91.4 lm/w  
Maximum Candela: 7977 Candela

**Electrical Data at 120 VAC**

Test Temperature: 24.6 °C  
Voltage: 120.0 VAC  
Current: 1.377 A  
Power: 164.7 W  
Power Factor: 0.997  
Frequency: 60 Hz  
Current THD: 6.13 %



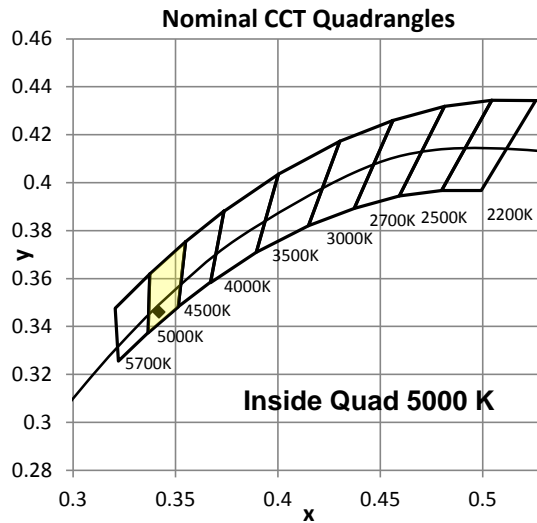
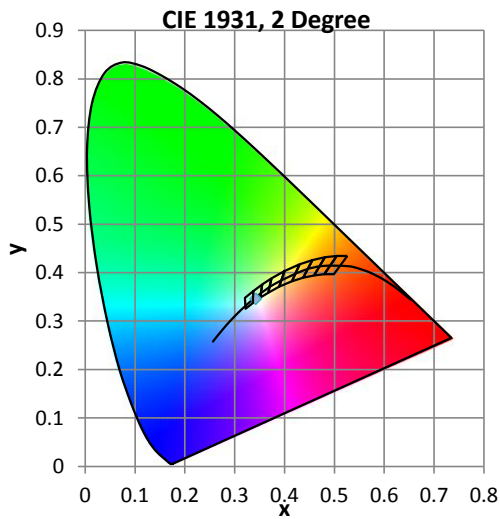
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.6 °C	120.0 VAC	1.377 A	164.7 W	0.997	60 Hz	6.13 %

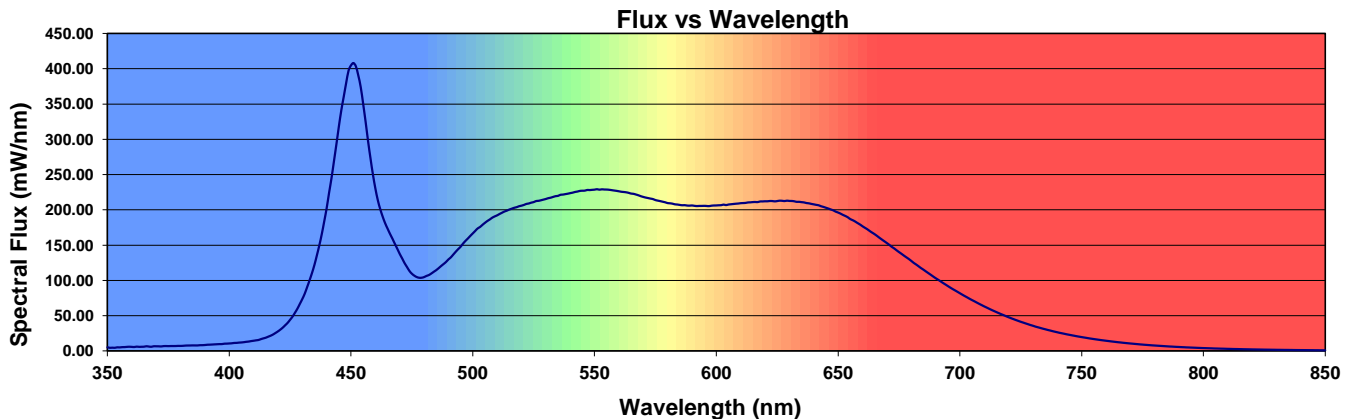
### Summary of Results

Total Output:	15260 Lumens	Chromaticity (x):	0.3420
Efficacy:	92.7 lm/w	Chromaticity (y):	0.3460
CCT:	5100 K	Chromaticity (u'):	0.2115
CRI (Ra):	93.2	Chromaticity (v'):	0.4814
CRI (R9):	87.6	TM-30 Rf:	89.5
Peak Wavelength:	450.8 nm	TM-30 Rg:	102.2
Dominant Wavelength:	573.6 nm	Duv:	-0.0022
S/P Ratio:	2.054		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
93.2	95.8	93.8	89.5	93.2	95.0	89.4	93.8	95.0	87.6	83.9	93.0	74.1	95.1	93.8	97.5





