



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

7210.98-WL

Order Number

11281216

Test Number

1253413

Test Date

2016-06-16

Prepared By

Khang Nguyen, Technician

Approved By

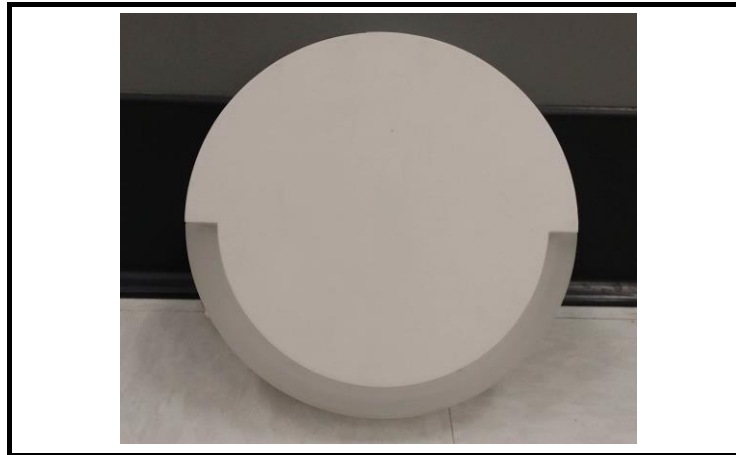
Eric Gaudreau, Senior Engineering Associate

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Luminaire Description: Circular white aluminum housing with frosted lens
Lamp: 24 White LEDs
Mounting: Surface/Wall
Ballast/Driver: One (1) ERP EBR015U-0350-32

Luminaire



Luminaire Characteristics

Luminous Length: 1.25 in.
Luminous Width: 6.000 in.
Luminous Height: 3.00 in.

Summary of Results

Total Luminaire Output: 598.2 Lumens
Luminaire Efficacy: 63.9 lm/w
Maximum Candela: 121 Candela

Test Conditions

Test Temperature: 24.6 °C
Voltage: 120.0 VAC
Current: 0.07950 A
Power: 9.368 W
Power Factor: 0.982
Frequency: 60 Hz
Current THD: 16.6 %

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



Distribution - Goniophotometer

Distribution Test Conditions

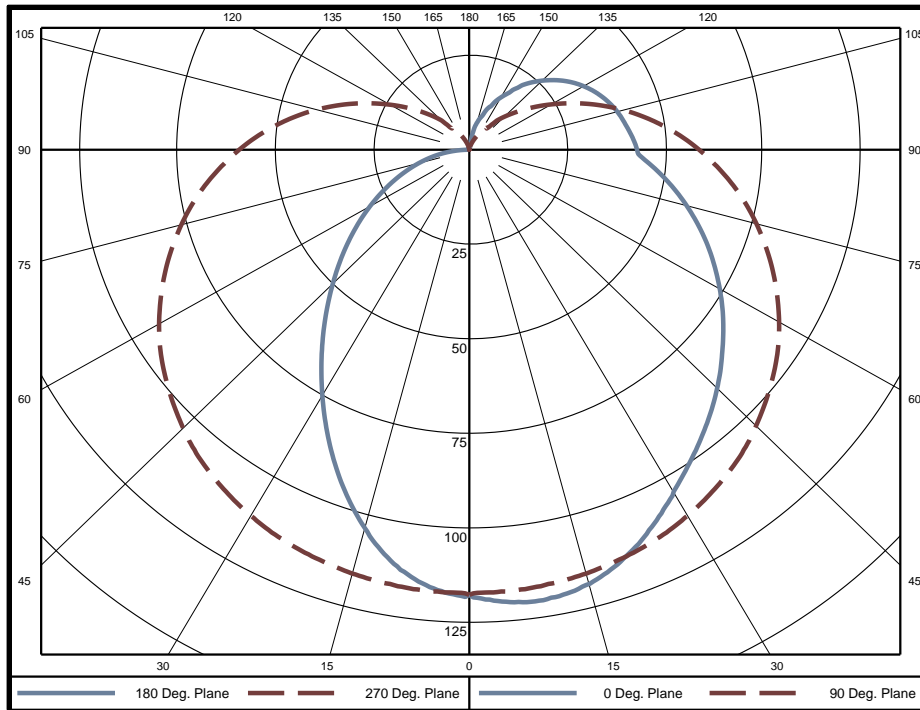
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.6 °C	120.0 VAC	0.07950 A	9.368 W	0.982	60 Hz	16.6 %

