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Indoor Distribution Test Report

Relevant Standards
IES LM-79-2008
ANSI C82.77-2002

Prepared For
Sonneman
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106 Pierce Rd
Newburgh, NY 12550-9369
United States

Catalog Number
HC02
Order Number
11199505
Test Number
1227107

Test Date

2016-03-28

Prepared By

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Approved By

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Luminaire Description: Pendant luminaire that can be hung at varying lengths and locations on bus bars within a modular architectural lighting system
Lamp: One white LED array
Mounting: Pendant
Ballast/Driver: LTF / Model# - TA75WA24LED

Luminaire



Luminaire Characteristics

Luminous Length: 1.38 in.
Luminous Width: 11.19 in.
Luminous Height: 5.75 in.

Summary of Results

Total Luminaire Output: 173.0 Lumens
Luminaire Efficacy: 27 lm/w
Maximum Candela: 31 Candela

Test Conditions

Test Temperature: 25.0 °C
Voltage: 120.0 VAC
Current: 0.05550 A
Power: 6.407 W
Power Factor: 0.960
Frequency: 60 Hz
Current THD: 24.8 %

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
25.0 °C	120.0 VAC	0.05550 A	6.407 W	0.960	60 Hz	24.8 %

Summary of Results

Spacing Criteria

0-180: 1.09

90-270: 1.11

Total Lumen Output:

173.0 Lumens

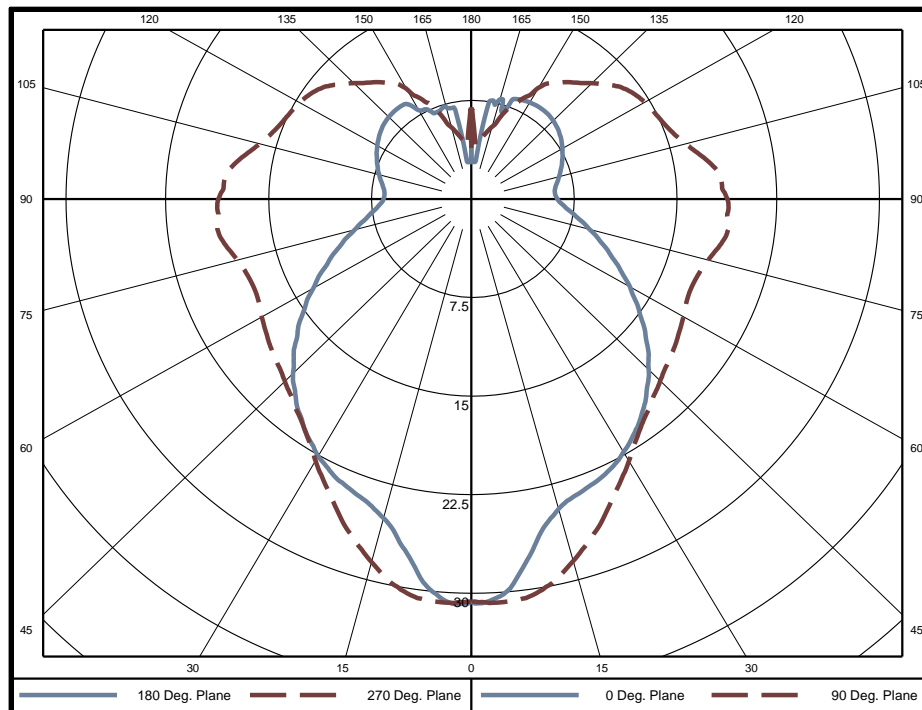
Luminaire Efficacy:

27.0 lm/w

Maximum Candela:

31 Candela

Polar Plot



Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	0.731	0.4%	60-65	7.478	4.3%	120-125	5.299	3.1%
5-10	2.105	1.2%	65-70	7.257	4.2%	125-130	4.969	2.9%
10-15	3.224	1.9%	70-75	7.034	4.1%	130-135	4.457	2.6%
15-20	4.155	2.4%	75-80	6.840	4.0%	135-140	3.854	2.2%
20-25	4.998	2.9%	80-85	6.693	3.9%	140-145	3.330	1.9%
25-30	5.751	3.3%	85-90	6.542	3.8%	145-150	2.792	1.6%
30-35	6.396	3.7%	90-95	6.381	3.7%	150-155	2.215	1.3%
35-40	6.923	4.0%	95-100	6.222	3.6%	155-160	1.664	1.0%
40-45	7.326	4.2%	100-105	6.039	3.5%	160-165	1.155	0.7%
45-50	7.579	4.4%	105-110	5.872	3.4%	165-170	0.677	0.4%
50-55	7.685	4.4%	110-115	5.716	3.3%	170-175	0.325	0.2%
55-60	7.642	4.4%	115-120	5.539	3.2%	175-180	0.089	0.1%

