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Allentown, PA 18106  
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## Indoor Distribution Test Report

Relevant Standards  
IES LM-79-2008, ANSI C82.77-10-2014

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

Catalog Number  
**MX2S-4'00-L8/830-F-XX-DIM-UNV**  
Order Number  
13012869  
Test Number  
13012869.06

Test Date

2019-09-06

Prepared By

Josh Mitchell, 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:** Formed White aluminum housing,frosted plastic lens  
**Lamp:** 144 White LEDs  
**Mounting:** Surface – Ceiling  
**Ballast/Driver:** One Philips Advance XI040C110V054BST1 Driver

#### Luminaire



#### Luminaire Characteristics

Luminous Length: 48.00 in.  
Luminous Width: 2.000 in.

#### Summary of Results

Total Luminaire Output: 3069 Lumens  
Luminaire Efficacy: 114 lm/w  
Maximum Candela: 1363 Candela

#### Test Conditions

Test Temperature: 24.5 °C  
Voltage: 120.1 VAC  
Current: 0.2257 A  
Power: 26.93 W  
Power Factor: 0.994  
Frequency: 60 Hz  
Current THD: 9.47 %

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



## Distribution - Goniophotometer

### Distribution Test Conditions

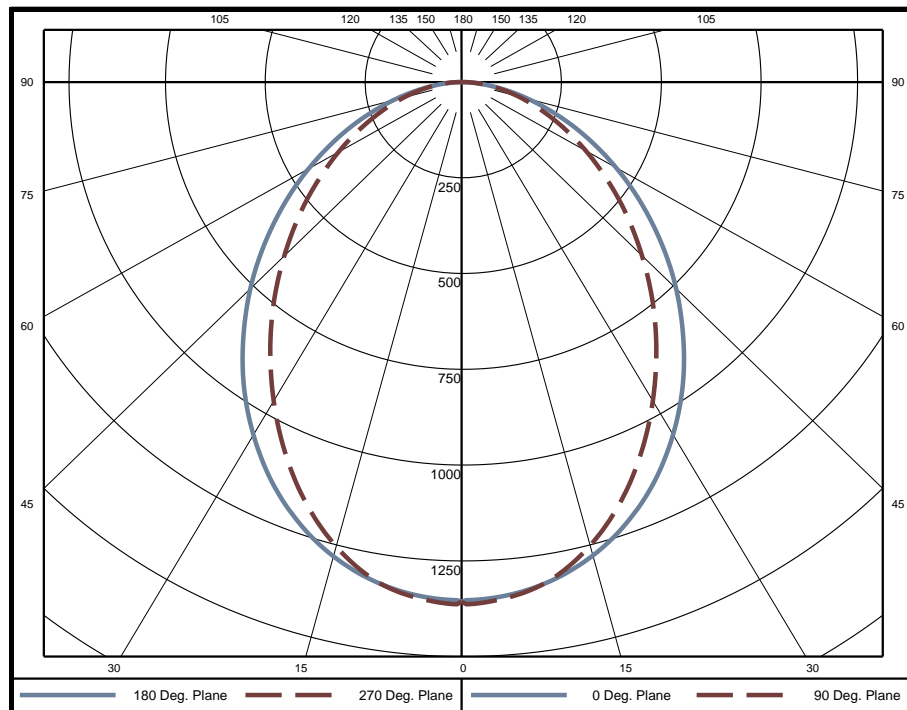
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.5 °C	120.1 VAC	0.2257 A	26.93 W	0.994	60 Hz	9.47 %