## Distribution - Goniophotometer

### Distribution Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.4 °C	119.9 VAC	1.380 A	165.0 W	0.997	60 Hz	6.15 %

### Summary of Results

#### Spacing Criteria

0-180: 1.37

90-270: 1.21

Total Lumen Output:

15080 Lumens

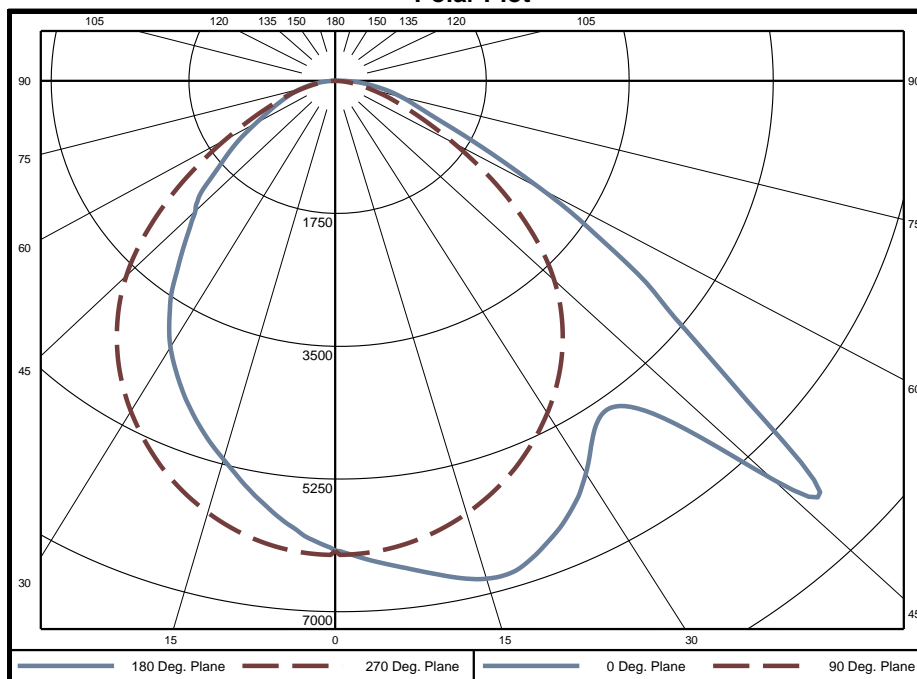
Luminaire Efficacy:

91.4 lm/w

Maximum Candela:

7977 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	148	1.0%	60-65	793	5.3%	120-125	0	0.0%
5-10	437	2.9%	65-70	552	3.7%	125-130	0	0.0%
10-15	711	4.7%	70-75	376	2.5%	130-135	0	0.0%
15-20	960	6.4%	75-80	249	1.7%	135-140	0	0.0%
20-25	1167	7.7%	80-85	143	0.9%	140-145	0	0.0%
25-30	1319	8.7%	85-90	50	0.3%	145-150	0	0.0%
30-35	1410	9.4%	90-95	0	0.0%	150-155	0	0.0%
35-40	1437	9.5%	95-100	0	0.0%	155-160	0	0.0%
40-45	1454	9.6%	100-105	0	0.0%	160-165	0	0.0%
45-50	1504	10.0%	105-110	0	0.0%	165-170	0	0.0%
50-55	1309	8.7%	110-115	0	0.0%	170-175	0	0.0%
55-60	1060	7.0%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	7589	50.3%
0-60	12916	85.6%
0-90	15079	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	6195	6195	6195	6195	6195	6195	6195	6195	6195	6195	6195	6195	6195	6195	6195
	5	6380	6359	6304	6255	6216	6088	5984	5920	5905	5920	5984	6088	6216	6255	6304
	10	6589	6538	6387	6239	6105	5887	5692	5580	5549	5580	5692	5887	6105	6239	6387
	15	6800	6715	6452	6151	5923	5614	5352	5205	5164	5205	5352	5614	5923	6151	6452
	20	6749	6695	6441	6006	5681	5297	4981	4842	4801	4842	4981	5297	5681	6006	6441
	25	6450	6397	6250	5813	5381	4920	4609	4449	4398	4449	4609	4920	5381	5813	6250
	30	6002	5993	5854	5544	5034	4522	4207	4024	3958	4024	4207	4522	5034	5544	5854
	35	5485	5399	5387	5143	4638	4109	3766	3526	3412	3526	3766	4109	4638	5143	5387
	40	5637	5122	4714	4607	4179	3647	3245	2926	2799	2926	3245	3647	4179	4607	4714
	45	7446	6040	4075	3982	3641	3119	2672	2377	2360	2377	2672	3119	3641	3982	4075
	50	6232	6130	4296	3130	2974	2556	2130	1990	1873	1990	2130	2556	2974	3130	4296
	55	4418	4232	4229	2339	2257	2050	1618	1510	1455	1510	1618	2050	2257	2339	4229
	60	2853	2884	2943	2105	1580	1573	1399	1186	1063	1186	1399	1573	1580	2105	2943
	65	1705	1816	1925	1577	1063	1138	1043	880	802	880	1043	1138	1063	1577	1925
	70	1113	1129	1195	977	712	806	705	651	606	651	705	806	712	977	1129
	75	821	784	729	611	443	519	444	477	444	477	444	519	443	611	729
	80	555	541	421	361	245	299	277	303	282	303	277	299	245	361	421
	85	320	278	208	175	99	129	130	141	130	141	130	129	99	175	208
	90	89	47	22	11	3	4	4	5	2	5	4	4	3	11	22
	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/m<sup>2</sup>)**