Zone	Lumens	% of Luminaire
0-40	34	19.8%
0-60	65	37.3%
0-90	106	61.5%
90-180	67	38.5%



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	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64	30.64
	5	29.97	29.97	30.27	30.63	30.74	30.66	30.34	30.17	30.17	30.17	30.34	30.66	30.74	30.63	29.97
	10	26.76	26.89	27.98	29.34	30.18	29.65	28.54	27.65	27.43	27.65	28.54	29.65	30.18	29.34	27.98
	15	24.49	24.58	25.27	27.24	28.60	27.54	25.85	25.14	25.16	25.14	25.85	27.54	28.60	27.24	25.27
	20	23.69	23.62	23.49	24.89	26.83	25.18	23.91	23.94	24.14	23.94	23.91	25.18	26.83	24.89	23.49
	25	23.13	23.05	22.55	23.09	24.85	23.22	22.76	23.29	23.56	23.29	22.76	23.22	24.85	23.09	22.55
	30	22.26	22.32	21.79	21.86	23.08	21.87	21.91	22.48	22.71	22.48	21.91	21.87	23.08	21.86	21.79
	35	21.20	21.35	21.02	21.08	21.51	21.03	21.08	21.46	21.58	21.46	21.08	21.03	21.51	21.08	21.02
	40	19.87	20.19	20.17	20.53	20.44	20.40	20.18	20.31	20.27	20.31	20.18	20.40	20.44	20.53	20.17
	45	18.37	18.90	19.27	19.98	19.58	19.78	19.23	19.02	18.78	19.02	19.23	19.78	19.58	19.98	19.27
	50	16.72	17.49	18.25	19.35	18.97	19.11	18.17	17.60	17.11	17.60	18.17	19.11	18.97	19.35	18.25
	55	15.03	15.99	17.15	18.63	18.46	18.37	17.03	16.10	15.35	16.10	17.03	18.37	18.46	18.63	17.15
	60	13.43	14.49	15.97	17.84	17.96	17.55	15.81	14.55	13.58	14.55	15.81	17.55	17.96	17.84	15.97
	65	11.80	13.04	14.78	17.02	17.54	16.74	14.61	13.02	11.88	13.02	14.61	16.74	17.54	17.02	14.78
	70	10.32	11.73	13.72	16.39	17.56	16.07	13.51	11.62	10.37	11.62	13.51	16.07	17.56	16.39	13.72
	75	8.98	10.49	12.74	15.92	17.97	15.58	12.55	10.35	8.97	10.35	12.55	15.58	17.97	15.92	12.74
	80	7.82	9.40	11.94	15.74	18.70	15.44	11.84	9.30	7.84	9.30	11.84	15.44	18.70	15.74	11.94
	85	6.89	8.52	11.34	15.76	18.90	15.52	11.36	8.55	7.00	8.55	11.36	15.52	18.90	15.76	11.34
	90	6.31	7.97	10.96	15.62	18.78	15.44	11.04	8.12	6.54	8.12	11.04	15.44	18.78	15.62	10.96
	95	6.14	7.80	10.75	15.18	18.37	15.04	10.87	8.05	6.50	8.05	10.87	15.04	18.37	15.18	10.75
	100	6.31	7.92	10.66	14.59	17.46	14.57	10.86	8.24	6.75	8.24	10.86	14.57	17.46	14.59	10.66
	105	6.66	8.18	10.70	14.14	16.26	14.27	10.99	8.53	7.10	8.53	10.99	14.27	16.26	14.14	10.70
	110	7.02	8.46	10.82	13.90	15.48	14.11	11.17	8.80	7.44	8.80	11.17	14.11	15.48	13.90	10.82
	115	7.36	8.76	11.00	13.82	15.03	14.09	11.39	9.07	7.77	9.07	11.39	14.09	15.03	13.82	11.00
	120	7.71	9.04	11.19	13.74	14.74	14.04	11.57	9.31	8.09	9.31	11.57	14.04	14.74	13.74	11.19
	125	8.03	9.28	11.32	13.66	14.25	13.92	11.67	9.53	8.37	9.53	11.67	13.92	14.25	13.66	11.32
	130	8.29	9.44	11.33	13.45	13.47	13.32	11.37	9.65	8.61	9.65	11.37	13.32	13.47	13.45	11.33
	135	8.46	9.50	11.21	13.11	12.47	11.92	9.48	9.26	8.74	9.26	9.48	11.92	12.47	13.11	11.21
	140	8.57	9.45	10.96	12.70	11.58	10.45	8.59	8.96	8.80	8.96	8.59	10.45	11.58	12.70	10.96
	145	8.57	9.29	10.59	12.08	10.80	9.38	8.72	8.59	8.77	8.59	8.72	9.38	10.80	12.08	10.59
	150	8.50	9.05	9.72	10.93	9.74	8.76	8.09	8.32	7.79	8.32	8.09	8.76	9.74	10.93	9.72
	155	8.36	8.35	9.47	10.22	8.19	8.04	7.05	7.81	7.42	7.81	7.05	8.04	8.19	10.22	9.47
	160	7.35	8.38	8.80	7.27	6.97	6.89	7.10	7.21	7.10	7.21	7.10	6.89	6.97	7.27	8.80
	165	7.78	7.85	5.90	5.45	5.64	5.46	5.87	7.29	7.23	7.29	5.87	5.46	5.64	5.45	5.90
	170	7.53	4.23	4.45	4.62	4.82	4.67	4.79	5.92	6.89	5.92	4.79	4.67	4.82	4.62	4.45
	175	2.82	3.28	3.77	3.98	4.14	4.01	4.30	4.87	2.81	4.87	4.30	4.01	4.14	3.98	3.77
	180	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89	3.89

