



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**

**2724.98-WL**

Order Number

11281216

Test Number

1253408

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 single sided directional reflector and a frosted glass lens  
**Lamp:** 32 White LEDs  
**Mounting:** Surface/Wall  
**Ballast/Driver:** One (1) ERP EBR020U-0500-32

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 2.00 in.  
Luminous Width: 7.000 in.  
Luminous Height: 9.00 in.

**Summary of Results**

Total Luminaire Output: 792.2 Lumens  
Luminaire Efficacy: 57 lm/w  
Maximum Candela: 286 Candela

**Test Conditions**

Test Temperature: 24.7 °C  
Voltage: 120.0 VAC  
Current: 0.1182 A  
Power: 13.91 W  
Power Factor: 0.981  
Frequency: 60 Hz  
Current THD: 17.2 %

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



## Distribution - Goniophotometer

### Distribution Test Conditions

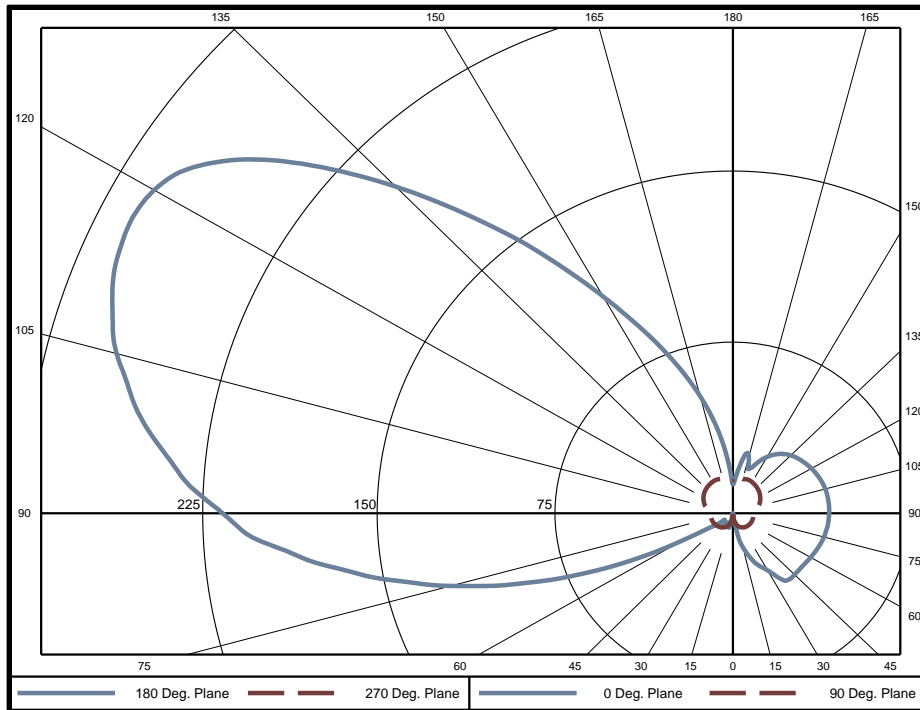
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.7 °C	120.0 VAC	0.1182 A	13.91 W	0.981	60 Hz	17.2 %

### Summary of Results

**Spacing Criteria**  
 0-180: 10.73  
 90-270: 17.98

**Total Lumen Output:** 792.2 Lumens  
**Luminaire Efficacy:** 57.0 lm/w  
**Maximum Candela:** 286 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	0.02	0.0%	60-65	23.47	3.0%	120-125	41.77	5.3%
5-10	0.18	0.0%	65-70	28.26	3.6%	125-130	36.53	4.6%
10-15	1.04	0.1%	70-75	33.12	4.2%	130-135	30.70	3.9%
15-20	2.39	0.3%	75-80	37.78	4.8%	135-140	25.04	3.2%
20-25	3.96	0.5%	80-85	41.98	5.3%	140-145	19.85	2.5%
25-30	5.65	0.7%	85-90	45.46	5.7%	145-150	15.21	1.9%
30-35	7.55	1.0%	90-95	48.04	6.1%	150-155	11.22	1.4%
35-40	9.75	1.2%	95-100	49.67	6.3%	155-160	8.02	1.0%
40-45	11.67	1.5%	100-105	50.33	6.4%	160-165	5.50	0.7%
45-50	13.75	1.7%	105-110	49.89	6.3%	165-170	3.34	0.4%
50-55	15.88	2.0%	110-115	48.36	6.1%	170-175	1.54	0.2%
55-60	19.18	2.4%	115-120	45.73	5.8%	175-180	0.38	0.0%