Summary of Results

Spacing Criteria
 0-180: 1.31
 90-270: 1.00

Total Lumen Output: 598.2 Lumens
Luminaire Efficacy: 63.9 lm/w
Maximum Candela: 121 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	2.82	0.5%	60-65	33.12	5.5%	120-125	9.26	1.5%
5-10	8.41	1.4%	65-70	31.99	5.3%	125-130	7.45	1.2%
10-15	13.72	2.3%	70-75	30.48	5.1%	130-135	5.84	1.0%
15-20	18.56	3.1%	75-80	28.69	4.8%	135-140	4.47	0.7%
20-25	22.78	3.8%	80-85	26.61	4.4%	140-145	3.28	0.5%
25-30	26.31	4.4%	85-90	24.34	4.1%	145-150	2.30	0.4%
30-35	29.11	4.9%	90-95	22.14	3.7%	150-155	1.53	0.3%
35-40	31.27	5.2%	95-100	19.94	3.3%	155-160	0.94	0.2%
40-45	32.80	5.5%	100-105	17.73	3.0%	160-165	0.49	0.1%
45-50	33.70	5.6%	105-110	15.50	2.6%	165-170	0.19	0.0%
50-55	34.03	5.7%	110-115	13.31	2.2%	170-175	0.04	0.0%
55-60	33.85	5.7%	115-120	11.21	1.9%	175-180	0.00	0.0%

Zone	Lumens	% of Luminaire
0-40	153	25.6%
0-60	287	48.0%
0-90	463	77.3%
90-180	136	22.7%



