LTL LUMINAIRE TESTING LABORATORY, INC.

SUSTAINING MEMBER of the IESNA

905 Harrison Street · Allentown, PA 18103 · 610-770-1044 · Fax 610-770-8912 · www.LuminaireTesting.com

Photometric Indoor Test Report

Relevant Standards
IES LM-9-2009, IES LM-41-1998
ANSI C78.81-2010, ANSI C82.1-2004, ANSI C82.11, ANSI C82.2, ANSI C82.77
IEC 60081, IEC 60901, IEC 61347-2-3

Prepared For
Precision Architectural Lighting, Inc.
Fred Compton
4830 Timber Creek Drive
Houston, TX 77017

Catalog Number
DRS01-X-4-X-MPL-X-120-T8

LTL Test Number
22466

Test Date

2011-03-01

Prepared By

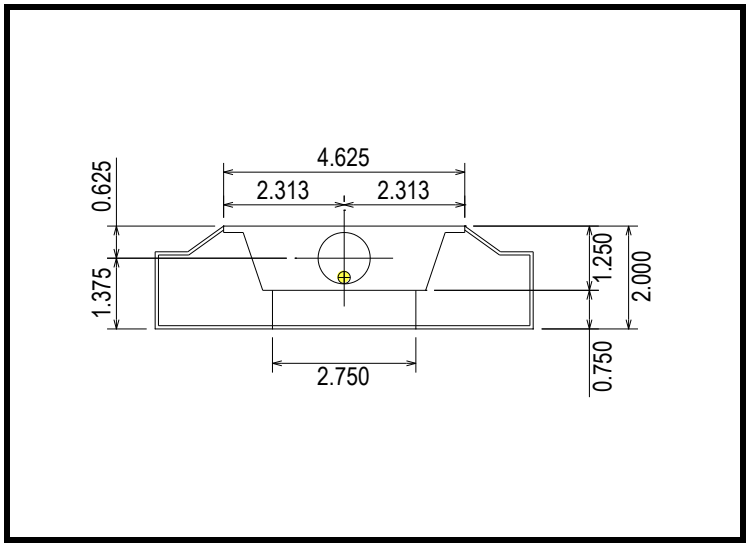
Zachary Mooney, Technician III

Approved By

Michael Grather, PDE

Luminaire Description:	Extruded aluminum housing, formed specular aluminum side reflectors, clear prismatic plastic lower lens, open top
Catalog Number:	DRS01-X-4-X-MPL-X-120-T8
Lamp:	One horizontal 32 watt T8 linear fluorescent lamp rated at 2850 lumens
Lamp Catalog Number:	Philips F32T8/841/ALTO
Mounting:	Pendant
Ballast/Driver:	One Universal Lighting Technologies B232IUNV-C

Luminaire



Zonal Lumen Summary

Zone (Degrees)	Lumens	% of Lamp	% of Luminaire
0-30	266	9.3%	10.5%
0-40	435	15.3%	17.1%
0-60	624	21.9%	24.5%
0-90	689	24.2%	27.0%
90-180	1857	65.2%	73.0%
0-180	2546	89.3%	100.0%

Test Conditions

Test Temperature:	25.8	°C
Voltage:	120.0	VAC
Current:	0.3058	A
Power:	36.68	W
Power Factor:	0.999	
Frequency:	60	Hz

Summary of Results

Luminaire Efficiency: 89.3 %

Spacing Criterion: 0 Degree: 1.23 90 Degree: 1.37
180 Degree: 1.23 270 Degree: 1.37

