



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

7230.98-WL

Order Number

11281216

Test Number

1253422

Test Date

2016-06-17

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/curved white formed aluminum housing with multi-directional frosted lens
Lamp: 36 White LEDs
Mounting: Surface/Wall
Ballast/Driver: One (1) ERP EBR020U-0500-32

Luminaire



Luminaire Characteristics

Luminous Length: 2.25 in.
Luminous Width: 6.000 in.
Luminous Height: 10.75 in.

Summary of Results

Total Luminaire Output: 280.8 Lumens
Luminaire Efficacy: 18.4 lm/w
Maximum Candela: 89 Candela

Test Conditions

Test Temperature: 25.4 °C
Voltage: 120.0 VAC
Current: 0.1293 A
Power: 15.28 W
Power Factor: 0.985
Frequency: 60 Hz
Current THD: 15.0 %

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



Distribution - Goniophotometer

Distribution Test Conditions

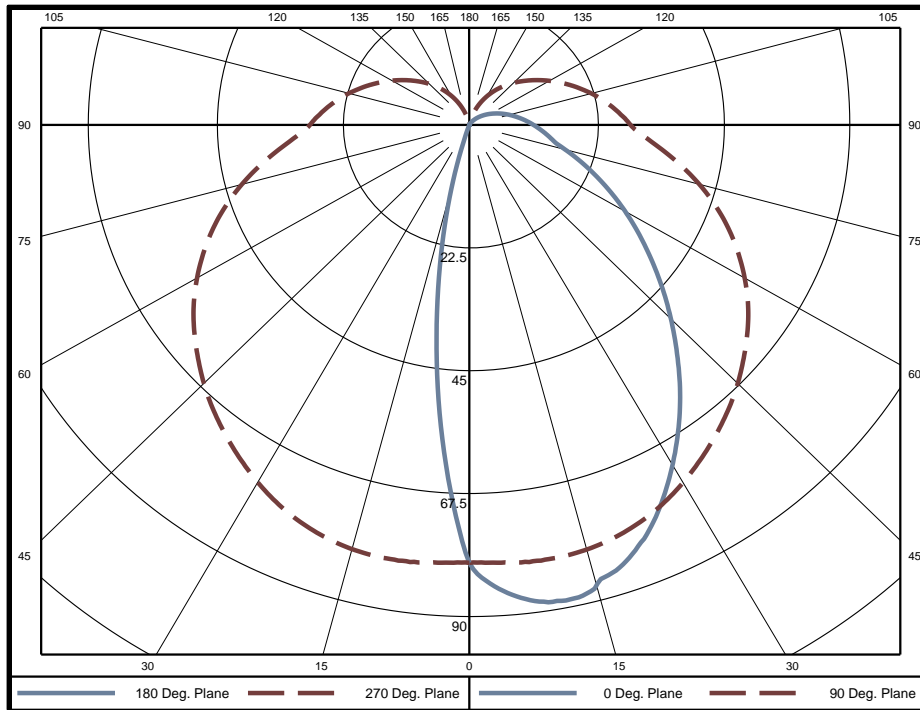
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
25.4 °C	120.0 VAC	0.1293 A	15.28 W	0.985	60 Hz	15.0 %

Summary of Results

Spacing Criteria
 0-180: 1.29
 90-270: 0.30

Total Lumen Output: 280.8 Lumens
Luminaire Efficacy: 18.4 lm/w
Maximum Candela: 89 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	1.86	0.7%	60-65	15.35	5.5%	120-125	4.24	1.5%
5-10	5.20	1.9%	65-70	14.47	5.2%	125-130	3.48	1.2%
10-15	7.91	2.8%	70-75	13.40	4.8%	130-135	2.79	1.0%
15-20	10.00	3.6%	75-80	12.20	4.3%	135-140	2.16	0.8%
20-25	11.69	4.2%	80-85	11.10	4.0%	140-145	1.60	0.6%
25-30	13.24	4.7%	85-90	10.12	3.6%	145-150	1.11	0.4%
30-35	14.50	5.2%	90-95	9.28	3.3%	150-155	0.71	0.3%
35-40	15.41	5.5%	95-100	8.45	3.0%	155-160	0.39	0.1%
40-45	16.03	5.7%	100-105	7.61	2.7%	160-165	0.17	0.1%
45-50	16.31	5.8%	105-110	6.74	2.4%	165-170	0.04	0.0%
50-55	16.30	5.8%	110-115	5.88	2.1%	170-175	0.00	0.0%
55-60	15.98	5.7%	115-120	5.04	1.8%	175-180	0.00	0.0%