Zone	Lumens	% of Luminaire
0-40	31	3.9%
0-60	91	11.5%
0-90	301	38.0%
90-180	491	62.0%



**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	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
5	0.0	1.2	1.9	1.9	1.6	1.3	0.9	0.2	0.0	0.2	0.9	1.3	1.6	1.9	1.9	1.2
10	3.4	5.8	6.5	5.2	3.5	5.6	6.2	2.3	0.2	2.3	6.2	5.6	3.5	5.2	6.5	5.8
15	14.9	12.7	12.0	8.4	4.6	10.5	17.6	18.2	6.6	18.2	17.6	10.5	4.6	8.4	12.0	12.7
20	20.3	18.1	17.9	11.9	5.8	15.4	26.5	26.3	5.6	26.3	26.5	15.4	5.8	11.9	17.9	18.1
25	25.1	24.5	23.4	14.7	6.6	20.2	34.6	27.6	4.7	27.6	34.6	20.2	6.6	14.7	23.4	24.5
30	28.8	30.7	28.3	17.4	7.1	24.8	41.5	28.4	4.8	28.4	41.5	24.8	7.1	17.4	28.3	30.7
35	35.3	36.1	33.3	20.3	7.5	29.1	46.2	22.9	5.8	22.9	46.2	29.1	7.5	20.3	33.3	36.1
40	37.6	39.7	38.6	23.4	7.9	33.3	55.3	25.8	5.9	25.8	55.3	33.3	7.9	23.4	38.6	39.7
45	37.5	39.7	44.0	26.7	8.2	37.2	65.6	17.6	5.2	17.6	65.6	37.2	8.2	26.7	44.0	39.7
50	37.4	39.7	45.3	30.1	8.5	40.8	79.5	15.8	4.5	15.8	79.5	40.8	8.5	30.1	45.3	39.7
55	37.7	39.9	45.7	33.3	8.7	44.1	87.9	26.2	9.3	26.2	87.9	44.1	8.7	33.3	45.7	39.9
60	38.2	40.3	46.3	36.5	8.8	47.0	101.8	46.8	20.3	46.8	101.8	47.0	8.8	36.5	46.3	40.3
65	38.8	40.7	46.7	38.9	8.9	49.5	115.2	70.5	52.3	70.5	115.2	49.5	8.9	38.9	46.7	40.7
70	39.3	41.1	47.3	40.8	9.0	51.8	127.5	95.7	87.3	95.7	127.5	51.8	9.0	40.8	47.3	41.1
75	39.9	41.4	47.7	42.5	9.0	53.9	138.6	121.6	123.1	121.6	138.6	53.9	9.0	42.5	47.7	41.4
80	40.2	41.5	47.9	43.9	9.0	55.6	148.1	146.9	158.0	146.9	148.1	55.6	9.0	43.9	47.9	41.5
85	40.5	41.6	48.0	45.0	9.0	56.9	155.4	170.7	189.9	170.7	155.4	56.9	9.0	45.0	48.0	41.6
90	40.6	41.5	47.8	45.7	9.0	58.0	160.0	192.7	216.3	192.7	160.0	58.0	9.0	45.7	47.8	41.5
95	40.7	41.6	48.0	46.4	9.8	59.2	161.8	211.8	237.8	211.8	161.8	59.2	9.8	46.4	48.0	41.6
100	40.6	41.6	48.0	46.7	10.7	60.1	160.8	227.6	256.2	227.6	160.8	60.1	10.7	46.7	48.0	41.6
105	40.4	41.4	47.6	46.6	11.5	60.7	157.5	239.3	270.4	239.3	157.5	60.7	11.5	46.6	47.6	41.4
110	40.0	40.8	46.7	46.1	12.4	61.0	152.3	246.3	279.9	246.3	152.3	61.0	12.4	46.1	46.7	40.8
115	39.3	40.1	45.4	45.1	13.1	60.7	145.3	248.6	285.0	248.6	145.3	60.7	13.1	45.1	45.4	40.1
120	38.5	39.0	43.7	43.7	13.8	60.0	136.5	243.4	283.2	243.4	136.5	60.0	13.8	43.7	43.7	39.0
125	37.7	37.8	41.6	41.8	14.4	58.7	126.1	227.2	268.0	227.2	126.1	58.7	14.4	41.8	41.6	37.8
130	36.7	36.3	39.0	39.5	14.8	56.7	115.2	201.7	238.3	201.7	115.2	56.7	14.8	39.5	39.0	36.3
135	35.5	34.5	36.0	36.8	15.2	54.1	105.0	173.1	202.6	173.1	105.0	54.1	15.2	36.8	36.0	34.5
140	33.8	32.3	32.6	34.1	15.6	51.2	94.4	146.5	167.8	146.5	94.4	51.2	15.6	34.1	32.6	32.3
145	31.5	29.5	28.8	31.4	15.8	47.8	84.2	121.8	136.7	121.8	84.2	47.8	15.8	31.4	28.8	29.5
150	28.3	26.1	25.0	28.2	16.0	43.8	73.8	100.2	109.3	100.2	73.8	43.8	16.0	28.2	25.0	26.1
155	24.4	22.2	23.9	24.5	16.1	39.3	63.4	82.2	87.3	82.2	63.4	39.3	16.1	24.5	23.9	22.2
160	20.8	21.0	27.7	21.4	15.9	34.1	52.9	66.1	68.9	66.1	52.9	34.1	15.9	21.4	27.7	21.0
165	25.8	27.0	25.5	18.9	15.4	28.4	42.2	51.3	52.7	51.3	42.2	28.4	15.4	18.9	25.5	27.0
170	24.2	22.5	20.1	16.8	15.1	22.7	31.5	37.1	37.3	37.1	31.5	22.7	15.1	16.8	20.1	22.5
175	16.7	16.0	15.6	14.6	14.5	17.3	21.0	23.3	22.4	23.3	21.0	17.3	14.5	14.6	15.6	16.0
180	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5

