



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**

**2361.98-WL**

Order Number

**11281216**

Test Number

**1253402**

Test Date

2016-06-09

Prepared By

Tony Rubio, Technician

Approved By

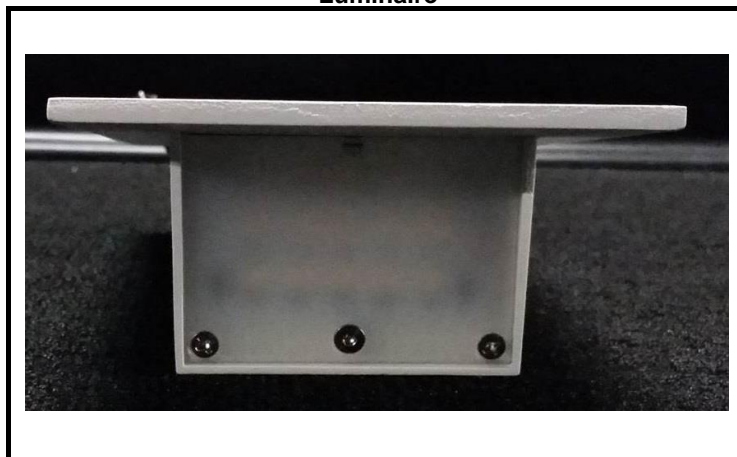
Eric Gaudreau, Senior Engineering Associate

The results contained in this report pertain only to the tested sample.  
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**Luminaire Description:** Rectangular white formed aluminum housing with white single sided reflector and a frosted lens  
**Lamp:** 15 White LEDs  
**Mounting:** Surface/Wall  
**Ballast/Driver:** One (1) L.T.F TA60WA12LED-0000

**Luminaire**



**Luminaire Characteristics**

Luminous Length: 2.50 in.  
Luminous Width: 1.750 in.  
Luminous Height: 2.00 in.

**Summary of Results**

Total Luminaire Output: 359.6 Lumens  
Luminaire Efficacy: 34.4 lm/w  
Maximum Candela: 157 Candela

**Test Conditions**

Test Temperature: 24.8 °C  
Voltage: 120.0 VAC  
Current: 0.09095 A  
Power: 10.46 W  
Power Factor: 0.958  
Frequency: 60 Hz  
Current THD: 29.0 %

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
24.8 °C	120.0 VAC	0.09095 A	10.46 W	0.958	60 Hz	29.0 %

### Summary of Results

#### Spacing Criteria

0-180: 0.82  
90-270: 1.29

#### Total Lumen Output:

359.6 Lumens

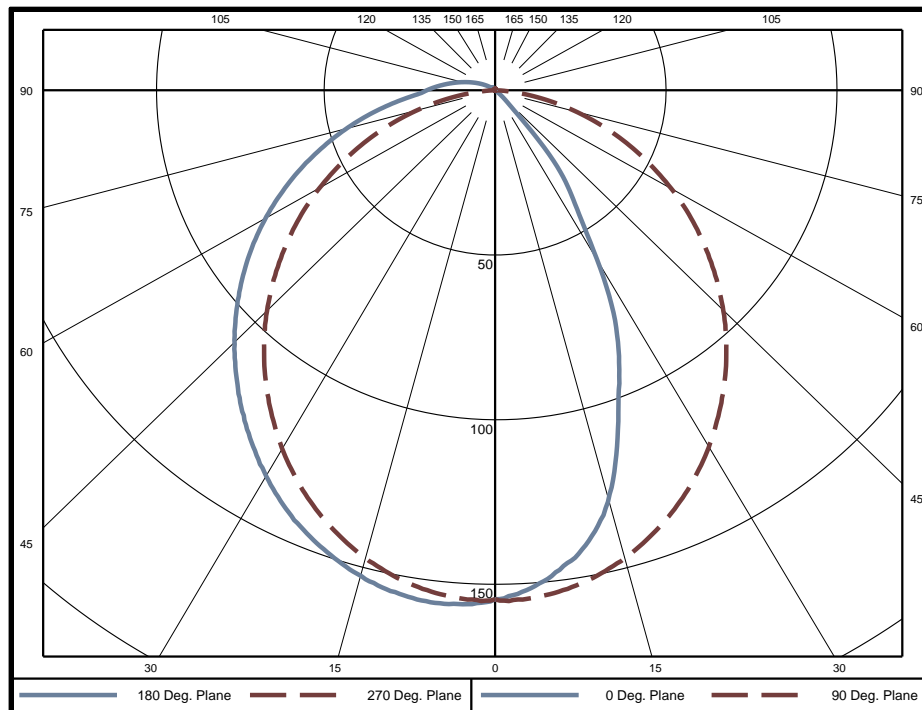
#### Luminaire Efficacy:

