



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

2716.98-WL

Order Number

11281216

Test Number

1253407

Test Date

2016-06-15

Prepared By

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Approved By

Eric Gaudreau, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Rectangular white formed aluminum housing with dual sided directional reflectors and two (2) frosted lens
Lamp: 12 White LEDs
Mounting: Surface/Wall
Ballast/Driver: One (1) ERP EBR020U-0500-42

Luminaire



Luminaire Characteristics

Luminous Length: 1.50 in.
Luminous Width: 5.000 in.
Luminous Height: 11.00 in.

Summary of Results

Total Luminaire Output: 798.9 Lumens
Luminaire Efficacy: 39.4 lm/w
Maximum Candela: 313 Candela

Test Conditions

Test Temperature: 24.5 °C
Voltage: 120.1 VAC
Current: 0.1706 A
Power: 20.29 W
Power Factor: 0.990
Frequency: 60 Hz
Current THD: 11.7 %

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



Distribution - Goniophotometer

Distribution Test Conditions

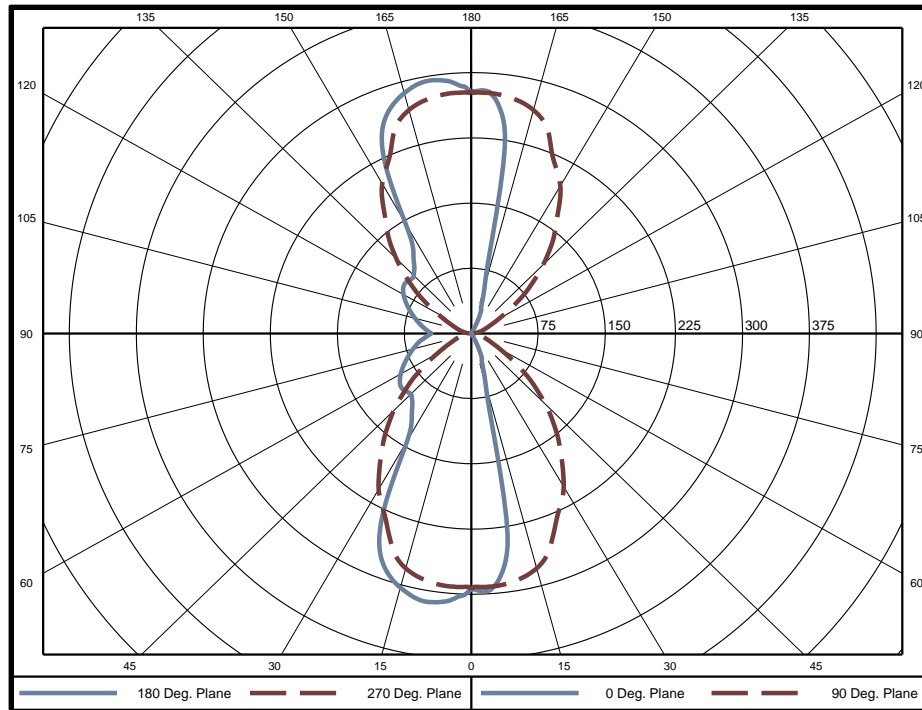
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.5 °C	120.1 VAC	0.1706 A	20.29 W	0.990	60 Hz	11.7 %

Summary of Results

Spacing Criteria
 0-180: 0.39
 90-270: 0.99

Total Lumen Output: 798.9 Lumens
Luminaire Efficacy: 39.4 lm/w
Maximum Candela: 313 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	7.14	0.9%	60-65	17.41	2.2%	120-125	18.71	2.3%
5-10	20.95	2.6%	65-70	15.66	2.0%	125-130	21.37	2.7%
10-15	30.13	3.8%	70-75	14.16	1.8%	130-135	24.01	3.0%
15-20	35.19	4.4%	75-80	12.54	1.6%	135-140	26.13	3.3%
20-25	38.83	4.9%	80-85	10.81	1.4%	140-145	28.81	3.6%
25-30	37.79	4.7%	85-90	9.06	1.1%	145-150	32.41	4.1%
30-35	33.67	4.2%	90-95	8.67	1.1%	150-155	36.70	4.6%
35-40	30.01	3.8%	95-100	10.21	1.3%	155-160	37.46	4.7%
40-45	27.25	3.4%	100-105	11.87	1.5%	160-165	33.94	4.2%
45-50	25.16	3.1%	105-110	13.46	1.7%	165-170	29.23	3.7%
50-55	22.38	2.8%	110-115	14.96	1.9%	170-175	19.95	2.5%
55-60	19.43	2.4%	115-120	16.66	2.1%	175-180	6.76	0.8%