Average Luminance (cd/m²)

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	45	90
	0	3088	3088
	45	922	2771
	55	707	2903
	65	538	3215
	75	409	4094
	85	323	5927



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	190	190	190	190	178	178	178	178	155	155	155	134	134	134	115	115	115	106
1	168	157	148	140	156	147	139	132	127	121	115	109	104	100	93	89	86	77
2	151	135	121	110	140	126	114	104	109	99	91	93	86	80	79	73	68	61
3	136	117	102	90	126	109	96	85	94	84	75	81	72	65	68	62	56	49
4	124	103	87	75	115	96	82	71	83	72	63	71	62	55	60	53	47	41
5	114	91	75	63	105	85	71	60	74	62	53	63	54	47	54	46	40	35
6	105	81	66	55	97	76	62	52	66	55	46	57	48	41	49	41	35	30
7	97	73	58	48	90	69	55	45	60	49	40	52	43	36	44	37	31	26
8	90	66	52	42	83	62	49	40	55	44	36	47	38	32	41	33	28	23
9	83	61	47	37	78	57	44	35	50	39	32	44	35	28	37	30	25	21
10	78	56	42	33	73	52	40	32	46	36	29	40	32	25	35	28	22	19

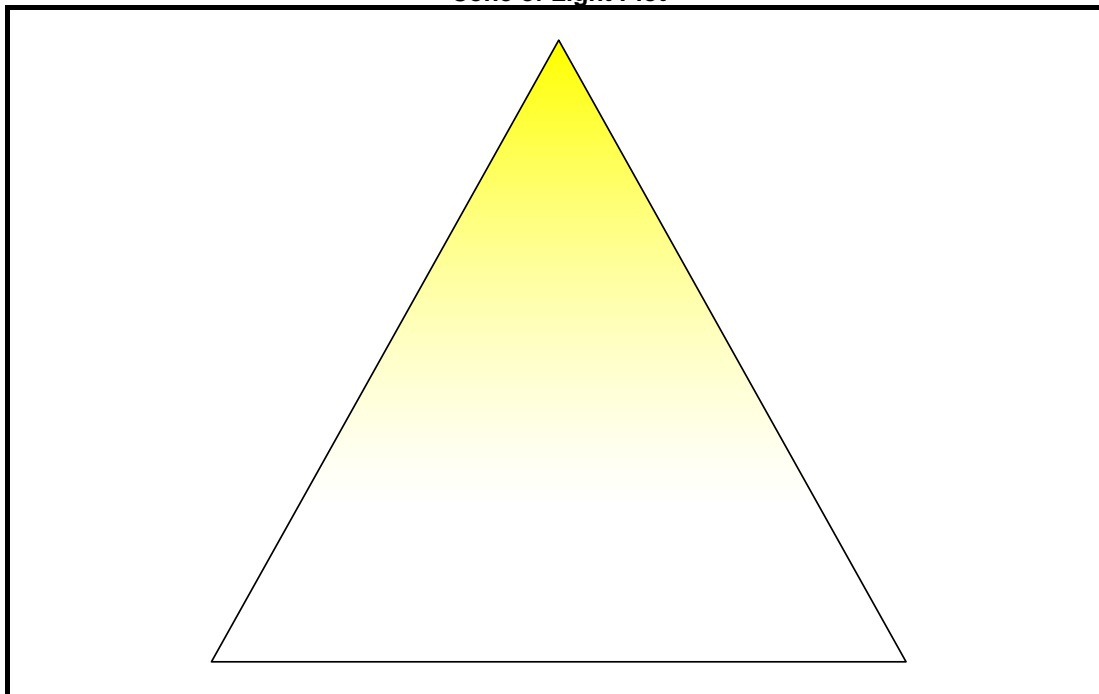
Cone of Light Tabulation

Mounting Height	Footcandles at Nadir	Diameter (Feet)
4.00	1.92	4.33
6.00	0.851	6.50
8.00	0.479	8.67
10.0	0.306	10.8
12.0	0.213	13.0
14.0	0.156	15.2
16.0	0.120	17.3