34.4 lm/w

#### Maximum Candela:

157 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	3.69	1.0%	60-65	19.77	5.5%	120-125	0	0.0%
5-10	10.88	3.0%	65-70	16.78	4.7%	125-130	0	0.0%
10-15	17.47	4.9%	70-75	13.50	3.8%	130-135	0	0.0%
15-20	22.99	6.4%	75-80	10.09	2.8%	135-140	0	0.0%
20-25	27.11	7.5%	80-85	6.82	1.9%	140-145	0	0.0%
25-30	29.85	8.3%	85-90	4.31	1.2%	145-150	0	0.0%
30-35	30.97	8.6%	90-95	3.24	0.9%	150-155	0	0.0%
35-40	30.87	8.6%	95-100	2.58	0.7%	155-160	0	0.0%
40-45	29.23	8.1%	100-105	1.99	0.6%	160-165	0	0.0%
45-50	27.19	7.6%	105-110	1.47	0.4%	165-170	0	0.0%
50-55	24.85	6.9%	110-115	1.04	0.3%	170-175	0	0.0%
55-60	22.46	6.2%	115-120	0.46	0.1%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	174	48.3%
0-60	278	77.2%
0-90	349	97.0%
90-180	11	3.0%



**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	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5	154.5
	5	150.2	150.1	151.4	153.1	154.1	155.4	156.0	156.4	156.6	156.4	156.0	155.4	154.1	153.1	151.4
	10	142.8	142.9	144.9	148.8	151.5	153.7	155.1	155.8	155.7	155.8	155.1	153.7	151.5	148.8	144.9
	15	129.3	130.4	136.8	142.6	147.0	150.2	152.3	153.1	152.7	153.1	152.3	150.2	147.0	142.6	136.8
	20	106.9	110.0	123.9	134.5	141.0	145.1	147.4	148.7	148.2	148.7	147.4	145.1	141.0	134.5	123.9
	25	86.6	89.2	105.8	125.5	133.8	138.7	141.4	143.0	142.6	143.0	141.4	138.7	133.8	125.5	105.8
	30	62.5	69.8	86.6	114.0	125.3	130.9	134.0	135.7	135.4	135.7	134.0	130.9	125.3	114.0	86.6
	35	40.4	45.7	70.2	100.5	115.8	122.0	125.5	127.6	127.1	127.6	125.5	122.0	115.8	100.5	70.2
	40	22.6	29.4	50.1	85.5	105.5	112.5	116.4	118.8	118.3	118.8	116.4	112.5	105.5	85.5	50.1
	45	5.2	7.8	32.9	70.2	94.7	102.1	106.5	109.3	109.0	109.3	106.5	102.1	94.7	70.2	32.9
	50	1.8	2.8	17.5	56.5	83.2	91.2	96.0	99.2	99.5	99.2	96.0	91.2	83.2	56.5	17.5
	55	0.0	0.5	6.4	44.5	71.7	80.0	85.3	88.9	89.3	88.9	85.3	80.0	71.7	44.5	6.4
	60	0.0	0.1	3.6	33.4	59.7	68.1	74.1	78.2	78.7	78.2	74.1	68.1	59.7	33.4	3.6
	65	0.0	0.0	2.3	25.0	47.7	56.1	62.9	67.3	67.8	67.3	62.9	56.1	47.7	25.0	2.3
	70	0.0	0.1	1.6	18.0	35.7	44.2	51.5	56.3	56.8	56.3	51.5	44.2	35.7	18.0	1.6
	75	0.1	0.1	1.1	11.6	24.1	32.6	40.5	45.4	45.9	45.4	40.5	32.6	24.1	11.6	1.1
	80	0.1	0.1	0.6	6.1	13.4	21.6	29.9	35.0	35.6	35.0	29.9	21.6	13.4	6.1	0.6
	85	0.1	0.1	0.4	1.8	4.4	12.5	20.5	25.6	26.2	25.6	20.5	12.5	4.4	1.8	0.4
	90	0.1	0.1	0.2	0.2	0.3	7.5	14.6	19.2	20.3	19.2	14.6	7.5	0.3	0.2	0.2
	95	0.1	0.2	0.2	0.2	0.2	6.1	11.8	15.6	16.5	15.6	11.8	6.1	0.2	0.2	0.2
	100	0.1	0.2	0.2	0.2	0.2	4.9	9.3	12.2	12.8	12.2	9.3	4.9	0.2	0.2	0.2
	105	0.1	0.2	0.2	0.2	0.2	3.9	7.1	9.2	9.7	9.2	7.1	3.9	0.2	0.2	0.2
	110	0.1	0.2	0.2	0.2	0.2	3.0	5.3	6.6	7.0	6.6	5.3	3.0	0.2	0.2	0.2
	115	0.1	0.2	0.2	0.2	0.2	2.3	3.7	4.5	4.7	4.5	3.7	2.3	0.2	0.2	0.2
	120	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
	125	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
	130	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
	135	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
	140	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
	145	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
	150	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
	155	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
	160	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
	165	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
	170	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
	175	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
	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/m<sup>2</sup>)**  
Horizontal Angle (Degrees)

