UL LLC
1075 W Lambert Rd Suite B
Brea, CA 92821

Indoor Distribution Test Report

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

Prepared For

SONNEMAN - A WAY OF LIGHT

NICOLAS CARMICHAEL
106 PIERCES RD
NEWBURGH, NY 12550-9369
United States

Catalog Number
7218.98-WL
Order Number
11281216
Test Number
1253416

Test Date

2016-07-06

Prepared By

Tony Rubio, Technician

Approved By

Eric Gaudreau, Senior Engineering Associate

Luminaire Description: Rectangular white formed aluminum housing with front/side frosted lens
Lamp: 180 White LEDs
Mounting: Surface/Wall
Ballast/Driver: One (1) ERP EBR020U-0500-42

Luminaire

Luminaire Characteristics

Luminous Length:	1.25	in.
Luminous Width:	14.00	in.
Luminous Height:	7.25	in.

Summary of Results

Total Luminaire Output:	1149 Lumens
Luminaire Efficacy:	55.7 lm/w
Maximum Candela:	321 Candela

Test Conditions

Test Temperature:	24.5	°C
Voltage:	120.1	VAC
Current:	0.1733	A
Power:	20.62	W
Power Factor:	0.991	
Frequency:	60	Hz
Current THD:	11.4	%

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

Distribution - Goniophotometer

Distribution Test Conditions

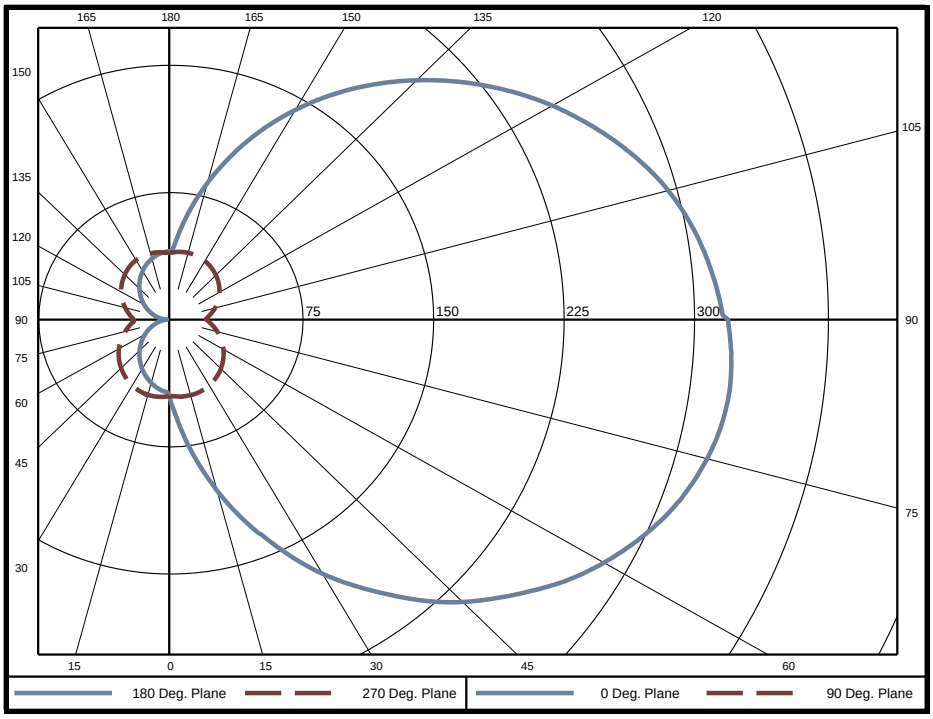
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.5 °C	120.1 VAC	0.1733 A	20.62 W	0.991	60 Hz	11.4 %

Summary of Results

Spacing Criteria
0-180: 4.33
90-270: 1.10

Total Lumen Output: 1149 Lumens
Luminaire Efficacy: 55.7 lm/w
Maximum Candela: 321 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	1.11	0.1%	60-65	50.79	4.4%	120-125	42.23	3.7%
5-10	3.67	0.3%	65-70	53.56	4.7%	125-130	38.12	3.3%
10-15	6.81	0.6%	70-75	55.57	4.8%	130-135	33.77	2.9%
15-20	10.51	0.9%	75-80	56.74	4.9%	135-140	29.34	2.6%
20-25	14.67	1.3%	80-85	56.92	5.0%	140-145	24.89	2.2%
25-30	19.22	1.7%	85-90	56.20	4.9%	145-150	20.51	1.8%
30-35	24.01	2.1%	90-95	55.50	4.8%	150-155	16.31	1.4%
35-40	28.93	2.5%	95-100	54.99	4.8%	155-160	12.38	1.1%
40-45	33.90	3.0%	100-105	53.83	4.7%	160-165	8.82	0.8%
45-50	38.68	3.4%	105-110	51.89	4.5%	165-170	5.70	0.5%
50-55	43.19	3.8%	110-115	49.20	4.3%	170-175	3.08	0.3%
55-60	47.32	4.1%	115-120	45.95	4.0%	175-180	0.95	0.1%