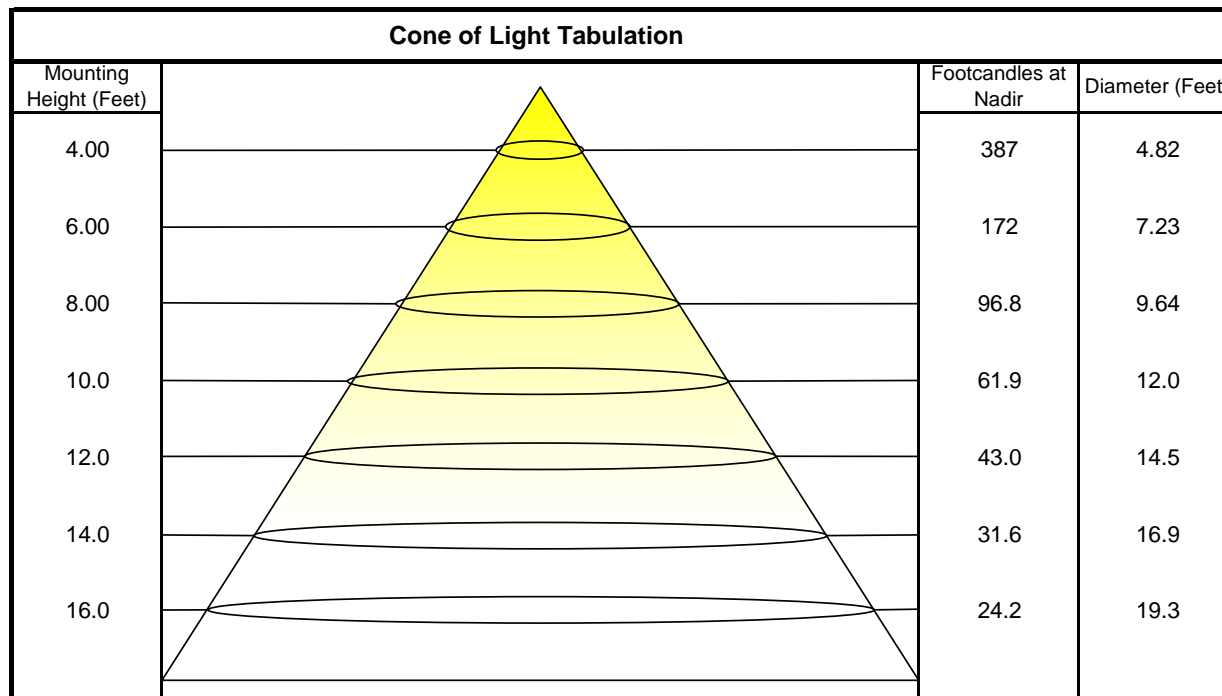
Vertical Angle (Degrees)	Horizontal Angle (Degrees)			
		0	45	90
	0	10910	10910	10910
	45	18550	10150	9069
	55	13570	12990	6932
	65	7105	8021	4429
	75	5587	4958	3015
	85	6472	4203	2009