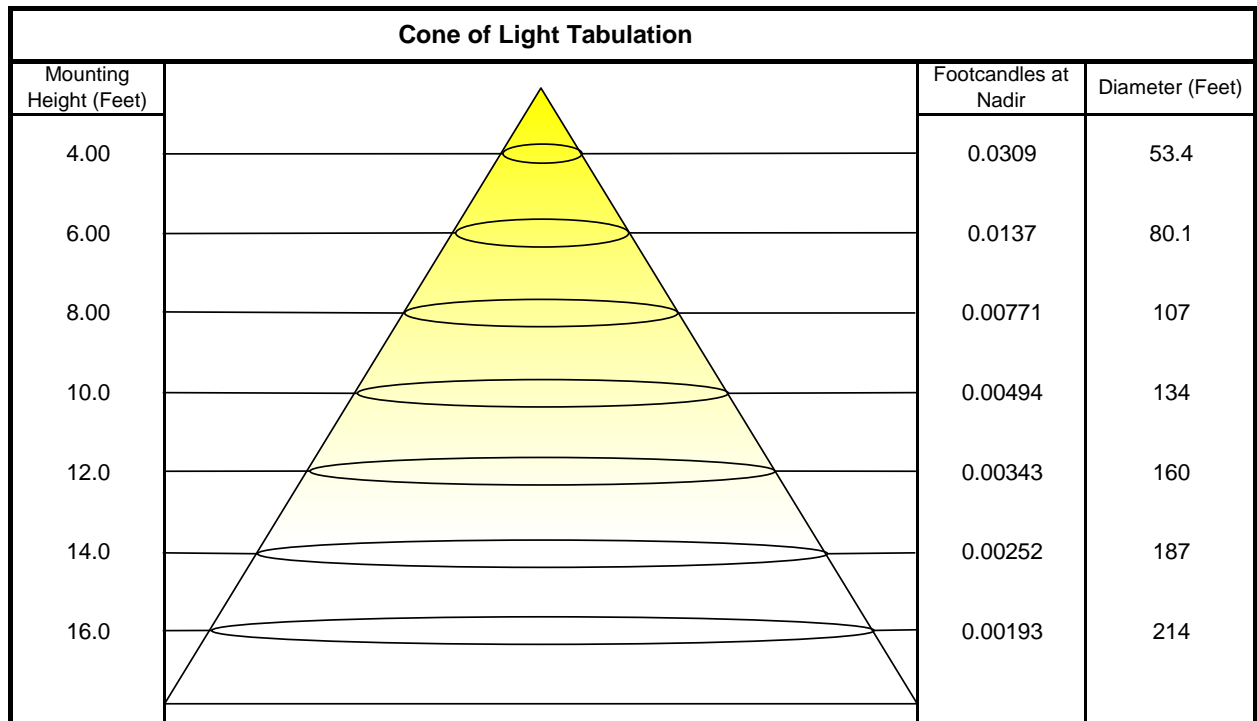
**Average Luminance (cd/m<sup>2</sup>)**  
Horizontal Angle (Degrees)