Zone	Lumens	% of Luminaire
0-40	234	29.3%
0-60	328	41.0%
0-90	408	51.0%
90-180	391	49.0%



Candela Tabulation
Horizontal 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	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3	294.3
5	290.8	291.7	297.5	296.2	291.8	300.1	305.8	308.3	309.1	308.3	305.8	300.1	291.8	296.2	297.5	291.7
10	217.0	224.3	270.0	290.3	288.3	300.6	309.9	312.3	312.2	312.3	309.9	300.6	288.3	290.3	270.0	224.3
15	58.3	64.6	154.6	268.4	279.6	297.0	306.0	305.8	302.6	305.8	306.0	297.0	279.6	268.4	154.6	64.6
20	32.5	35.5	59.1	215.1	257.7	286.6	293.7	290.1	283.4	290.1	293.7	286.6	257.7	215.1	59.1	35.5
25	17.5	21.9	35.5	141.8	227.6	269.6	275.2	257.9	233.1	257.9	275.2	269.6	227.6	141.8	35.5	21.9
30	0.8	3.5	24.4	70.5	204.5	243.4	246.7	177.3	140.2	177.3	246.7	243.4	204.5	70.5	24.4	3.5
35	0.6	0.7	8.8	42.8	174.0	215.1	191.3	121.0	114.7	121.0	191.3	215.1	174.0	42.8	8.8	0.7
40	0.2	0.5	0.8	29.2	145.8	189.7	121.3	105.0	101.3	105.0	121.3	189.7	145.8	29.2	0.8	0.5
45	0.2	0.3	0.7	19.6	117.1	163.5	97.8	94.8	96.7	94.8	97.8	163.5	117.1	19.6	0.7	0.3
50	0.1	0.3	0.5	9.7	88.2	130.0	84.1	93.8	99.2	93.8	84.1	130.0	88.2	9.7	0.5	0.3
55	0.1	0.3	0.5	2.6	60.5	87.0	77.3	93.4	96.3	93.4	77.3	87.0	60.5	2.6	0.5	0.3
60	0.0	0.2	0.5	0.7	38.6	60.4	76.2	87.6	89.5	87.6	76.2	60.4	38.6	0.7	0.5	0.2
65	0.0	0.2	0.4	0.6	24.9	48.2	70.5	79.7	81.4	79.7	70.5	48.2	24.9	0.6	0.4	0.2
70	0.1	0.2	0.5	0.6	17.6	41.9	62.5	71.7	73.4	71.7	62.5	41.9	17.6	0.6	0.5	0.2
75	0.1	0.2	0.5	0.6	12.1	37.1	54.5	64.1	66.0	64.1	54.5	37.1	12.1	0.6	0.5	0.2
80	0.1	0.2	0.5	0.6	7.3	30.7	47.3	57.1	59.1	57.1	47.3	30.7	7.3	0.6	0.5	0.2
85	0.2	0.3	0.5	0.6	3.3	24.7	40.6	49.4	50.9	49.4	40.6	24.7	3.3	0.6	0.5	0.3
90	0.2	0.3	0.5	0.6	1.3	19.4	34.3	42.5	44.1	42.5	34.3	19.4	1.3	0.6	0.5	0.3
95	0.2	0.3	0.4	0.4	3.1	23.2	38.1	47.1	50.1	47.1	38.1	23.2	3.1	0.4	0.4	0.3
100	0.2	0.3	0.4	0.4	7.1	29.0	44.5	53.5	56.6	53.5	44.5	29.0	7.1	0.4	0.4	0.3
105	0.1	0.2	0.4	0.5	11.7	35.0	51.6	60.4	63.5	60.4	51.6	35.0	11.7	0.5	0.4	0.2
110	0.1	0.2	0.4	0.5	17.2	39.8	59.2	67.8	70.9	67.8	59.2	39.8	17.2	0.5	0.4	0.2
115	0.1	0.2	0.4	0.6	24.6	46.3	66.8	75.6	78.5	75.6	66.8	46.3	24.6	0.6	0.4	0.2
120	0.1	0.2	0.4	0.7	38.2	58.5	72.1	83.2	86.0	83.2	72.1	58.5	38.2	0.7	0.4	0.2
125	0.1	0.2	0.4	2.8	59.9	83.5	73.6	88.6	91.7	88.6	73.6	83.5	59.9	2.8	0.4	0.2
130	0.1	0.2	0.5	10.8	85.5	122.1	80.4	88.8	92.9	88.8	80.4	122.1	85.5	10.8	0.5	0.2
135	0.1	0.2	0.7	20.2	112.9	155.0	93.1	90.3	90.9	90.3	93.1	155.0	112.9	20.2	0.7	0.2
140	0.1	0.4	0.8	29.7	140.9	180.2	117.6	100.0	97.8	100.0	117.6	180.2	140.9	29.7	0.8	0.4
145	0.5	0.7	10.9	43.8	166.4	204.3	179.8	115.8	111.4	115.8	179.8	204.3	166.4	43.8	10.9	0.7
150	0.6	5.6	25.7	76.1	196.8	231.7	232.7	166.9	143.8	166.9	232.7	231.7	196.8	76.1	25.7	5.6
155	16.0	24.0	36.5	159.4	217.3	256.4	259.9	242.3	231.4	242.3	259.9	256.4	217.3	159.4	36.5	24.0
160	30.6	36.6	60.9	212.0	248.2	272.0	277.4	273.5	270.1	273.5	277.4	272.0	248.2	212.0	60.9	36.6
165	54.5	67.7	183.8	260.0	266.1	281.9	289.0	288.3	286.3	288.3	289.0	281.9	266.1	260.0	183.8	67.7
170	196.9	235.3	262.3	276.4	274.0	286.1	293.5	295.1	294.4	295.1	293.5	286.1	274.0	276.4	262.3	235.3
175	273.6	278.7	281.8	279.2	277.2	284.6	290.7	292.5	291.5	292.5	290.7	284.6	277.2	279.2	281.8	278.7
180	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	279.4

