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Indoor Distribution Test Report

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

Prepared For
H E Williams Inc

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United States

Catalog Number
4DR-L20/835-DIM-UNV-L-W-OF-WH

Order Number
12316380
Test Number
12316380.07

Test Date

2018-06-11

Prepared By

Josh Mitchell, Technician

Approved By

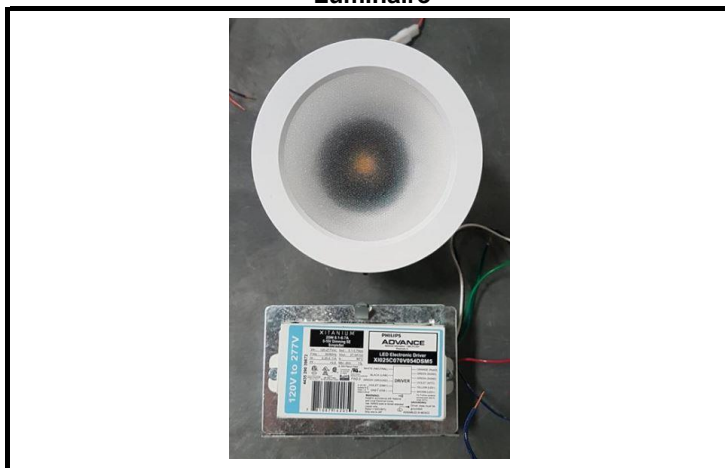
Alexa Lambert, Project Handler

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Luminaire Description: Black formed aluminum housing, white reflector, clear patterned glass lens enclosure
Lamp: One white LED
Mounting: Recessed
Ballast/Driver: Philips XI025C070V054DSM5

Luminaire



Luminaire Characteristics

Luminous Diameter: 4.25 in.

Summary of Results

Total Luminaire Output:	1352 Lumens
Luminaire Efficacy:	68.3 lm/w
Maximum Candela:	949 Candela

Test Conditions

Test Temperature:	24.8 °C
Voltage:	120.1 VAC
Current:	0.1657 A
Power:	19.79 W
Power Factor:	0.995
Frequency:	60 Hz
Current THD:	9.21 %

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



Distribution - Goniophotometer

Distribution Test Conditions

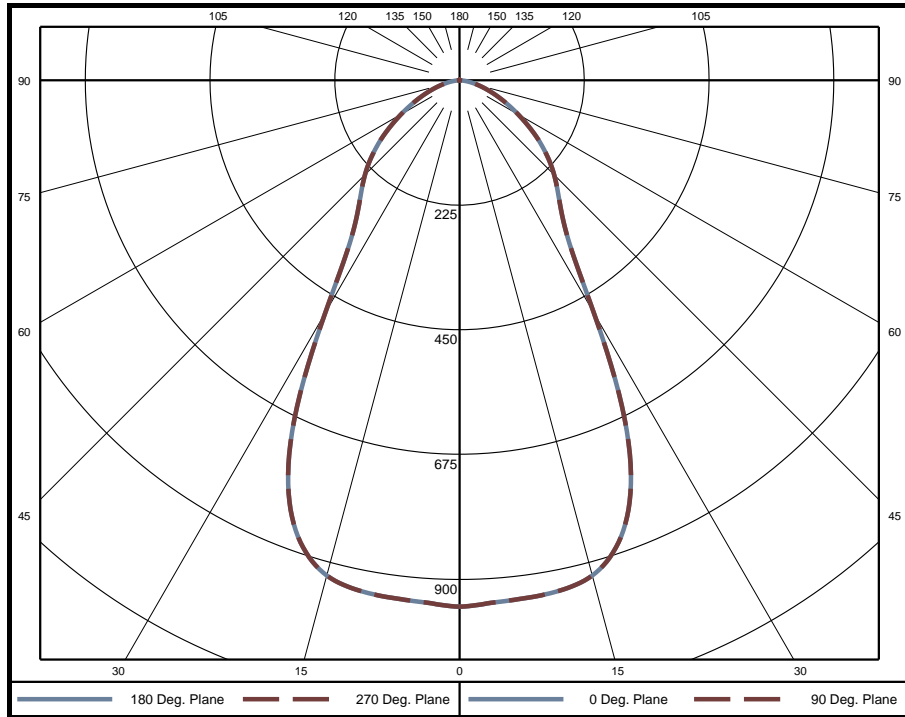
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.8 °C	120.1 VAC	0.1657 A	19.79 W	0.995	60 Hz	9.21 %

Summary of Results

Spacing Criteria
 0-180: 0.99
 90-270: 0.99

Total Lumen Output: 1352 Lumens
 Luminaire Efficacy: 68.3 lm/w
 Maximum Candela: 949 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	22.6	1.7%	60-65	50.2	3.7%	120-125	0	0.0%
5-10	67.3	5.0%	65-70	36.6	2.7%	125-130	0	0.0%
10-15	110.8	8.2%	70-75	24.7	1.8%	130-135	0	0.0%
15-20	148.1	11.0%	75-80	14.9	1.1%	135-140	0	0.0%
20-25	167.7	12.4%	80-85	7.1	0.5%	140-145	0	0.0%
25-30	152.6	11.3%	85-90	1.3	0.1%	145-150	0	0.0%
30-35	116.6	8.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	101.4	7.5%	95-100	0	0.0%	155-160	0	0.0%
40-45	96.2	7.1%	100-105	0	0.0%	160-165	0	0.0%
45-50	89.7	6.6%	105-110	0	0.0%	165-170	0	0.0%
50-55	79.0	5.8%	110-115	0	0.0%	170-175	0	0.0%
55-60	64.8	4.8%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	887	65.6%
0-60	1217	90.0%
0-90	1352	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	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5	949.5
	5	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0	943.0
	10	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7	939.7
	15	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9	924.9
	20	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1	864.1
	25	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6
	30	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0
	35	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0	336.0
	40	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4	279.4
	45	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4	241.4
	50	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4	202.4
	55	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9	160.9
	60	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8	120.8
	65	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7	86.7
	70	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9
	75	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8	36.8
	80	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.9
	85	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
	90	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	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	103700	103700
	45	37310	37310
	55	30650	30650
	65	22420	22420
	75	15520	15520
	85	8459	8459