Zone	Lumens	% of Luminaire
0-40	109	9.5%
0-60	272	23.7%
0-90	602	52.4%
90-180	547	47.6%

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	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1
5	60.2	60.0	55.4	49.7	44.6	41.2	41.4	41.4	41.3	41.4	41.4	41.2	44.6	49.7	55.4	60.0
10	80.7	79.0	69.5	56.1	45.0	41.0	41.0	40.4	40.0	40.4	41.0	41.0	45.0	56.1	69.5	79.0
15	103.0	99.3	84.4	63.4	45.1	40.8	40.5	39.3	38.3	39.3	40.5	40.8	45.1	63.4	84.4	99.3
20	125.6	120.3	99.4	70.6	44.9	40.5	39.5	37.9	36.5	37.9	39.5	40.5	44.9	70.6	99.4	120.3
25	148.0	141.1	114.6	77.6	44.3	39.8	38.3	36.3	34.4	36.3	38.3	39.8	44.3	77.6	114.6	141.1
30	171.4	161.6	129.1	84.0	43.3	38.9	36.9	34.5	32.1	34.5	36.9	38.9	43.3	84.0	129.1	161.6
35	192.6	181.2	143.0	90.0	42.1	37.7	35.3	32.5	29.7	32.5	35.3	37.7	42.1	90.0	143.0	181.2
40	214.0	200.3	156.2	95.4	40.7	36.4	33.6	30.4	27.1	30.4	33.6	36.4	40.7	95.4	156.2	200.3
45	234.4	218.1	168.3	100.3	39.0	34.8	31.7	28.2	24.4	28.2	31.7	34.8	39.0	100.3	168.3	218.1
50	252.3	234.3	179.1	104.6	37.2	33.1	29.6	25.8	21.6	25.8	29.6	33.1	37.2	104.6	179.1	234.3
55	269.9	249.6	188.7	108.1	35.2	31.3	27.5	23.2	18.7	23.2	27.5	31.3	35.2	108.1	188.7	249.6
60	285.2	262.7	196.7	110.5	33.0	29.3	25.2	20.5	15.8	20.5	25.2	29.3	33.0	110.5	196.7	262.7
65	298.3	273.2	202.8	112.0	30.7	27.1	23.0	17.6	12.7	17.6	23.0	27.1	30.7	112.0	202.8	273.2
70	308.9	281.5	207.3	112.7	28.3	24.9	20.5	14.7	9.8	14.7	20.5	24.9	28.3	112.7	207.3	281.5
75	316.1	287.3	210.1	112.6	25.9	22.6	18.2	12.3	7.1	12.3	18.2	22.6	25.9	112.6	210.1	287.3
80	320.1	290.3	211.1	111.6	23.5	20.4	15.8	9.8	4.5	9.8	15.8	20.4	23.5	111.6	211.1	290.3
85	320.3	289.5	209.7	109.5	21.1	18.1	13.5	7.3	2.1	7.3	13.5	18.1	21.1	109.5	209.7	289.5
90	317.2	286.5	207.1	107.3	19.6	16.6	11.9	5.8	0.5	5.8	11.9	16.6	19.6	107.3	207.1	286.5
95	309.4	280.6	204.5	107.1	21.0	19.0	14.1	7.9	2.7	7.9	14.1	19.0	21.0	107.1	204.5	280.6
100	302.5	274.9	201.6	106.5	23.0	21.2	16.5	10.4	5.3	10.4	16.5	21.2	23.0	106.5	201.6	274.9
105	293.2	267.0	197.2	105.3	25.2	23.5	18.9	13.0	8.0	13.0	18.9	23.5	25.2	105.3	197.2	267.0
110	280.9	256.6	190.9	103.3	27.2	25.7	21.3	15.6	10.8	15.6	21.3	25.7	27.2	103.3	190.9	256.6
115	266.6	244.5	183.3	100.4	29.2	27.8	23.7	18.2	13.6	18.2	23.7	27.8	29.2	100.4	183.3	244.5
120	251.2	231.0	174.6	97.1	31.1	29.8	25.8	20.7	16.4	20.7	25.8	29.8	31.1	97.1	174.6	231.0
125	234.4	216.2	164.8	93.1	32.8	31.7	28.0	23.3	19.3	23.3	28.0	31.7	32.8	93.1	164.8	216.2
130	216.9	200.1	153.7	88.5	34.3	33.4	30.0	25.6	22.0	25.6	30.0	33.4	34.3	88.5	153.7	200.1
135	198.7	183.5	142.2	83.6	35.7	35.0	31.8	27.9	24.6	27.9	31.8	35.0	35.7	83.6	142.2	183.5
140	180.1	166.5	130.1	78.3	37.0	36.3	33.5	30.1	27.1	30.1	33.5	36.3	37.0	78.3	130.1	166.5
145	161.0	149.0	117.5	72.8	38.0	37.5	35.0	32.0	29.5	32.0	35.0	37.5	38.0	72.8	117.5	149.0
150	141.5	130.9	104.5	66.8	38.8	38.5	36.3	33.8	31.6	33.8	36.3	38.5	38.8	66.8	104.5	130.9
155	121.7	112.8	91.1	60.7	39.4	39.2	37.3	35.3	33.7	35.3	37.3	39.2	39.4	60.7	91.1	112.8
160	101.6	94.3	77.9	54.5	39.7	39.7	38.2	36.6	35.4	36.6	38.2	39.7	39.7	54.5	77.9	94.3
165	82.1	76.5	64.8	48.3	39.7	39.8	38.7	37.6	36.9	37.6	38.7	39.8	39.7	48.3	64.8	76.5
170	63.5	59.3	52.3	42.7	39.5	39.8	39.1	38.4	38.1	38.4	39.1	39.8	39.5	42.7	52.3	59.3
175	46.6	44.1	41.6	39.6	38.9	39.4	39.2	38.9	38.9	38.9	39.2	39.4	38.9	39.6	41.6	44.1
180	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2	39.2