Average Luminance (cd/m²)
Horizontal Angle (Degrees)

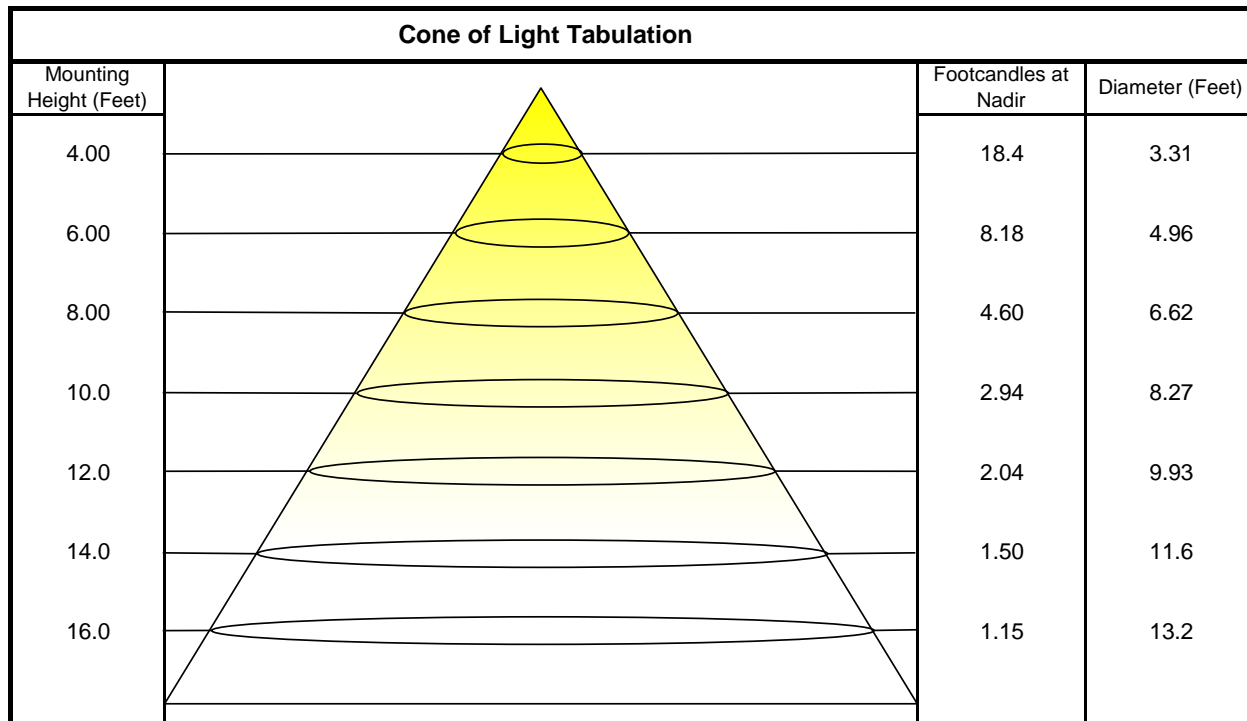
	0	45	90
0	60830	60830	60830
45	6	27	10690
55	3	16	5260
65	1	14	2131
75	3	15	1046
85	4	16	296