Beam and Field Information

CIE Type:	Semi-Direct
Center Beam Intensity:	30.64 Candela
Central Cone Intensity:	31 Candela
Beam Flux:	89.4 Lumens
Beam Angle (0-180):	109.2 Degrees
Beam Angle (90-270):	222.9 Degrees
Field Angle (0-180):	346.7 Degrees
Field Angle (90-270):	#REF! Degrees

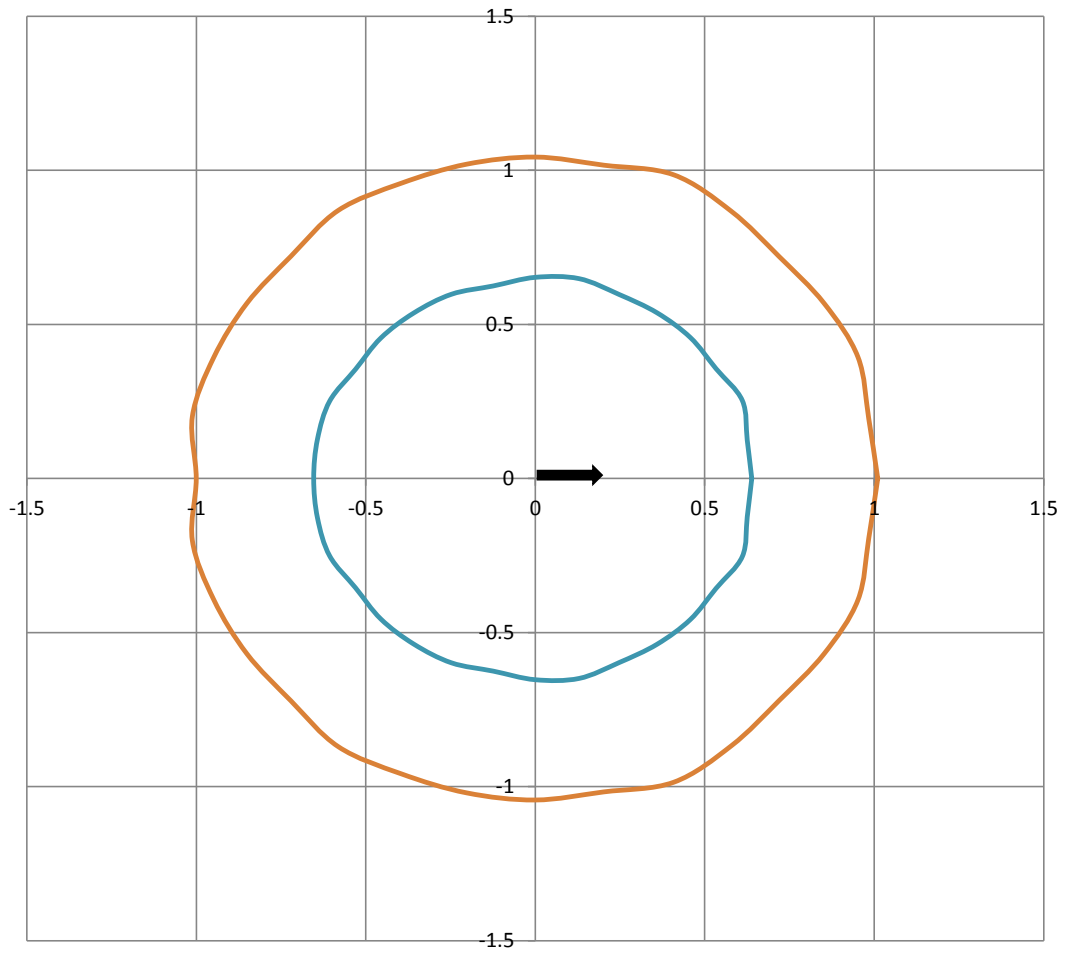
Cone of Light Plot





ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

5 fc 2 fc 1 fc 0.5 fc 0.2 fc 0.1 fc