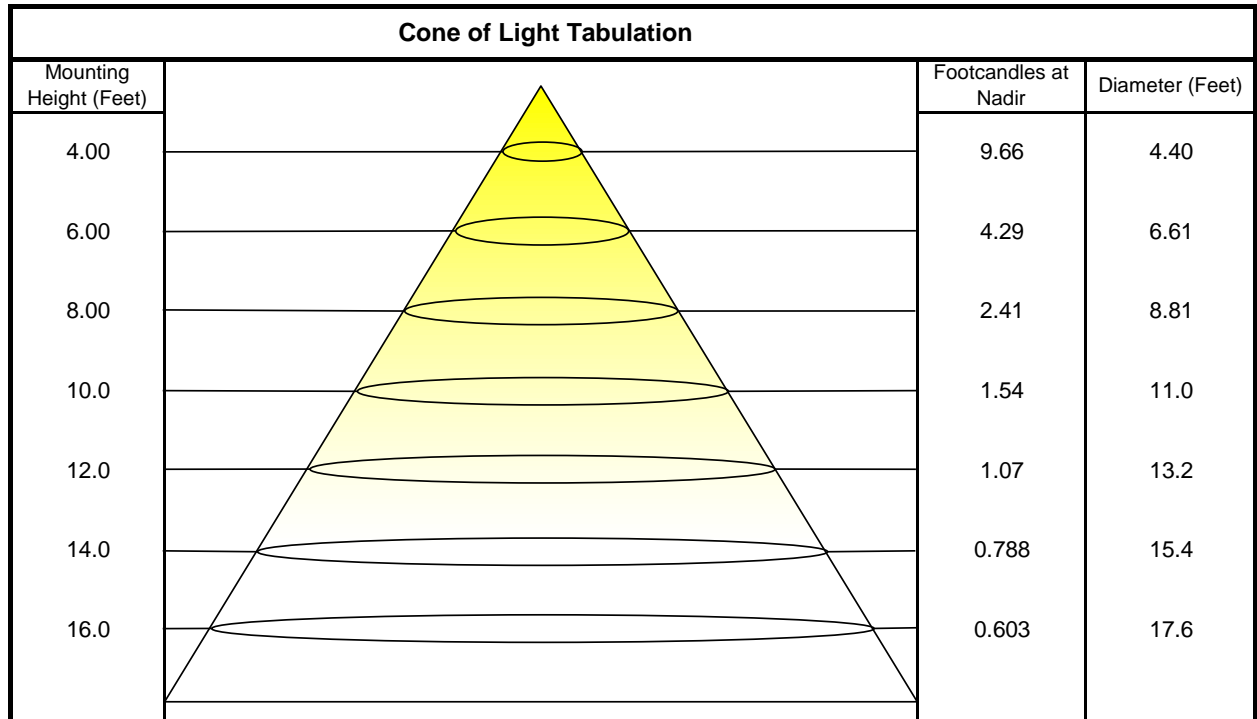
Vertical Angle (Degrees)	0	45	90
	0	54730	54730
	45	1438	6944
	55	13	1324
	65	7	484
	75	18	238
	85	35	87



