



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
DRP02-X-4-X-MPL-X-120-T5

LTL Test Number
22468

Test Date
2011-02-28

Prepared By

Zachary Mooney, Technician III

Approved By

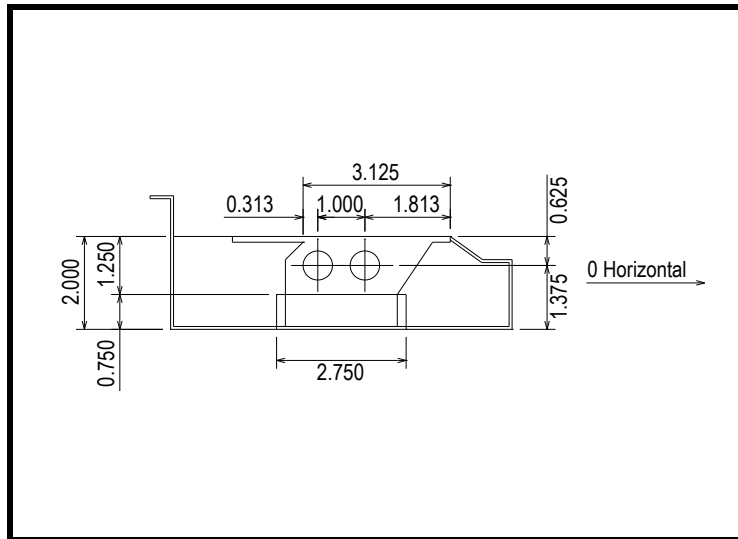
Michael Grather, PDE

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: DRP02-X-4-X-MPL-X-120-T5
 Lamp: Two horizontal 28 watt T5 linear fluorescent lamps rated at 2610 lumens each
 Lamp Catalog Number: Philips F28T5/841/ALTO
 Mounting: Surface Wall
 Ballast/Driver: Two Universal Lighting Technologies B228PUNV-CUS

Luminaire



Zonal Lumen Summary

Zone (Degrees)	Lumens	% of Lamp	% of Luminaire
0-30	674	12.9%	15.4%
0-40	1098	21.0%	25.1%
0-60	1610	30.8%	36.8%
0-90	1782	34.1%	40.7%
90-180	2596	49.7%	59.3%
0-180	4378	83.9%	100.0%

Test Conditions

Test Temperature: 24.3 °C
 Voltage: 120.0 VAC
 Current: 0.5568 A
 Power: 66.71 W
 Power Factor: 0.998
 Frequency: 60 Hz

Summary of Results

Luminaire Efficiency: 83.9 %

Spacing Criterion: 0 Degree: 1.39 90 Degree: 1.21
 180 Degree: 1.21 270 Degree: 1.21