Zone	Lumens	% of Luminaire
0-40	80	28.4%
0-60	144	51.4%
0-90	221	78.7%
90-180	60	21.3%



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	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17	80.17
5	86.35	86.24	85.25	83.37	80.44	73.09	66.15	61.52	57.72	61.52	66.15	73.09	80.44	83.37	85.25	86.24
10	88.49	88.41	87.83	85.44	80.70	65.00	50.18	40.24	34.74	40.24	50.18	65.00	80.70	85.44	87.83	88.41
15	86.88	87.64	88.59	86.44	80.41	57.56	36.23	22.02	15.47	22.02	36.23	57.56	80.41	86.44	88.59	87.64
20	83.57	84.44	86.80	86.22	79.41	51.04	25.28	8.01	2.13	8.01	25.28	51.04	79.41	86.22	86.80	84.44
25	78.18	81.03	83.94	84.89	77.74	45.77	17.29	2.95	0.00	2.95	17.29	45.77	77.74	84.89	83.94	81.03
30	71.40	73.32	79.31	82.53	75.44	41.81	13.99	3.25	0.00	3.25	13.99	41.81	75.44	82.53	79.31	73.32
35	64.29	66.64	74.11	78.89	72.77	39.07	14.47	3.51	0.00	3.51	14.47	39.07	72.77	78.89	74.11	66.64
40	56.92	59.90	68.57	75.06	69.91	37.36	15.10	3.77	0.00	3.77	15.10	37.36	69.91	75.06	68.57	59.90
45	49.89	53.33	62.94	70.93	66.80	36.39	15.54	3.99	0.00	3.99	15.54	36.39	66.80	70.93	62.94	53.33
50	43.23	46.95	57.23	66.34	63.42	35.83	15.80	4.16	0.00	4.16	15.80	35.83	63.42	66.34	57.23	46.95
55	37.09	41.10	51.79	61.71	59.91	35.18	15.92	4.30	0.00	4.30	15.92	35.18	59.91	61.71	51.79	41.10
60	31.49	35.51	46.39	56.77	55.92	34.12	15.81	4.38	0.00	4.38	15.81	34.12	55.92	56.77	46.39	35.51
65	26.25	30.32	41.15	51.70	51.61	32.75	15.60	4.43	0.00	4.43	15.60	32.75	51.61	51.70	41.15	30.32
70	21.55	25.64	36.18	46.55	46.91	31.09	15.25	4.44	0.00	4.44	15.25	31.09	46.91	46.55	36.18	25.64
75	17.37	21.46	31.58	41.41	41.88	29.18	14.79	4.44	0.00	4.44	14.79	29.18	41.88	41.41	31.58	21.46
80	14.61	18.54	27.59	36.53	36.67	27.08	14.23	4.39	0.00	4.39	14.23	27.08	36.67	36.53	27.59	18.54
85	12.86	16.66	24.95	32.48	31.80	24.90	13.58	4.25	0.00	4.25	13.58	24.90	31.80	32.48	24.95	16.66
90	11.26	14.97	22.74	29.58	28.38	22.94	12.90	4.21	0.00	4.21	12.90	22.94	28.38	29.58	22.74	14.97
95	9.81	13.38	20.73	27.12	26.38	21.11	12.26	4.05	0.00	4.05	12.26	21.11	26.38	27.12	20.73	13.38
100	8.44	11.91	18.82	24.74	24.34	19.49	11.54	3.88	0.00	3.88	11.54	19.49	24.34	24.74	18.82	11.91
105	7.22	10.53	17.00	22.46	22.28	18.03	10.80	3.69	0.00	3.69	10.80	18.03	22.28	22.46	17.00	10.53
110	6.04	9.20	15.23	20.23	20.18	16.57	10.06	3.46	0.00	3.46	10.06	16.57	20.18	20.23	15.23	9.20
115	4.97	7.95	13.56	18.10	18.16	15.11	9.31	3.21	0.00	3.21	9.31	15.11	18.16	18.10	13.56	7.95
120	4.02	6.79	11.94	16.05	16.20	13.66	8.51	2.92	0.00	2.92	8.51	13.66	16.20	16.05	11.94	6.79
125	3.14	5.68	10.39	14.13	14.33	12.22	7.69	2.62	0.00	2.62	7.69	12.22	14.33	14.13	10.39	5.68
130	2.35	4.66	8.90	12.26	12.56	10.81	6.84	2.31	0.00	2.31	6.84	10.81	12.56	12.26	8.90	4.66
135	1.68	3.73	7.50	10.54	10.89	9.44	5.96	1.98	0.00	1.98	5.96	9.44	10.89	10.54	7.50	3.73
140	1.11	2.89	6.15	8.86	9.24	8.07	5.06	1.63	0.00	1.63	5.06	8.07	9.24	8.86	6.15	2.89
145	0.64	2.13	4.86	7.23	7.61	6.65	4.12	1.26	0.00	1.26	4.12	6.65	7.61	7.23	4.86	2.13
150	0.27	1.47	3.68	5.64	5.97	5.22	3.15	0.89	0.00	0.89	3.15	5.22	5.97	5.64	3.68	1.47
155	0.00	0.92	2.60	4.06	4.32	3.76	2.17	0.53	0.02	0.53	2.17	3.76	4.32	4.06	2.60	0.92
160	0.00	0.56	1.61	2.58	2.73	2.34	1.22	0.21	0.01	0.21	1.22	2.34	2.73	2.58	1.61	0.56
165	0.00	0.25	0.69	1.31	1.34	1.07	0.47	0.02	0.02	0.02	0.47	1.07	1.34	1.31	0.69	0.25
170	0.00	0.03	0.15	0.27	0.27	0.16	0.04	0.02	0.02	0.02	0.04	0.16	0.27	0.27	0.15	0.03
175	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
180	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