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	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7	117.7
5	120.1	120.3	119.7	118.2	117.2	117.1	117.0	116.7	116.1	116.7	117.0	117.1	117.2	118.2	119.7	120.3
10	120.3	120.5	120.3	118.4	116.6	116.0	114.2	112.6	111.2	112.6	114.2	116.0	116.6	118.4	120.3	120.5
15	118.8	119.2	119.8	118.3	116.0	114.3	110.2	106.4	103.6	106.4	110.2	114.3	116.0	118.3	119.8	119.2
20	115.1	115.9	118.1	117.6	114.9	112.0	104.8	98.2	94.7	98.2	104.8	112.0	114.9	117.6	118.1	115.9
25	110.1	111.5	115.4	116.4	113.6	109.1	98.4	89.5	85.0	89.5	98.4	109.1	113.6	116.4	115.4	111.5
30	104.3	106.5	111.8	114.6	111.8	105.6	91.6	80.4	75.3	80.4	91.6	105.6	111.8	114.6	111.8	106.5
35	99.2	101.1	107.7	112.3	109.5	101.4	84.5	71.5	65.9	71.5	84.5	101.4	109.5	112.3	107.7	101.1
40	94.4	96.3	103.2	109.6	107.0	97.1	77.4	63.1	57.2	63.1	77.4	97.1	107.0	109.6	103.2	96.3
45	89.4	91.7	98.8	106.6	103.7	92.5	70.5	55.3	49.2	55.3	70.5	92.5	103.7	106.6	98.8	91.7
50	84.2	86.9	94.4	102.6	100.0	87.5	63.9	48.1	41.9	48.1	63.9	87.5	100.0	102.6	94.4	86.9
55	79.1	82.3	90.2	98.8	96.0	82.5	57.8	41.5	35.2	41.5	57.8	82.5	96.0	98.8	90.2	82.3
60	73.8	77.6	86.0	94.4	91.6	77.2	52.0	35.5	29.0	35.5	52.0	77.2	91.6	94.4	86.0	77.6
65	68.4	72.9	81.6	89.8	86.7	71.8	46.7	30.0	23.2	30.0	46.7	71.8	86.7	89.8	81.6	72.9
70	63.0	68.4	77.2	84.9	81.5	66.5	41.7	25.1	17.9	25.1	41.7	66.5	81.5	84.9	77.2	68.4
75	57.4	64.0	72.9	80.0	76.1	61.4	37.2	20.8	13.1	20.8	37.2	61.4	76.1	80.0	72.9	64.0
80	51.9	59.8	68.5	74.8	70.6	56.3	33.1	17.1	8.7	17.1	33.1	56.3	70.6	74.8	68.5	59.8
85	46.5	55.7	64.0	69.4	64.7	51.1	29.2	13.8	4.3	13.8	29.2	51.1	64.7	69.4	64.0	55.7
90	42.8	52.1	59.5	64.0	58.8	46.1	25.7	11.0	0.7	11.0	25.7	46.1	58.8	64.0	59.5	52.1
95	41.6	48.7	55.1	58.5	52.8	41.1	22.4	8.7	0.3	8.7	22.4	41.1	52.8	58.5	55.1	48.7
100	40.3	45.7	50.8	52.9	46.7	36.3	19.5	7.0	0.3	7.0	19.5	36.3	46.7	52.9	50.8	45.7
105	39.0	42.8	46.5	47.3	40.6	31.7	16.9	5.7	0.2	5.7	16.9	31.7	40.6	47.3	46.5	42.8
110	37.5	39.9	42.2	41.7	34.7	27.2	14.5	4.7	0.2	4.7	14.5	27.2	34.7	41.7	42.2	39.9
115	35.7	36.9	37.9	36.2	29.0	22.9	12.3	3.8	0.2	3.8	12.3	22.9	29.0	36.2	37.9	36.9
120	33.7	33.9	33.8	31.1	23.8	19.1	10.3	3.0	0.2	3.0	10.3	19.1	23.8	31.1	33.8	33.9
125	31.3	30.8	29.8	26.4	19.3	15.6	8.4	2.4	0.2	2.4	8.4	15.6	19.3	26.4	29.8	30.8
130	28.7	27.6	25.9	22.0	15.3	12.5	6.5	2.0	0.2	2.0	6.5	12.5	15.3	22.0	25.9	27.6
135	25.8	24.5	22.1	18.2	11.9	8.8	5.4	1.6	0.2	1.6	5.4	8.8	11.9	18.2	22.1	24.5
140	22.8	21.0	18.8	14.6	7.7	7.5	4.2	1.2	0.2	1.2	4.2	7.5	7.7	14.6	18.8	21.0
145	19.3	18.0	15.6	10.4	6.7	5.6	3.1	0.9	0.2	0.9	3.1	5.6	6.7	10.4	15.6	18.0
150	15.9	15.0	12.6	8.0	4.7	4.0	2.2	0.7	0.2	0.7	2.2	4.0	4.7	8.0	12.6	15.0
155	12.6	12.0	9.6	5.7	3.1	2.7	1.5	0.5	0.2	0.5	1.5	2.7	3.1	5.7	9.6	12.0
160	9.5	8.9	7.2	3.8	1.8	1.6	0.9	0.4	0.3	0.4	0.9	1.6	1.8	3.8	7.2	8.9
165	7.3	6.3	3.3	2.2	0.9	0.8	0.5	0.3	0.3	0.3	0.5	0.8	0.9	2.2	3.3	6.3
170	3.8	2.2	1.7	0.9	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.9	1.7	2.2
175	0.3	0.2	0.3	0.2	0.0	0.0	0.1	0.2	0.3	0.2	0.1	0.0	0.0	0.2	0.3	0.2
180	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

