



# 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

LTL NUMBER: 18435

DATE: 03-30-2010

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

CATALOG NUMBER: MLR-1-4-X-PBW-120-T5

LUMINAIRE: EXTRUDED ALUMINUM HOUSING WITH STEEL END CAPS, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, FORMED 31 CELL, 3/4" DEEP WHITE ENAMEL ALUMINUM LOUVER.

LAMP: ONE 28 WATT T5 LINEAR FLUORESCENT LAMP RATED AT 2610 LUMENS.

LAMP CATALOG NUMBER: PHILIPS F28T5/841

BALLAST: ONE UNIVERSAL LIGHTING TECHNOLOGIES "ACCU START" B228PUNV-C

MOUNTING: RECESSED

ELECTRICAL VALUES: 120.0VAC, 0.2568A, 30.73W

### Candela Distribution

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	794	794	794	794	794	794	794	794	794	794	794	794	794	794	794	794	
5	785	789	790	792	794	792	790	789	785	789	790	792	794	792	790	789	75.0
15	721	731	749	775	784	775	749	731	721	731	749	775	784	775	749	731	212.0
25	622	640	679	717	733	717	679	640	622	640	679	717	733	717	679	640	311.5
35	509	534	562	558	559	558	562	534	509	534	562	558	559	558	562	534	340.6
45	375	404	385	344	344	344	385	404	375	404	385	344	344	344	385	404	289.2
55	233	251	218	223	235	223	218	251	233	251	218	223	235	223	218	251	207.5
65	106	108	123	132	139	132	123	108	106	108	123	132	139	132	123	108	122.8
75	57	56	58	63	66	63	58	56	57	56	58	63	66	63	58	56	63.6
85	12	12	13	14	14	14	13	12	12	12	13	14	14	14	13	12	15.7
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

### Zonal Lumen Summary

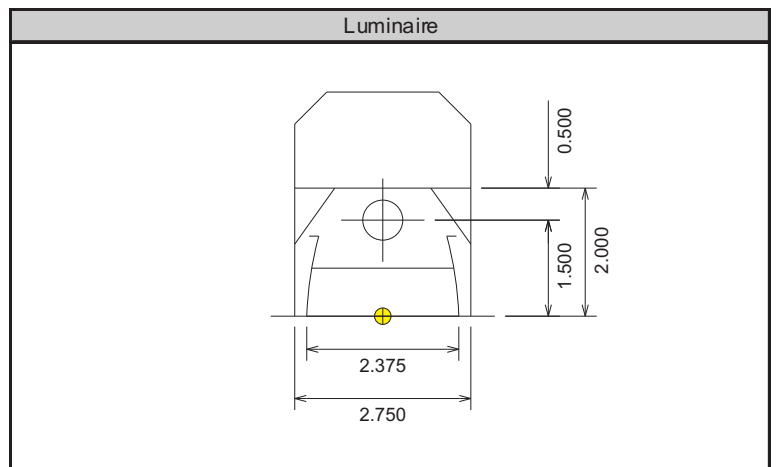
Zone	Lumens	% of Lamp	% of Luminaire
0-30	598.4	22.9%	36.5%
0-40	939.0	36.0%	57.3%
0-60	1435.7	55.0%	87.7%
0-90	1637.7	62.7%	100.0%
90-180	0.0	0.0%	0.0%
0-180	1637.7	62.7%	100.0%

Total luminaire efficiency: 62.7%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.08 90 deg: 1.22  
180 deg: 1.08 270 deg: 1.22

Shielding angle: 0 deg: 32 90 deg: 42



Approved By: \_\_\_\_\_

THIS REPORT BASED ON LM-41 AND OTHER PERTINENT IESNA PROCEDURES.



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Candela Tabulation (5 degree Vertical Increments)