### 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	426	426	426	426	414	414	414	414	394	394	394	375	375	375	357	357	357	349
1	388	371	356	342	377	362	348	335	345	333	322	329	319	311	314	307	300	291
2	355	325	301	281	344	318	296	277	303	285	269	290	275	261	278	265	254	245
3	325	288	259	236	315	281	255	234	269	247	228	258	239	223	247	231	218	210
4	299	257	226	203	290	251	223	201	241	216	197	231	210	193	223	204	189	181
5	276	231	200	177	268	226	197	175	218	192	172	209	187	169	202	182	167	159
6	256	209	178	156	248	205	176	155	198	172	152	191	168	150	184	164	148	141
7	238	191	160	139	231	187	159	138	181	155	136	175	152	135	169	149	133	126
8	222	175	145	125	216	172	144	124	167	141	123	161	138	122	156	136	120	113
9	208	161	133	113	203	159	132	113	154	129	112	149	127	111	145	125	109	103
10	196	150	122	104	191	147	121	103	143	119	102	139	117	101	135	115	100	94

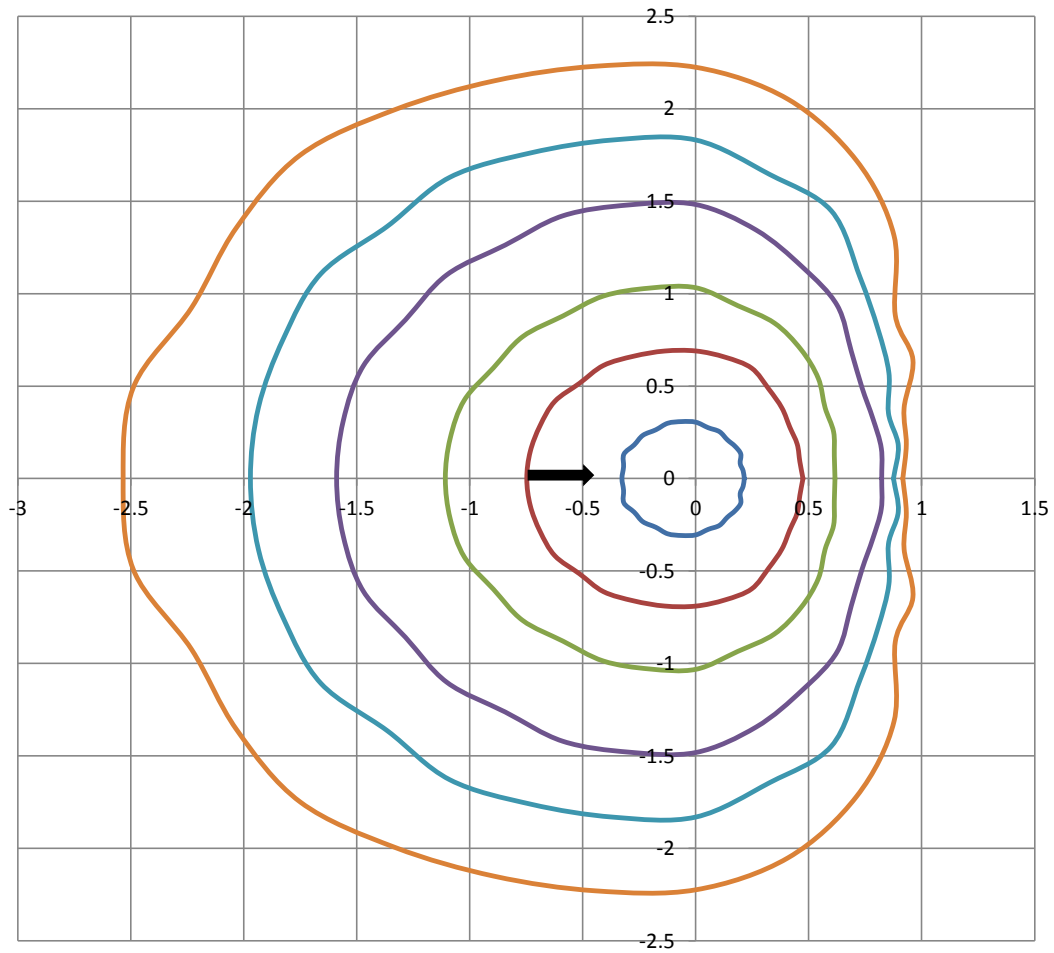
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	154.5 Candela
Central Cone Intensity:	154 Candela
Beam Flux:	242.3 Lumens
Beam Angle (0-180):	88.0 Degrees
Beam Angle (90-270):	105.3 Degrees
Field Angle (0-180):	137.6 Degrees
Field Angle (90-270):	158.0 Degrees





## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

2 fc 1 fc 0.5 fc 0.2 fc 0.1 fc 0.05 fc