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

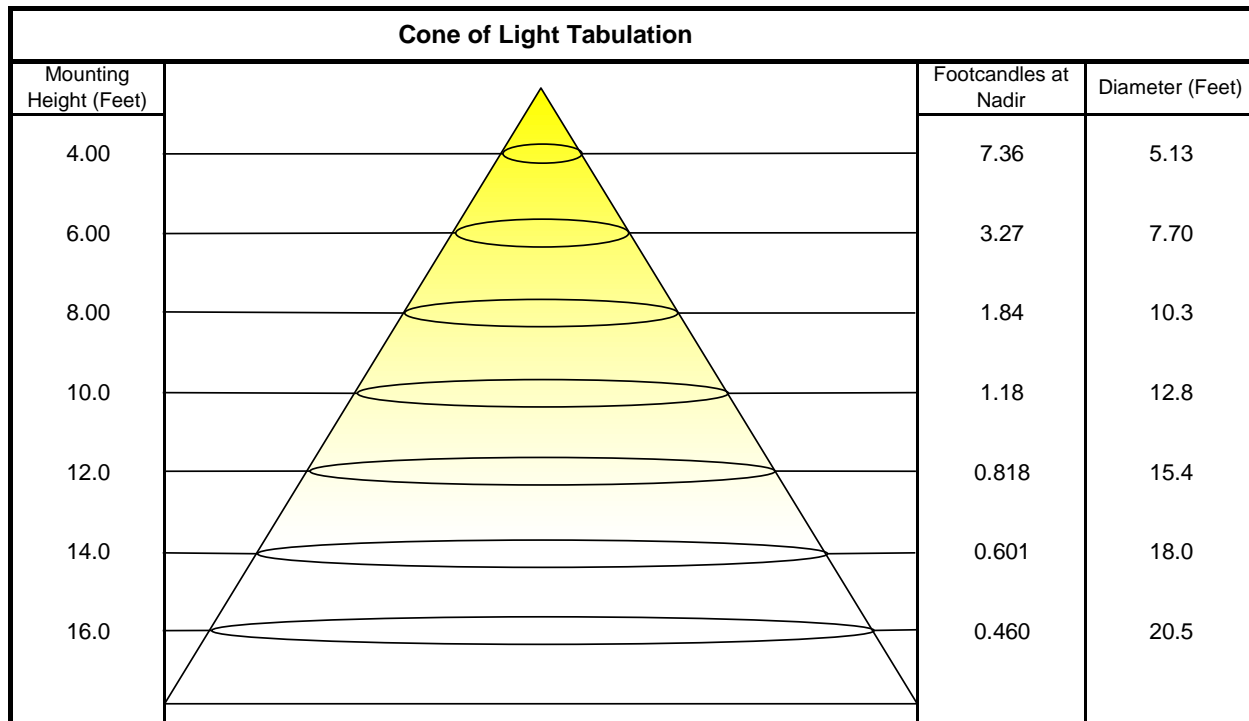
	0	45	90
0	24330	24330	24330
45	7681	9469	20200
55	6433	8276	20190
65	5444	7389	20450
75	4607	6723	21210
85	3878	6208	22840



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	680	680	680	680	648	648	648	648	589	589	589	535	535	535	486	486	486	463
1	598	561	528	498	567	534	504	477	483	459	437	436	417	400	393	378	364	342
2	536	478	431	390	507	455	412	375	411	376	346	371	342	317	334	311	291	269
3	485	414	360	316	457	394	345	305	356	316	282	322	288	260	289	262	239	219
4	441	363	306	263	416	346	294	254	314	270	235	283	247	218	255	225	201	182
5	404	322	265	223	381	307	255	215	279	235	200	253	215	186	228	197	172	155
6	372	288	232	192	351	275	223	186	251	206	173	228	190	161	206	174	149	134
7	344	260	206	168	325	249	198	162	227	183	152	207	169	142	188	156	132	117
8	319	236	184	148	302	226	177	143	207	165	134	189	152	126	172	141	117	104
9	298	216	166	132	282	207	160	128	190	149	120	174	138	113	159	128	105	93
10	278	198	150	118	264	190	145	115	175	136	108	161	126	102	147	117	95	83