### Summary of Results

**Spacing Criteria**  
 0-180: 1.17  
 90-270: 1.08

**Total Lumen Output:** 3069 Lumens  
**Luminaire Efficacy:** 114.0 lm/w  
**Maximum Candela:** 1363 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	32.3	1.1%	60-65	172.9	5.6%	120-125	0	0.0%
5-10	95.4	3.1%	65-70	137.8	4.5%	125-130	0	0.0%
10-15	153.1	5.0%	70-75	102.7	3.3%	130-135	0	0.0%
15-20	202.4	6.6%	75-80	69.2	2.3%	135-140	0	0.0%
20-25	240.9	7.8%	80-85	38.9	1.3%	140-145	0	0.0%
25-30	267.1	8.7%	85-90	14.0	0.5%	145-150	0	0.0%
30-35	281.2	9.2%	90-95	0	0.0%	150-155	0	0.0%
35-40	283.9	9.3%	95-100	0	0.0%	155-160	0	0.0%
40-45	276.3	9.0%	100-105	0	0.0%	160-165	0	0.0%
45-50	259.5	8.5%	105-110	0	0.0%	165-170	0	0.0%
50-55	235.5	7.7%	110-115	0	0.0%	170-175	0	0.0%
55-60	206.0	6.7%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	1556	50.7%
0-60	2534	82.6%
0-90	3069	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	1356	1356	1356	1356	1356	1356	1356	1356	1356	1356	1356	1356	1356	1356	1356
	5	1344	1349	1348	1345	1351	1345	1348	1349	1344	1349	1348	1345	1351	1345	1348
	10	1319	1323	1318	1311	1316	1311	1318	1323	1319	1323	1318	1311	1316	1311	1318
	15	1277	1278	1265	1250	1251	1250	1265	1278	1277	1278	1265	1250	1251	1250	1265
	20	1218	1216	1193	1168	1166	1168	1193	1216	1218	1216	1193	1168	1166	1168	1193
	25	1145	1138	1105	1072	1066	1072	1105	1138	1145	1138	1105	1072	1066	1072	1105
	30	1057	1046	1007	967	959	967	1007	1046	1057	1046	1007	967	959	967	1007
	35	962	947	903	861	851	861	903	947	962	947	903	861	851	861	903
	40	859	844	798	754	744	754	798	844	859	844	798	754	744	754	798
	45	755	738	693	650	639	650	693	738	755	738	693	650	639	650	693
	50	649	633	590	550	540	550	590	633	649	633	590	550	540	550	590
	55	544	530	491	456	446	456	491	530	544	530	491	456	446	456	491
	60	443	431	398	368	360	368	398	431	443	431	398	368	360	368	398
	65	348	339	310	289	282	289	310	339	348	339	310	289	282	289	310
	70	257	250	231	216	211	216	231	250	257	250	231	216	211	216	231
	75	175	171	161	153	150	153	161	171	175	171	161	153	150	153	161
	80	103	101	99	96	95	96	99	101	103	101	99	96	95	96	99
	85	44	45	47	48	47	48	47	45	44	45	47	48	47	48	47
	90	5	8	10	11	11	11	10	8	5	8	10	11	11	11	10
	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>)

Horizontal Angle (Degrees)

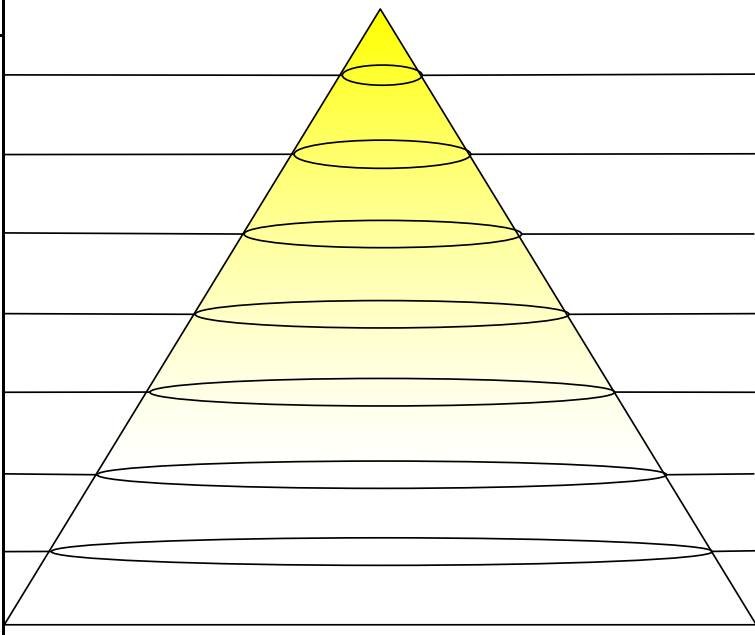
Vertical Angle (Degrees)	0	45	90
	0	21900	21900
	45	17240	15830
	55	15320	13830
	65	13280	11860
	75	10920	10020
	85	8084	8761



