



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
DRS02-X-4-X-MPL-X-120-T5

LTL Test Number
22848

Test Date
2011-03-24

Prepared By

Zachary Mooney, Technician III

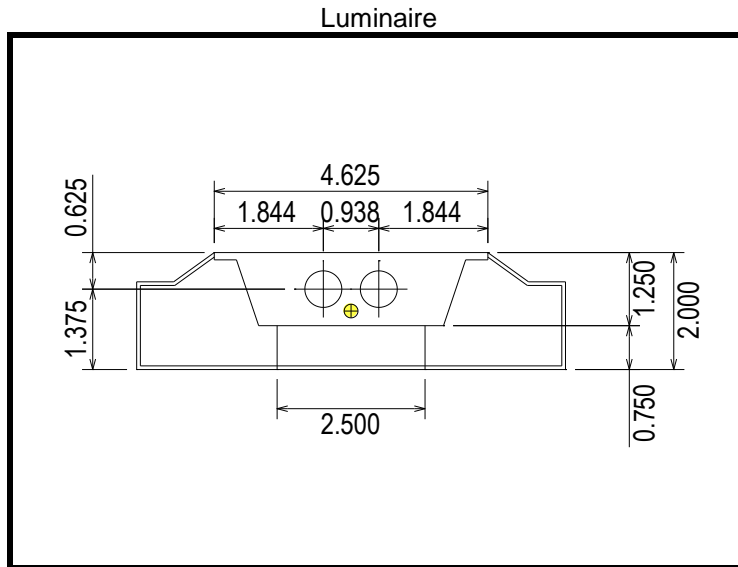
Approved By

Michael Grather, PDE

The results contained in this report pertain only to the tested sample.
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Luminaire Description: Extruded aluminum housing, formed specular aluminum side reflectors, clear prismatic plastic lower lens, open top
Catalog Number: DRS02-X-4-X-MPL-X-120-T5
Lamp: Two 28 watt T5 linear fluorescent lamps rated at 2610 lumens each
Lamp Catalog Number: Philips F28T5/841/ALTO
Mounting: Pendant
Ballast/Driver: One Universal Lighting Technologies B228PUNV-C



Zonal Lumen Summary

Table with 4 columns: Zone (Degrees), Lumens, % of Lamp, % of Luminaire. Rows include zones from 0-30 to 0-180.

Test Conditions

Test Temperature: 24.3 °C
Voltage: 120.0 VAC
Current: 0.5478 A
Power: 65.50 W
Power Factor: 0.996
Frequency: 60 Hz

Summary of Results

Luminaire Efficiency: 89.0 %

Spacing Criterion: 0 Degree: 1.22 90 Degree: 1.32
180 Degree: 1.22 270 Degree: 1.32