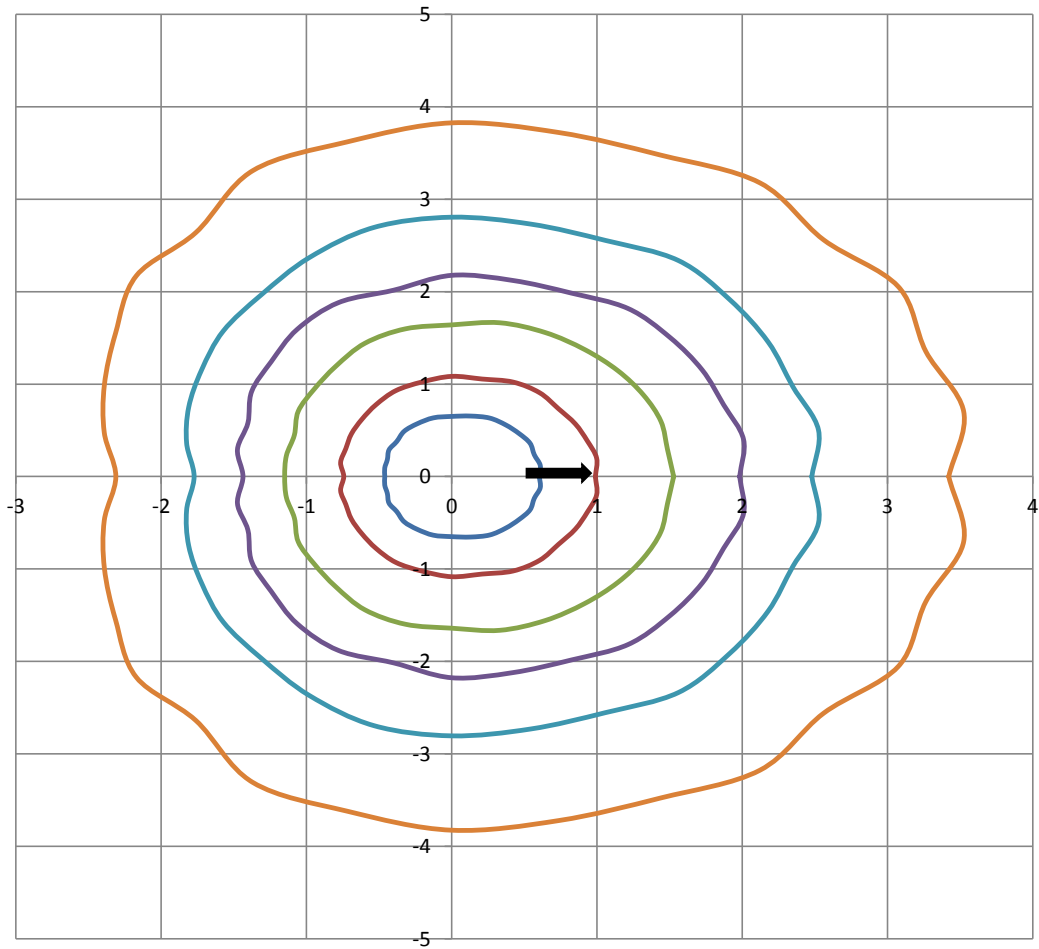
Beam and Field Information	
CIE Type:	Semi-Direct
Center Beam Intensity:	117.7 Candela
Central Cone Intensity:	118 Candela
Beam Flux:	403.3 Lumens
Beam Angle (0-180):	112.7 Degrees
Beam Angle (90-270):	179.8 Degrees
Field Angle (0-180):	233.5 Degrees
Field Angle (90-270):	270.5 Degrees





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

