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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-L40/835-DIM-UNV-O-N-OF-CS

Order Number
12316380
Test Number
12316380.23

Test Date

2018-06-13

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: Black formed aluminum housing, specular reflector, no lens enclosure
Lamp: One white LED
Mounting: Recessed
Ballast/Driver: Philips XI036C100V054DSM5

Luminaire



Luminaire Characteristics

Luminous Diameter: 4.50 in.

Summary of Results

Total Luminaire Output:	3644 Lumens
Luminaire Efficacy:	96.9 lm/w
Maximum Candela:	28291 Candela

Test Conditions

Test Temperature:	25.4 °C
Voltage:	120.1 VAC
Current:	0.3140 A
Power:	37.61 W
Power Factor:	0.998
Frequency:	60 Hz
Current THD:	5.29 %

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
25.4 °C	120.1 VAC	0.3140 A	37.61 W	0.998	60 Hz	5.29 %

Summary of Results

Spacing Criteria

0-180: 0.22

90-270: 0.22

Total Lumen Output:

3644 Lumens

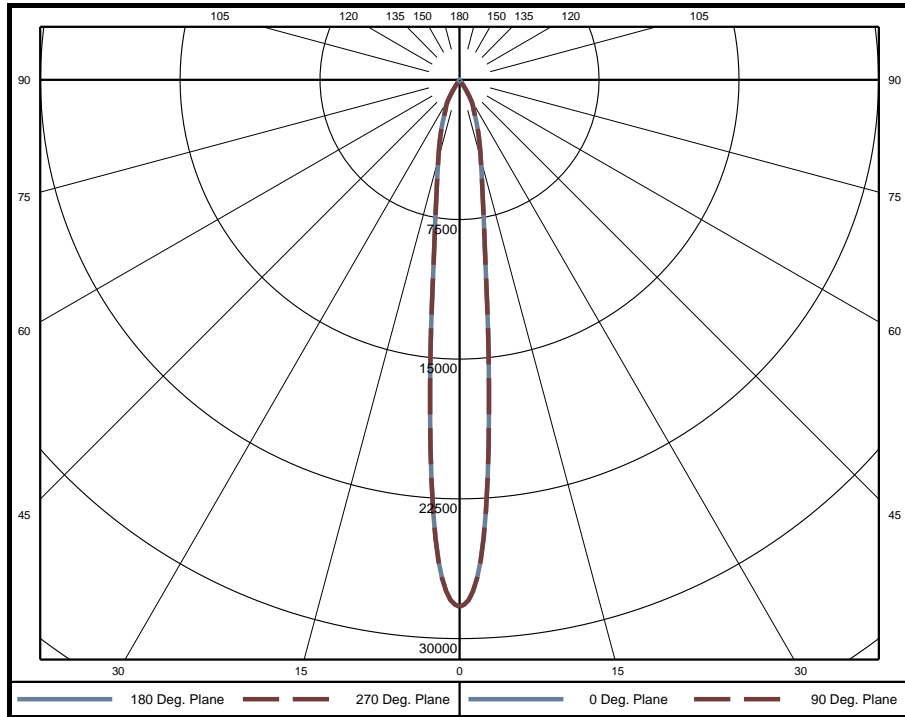
Luminaire Efficacy:

96.9 lm/w

Maximum Candela:

28291 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	555.2	15.2%	60-65	0.9	0.0%	120-125	0	0.0%
5-10	789.4	21.7%	65-70	0.5	0.0%	125-130	0	0.0%
10-15	660.0	18.1%	70-75	0.3	0.0%	130-135	0	0.0%
15-20	584.0	16.0%	75-80	0.2	0.0%	135-140	0	0.0%
20-25	472.6	13.0%	80-85	0.1	0.0%	140-145	0	0.0%
25-30	377.4	10.4%	85-90	0.1	0.0%	145-150	0	0.0%
30-35	166.7	4.6%	90-95	0	0.0%	150-155	0	0.0%
35-40	17.8	0.5%	95-100	0	0.0%	155-160	0	0.0%
40-45	9.5	0.3%	100-105	0	0.0%	160-165	0	0.0%
45-50	5.5	0.2%	105-110	0	0.0%	165-170	0	0.0%
50-55	2.8	0.1%	110-115	0	0.0%	170-175	0	0.0%
55-60	1.5	0.0%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	3623	99.4%
0-60	3642	100.0%
0-90	3645	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	28290	28290	28290	28290	28290	28290	28290	28290	28290	28290	28290	28290	28290	28290	28290	28290
5	18070	18070	18070	18070	18070	18070	18070	18070	18070	18070	18070	18070	18070	18070	18070	18070
10	7413	7413	7413	7413	7413	7413	7413	7413	7413	7413	7413	7413	7413	7413	7413	7413
15	4392	4392	4392	4392	4392	4392	4392	4392	4392	4392	4392	4392	4392	4392	4392	4392
20	2861	2861	2861	2861	2861	2861	2861	2861	2861	2861	2861	2861	2861	2861	2861	2861
25	1792	1792	1792	1792	1792	1792	1792	1792	1792	1792	1792	1792	1792	1792	1792	1792
30	1108	1108	1108	1108	1108	1108	1108	1108	1108	1108	1108	1108	1108	1108	1108	1108
35	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143	143
40	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
45	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
50	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
55	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
60	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
65	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
70	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
75	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	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
100	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
110	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
120	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
130	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
140	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
150	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
160	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
170	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
180	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	2757000	2757000	2757000
45	2631	2631	2631
55	739	739	739
65	311	311	311
75	193	193	193
85	203	203	203



