



## 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  
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Catalog Number  
DRS02-X-4-X-D46/PB-X-120-T5

LTL Test Number  
22908

Test Date  
2011-03-31

Prepared By

Zachary Mooney, Project Coordinator

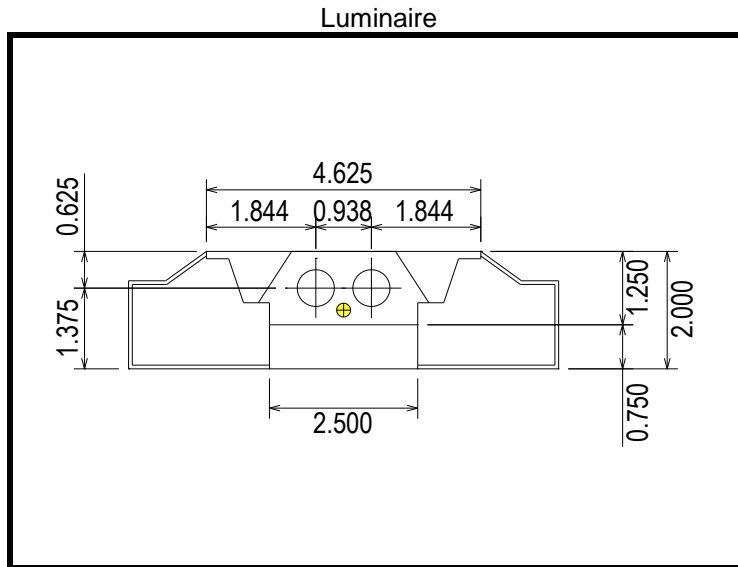
Approved By

Brian Moyer, Engineer

The results contained in this report pertain only to the tested sample.  
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Luminaire Description: Extruded aluminum housing, formed white enamel aluminum side reflectors, formed white enamel slotted aluminum upper reflector, formed semi-specular 29 cell, 3/4" deep aluminum louver  
 Catalog Number: DRS02-X-4-X-D46/PB-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 Ultra Save ER235120MHT



Zonal Lumen Summary

Zone (Degrees)	Lumens	% of Lamp	% of Luminaire
0-30	804	15.4%	21.6%
0-40	1329	25.5%	35.6%
0-60	2260	43.3%	60.6%
0-90	2421	46.4%	64.9%
90-180	1309	25.1%	35.1%
0-180	3731	71.5%	100.0%

Test Conditions

Test Temperature: 24.8 °C  
 Voltage: 120.0 VAC  
 Current: 0.5308 A  
 Power: 63.62 W  
 Power Factor: 0.999  
 Frequency: 60 Hz

Summary of Results

Luminaire Efficiency: 71.5 %

Spacing Criterion: 0 Degree: 1.20 90 Degree: 1.39  
 180 Degree: 1.20 270 Degree: 1.39

CIE Type: Semi-Direct

Shielding Angle: 0 Degree: 29.0° 90 Degree: 30.0°



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	1007	1007	1007	1007	1007	1007	1007	1007	1007	1007	1007	1007	1007	1007	1007	1007
5	998	1003	1009	1007	1010	1007	1009	1003	998	1003	1009	1007	1010	1007	1009	1003
10	981	989	1000	1001	1007	1001	1000	989	981	989	1000	1001	1007	1001	1000	989
15	950	962	981	989	998	989	981	962	950	962	981	989	998	989	981	962
20	910	927	953	991	1015	991	953	927	910	927	953	991	1015	991	953	927
25	863	883	933	998	1022	998	933	883	863	883	933	998	1022	998	933	883
30	807	833	915	957	975	957	915	833	807	833	915	957	975	957	915	833
35	742	779	866	889	911	889	866	779	742	779	866	889	911	889	866	779
40	668	721	787	809	833	809	787	721	668	721	787	809	833	809	787	721
45	583	653	698	724	762	724	698	653	583	653	698	724	762	724	698	653
50	477	557	595	660	707	660	595	557	477	557	595	660	707	660	595	557
55	324	407	470	514	543	514	470	407	324	407	470	514	543	514	470	407
60	141	210	314	335	342	335	314	210	141	210	314	335	342	335	314	210
65	34	55	134	186	220	186	134	55	34	55	134	186	220	186	134	55
70	15	18	32	90	137	90	32	18	15	18	32	90	137	90	32	18
75	7	9	11	23	37	23	11	9	7	9	11	23	37	23	11	9
80	3	4	5	8	11	8	5	4	3	4	5	8	11	8	5	4
85	1	1	2	2	3	2	2	1	1	1	2	2	3	2	2	1
90	1	5	5	7	5	7	5	5	1	5	5	7	5	7	5	5
95	16	32	28	24	18	24	28	32	16	32	28	24	18	24	28	32
100	40	75	77	71	60	71	77	75	40	75	77	71	60	71	77	75
105	67	112	127	133	119	133	127	112	67	112	127	133	119	133	127	112
110	97	148	170	187	173	187	170	148	97	148	170	187	173	187	170	148
115	128	172	214	229	224	229	214	172	128	172	214	229	224	229	214	172
120	160	196	253	268	267	268	253	196	160	196	253	268	267	268	253	196
125	189	218	280	305	304	305	280	218	189	218	280	305	304	305	280	218
130	217	238	293	332	332	332	293	238	217	238	293	332	332	332	293	238
135	243	258	307	340	346	340	307	258	243	258	307	340	346	340	307	258
140	268	279	316	345	348	345	316	279	268	279	316	345	348	345	316	279
145	290	298	325	350	356	350	325	298	290	298	325	350	356	350	325	298
150	308	313	332	350	357	350	332	313	308	313	332	350	357	350	332	313
155	324	327	342	352	358	352	342	327	324	327	342	352	358	352	342	327
160	339	340	349	356	359	356	349	340	339	340	349	356	359	356	349	340
165	351	350	356	358	360	358	356	350	351	350	356	358	360	358	356	350
170	358	357	359	359	360	359	359	357	358	357	359	359	360	359	359	357
175	362	361	363	361	362	361	363	361	362	361	363	361	362	361	363	361
180	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363

