



UL Verification Services Inc.
7036 Snowdrift Road
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
2AR-L12/835-DIM-UNV-AM-OF-WH-x-xx (45° TILT)
Order Number
13257190
Test Number
13257190.16

Test Date

2020-03-17

Prepared By

Jesse Litchfield, Technician

Approved By

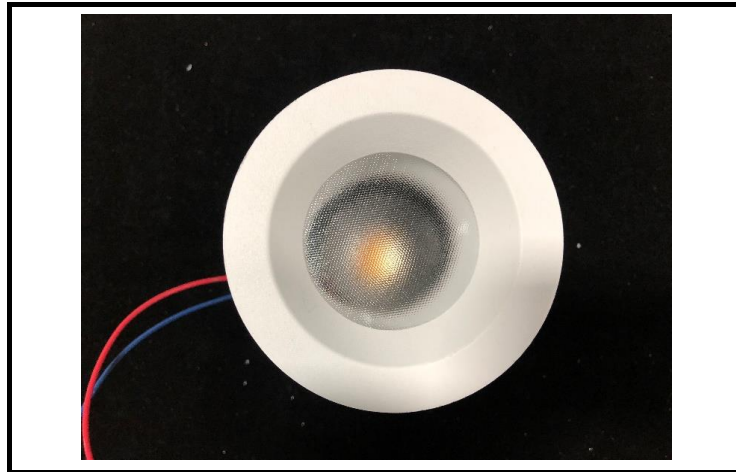
Alexa Lambert, Project Handler

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Aluminum housing, optics, and trim enclosure
Lamp: One white LED
Mounting: Recessed
Ballast/Driver: One Philips Advance XI025C070V054DSM1 Driver

Luminaire



Luminaire Characteristics

Luminous Diameter: 2.50 in.

Summary of Results

Total Luminaire Output:	224.8 Lumens
Luminaire Efficacy:	10.7 lm/w
Maximum Candela:	682 Candela

Test Conditions

Test Temperature:	24.4 °C
Voltage:	120.0 VAC
Current:	0.1753 A
Power:	20.92 W
Power Factor:	0.995
Frequency:	60 Hz
Current THD:	8.86 %

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
24.4 °C	120.0 VAC	0.1753 A	20.92 W	0.995	60 Hz	8.86 %

Summary of Results

Spacing Criteria

0-180: 2.92

90-270: 1.76

Total Lumen Output:

224.8 Lumens

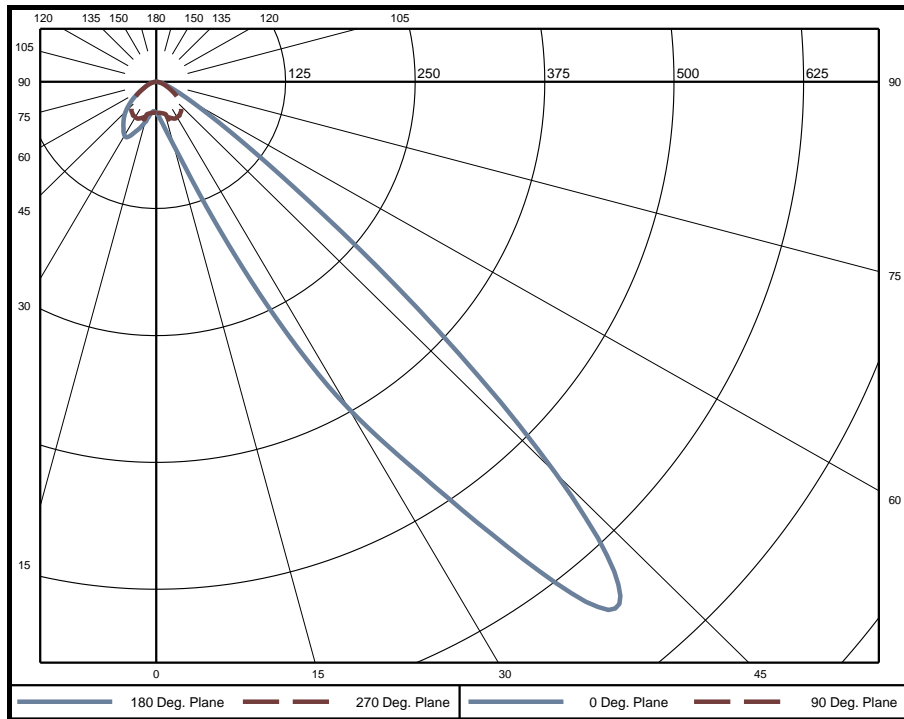
Luminaire Efficacy:

10.7 lm/w

Maximum Candela:

682 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	0.74	0.3%	60-65	7.70	3.4%	120-125	0	0.0%
5-10	2.37	1.1%	65-70	5.38	2.4%	125-130	0	0.0%
10-15	4.53	2.0%	70-75	3.69	1.6%	130-135	0	0.0%
15-20	7.76	3.5%	75-80	2.31	1.0%	135-140	0	0.0%
20-25	12.70	5.6%	80-85	1.12	0.5%	140-145	0	0.0%
25-30	20.32	9.0%	85-90	0.28	0.1%	145-150	0	0.0%
30-35	28.43	12.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	35.28	15.7%	95-100	0	0.0%	155-160	0	0.0%
40-45	36.25	16.1%	100-105	0	0.0%	160-165	0	0.0%
45-50	27.14	12.1%	105-110	0	0.0%	165-170	0	0.0%
50-55	17.42	7.7%	110-115	0	0.0%	170-175	0	0.0%
55-60	11.36	5.1%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	112	49.9%
0-60	204	90.9%
0-90	225	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	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6	30.6
	5	35.5	34.8	33.4	31.8	30.7	29.9	29.4	29.2	29.0	29.2	29.4	29.9	30.7	31.8	33.4
	10	45.7	43.1	38.1	33.8	31.4	30.9	31.2	31.8	31.9	31.8	31.2	30.9	31.4	33.8	38.1
	15	64.5	57.3	44.4	36.0	32.9	33.9	36.8	40.0	41.2	40.0	36.8	33.9	32.9	36.0	44.4
	20	108.0	82.7	51.4	37.6	37.5	40.0	43.8	47.3	49.7	47.3	43.8	40.0	37.5	37.6	51.4
	25	215.8	132.0	58.8	38.5	40.0	44.4	49.6	56.0	58.5	56.0	49.6	44.4	40.0	38.5	58.8
	30	372.0	190.5	63.7	45.8	40.3	44.9	54.2	59.5	61.0	59.5	54.2	44.9	40.3	45.8	63.7
	35	515.0	223.8	60.9	59.1	39.4	44.5	51.0	54.1	54.9	54.1	51.0	44.5	39.4	59.1	60.9
	40	679.1	210.8	52.5	52.3	37.4	42.8	46.8	48.6	48.7	48.6	46.8	42.8	37.4	52.3	52.5
	45	544.9	146.7	41.5	32.6	33.9	38.7	41.3	42.3	41.6	42.3	41.3	38.7	33.9	32.6	41.5
	50	254.5	83.4	31.4	26.3	29.1	32.2	33.9	34.0	33.0	34.0	33.9	32.2	29.1	26.3	31.4
	55	93.8	46.1	23.1	21.1	23.0	24.6	25.2	25.0	24.3	25.0	25.2	24.6	23.0	21.1	23.1
	60	40.7	26.5	17.0	16.2	16.7	17.1	17.0	16.5	15.8	16.5	17.0	17.1	16.7	16.2	17.0
	65	20.7	16.2	12.7	11.8	11.6	11.6	11.8	11.4	11.2	11.4	11.8	11.6	11.6	11.8	12.7
	70	11.4	10.4	8.9	8.1	7.8	7.9	8.0	8.3	8.3	8.3	8.0	7.9	7.8	8.1	8.9
	75	7.1	6.6	5.8	5.0	4.9	5.0	5.4	5.8	5.8	5.8	5.4	5.0	4.9	5.0	5.8
	80	4.0	3.6	3.0	2.6	2.5	2.8	3.2	3.5	3.4	3.5	3.2	2.8	2.5	2.6	3.0
	85	1.2	1.1	1.0	0.9	0.9	1.0	1.3	1.5	1.3	1.5	1.3	1.0	0.9	0.9	1.0
	90	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
	95	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
	100	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
	105	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
	110	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
	115	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
	120	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
	125	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
	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	9657	9657
	45	243300	18540
	55	51650	12690
	65	15480	9455
	75	8687	7021
	85	4448	3648