CIE Type: Direct/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	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9	869.9
5	888.3	884.1	884.2	875.4	861.9	858.3	854.8	844.6	845.0	844.6	854.8	858.3	861.9	875.4	884.2	884.1
10	898.2	890.9	887.5	872.8	851.7	840.7	829.1	815.4	813.1	815.4	829.1	840.7	851.7	872.8	887.5	890.9
15	896.8	890.0	881.0	860.2	833.5	814.2	796.4	780.4	779.7	780.4	796.4	814.2	833.5	860.2	881.0	890.0
20	881.8	873.8	861.4	832.7	803.0	776.0	754.8	744.6	748.0	744.6	754.8	776.0	803.0	832.7	861.4	873.8
25	854.1	844.2	826.8	792.7	761.2	724.4	713.0	716.5	723.2	716.5	713.0	724.4	761.2	792.7	826.8	844.2
30	823.8	811.0	785.7	741.4	707.5	670.0	676.5	697.3	704.5	697.3	676.5	670.0	707.5	741.4	785.7	811.0
35	785.1	764.4	733.5	677.5	637.5	613.0	642.6	649.3	649.9	649.3	642.6	613.0	637.5	677.5	733.5	764.4
40	750.6	719.3	668.9	597.2	536.1	548.2	565.6	593.9	625.9	593.9	565.6	548.2	536.1	597.2	668.9	719.3
45	522.6	494.2	490.5	447.1	394.2	415.6	438.4	448.5	424.2	448.5	438.4	415.6	394.2	447.1	490.5	494.2
50	307.7	301.6	295.8	269.4	266.8	263.2	264.4	268.7	258.5	268.7	264.4	263.2	266.8	269.4	295.8	301.6
55	204.5	188.5	187.4	185.4	183.4	182.4	169.3	168.4	171.1	168.4	169.3	182.4	183.4	185.4	187.4	188.5
60	141.4	129.7	132.2	130.0	122.3	125.7	119.1	114.3	117.9	114.3	119.1	125.7	122.3	130.0	132.2	129.7
65	98.4	94.2	98.8	99.0	88.5	94.0	89.1	82.7	82.0	82.7	89.1	94.0	88.5	99.0	98.8	94.2
70	74.7	69.0	72.8	77.4	70.0	73.3	65.1	60.2	63.1	60.2	65.1	73.3	70.0	77.4	72.8	69.0
75	54.9	52.0	57.1	60.4	53.6	56.7	50.9	45.7	46.4	45.7	50.9	56.7	53.6	60.4	57.1	52.0
80	37.1	38.6	41.3	42.4	46.1	40.0	36.8	33.8	31.1	33.8	36.8	40.0	46.1	42.4	41.3	38.6
85	21.2	21.8	23.5	25.9	26.3	24.5	21.4	19.1	15.8	19.1	21.4	24.5	26.3	25.9	23.5	21.8
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	26.0	31.3	38.2	56.1	25.2	3.7	0.0	0.0	0.0	0.0	0.0	3.7	25.2	56.1	38.2	31.3
100	102.4	129.4	157.2	173.8	72.4	90.8	3.5	3.0	2.8	3.0	3.5	90.8	72.4	173.8	157.2	129.4
105	242.7	280.7	309.1	273.3	129.8	163.3	107.9	3.3	3.7	3.3	107.9	163.3	129.8	273.3	309.1	280.7
110	416.3	442.5	446.6	344.3	193.2	221.3	240.2	195.4	140.0	195.4	240.2	221.3	193.2	344.3	446.6	442.5
115	571.0	586.1	552.2	397.6	260.8	273.5	325.2	313.2	313.6	313.2	325.2	273.5	260.8	397.6	552.2	586.1
120	703.1	697.1	632.9	436.9	328.9	329.9	382.9	406.5	415.7	406.5	382.9	329.9	328.9	436.9	632.9	697.1
125	793.0	775.3	685.0	476.7	391.6	397.9	428.3	460.3	480.2	460.3	428.3	397.9	391.6	476.7	685.0	775.3
130	859.8	832.3	712.5	521.4	452.6	456.7	478.1	506.2	526.9	506.2	478.1	456.7	452.6	521.4	712.5	832.3
135	883.8	846.3	713.1	565.5	512.6	511.0	520.9	538.9	550.9	538.9	520.9	511.0	512.6	565.5	713.1	846.3
140	884.4	833.3	714.7	614.3	567.3	563.8	574.1	569.9	590.5	569.9	574.1	563.8	567.3	614.3	714.7	833.3
145	866.0	799.7	728.4	657.7	615.1	614.8	622.9	607.1	623.0	607.1	622.9	614.8	615.1	657.7	728.4	799.7
150	824.4	791.7	738.1	693.7	656.3	661.6	664.2	651.6	653.3	651.6	664.2	661.6	656.3	693.7	738.1	791.7
155	803.8	781.1	754.4	718.6	689.4	700.1	697.6	687.9	684.4	687.9	697.6	700.1	689.4	718.6	754.4	781.1
160	784.0	778.0	767.7	735.9	716.1	728.8	732.9	718.6	717.2	718.6	732.9	728.8	716.1	735.9	767.7	778.0
165	786.5	782.8	774.9	743.0	735.3	742.7	756.7	750.2	751.7	750.2	756.7	742.7	735.3	743.0	774.9	782.8
170	773.5	765.2	754.8	735.9	740.0	745.4	758.9	759.2	765.3	759.2	758.9	745.4	740.0	735.9	754.8	765.2
175	727.1	721.9	725.3	722.7	732.3	735.2	744.2	744.9	746.3	744.9	744.2	735.2	732.3	722.7	725.3	721.9
180	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4	727.4

Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	20.8	45-50	140.9	90-95	4.4	135-140	233.8
5-10	61.6	50-55	97.9	95-100	26.5	140-145	220.3
10-15	100.4	55-60	69.4	100-105	67.3	145-150	202.1
15-20	135.6	60-65	52.4	105-110	120.3	150-155	179.8
20-25	165.5	65-70	40.4	110-115	176.1	155-160	153.4
25-30	190.2	70-75	32.0	115-120	210.9	160-165	123.7
30-35	208.1	75-80	24.7	120-125	232.2	165-170	89.9
35-40	215.9	80-85	17.0	125-130	242.4	170-175	53.2
40-45	204.0	85-90	5.9	130-135	242.1	175-180	17.4



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	0.9622	0.9622	0.9622	0.9622	0.8801	0.8801	0.8801	0.8801	0.8018	0.8018	0.8018	0.8018
1	0.8849	0.8453	0.8100	0.7784	0.8087	0.7753	0.7453	0.7184	0.7363	0.7083	0.6832	0.6603
2	0.8122	0.7448	0.6896	0.6437	0.7417	0.6846	0.6373	0.5976	0.6751	0.6270	0.5867	0.5526
3	0.7457	0.6596	0.5940	0.5424	0.6809	0.6076	0.5508	0.5057	0.6197	0.5576	0.5089	0.4696
4	0.6853	0.5871	0.5164	0.4630	0.6259	0.5418	0.4802	0.4331	0.5699	0.4982	0.4449	0.4036
5	0.6309	0.5250	0.4524	0.3996	0.5765	0.4854	0.4217	0.3748	0.5252	0.4472	0.3917	0.3502
6	0.5822	0.4722	0.3997	0.3484	0.5324	0.4373	0.3734	0.3275	0.4855	0.4036	0.3476	0.3068
7	0.5389	0.4269	0.3558	0.3066	0.4932	0.3960	0.3330	0.2888	0.4502	0.3661	0.3105	0.2711
8	0.5000	0.3878	0.3186	0.2717	0.4581	0.3602	0.2987	0.2564	0.4186	0.3336	0.2791	0.2411
9	0.4654	0.3540	0.2871	0.2425	0.4269	0.3293	0.2695	0.2292	0.3904	0.3054	0.2522	0.2159
10	0.4343	0.3244	0.2600	0.2176	0.3988	0.3022	0.2444	0.2059	0.3652	0.2807	0.2291	0.1943

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	0.6557	0.6557	0.6557	0.6557	0.5220	0.5220	0.5220	0.3992	0.3992	0.3992	0.3415
1	0.6020	0.5830	0.5657	0.5498	0.4679	0.4566	0.4460	0.3618	0.3549	0.3485	0.2996
2	0.5520	0.5187	0.4903	0.4658	0.4190	0.3998	0.3830	0.3267	0.3146	0.3039	0.2618
3	0.5071	0.4635	0.4284	0.3995	0.3764	0.3522	0.3318	0.2956	0.2799	0.2665	0.2299
4	0.4669	0.4159	0.3768	0.3459	0.3396	0.3121	0.2898	0.2685	0.2503	0.2352	0.2032
5	0.4310	0.3750	0.3337	0.3021	0.3077	0.2781	0.2550	0.2449	0.2249	0.2089	0.1807
6	0.3992	0.3397	0.2975	0.2661	0.2800	0.2494	0.2260	0.2242	0.2032	0.1867	0.1617
7	0.3710	0.3092	0.2670	0.2362	0.2560	0.2249	0.2018	0.2060	0.1844	0.1679	0.1455
8	0.3457	0.2827	0.2408	0.2109	0.2350	0.2039	0.1812	0.1901	0.1682	0.1518	0.1317
9	0.3232	0.2597	0.2185	0.1896	0.2166	0.1858	0.1637	0.1760	0.1541	0.1380	0.1198
10	0.3030	0.2394	0.1991	0.1713	0.2004	0.1700	0.1486	0.1636	0.1418	0.1260	0.1095

Average Luminance Table (cd/m²)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	11140	11140	11140
	45	9468	8887	7142
	55	4567	4184	4096
	65	2983	2996	2683
	75	2716	2827	2653
	85	3118	3866	3866

Note: The zonal cavity calculation technique is accurate when luminaires with symmetric candela distributions are employed and when the luminaires are located symmetrically throughout the room. This unit has special characteristics and therefore these values should be used with caution.

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)