### 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	17948	17948	17948	17948	17531	17531	17531	17531	16752	16752	16752	16039	16039	16039	15384	15384	15384	15077
1	16558	15905	15320	14793	16155	15566	15035	14553	14931	14495	14096	14348	13994	13666	13811	13527	13262	12957
2	15181	14036	13090	12293	14796	13756	12886	12148	13229	12499	11868	12744	12135	11601	12295	11793	11346	11034
3	13923	12442	11295	10382	13561	12208	11145	10289	11767	10858	10110	11359	10586	9937	10981	10328	9769	9455
4	12803	11100	9852	8899	12467	10903	9739	8838	10532	9520	8719	10188	9312	8603	9868	9114	8490	8177
5	11811	9968	8681	7730	11503	9803	8593	7689	9489	8423	7606	9197	8261	7526	8924	8105	7448	7140
6	10932	9009	7719	6793	10651	8869	7650	6764	8602	7515	6705	8353	7386	6648	8120	7262	6592	6293
7	10153	8192	6921	6031	9898	8072	6866	6009	7844	6757	5966	7630	6653	5924	7429	6552	5883	5593
8	9463	7492	6253	5401	9232	7389	6207	5385	7193	6119	5353	7008	6034	5321	6835	5951	5290	5012
9	8849	6888	5687	4876	8640	6799	5650	4864	6630	5577	4839	6470	5506	4815	6319	5438	4791	4523
10	8303	6365	5205	4433	8113	6288	5174	4423	6140	5113	4404	6001	5054	4385	5869	4996	4366	4109

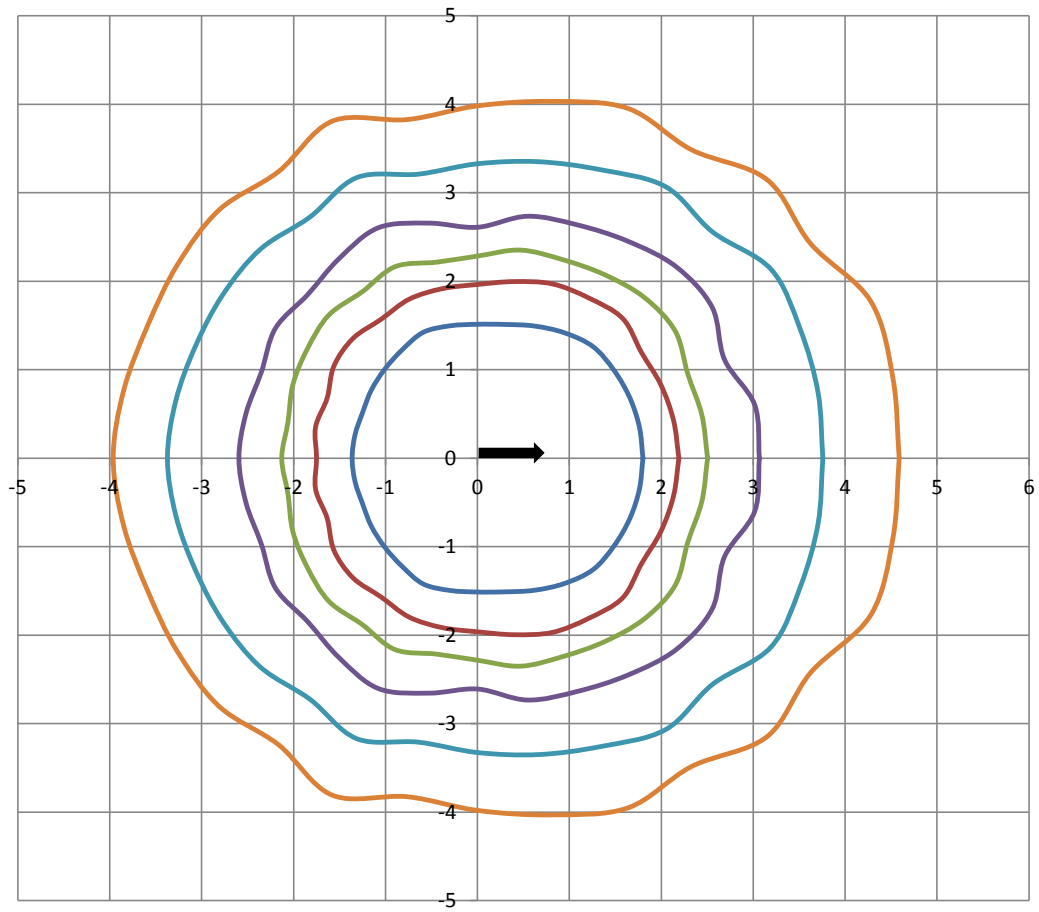
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	6195 Candela
Central Cone Intensity:	6182 Candela
Beam Flux:	10850.4 Lumens
Beam Angle (0-180):	96.6 Degrees
Beam Angle (90-270):	98.3 Degrees
Field Angle (0-180):	148.5 Degrees
Field Angle (90-270):	143.3 Degrees





## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