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	110	106	102	99	108	104	101	98	100	97	94	96	94	92	92	91	89	87
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74
3	93	83	76	70	90	81	75	69	79	73	68	76	71	67	73	69	65	63
4	85	74	65	59	83	72	65	59	70	63	58	68	62	57	66	61	56	54
5	78	66	57	51	76	65	56	50	62	55	50	60	54	49	59	53	49	47
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	42	40
7	66	53	44	38	64	52	44	38	50	43	38	49	42	37	48	42	37	35
8	61	48	39	33	59	47	39	33	46	38	33	44	38	33	43	37	33	31
9	57	43	35	29	55	43	35	29	41	34	29	40	34	29	39	33	29	27
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24

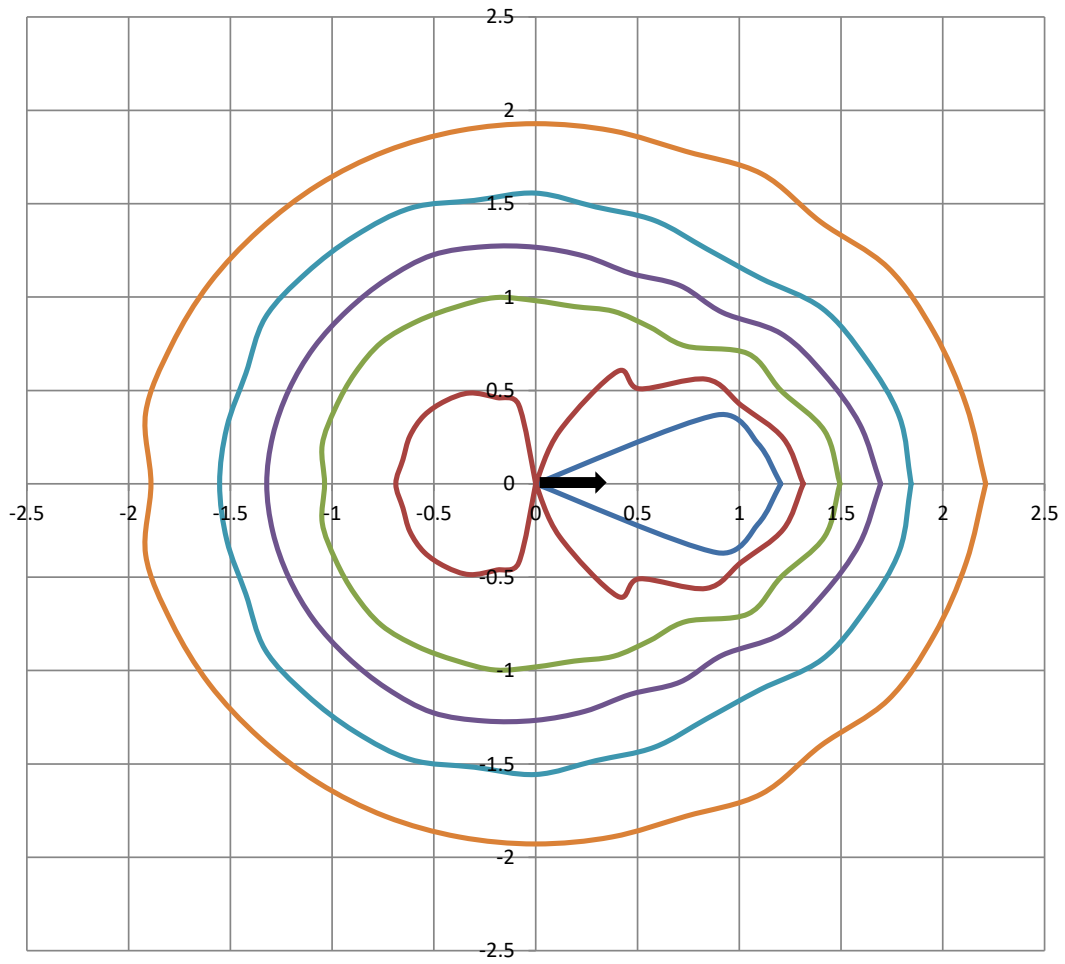
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	30.6 Candela
Central Cone Intensity:	31 Candela
Beam Flux:	208.4 Lumens
Beam Angle (0-180):	127.8 Degrees
Beam Angle (90-270):	122.5 Degrees
Field Angle (0-180):	162.4 Degrees
Field Angle (90-270):	157.3 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		1.91	9.33
6.00		0.850	14.0
8.00		0.478	18.7
10.0		0.306	23.3
12.0		0.212	28.0
14.0		0.156	32.6
16.0		0.119	37.3



ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

1 fc 0.5 fc 0.2 fc 0.1 fc 0.05 fc 0.02 fc