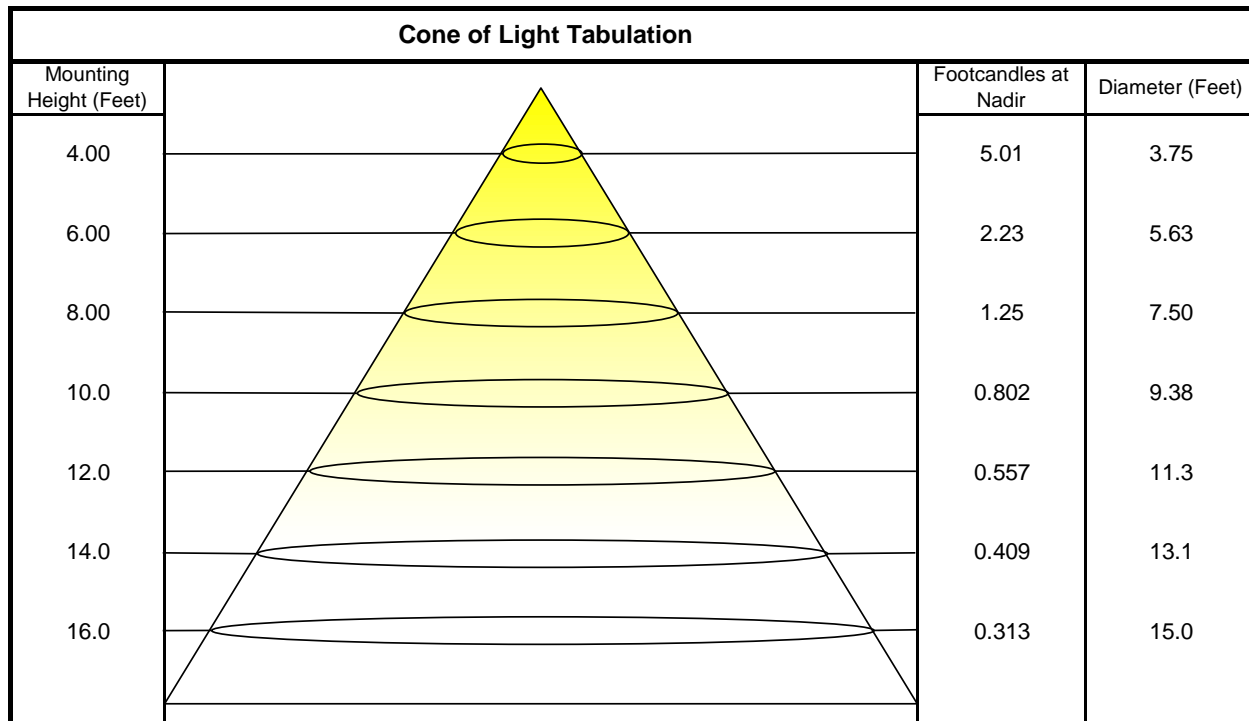
	0	45	90
0	9205	9205	9205
45	1402	1810	3886
55	949	1358	3370
65	634	1020	2895
75	409	764	2417
85	305	608	1950