Average Luminance (cd/m^2)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
0	3903	3903	3903
45	4318	3856	3222
55	4489	3948	3124
65	4652	4018	3047
75	4777	4068	3017
85	4837	4093	3105

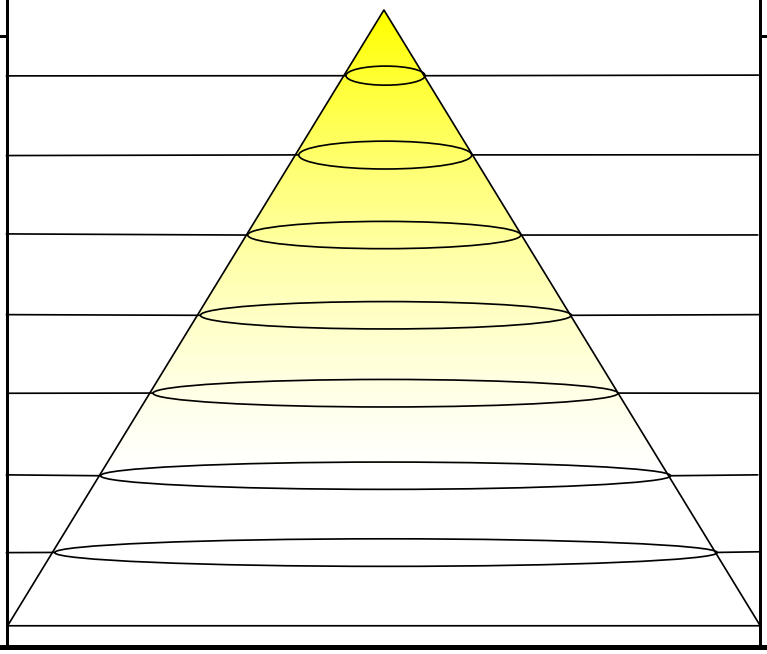
Utilization of Lumens - Zonal Cavity Method

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	1238	1238	1238	1238	1145	1145	1145	1145	973	973	973	815	815	815	670	670	670	602
1	1072	998	931	871	983	917	858	805	767	721	679	629	594	562	501	475	451	388
2	953	839	745	665	870	770	686	615	640	574	518	519	469	425	408	371	337	281
3	856	719	613	528	779	659	564	488	546	471	410	441	383	335	344	300	262	212
4	775	625	515	430	705	572	474	398	474	396	334	382	321	271	297	250	211	166
5	706	549	439	358	642	503	404	331	416	338	277	336	274	225	261	213	174	134
6	646	486	379	302	588	446	350	279	370	292	234	299	237	190	233	184	146	110
7	595	435	331	259	541	400	306	239	332	256	201	269	208	162	210	162	125	93
8	550	392	292	224	501	360	270	207	300	226	174	244	184	141	191	143	108	79
9	510	355	260	196	466	327	240	181	273	202	152	222	165	123	175	129	95	68
10	476	324	233	172	434	298	215	160	250	181	134	204	148	109	161	116	84	60

Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intenisty:	44.1 Candela
Central Cone Intensity:	46 Candela
Beam Flux:	1112.2 Lumens
Beam Angle (0-180):	N/A Degrees
Beam Angle (90-270):	166.2 Degrees
Field Angle (0-180):	N/A Degrees
Field Angle (90-270):	N/A Degrees

Cone of Light Tabulation

Mounting Height (Feet)	Footcandles at Nadir	Diameter (Feet)
4.00	2.75	10.5
6.00	1.22	15.8
8.00	0.688	21.1
10.0	0.441	26.3
12.0	0.306	31.6
14.0	0.225	36.9
16.0	0.172	42.1



ISOFootcandle Plot

Mounting Height - 8 Feet