CIE Type: Semi-Indirect



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	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8	681.8
5	676.2	680.1	683.9	681.4	684.6	681.4	683.9	680.1	676.2	680.1	683.9	681.4	684.6	681.4	683.9	680.1
10	669.2	675.1	682.6	683.0	688.1	683.0	682.6	675.1	669.2	675.1	682.6	683.0	688.1	683.0	682.6	675.1
15	654.5	663.6	675.4	679.2	686.1	679.2	675.4	663.6	654.5	663.6	675.4	679.2	686.1	679.2	675.4	663.6
20	632.1	642.6	660.4	672.2	681.2	672.2	660.4	642.6	632.1	642.6	660.4	672.2	681.2	672.2	660.4	642.6
25	600.5	611.6	639.7	657.5	665.0	657.5	639.7	611.6	600.5	611.6	639.7	657.5	665.0	657.5	639.7	611.6
30	560.2	576.3	611.4	629.6	633.9	629.6	611.4	576.3	560.2	576.3	611.4	629.6	633.9	629.6	611.4	576.3
35	507.4	530.2	565.0	558.6	556.7	558.6	565.0	530.2	507.4	530.2	565.0	558.6	556.7	558.6	565.0	530.2
40	431.2	461.8	461.1	457.1	464.2	457.1	461.1	461.8	431.2	461.8	461.1	457.1	464.2	457.1	461.1	461.8
45	318.3	316.2	315.2	304.8	300.4	304.8	315.2	316.2	318.3	316.2	315.2	304.8	300.4	304.8	315.2	316.2
50	207.9	192.6	196.8	195.3	192.4	195.3	196.8	192.6	207.9	192.6	196.8	195.3	192.4	195.3	196.8	192.6
55	138.4	131.5	126.1	124.3	129.3	124.3	126.1	131.5	138.4	131.5	126.1	124.3	129.3	124.3	126.1	131.5
60	91.6	91.5	89.8	86.2	90.6	86.2	89.8	91.5	91.6	91.5	89.8	86.2	90.6	86.2	89.8	91.5
65	65.0	69.8	67.6	63.3	63.6	63.3	67.6	69.8	65.0	69.8	67.6	63.3	63.6	63.3	67.6	69.8
70	52.7	55.5	50.3	47.1	49.7	47.1	50.3	55.5	52.7	55.5	50.3	47.1	49.7	47.1	50.3	55.5
75	40.1	42.5	39.2	35.1	35.8	35.1	39.2	42.5	40.1	42.5	39.2	35.1	35.8	35.1	39.2	42.5
80	34.0	29.2	27.8	25.2	23.6	25.2	27.8	29.2	34.0	29.2	27.8	25.2	23.6	25.2	27.8	29.2
85	18.7	17.1	15.1	13.4	11.3	13.4	15.1	17.1	18.7	17.1	15.1	13.4	11.3	13.4	15.1	17.1
90	0.4	0.8	0.8	0.7	0.1	0.7	0.8	0.8	0.4	0.8	0.8	0.7	0.1	0.7	0.8	0.8
95	22.7	33.1	6.0	4.6	4.9	4.6	6.0	33.1	22.7	33.1	6.0	4.6	4.9	4.6	6.0	33.1
100	63.3	187.8	104.3	72.1	61.5	72.1	104.3	187.8	63.3	187.8	104.3	72.1	61.5	72.1	104.3	187.8
105	117.0	320.3	300.3	220.7	199.0	220.7	300.3	320.3	117.0	320.3	300.3	220.7	199.0	220.7	300.3	320.3
110	181.3	374.8	528.8	458.1	420.1	458.1	528.8	374.8	181.3	374.8	528.8	458.1	420.1	458.1	528.8	374.8
115	251.5	434.2	663.3	705.3	686.1	705.3	663.3	434.2	251.5	434.2	663.3	705.3	686.1	705.3	663.3	434.2
120	325.8	485.8	724.9	857.6	882.1	857.6	724.9	485.8	325.8	485.8	724.9	857.6	882.1	857.6	724.9	485.8
125	402.8	535.1	743.0	920.5	965.1	920.5	743.0	535.1	402.8	535.1	743.0	920.5	965.1	920.5	743.0	535.1
130	471.1	586.4	767.3	918.4	990.7	918.4	767.3	586.4	471.1	586.4	767.3	918.4	990.7	918.4	767.3	586.4
135	530.7	627.2	794.7	919.9	988.4	919.9	794.7	627.2	530.7	627.2	794.7	919.9	988.4	919.9	794.7	627.2
140	584.4	664.0	816.0	921.8	964.1	921.8	816.0	664.0	584.4	664.0	816.0	921.8	964.1	921.8	816.0	664.0
145	630.9	693.9	828.9	912.8	942.7	912.8	828.9	693.9	630.9	693.9	828.9	912.8	942.7	912.8	828.9	693.9
150	669.9	720.7	834.9	902.0	923.4	902.0	834.9	720.7	669.9	720.7	834.9	902.0	923.4	902.0	834.9	720.7
155	701.3	743.3	828.3	891.4	914.9	891.4	828.3	743.3	701.3	743.3	828.3	891.4	914.9	891.4	828.3	743.3
160	726.7	760.4	816.9	862.6	882.3	862.6	816.9	760.4	726.7	760.4	816.9	862.6	882.3	862.6	816.9	760.4
165	744.2	766.8	804.2	827.6	841.7	827.6	804.2	766.8	744.2	766.8	804.2	827.6	841.7	827.6	804.2	766.8
170	742.0	754.4	781.3	793.0	800.0	793.0	781.3	754.4	742.0	754.4	781.3	793.0	800.0	793.0	781.3	754.4
175	723.8	726.0	735.0	735.9	739.7	735.9	735.0	726.0	723.8	726.0	735.0	735.9	739.7	735.9	735.0	726.0
180	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1	718.1

Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	16.3	45-50	99.1	90-95	2.8	135-140	290.7
5-10	48.7	50-55	69.4	95-100	27.9	140-145	267.0
10-15	80.2	55-60	49.4	100-105	93.4	145-150	238.6
15-20	109.7	60-65	37.5	105-110	173.1	150-155	206.5
20-25	135.7	65-70	29.2	110-115	250.4	155-160	171.1
25-30	156.9	70-75	23.4	115-120	303.3	160-165	132.7
30-35	170.0	75-80	17.8	120-125	321.9	165-170	93.5
35-40	167.8	80-85	11.8	125-130	320.5	170-175	54.1
40-45	144.9	85-90	3.6	130-135	308.4	175-180	17.3



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	1.009	1.009	1.009	1.009	0.910	0.910	0.910	0.910	0.816	0.816	0.816	0.816
1	0.926	0.884	0.846	0.812	0.834	0.799	0.768	0.739	0.748	0.719	0.692	0.669
2	0.849	0.777	0.718	0.669	0.764	0.704	0.654	0.613	0.684	0.635	0.593	0.558
3	0.778	0.687	0.617	0.562	0.701	0.624	0.564	0.517	0.627	0.563	0.513	0.472
4	0.714	0.610	0.535	0.478	0.643	0.555	0.490	0.441	0.576	0.502	0.447	0.405
5	0.657	0.544	0.467	0.411	0.592	0.496	0.430	0.380	0.530	0.450	0.393	0.350
6	0.605	0.489	0.412	0.357	0.546	0.446	0.379	0.331	0.490	0.405	0.347	0.306
7	0.560	0.441	0.365	0.313	0.505	0.403	0.337	0.291	0.453	0.367	0.310	0.269
8	0.519	0.400	0.326	0.277	0.468	0.366	0.302	0.257	0.421	0.334	0.277	0.238
9	0.482	0.364	0.293	0.246	0.436	0.334	0.272	0.229	0.392	0.305	0.250	0.213
10	0.449	0.333	0.265	0.220	0.407	0.306	0.246	0.205	0.366	0.280	0.227	0.191

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	0.640	0.640	0.640	0.640	0.480	0.480	0.480	0.332	0.332	0.332	0.263
1	0.587	0.568	0.550	0.534	0.429	0.418	0.409	0.301	0.295	0.290	0.232
2	0.537	0.504	0.476	0.451	0.383	0.366	0.350	0.272	0.262	0.253	0.203
3	0.493	0.449	0.415	0.386	0.344	0.322	0.303	0.246	0.233	0.222	0.179
4	0.453	0.403	0.364	0.333	0.310	0.284	0.264	0.224	0.209	0.196	0.159
5	0.418	0.362	0.321	0.290	0.281	0.253	0.232	0.204	0.188	0.174	0.142
6	0.386	0.327	0.286	0.255	0.255	0.227	0.205	0.187	0.170	0.156	0.128
7	0.359	0.298	0.256	0.225	0.233	0.204	0.183	0.172	0.154	0.140	0.115
8	0.334	0.272	0.230	0.201	0.213	0.185	0.164	0.159	0.141	0.127	0.105
9	0.312	0.249	0.208	0.180	0.197	0.168	0.147	0.147	0.129	0.115	0.095
10	0.292	0.229	0.189	0.162	0.182	0.153	0.134	0.137	0.118	0.105	0.087

Average Luminance Table (cd/m²)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	9608	9608	9608
	45	6344	6282	5986
	55	3400	3097	3177
	65	2168	2253	2119
	75	2183	2134	1948
	85	3025	1824	1824

This test was conducted 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°C ±1°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)

