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Indoor Distribution Test Report

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

Prepared For
Sonneman
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106 Pierces Rd.
Newburgh, NY 12550-9369

Catalog Number
2332
Order Number
10977900
Test Number
1165577

Test Date

2015-10-06

Prepared By

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Approved By

Kyle Spaziani, 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: 360 white LEDs
Mounting: Pendant
Ballast/Driver: One ERP EBR020U-0500-42

Luminaire



Luminaire Characteristics

Luminous Length: 59.50 in.
Luminous Width: 0.6250 in.
Luminous Height: 1.00 in.

Summary of Results

Total Luminaire Output: 1654 Lumens
Luminaire Efficacy: 78.3 lm/w
Maximum Candela: 439 Candela

Electrical Data

Test Temperature: 24.4 °C
Voltage: 120.0 VAC
Current: 0.1777 A
Power: 21.12 W
Power Factor: 0.990
Frequency: 60 Hz
Current THD: 11.8 %

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	0.1777 A	21.12 W	0.990	60 Hz	11.8 %

Summary of Results

Spacing Criteria

0-180: 1.13

90-270: 1.13

Total Lumen Output:

1654 Lumens

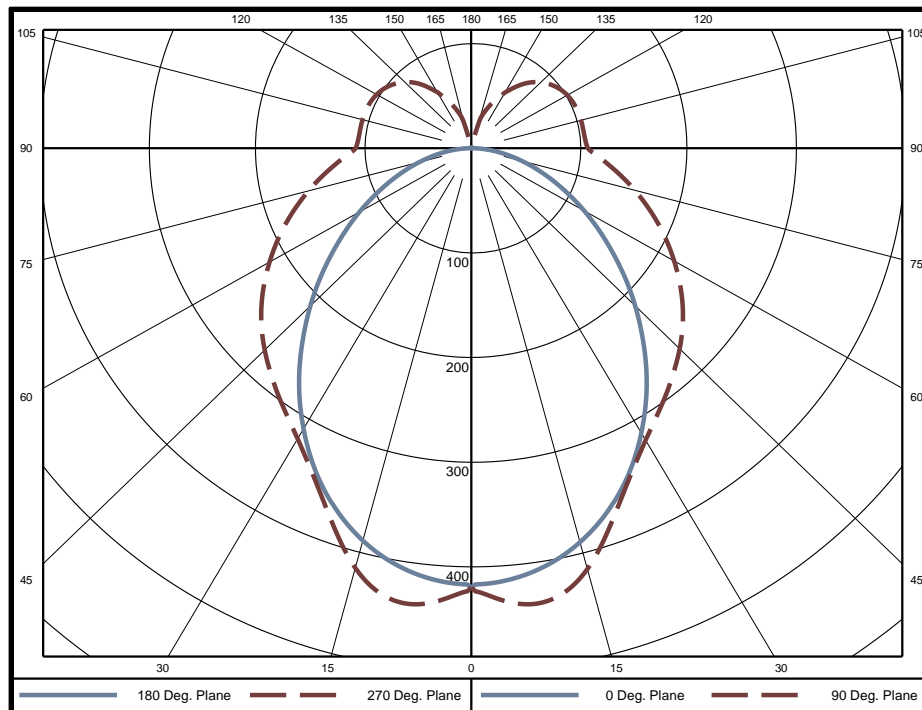
Luminaire Efficacy:

78.3 lm/w

Maximum Candela:

439 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	10.14	0.6%	60-65	84.43	5.1%	120-125	30.59	1.8%
5-10	30.55	1.8%	65-70	77.82	4.7%	125-130	26.87	1.6%
10-15	49.72	3.0%	70-75	70.26	4.2%	130-135	22.73	1.4%
15-20	65.70	4.0%	75-80	62.17	3.8%	135-140	18.51	1.1%
20-25	77.65	4.7%	80-85	54.03	3.3%	140-145	14.45	0.9%
25-30	86.14	5.2%	85-90	46.32	2.8%	145-150	10.71	0.6%
30-35	91.98	5.6%	90-95	42.58	2.6%	150-155	7.45	0.5%
35-40	95.53	5.8%	95-100	41.51	2.5%	155-160	4.77	0.3%
40-45	96.99	5.9%	100-105	40.36	2.4%	160-165	2.61	0.2%
45-50	96.47	5.8%	105-110	38.93	2.4%	165-170	0.95	0.1%
50-55	94.02	5.7%	110-115	36.98	2.2%	170-175	0.19	0.0%
55-60	89.89	5.4%	115-120	34.10	2.1%	175-180	0.00	0.0%

Zone	Lumens	% of Luminaire
0-40	507	30.7%
0-60	885	53.5%
0-90	1280	77.4%
90-180	374	22.6%



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	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7	419.7
	5	413.4	420.4	427.5	432.5	436.0	432.5	427.5	420.4	413.4	420.4	427.5	432.5	436.0	432.5	427.5
	10	404.1	418.4	429.2	434.0	436.9	434.0	429.2	418.4	404.1	418.4	429.2	434.0	436.9	434.0	429.2
	15	388.9	409.4	417.5	415.8	415.4	415.8	417.5	409.4	388.9	409.4	417.5	415.8	415.4	415.8	417.5
	20	368.2	392.5	393.6	382.9	379.2	382.9	393.6	392.5	368.2	392.5	393.6	382.9	379.2	382.9	393.6
	25	342.9	368.8	360.8	348.2	346.1	348.2	360.8	368.8	342.9	368.8	360.8	348.2	346.1	348.2	360.8
	30	313.1	339.7	327.4	320.8	321.5	320.8	327.4	339.7	313.1	339.7	327.4	320.8	321.5	320.8	327.4
	35	281.1	307.4	297.7	299.7	303.3	299.7	297.7	307.4	281.1	307.4	297.7	299.7	303.3	299.7	307.4
	40	247.1	274.0	273.0	282.1	287.2	282.1	273.0	274.0	247.1	274.0	273.0	282.1	287.2	282.1	273.0
	45	213.3	241.9	251.7	265.4	271.3	265.4	251.7	241.9	213.3	241.9	251.7	265.4	271.3	265.4	251.7
	50	180.2	212.2	232.2	248.3	254.5	248.3	232.2	212.2	180.2	212.2	232.2	248.3	254.5	248.3	232.2
	55	148.8	185.7	213.3	229.9	235.8	229.9	213.3	185.7	148.8	185.7	213.3	229.9	235.8	229.9	213.3
	60	120.3	162.5	194.7	210.7	215.9	210.7	194.7	162.5	120.3	162.5	194.7	210.7	215.9	210.7	194.7
	65	93.8	141.4	176.5	191.7	195.9	191.7	176.5	141.4	93.8	141.4	176.5	191.7	195.9	191.7	176.5
	70	70.3	121.6	158.3	172.8	175.8	172.8	158.3	121.6	70.3	121.6	158.3	172.8	175.8	172.8	158.3
	75	49.4	102.8	140.8	154.1	156.2	154.1	140.8	102.8	49.4	102.8	140.8	154.1	156.2	154.1	140.8
	80	30.7	85.7	123.8	136.4	137.6	136.4	123.8	85.7	30.7	85.7	123.8	136.4	137.6	136.4	123.8
	85	14.5	70.5	108.4	120.1	120.8	120.1	108.4	70.5	14.5	70.5	108.4	120.1	120.8	120.1	108.4
	90	1.5	58.5	95.6	106.8	107.5	106.8	95.6	58.5	1.5	58.5	95.6	106.8	107.5	106.8	95.6
	95	1.2	56.9	93.4	104.5	105.2	104.5	93.4	56.9	1.2	56.9	93.4	104.5	105.2	104.5	93.4
	100	1.1	55.5	91.6	103.4	104.6	103.4	91.6	55.5	1.1	55.5	91.6	103.4	104.6	103.4	91.6
	105	1.1	54.3	90.2	102.6	104.6	102.6	90.2	54.3	1.1	54.3	90.2	102.6	104.6	102.6	90.2
	110	1.0	52.8	88.4	101.7	104.3	101.7	88.4	52.8	1.0	52.8	88.4	101.7	104.3	101.7	88.4
	115	0.8	48.5	86.3	100.2	103.5	100.2	86.3	48.5	0.8	48.5	86.3	100.2	103.5	100.2	86.3
	120	0.7	43.0	80.6	98.0	101.9	98.0	80.6	43.0	0.7	43.0	80.6	98.0	101.9	98.0	80.6
	125	0.5	38.3	73.4	94.7	99.2	94.7	73.4	38.3	0.5	38.3	73.4	94.7	99.2	94.7	73.4
	130	0.3	34.3	65.1	89.5	95.0	89.5	65.1	34.3	0.3	34.3	65.1	89.5	95.0	89.5	65.1
	135	0.2	30.4	57.4	79.6	89.3	79.6	57.4	30.4	0.2	30.4	57.4	79.6	89.3	79.6	57.4
	140	0.1	26.4	51.1	68.8	81.8	68.8	51.1	26.4	0.1	26.4	51.1	68.8	81.8	68.8	51.1
	145	0.0	21.7	44.5	56.5	71.9	56.5	44.5	21.7	0.0	21.7	44.5	56.5	71.9	56.5	44.5
	150	0.0	16.5	37.6	47.0	61.4	47.0	37.6	16.5	0.0	16.5	37.6	47.0	61.4	47.0	37.6
	155	0.0	11.9	30.2	37.0	49.9	37.0	30.2	11.9	0.0	11.9	30.2	37.0	49.9	37.0	30.2
	160	0.0	7.0	22.2	28.1	38.5	28.1	22.2	7.0	0.0	7.0	22.2	28.1	38.5	28.1	22.2
	165	0.0	3.5	14.0	19.4	19.5	19.4	14.0	3.5	0.0	3.5	14.0	19.4	19.5	19.4	14.0
	170	0.0	0.6	5.6	9.7	5.8	9.7	5.6	0.6	0.0	0.6	5.6	9.7	5.8	9.7	5.6
	175	0.0	0.0	0.4	1.6	0.8	1.6	0.4	0.0	0.0	0.4	1.6	0.8	1.6	0.4	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	17490	17490
	45	12360	6152
	55	10560	5215
	65	8932	4360
	75	7481	3609
	85	5797	2996