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	858	858	858	858	792	792	792	792	670	670	670	558	558	558	456	456	456	408
1	782	747	715	687	721	691	664	639	586	566	548	490	476	463	401	391	383	341
2	716	658	609	569	660	609	568	532	519	488	461	436	414	394	359	343	330	293
3	658	584	527	482	606	542	493	453	464	427	396	392	364	341	324	305	288	256
4	606	523	462	415	559	486	433	391	418	377	345	355	324	300	296	274	256	227
5	560	471	408	362	517	439	384	343	379	337	304	324	291	266	272	248	229	204
6	519	427	365	320	480	399	344	303	346	303	271	297	264	239	251	226	207	185
7	483	389	328	285	447	365	310	271	318	275	243	274	241	216	233	208	189	169
8	451	357	297	257	418	335	282	244	293	251	220	254	221	197	217	192	173	155
9	423	329	271	232	392	309	257	222	272	230	201	236	204	180	203	178	160	143
10	397	304	249	212	369	287	236	203	253	212	184	221	189	166	191	166	148	133

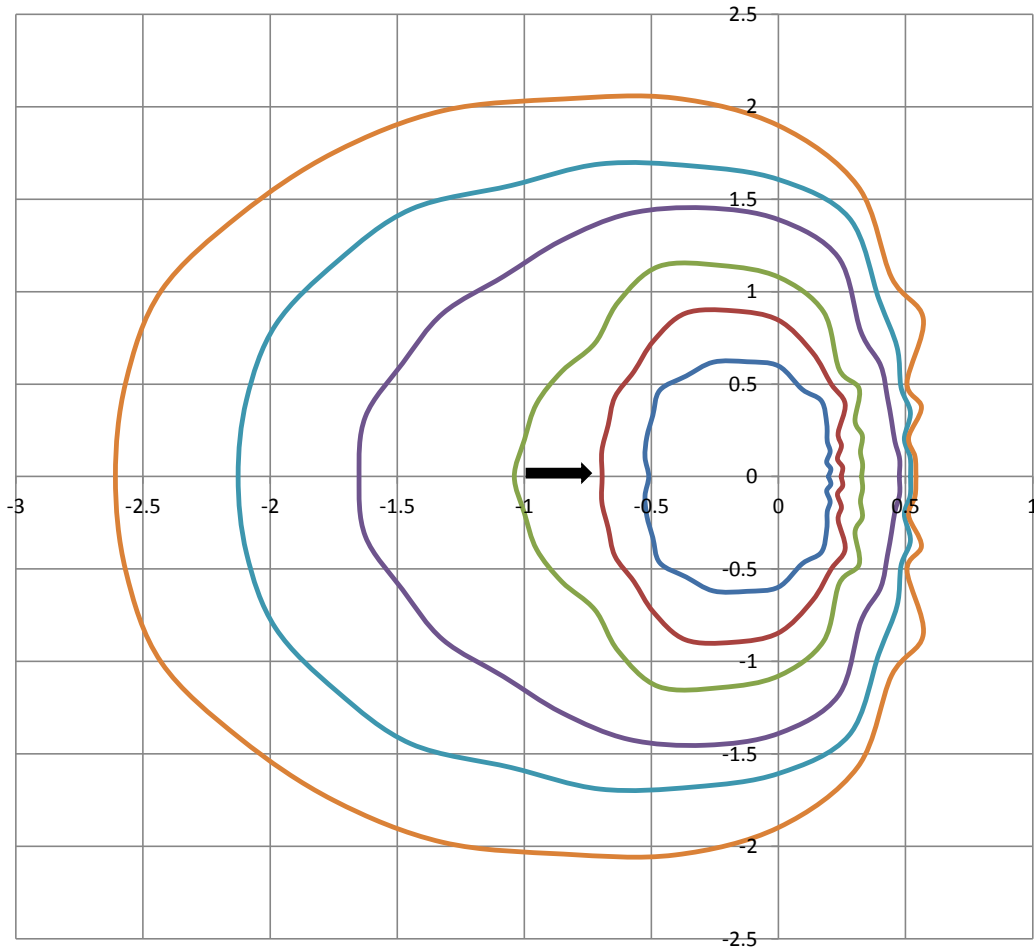
Beam and Field Information	
CIE Type:	Direct/Indirect
Center Beam Intensity:	294.3 Candela
Central Cone Intensity:	297 Candela
Beam Flux:	416.4 Lumens
Beam Angle (0-180):	40.6 Degrees
Beam Angle (90-270):	79.5 Degrees
Field Angle (0-180):	#REF! Degrees
Field Angle (90-270):	126.2 Degrees





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