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	320	320	320	320	306	306	306	306	279	279	279	254	254	254	232	232	232	221
1	283	267	252	238	269	254	241	229	231	221	211	210	202	194	190	184	178	167
2	255	229	207	189	242	218	198	182	198	182	168	180	167	156	163	153	144	134
3	231	199	174	154	219	190	167	149	173	154	139	157	142	129	142	130	119	110
4	211	175	149	129	199	167	143	125	152	132	117	139	122	109	126	112	101	93
5	193	156	129	110	183	149	125	107	136	116	100	124	107	93	113	99	87	79
6	178	140	114	95	169	134	110	92	123	102	87	112	95	82	103	88	76	69
7	165	126	101	84	156	121	98	81	111	91	77	102	85	72	94	79	68	61
8	153	115	91	74	146	110	88	72	102	82	68	94	77	64	86	71	60	54
9	143	105	82	66	136	101	80	65	94	75	61	86	70	58	80	65	55	49
10	134	97	75	60	128	93	73	58	87	68	55	80	64	53	74	60	50	44

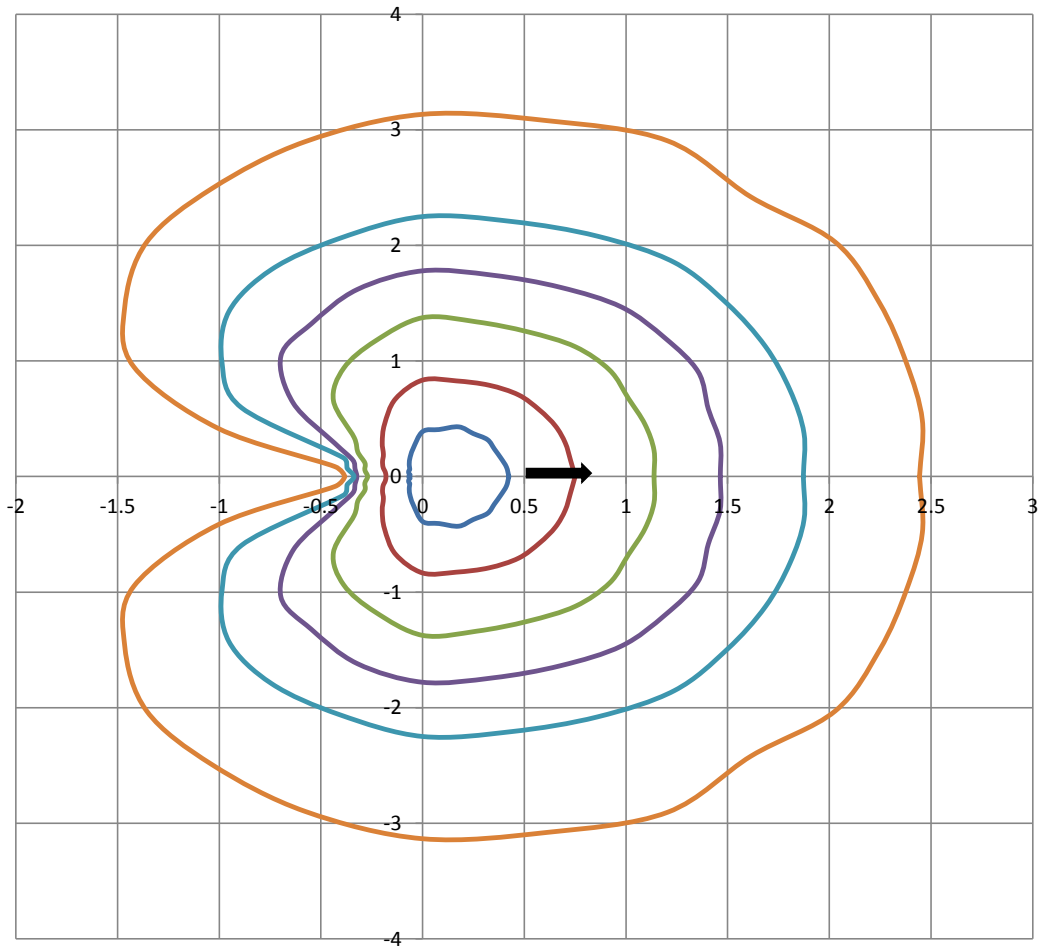
Beam and Field Information	
CIE Type:	Semi-Direct
Center Beam Intensity:	80.17 Candela
Central Cone Intensity:	79 Candela
Beam Flux:	146.2 Lumens
Beam Angle (0-180):	61.3 Degrees
Beam Angle (90-270):	153.5 Degrees
Field Angle (0-180):	119.0 Degrees
Field Angle (90-270):	287.5 Degrees





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