	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	794	794	794	794	794	794	794	794	794	794	794	794	794	794	794	794
5	785	789	790	792	794	792	790	789	785	789	790	792	794	792	790	789
10	760	768	775	784	788	784	775	768	760	768	775	784	788	784	775	768
15	721	731	749	775	784	775	749	731	721	731	749	775	784	775	749	731
20	675	688	718	756	770	756	718	688	675	688	718	756	770	756	718	688
25	622	640	679	717	733	717	679	640	622	640	679	717	733	717	679	640
30	567	589	627	655	667	655	627	589	567	589	627	655	667	655	627	589
35	509	534	562	558	559	558	562	534	509	534	562	558	559	558	562	534
40	444	473	481	449	446	449	481	473	444	473	481	449	446	449	481	473
45	375	404	385	344	344	344	385	404	375	404	385	344	344	344	385	404
50	307	330	294	274	285	274	294	330	307	330	294	274	285	274	294	330
55	233	251	218	223	235	223	218	251	233	251	218	223	235	223	218	251
60	159	171	166	176	184	176	166	171	159	171	166	176	184	176	166	171
65	106	108	123	132	139	132	123	108	106	108	123	132	139	132	123	108
70	81	81	85	94	99	94	85	81	81	81	85	94	99	94	85	81
75	57	56	58	63	66	63	58	56	57	56	58	63	66	63	58	56
80	34	33	35	37	38	37	35	33	34	33	35	37	38	37	35	33
85	12	12	13	14	14	14	13	12	12	12	13	14	14	14	13	12
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	18.9	45-50	135.0	90-95	0.0	135-140	0.0
5-10	56.0	50-55	114.6	95-100	0.0	140-145	0.0
10-15	90.6	55-60	92.8	100-105	0.0	145-150	0.0
15-20	121.4	60-65	70.2	105-110	0.0	150-155	0.0
20-25	146.8	65-70	52.6	110-115	0.0	155-160	0.0
25-30	164.6	70-75	38.3	115-120	0.0	160-165	0.0
30-35	172.3	75-80	25.3	120-125	0.0	165-170	0.0
35-40	168.3	80-85	13.0	125-130	0.0	170-175	0.0
40-45	154.1	85-90	2.6	130-135	0.0	175-180	0.0



Coefficients of Utilization - Zonal Cavity Method												
Effective Floor Cavity Reflectance 20%												
Ceiling Cavity Reflectance	90				80				70			
	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	0.765	0.765	0.765	0.765	0.747	0.747	0.747	0.747	0.73	0.73	0.73	0.73
1	0.71	0.682	0.656	0.634	0.693	0.667	0.644	0.623	0.676	0.653	0.632	0.613
2	0.655	0.605	0.565	0.531	0.638	0.593	0.556	0.525	0.623	0.582	0.548	0.518
3	0.604	0.54	0.491	0.453	0.589	0.53	0.485	0.449	0.574	0.521	0.479	0.445
4	0.559	0.485	0.432	0.392	0.544	0.477	0.427	0.39	0.531	0.469	0.423	0.387
5	0.518	0.438	0.384	0.344	0.504	0.431	0.38	0.342	0.492	0.424	0.376	0.341
6	0.481	0.398	0.344	0.305	0.469	0.392	0.341	0.304	0.457	0.386	0.338	0.303
7	0.448	0.364	0.31	0.273	0.437	0.359	0.308	0.272	0.427	0.354	0.306	0.271
8	0.418	0.334	0.282	0.247	0.408	0.33	0.28	0.246	0.399	0.325	0.278	0.245
9	0.392	0.308	0.258	0.224	0.383	0.304	0.256	0.224	0.375	0.301	0.255	0.223
10	0.368	0.285	0.237	0.205	0.36	0.282	0.236	0.205	0.352	0.279	0.234	0.204

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.697	0.697	0.697	0.697	0.668	0.668	0.668	0.64	0.64	0.64	0.627
1	0.645	0.627	0.61	0.594	0.602	0.589	0.576	0.58	0.569	0.559	0.546
2	0.594	0.56	0.531	0.507	0.54	0.516	0.495	0.522	0.502	0.485	0.472
3	0.547	0.503	0.467	0.437	0.486	0.455	0.43	0.47	0.445	0.423	0.41
4	0.506	0.454	0.414	0.382	0.439	0.405	0.377	0.426	0.397	0.372	0.36
5	0.469	0.412	0.369	0.337	0.4	0.363	0.334	0.389	0.356	0.33	0.318
6	0.437	0.376	0.332	0.3	0.365	0.327	0.298	0.356	0.322	0.295	0.283
7	0.408	0.344	0.301	0.27	0.336	0.297	0.268	0.328	0.293	0.266	0.254
8	0.382	0.317	0.274	0.244	0.31	0.271	0.243	0.303	0.268	0.241	0.23
9	0.359	0.294	0.252	0.222	0.287	0.249	0.221	0.281	0.246	0.22	0.209
10	0.338	0.273	0.232	0.203	0.267	0.229	0.202	0.262	0.227	0.202	0.191

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

	0	45	90
0	9129	9129	9129
45	6097	6256	5593
55	4667	4369	4720
65	2898	3351	3778
75	2523	2593	2920
85	1574	1755	1907

THIS TEST WAS CONDUCTED USING RELATIVE PHOTOMETRY TECHNIQUES ACCORDING TO STANDARD IESNA PROCEDURES. THE USER MUST THEREFORE USE CAUTION IN THE FOLLOWING SITUATIONS: 1) THIS TEST WAS PERFORMED USING A SPECIFIC BALLAST/LAMP COMBINATION. EXTRAPOLATION OF THESE 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. 3) 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.