	0	45	90
0	55	55	55
45	1066	1354	565
55	979	1290	589
65	953	1253	623
75	958	1254	667
85	981	1276	727



### Utilization of Lumens - Zonal Cavity Method

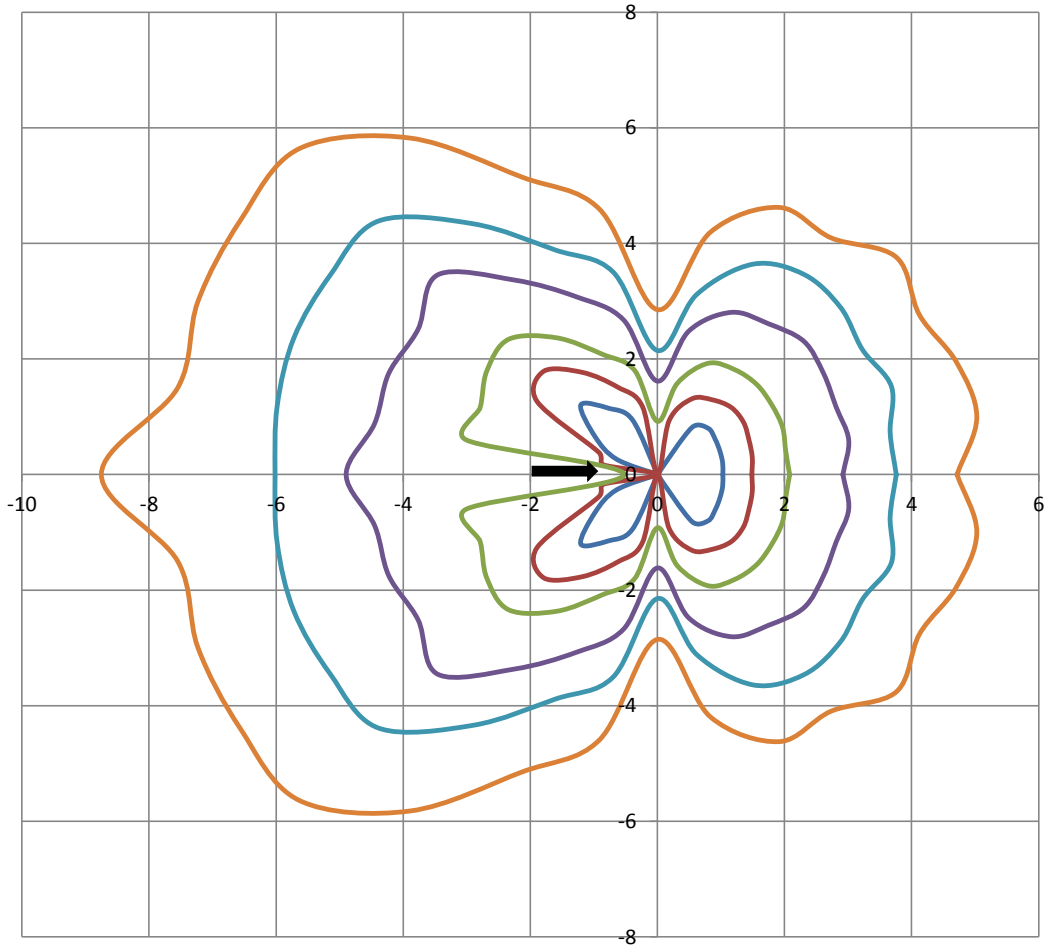
Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as Lumens delivered to the task surface **																	
0	826	826	826	826	750	750	750	750	607	607	607	477	477	477	357	357	357	301
1	710	658	612	570	637	592	551	514	468	437	408	353	330	309	248	231	216	165
2	632	554	489	435	564	496	440	392	388	345	309	289	257	229	196	174	153	109
3	568	475	403	346	505	425	362	311	331	283	244	244	208	178	163	138	116	77
4	514	413	339	282	457	370	304	254	287	237	198	211	174	144	140	113	91	57
5	469	363	289	235	417	325	260	211	253	203	164	186	148	118	123	96	74	44
6	429	322	250	198	382	288	225	178	225	175	138	165	128	99	110	82	61	35
7	395	288	218	170	352	258	196	152	201	153	118	148	112	85	99	72	52	28
8	365	259	192	147	325	232	173	132	182	135	102	134	99	73	90	64	44	23
9	339	235	171	128	302	211	154	115	165	120	89	123	88	64	82	57	38	19
10	315	213	153	112	282	192	137	101	151	108	78	112	79	56	76	51	34	16





### ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