Zonal Lumen Tabulation (5 degree zones)

Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens	Zone (Degrees)	Lumens
0-5	24.1	45-50	260.7	90-95	7.6	135-140	113.3
5-10	71.6	50-55	231.5	95-100	24.7	140-145	106.2
10-15	117.0	55-60	169.7	100-105	49.3	145-150	96.7
15-20	159.3	60-65	93.6	105-110	72.4	150-155	85.0
20-25	199.1	65-70	43.2	110-115	90.7	155-160	72.2
25-30	233.0	70-75	16.5	115-120	104.6	160-165	58.0
30-35	256.3	75-80	5.2	120-125	114.6	165-170	42.3
35-40	268.2	80-85	1.9	125-130	119.0	170-175	25.8
40-45	269.3	85-90	1.0	130-135	118.2	175-180	8.7



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	0.8409	0.8409	0.8409	0.8409	0.7911	0.7911	0.7911	0.7911	0.7435	0.7435	0.7435	0.7435
1	0.7790	0.7470	0.7186	0.6931	0.7326	0.7050	0.6802	0.6580	0.6885	0.6648	0.6433	0.6239
2	0.7168	0.6608	0.6150	0.5769	0.6736	0.6249	0.5846	0.5507	0.6329	0.5906	0.5552	0.5251
3	0.6585	0.5860	0.5306	0.4870	0.6187	0.5551	0.5058	0.4666	0.5811	0.5254	0.4818	0.4466
4	0.6053	0.5216	0.4614	0.4159	0.5686	0.4949	0.4409	0.3996	0.5341	0.4692	0.4209	0.3835
5	0.5572	0.4665	0.4043	0.3590	0.5236	0.4432	0.3871	0.3456	0.4919	0.4208	0.3702	0.3324
6	0.5142	0.4195	0.3572	0.3130	0.4834	0.3991	0.3425	0.3019	0.4544	0.3794	0.3282	0.2909
7	0.4759	0.3793	0.3180	0.2756	0.4477	0.3614	0.3054	0.2662	0.4211	0.3440	0.2930	0.2568
8	0.4418	0.3448	0.2850	0.2445	0.4159	0.3288	0.2741	0.2364	0.3915	0.3134	0.2633	0.2284
9	0.4114	0.3150	0.2571	0.2186	0.3877	0.3008	0.2475	0.2116	0.3653	0.2870	0.2381	0.2047
10	0.3842	0.2891	0.2333	0.1966	0.3624	0.2763	0.2248	0.1905	0.3418	0.2640	0.2165	0.1845

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	0.6547	0.6547	0.6547	0.6547	0.5735	0.5735	0.5735	0.4989	0.4989	0.4989	0.4638
1	0.6068	0.5895	0.5736	0.5591	0.5203	0.5089	0.4983	0.4566	0.4486	0.4411	0.4108
2	0.5576	0.5260	0.4990	0.4758	0.4665	0.4463	0.4287	0.4114	0.3968	0.3837	0.3568
3	0.5118	0.4696	0.4356	0.4076	0.4180	0.3919	0.3700	0.3701	0.3505	0.3338	0.3096
4	0.4705	0.4206	0.3823	0.3520	0.3756	0.3457	0.3214	0.3337	0.3107	0.2916	0.2697
5	0.4337	0.3784	0.3377	0.3065	0.3389	0.3066	0.2812	0.3020	0.2767	0.2564	0.2364
6	0.4011	0.3421	0.3003	0.2692	0.3073	0.2736	0.2479	0.2746	0.2479	0.2269	0.2086
7	0.3722	0.3109	0.2689	0.2383	0.2800	0.2457	0.2202	0.2509	0.2233	0.2023	0.1855
8	0.3466	0.2840	0.2423	0.2126	0.2564	0.2220	0.1969	0.2304	0.2024	0.1815	0.1660
9	0.3239	0.2607	0.2197	0.1909	0.2359	0.2018	0.1774	0.2125	0.1845	0.1639	0.1496
10	0.3037	0.2403	0.2002	0.1725	0.2180	0.1844	0.1607	0.1969	0.1690	0.1490	0.1357

Average Luminance Table (cd/m<sup>2</sup>)

		Horizontal Angle (Degrees)		
		0	45	90
Vertical Angle (Degree)	0	14160	14160	14160
	45	11590	13860	15140
	55	7944	11510	13290
	65	1121	4454	7299
	75	394	582	1984
	85	191	477	477

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)