CIE Type: Semi-Indirect

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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	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6	324.6
5	322.4	324.5	326.0	324.7	326.1	324.7	326.0	324.5	322.4	324.5	326.0	324.7	326.1	324.7	326.0	324.5
10	319.2	321.9	325.8	326.6	329.0	326.6	325.8	321.9	319.2	321.9	325.8	326.6	329.0	326.6	325.8	321.9
15	312.9	317.4	326.0	330.8	333.9	330.8	326.0	317.4	312.9	317.4	326.0	330.8	333.9	330.8	326.0	317.4
20	301.9	308.8	322.8	330.8	334.8	330.8	322.8	308.8	301.9	308.8	322.8	330.8	334.8	330.8	322.8	308.8
25	286.9	297.4	316.0	326.0	329.3	326.0	316.0	297.4	286.9	297.4	316.0	326.0	329.3	326.0	316.0	297.4
30	268.0	283.6	304.4	311.2	313.5	311.2	304.4	283.6	268.0	283.6	304.4	311.2	313.5	311.2	304.4	283.6
35	245.3	265.2	281.1	283.0	283.5	283.0	281.1	265.2	245.3	265.2	281.1	283.0	283.5	283.0	281.1	265.2
40	214.2	233.6	236.8	236.9	239.7	236.9	236.8	233.6	214.2	233.6	236.8	236.9	239.7	236.9	236.8	233.6
45	165.0	163.0	165.6	162.4	161.2	162.4	165.6	163.0	165.0	163.0	165.6	162.4	161.2	162.4	165.6	163.0
50	107.9	98.9	102.9	102.8	101.4	102.8	102.9	98.9	107.9	98.9	102.9	102.8	101.4	102.8	102.9	98.9
55	71.6	68.0	65.7	64.8	67.9	64.8	65.7	68.0	71.6	68.0	65.7	64.8	67.9	64.8	65.7	68.0
60	47.2	47.2	46.7	45.1	47.0	45.1	46.7	47.2	47.2	47.2	46.7	45.1	47.0	45.1	46.7	47.2
65	33.6	36.0	34.9	32.5	32.6	32.5	34.9	36.0	33.6	36.0	34.9	32.5	32.6	32.5	34.9	36.0
70	27.1	28.7	25.7	24.1	25.3	24.1	25.7	28.7	27.1	28.7	25.7	24.1	25.3	24.1	25.7	28.7
75	20.5	21.8	20.0	18.0	18.2	18.0	20.0	21.8	20.5	21.8	20.0	18.0	18.2	18.0	20.0	21.8
80	17.9	15.6	14.6	13.6	12.6	13.6	14.6	15.6	17.9	15.6	14.6	13.6	12.6	13.6	14.6	15.6
85	10.0	9.1	8.6	7.6	6.6	7.6	8.6	9.1	10.0	9.1	8.6	7.6	6.6	7.6	8.6	9.1
90	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	0.0
95	14.4	41.4	34.3	28.0	25.9	28.0	34.3	41.4	14.4	41.4	34.3	28.0	25.9	28.0	34.3	41.4
100	38.3	148.6	106.1	97.7	95.0	97.7	106.1	148.6	38.3	148.6	106.1	97.7	95.0	97.7	106.1	148.6
105	67.4	213.9	237.4	193.5	182.4	193.5	237.4	213.9	67.4	213.9	237.4	193.5	182.4	193.5	237.4	213.9
110	100.2	217.3	368.3	349.5	331.9	349.5	368.3	217.3	100.2	217.3	368.3	349.5	331.9	349.5	368.3	217.3
115	136.8	231.2	415.0	488.4	486.2	488.4	415.0	231.2	136.8	231.2	415.0	488.4	486.2	488.4	415.0	231.2
120	176.5	252.8	402.2	541.6	574.6	541.6	402.2	252.8	176.5	252.8	402.2	541.6	574.6	541.6	402.2	252.8
125	217.4	274.8	387.1	515.7	563.1	515.7	387.1	274.8	217.4	274.8	387.1	515.7	563.1	515.7	387.1	274.8
130	253.1	300.7	382.4	487.8	523.6	487.8	382.4	300.7	253.1	300.7	382.4	487.8	523.6	487.8	382.4	300.7
135	281.0	323.9	393.1	470.8	504.9	470.8	393.1	323.9	281.0	323.9	393.1	470.8	504.9	470.8	393.1	323.9
140	303.6	338.6	410.6	465.2	492.0	465.2	410.6	338.6	303.6	338.6	410.6	465.2	492.0	465.2	410.6	338.6
145	322.6	349.8	422.2	464.8	485.1	464.8	422.2	349.8	322.6	349.8	422.2	464.8	485.1	464.8	422.2	349.8
150	339.0	362.7	429.5	466.3	482.8	466.3	429.5	362.7	339.0	362.7	429.5	466.3	482.8	466.3	429.5	362.7
155	353.5	373.0	423.3	467.5	482.7	467.5	423.3	373.0	353.5	373.0	423.3	467.5	482.7	467.5	423.3	373.0
160	365.8	380.0	413.0	451.4	470.0	451.4	413.0	380.0	365.8	380.0	413.0	451.4	470.0	451.4	413.0	380.0
165	372.1	383.6	406.9	425.5	436.3	425.5	406.9	383.6	372.1	383.6	406.9	425.5	436.3	425.5	406.9	383.6
170	368.7	377.2	392.7	403.9	410.1	403.9	392.7	377.2	368.7	377.2	392.7	403.9	410.1	403.9	392.7	377.2
175	357.5	359.2	364.9	366.0	368.1	366.0	364.9	359.2	357.5	359.2	364.9	366.0	368.1	366.0	364.9	359.2
180	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9

Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	7.8	45-50	51.9	90-95	6.0	135-140	147.8
5-10	23.2	50-55	36.2	95-100	35.8	140-145	135.7
10-15	38.5	55-60	25.7	100-105	79.1	145-150	121.8
15-20	53.2	60-65	19.5	105-110	125.4	150-155	106.1
20-25	66.3	65-70	15.1	110-115	165.8	155-160	87.9
25-30	77.2	70-75	12.0	115-120	185.1	160-165	67.7
30-35	84.3	75-80	9.2	120-125	182.1	165-170	47.4
35-40	84.9	80-85	6.3	125-130	169.7	170-175	27.1
40-45	75.1	85-90	2.1	130-135	158.5	175-180	8.6

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Coefficients of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	1.010	1.010	1.010	1.010	0.908	0.908	0.908	0.908	0.811	0.811	0.811	0.811
1	0.926	0.883	0.845	0.811	0.832	0.797	0.765	0.736	0.743	0.713	0.687	0.663
2	0.848	0.776	0.716	0.667	0.761	0.701	0.651	0.609	0.679	0.629	0.587	0.552
3	0.777	0.685	0.615	0.559	0.697	0.620	0.560	0.512	0.622	0.558	0.507	0.466
4	0.713	0.608	0.532	0.475	0.640	0.551	0.486	0.436	0.571	0.497	0.441	0.399
5	0.655	0.542	0.464	0.407	0.588	0.492	0.425	0.375	0.525	0.444	0.387	0.344
6	0.603	0.486	0.408	0.353	0.542	0.442	0.374	0.326	0.484	0.399	0.342	0.300
7	0.557	0.438	0.362	0.309	0.501	0.399	0.333	0.286	0.448	0.361	0.304	0.263
8	0.516	0.396	0.322	0.272	0.464	0.362	0.297	0.253	0.416	0.328	0.272	0.233
9	0.480	0.361	0.289	0.242	0.432	0.330	0.267	0.225	0.387	0.299	0.245	0.207
10	0.447	0.330	0.261	0.216	0.403	0.302	0.241	0.201	0.361	0.274	0.221	0.186

Ceiling Cavity Reflectance	50				30			10			0
Wall Reflectance	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.631	0.631	0.631	0.631	0.465	0.465	0.465	0.313	0.313	0.313	0.242
1	0.577	0.558	0.541	0.525	0.415	0.404	0.395	0.283	0.278	0.273	0.212
2	0.527	0.494	0.466	0.442	0.370	0.353	0.337	0.255	0.246	0.237	0.186
3	0.483	0.440	0.406	0.377	0.332	0.309	0.291	0.231	0.218	0.208	0.164
4	0.444	0.394	0.355	0.325	0.298	0.273	0.253	0.209	0.195	0.183	0.145
5	0.409	0.354	0.313	0.282	0.269	0.242	0.221	0.191	0.175	0.162	0.129
6	0.378	0.319	0.278	0.247	0.244	0.217	0.195	0.174	0.158	0.145	0.116
7	0.350	0.290	0.248	0.218	0.223	0.195	0.174	0.160	0.143	0.130	0.104
8	0.326	0.264	0.223	0.194	0.204	0.176	0.155	0.147	0.130	0.117	0.094
9	0.304	0.242	0.201	0.173	0.187	0.160	0.140	0.136	0.119	0.106	0.086
10	0.284	0.222	0.183	0.156	0.173	0.145	0.126	0.126	0.109	0.097	0.078

Average Luminance Table (cd/m²)

Horizontal Angle (Degrees)

Vertical Angle (Degree)	0	45	90
0	4158	4158	4158
45	2990	3000	2920
55	1598	1468	1516
65	1017	1059	989
75	1016	990	903
85	1464	969	969

This test was conduted using photometry techniques according to standard IES procedures. The user must therefore use caution in the following situations: 1) This test was performed using a specific ballast/lamp combination. Extrapolation of this data for other ballast/lamp combinations may produce erroneous results. 2) According to IESNA procedures, the ballast(s) and lamp(s) are presumed to produce 100% of rated output. An appropriate ballast factor must be applied to the lumen output ratings and luminous intensity values given. This test was conducted in a controlled laboratory environment where the ambient temperature was held at 25^0C $\pm 1^0$C. Field performance may differ particularly in regards to change in luminous output as a result of difference in ambient temperature and method of mounting the luminaire.

Polar Plot (Candela)