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	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89
2	103	97	91	87	101	95	90	86	92	88	84	89	85	82	86	83	80	78
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	72	70
4	90	80	73	67	88	79	72	67	76	70	66	74	69	65	72	68	64	62
5	84	73	66	60	82	72	65	60	70	64	59	68	63	59	67	62	58	56
6	79	67	60	54	77	66	59	54	65	58	54	63	58	53	62	57	53	51
7	74	62	55	50	72	62	54	49	60	54	49	59	53	49	58	52	49	47
8	69	58	51	46	68	57	50	45	56	50	45	55	49	45	54	49	45	43
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40
10	62	51	44	39	61	50	43	39	49	43	39	48	43	39	47	42	39	37

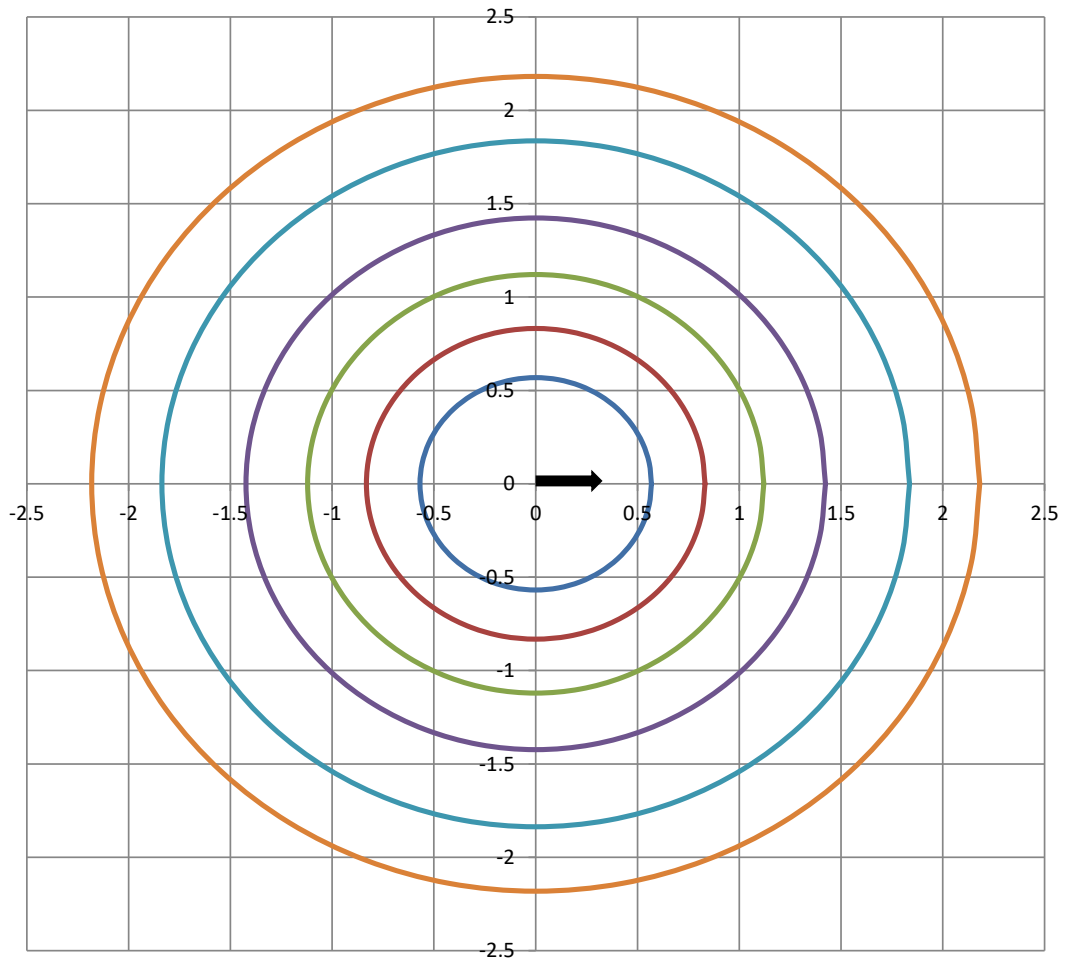
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	949.5 Candela
Central Cone Intensity:	946 Candela
Beam Flux:	675.6 Lumens
Beam Angle (0-180):	60.5 Degrees
Beam Angle (90-270):	60.5 Degrees
Field Angle (0-180):	127.4 Degrees
Field Angle (90-270):	127.4 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		59.3	3.97
6.00		26.4	5.96
8.00		14.8	7.95
10.0		9.49	9.93
12.0		6.59	11.9
14.0		4.84	13.9
16.0		3.71	15.9



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