### Coefficients of Utilization - 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 percent of total lumen output delivered to the task surface **																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	80	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	66	57	51	76	65	56	50	62	55	50	61	54	49	59	53	49	47
6	72	59	51	45	70	59	50	44	57	49	44	55	49	44	54	48	43	41
7	67	54	46	40	66	53	45	40	52	45	39	50	44	39	49	43	39	37
8	63	50	41	36	61	49	41	36	48	41	35	46	40	35	45	39	35	33
9	59	46	38	32	57	45	38	32	44	37	32	43	37	32	42	36	32	30
10	55	42	35	30	54	42	34	30	41	34	29	40	34	29	39	33	29	27

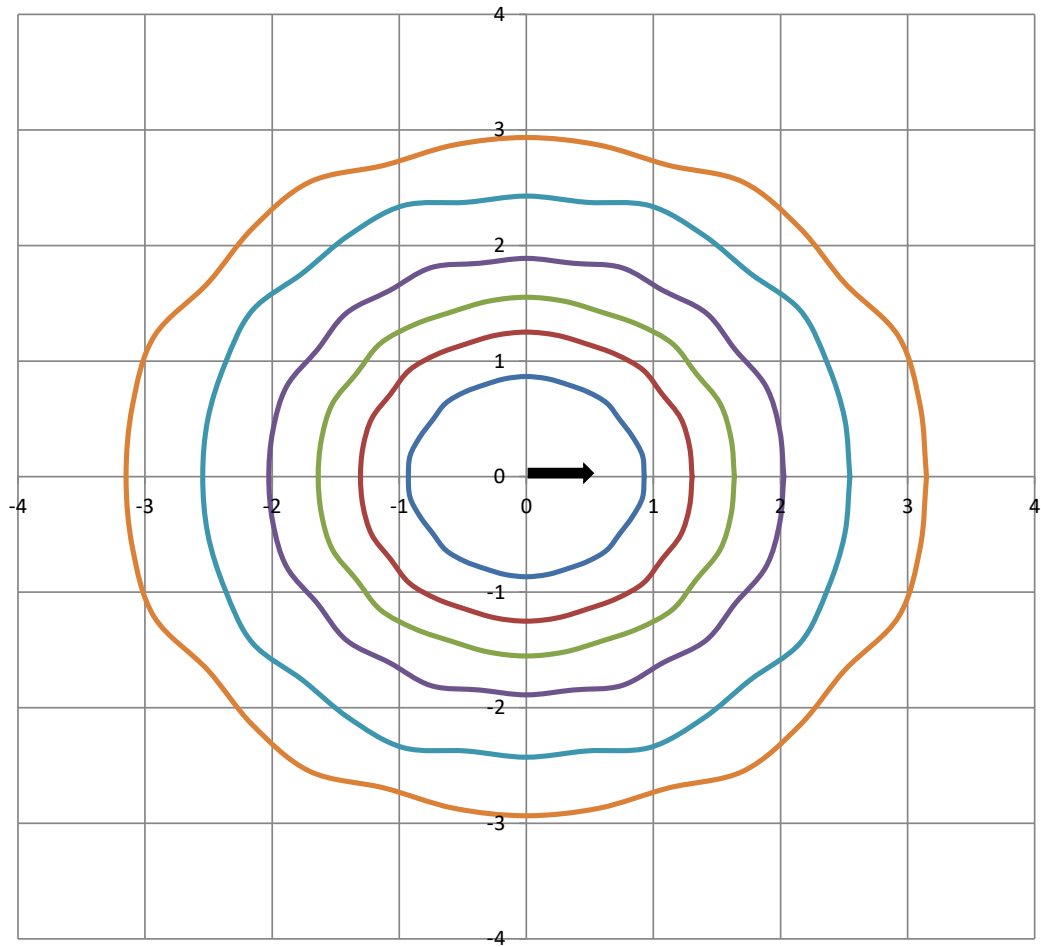
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	1356 Candela
Central Cone Intensity:	1353 Candela
Beam Flux:	1879.4 Lumens
Beam Angle (0-180):	97.2 Degrees
Beam Angle (90-270):	86.2 Degrees
Field Angle (0-180):	155.3 Degrees
Field Angle (90-270):	152.4 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		84.8	4.48
6.00		37.7	6.73
8.00		21.2	8.97
10.0		13.6	11.2
12.0		9.42	13.5
14.0		6.92	15.7
16.0		5.30	17.9



## 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