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	115	113	111	109	113	111	109	107	107	105	104	103	102	101	100	99	98	96
2	111	107	104	102	109	106	103	101	103	100	99	100	98	96	97	96	94	93
3	107	103	99	96	106	101	98	95	99	96	94	97	94	92	94	93	91	90
4	104	99	94	91	102	97	94	91	95	92	90	94	91	89	92	90	88	87
5	101	95	91	87	99	94	90	87	92	89	86	91	88	86	89	87	85	84
6	98	91	87	84	96	91	87	84	89	86	83	88	85	83	87	84	82	81
7	95	88	84	81	94	88	84	81	87	83	80	86	82	80	85	82	80	79
8	92	85	81	78	91	85	81	78	84	80	78	83	80	78	82	79	77	76
9	90	83	79	76	89	82	78	76	82	78	75	81	78	75	80	77	75	74
10	87	80	76	74	86	80	76	73	79	76	73	79	75	73	78	75	73	72

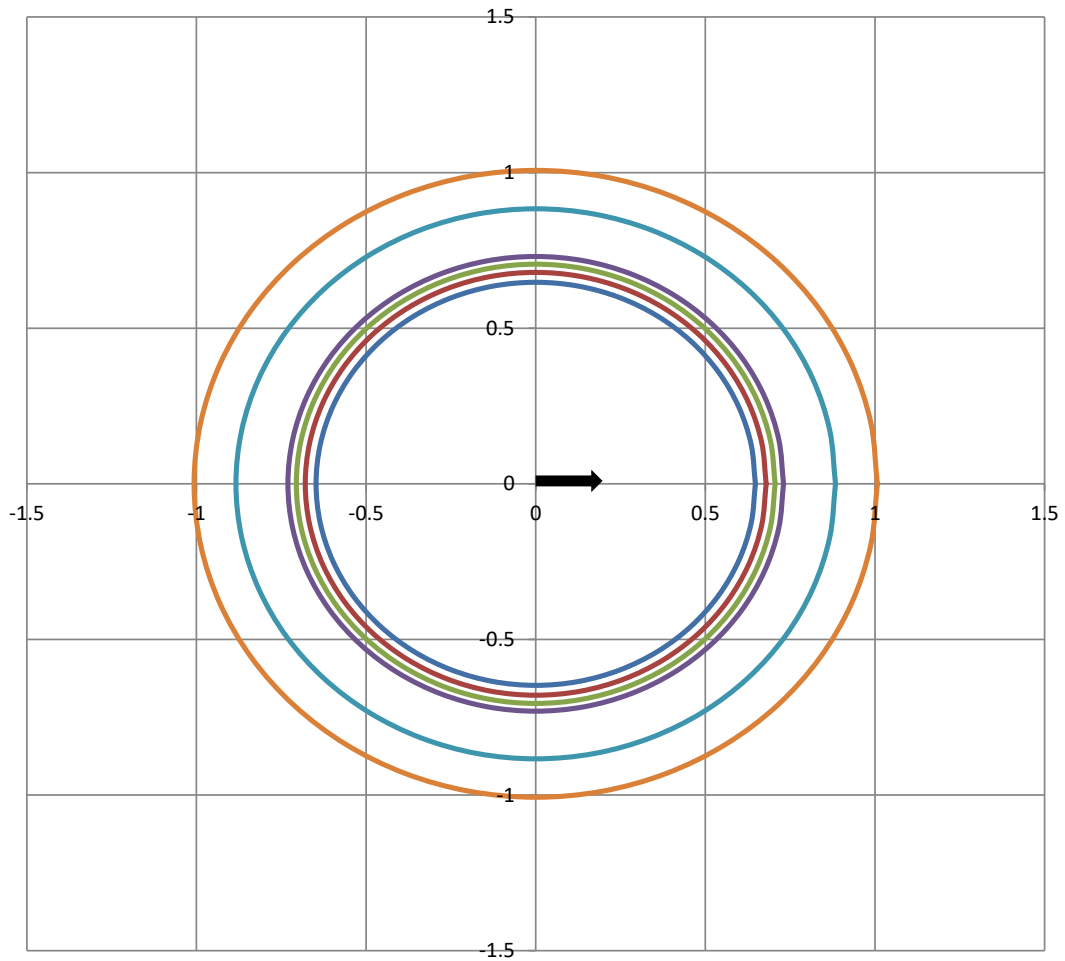
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	28290 Candela
Central Cone Intensity:	24705 Candela
Beam Flux:	767.8 Lumens
Beam Angle (0-180):	12.5 Degrees
Beam Angle (90-270):	12.5 Degrees
Field Angle (0-180):	40.2 Degrees
Field Angle (90-270):	40.2 Degrees

Cone of Light Tabulation			
Mounting Height (Feet)		Footcandles at Nadir	Diameter (Feet)
4.00		1770	0.866
6.00		786	1.30
8.00		442	1.73
10.0		283	2.17
12.0		196	2.60
14.0		144	3.03
16.0		111	3.46



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