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	1880	1880	1880	1880	1793	1793	1793	1793	1630	1630	1630	1481	1481	1481	1344	1344	1344	1280
1	1679	1587	1504	1430	1594	1512	1438	1371	1372	1314	1260	1244	1198	1155	1126	1090	1056	995
2	1516	1368	1246	1143	1436	1304	1194	1100	1184	1095	1018	1074	1002	940	972	915	865	808
3	1377	1195	1053	941	1303	1140	1011	908	1037	931	844	941	855	783	853	783	724	671
4	1258	1055	905	792	1191	1007	871	766	918	805	715	836	742	666	759	682	618	569
5	1155	940	789	678	1094	899	761	657	822	705	616	750	652	576	682	601	536	491
6	1066	845	696	589	1010	809	672	572	741	625	538	678	580	504	619	536	471	429
7	988	764	620	519	936	733	599	504	674	559	475	618	520	446	566	482	418	380
8	919	696	557	461	872	669	539	448	616	504	424	567	470	399	521	438	375	339
9	858	638	504	413	815	614	488	402	567	458	381	523	428	360	482	400	339	306
10	803	588	459	373	764	566	445	364	525	418	345	485	392	327	448	367	309	278

Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	26.2	4.66
6.00	11.7	6.99
8.00	6.56	9.31
10.0	4.20	11.6
12.0	2.91	14.0
14.0	2.14	16.3
16.0	1.64	18.6

Cone of Light Plot

