



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: 18436

DATE: 03-30-2010

PREPARED FOR: PRECISION ARCHITECTURAL LIGHTING

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

LUMINAIRE: EXTRUDED ALUMINUM HOUSING WITH STEEL END CAPS, FORMED WHITE ENAMEL ALUMINUM REFLECTOR, CLEAR LINEAR PRISMATIC PLASTIC ENCLOSURE.

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, 0.2545A, 30.45W

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	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	
5	850	852	850	851	852	851	850	852	850	852	850	851	852	851	850	852	80.9
15	824	826	820	812	807	812	820	826	824	826	820	812	807	812	820	826	230.2
25	772	762	719	678	664	678	719	762	772	762	719	678	664	678	719	762	330.6
35	688	641	565	542	534	542	565	641	688	641	565	542	534	542	565	641	367.8
45	558	478	422	372	350	372	422	478	558	478	422	372	350	372	422	478	331.4
55	367	310	246	191	175	191	246	310	367	310	246	191	175	191	246	310	229.6
65	170	167	124	106	101	106	124	167	170	167	124	106	101	106	124	167	134.3
75	60	73	71	67	65	67	71	73	60	73	71	67	65	67	71	73	72.3
85	8	19	22	23	23	23	22	19	8	19	22	23	23	23	22	19	22.5
90	0	0	0	1	1	1	0	0	0	0	0	1	1	1	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	

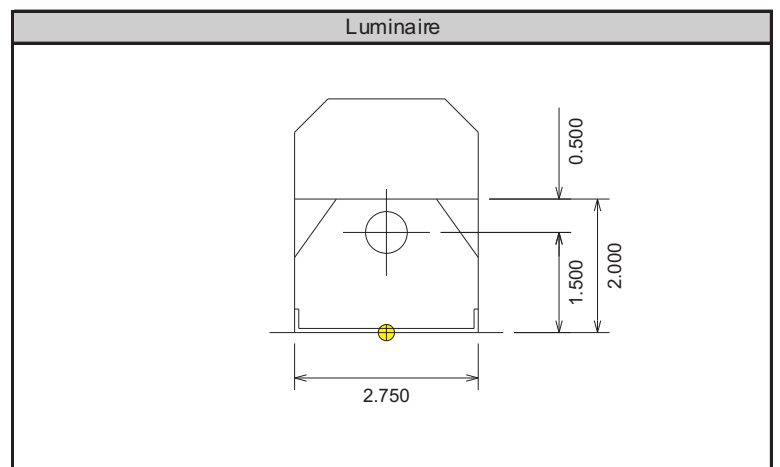
Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	641.8	24.6%	35.7%
0-40	1009.6	38.7%	56.1%
0-60	1570.5	60.2%	87.3%
0-90	1799.6	69.0%	100.0%
90-180	0.0	0.0%	0.0%
0-180	1799.6	69.0%	100.0%

Total luminaire efficiency: 69.0%

CIE Type: Direct

Spacing Criterion: 0 deg: 1.27 90 deg: 1.06
180 deg: 1.27 270 deg: 1.06



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	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855
5	850	852	850	851	852	851	850	852	850	852	850	851	852	851	850	852
10	840	843	840	841	841	841	840	843	840	843	840	841	841	841	840	843
15	824	826	820	812	807	812	820	826	824	826	820	812	807	812	820	826
20	802	800	780	755	744	755	780	800	802	800	780	755	744	755	780	800
25	772	762	719	678	664	678	719	762	772	762	719	678	664	678	719	762
30	735	710	641	603	594	603	641	710	735	710	641	603	594	603	641	710
35	688	641	565	542	534	542	565	641	688	641	565	542	534	542	565	641
40	630	559	500	466	448	466	500	559	630	559	500	466	448	466	500	559
45	558	478	422	372	350	372	422	478	558	478	422	372	350	372	422	478
50	469	396	335	274	250	274	335	396	469	396	335	274	250	274	335	396
55	367	310	246	191	175	191	246	310	367	310	246	191	175	191	246	310
60	264	232	173	139	131	139	173	232	264	232	173	139	131	139	173	232
65	170	167	124	106	101	106	124	167	170	167	124	106	101	106	124	167
70	102	114	94	85	83	85	94	114	102	114	94	85	83	85	94	114
75	60	73	71	67	65	67	71	73	60	73	71	67	65	67	71	73
80	30	43	48	43	42	43	48	43	30	43	48	43	42	43	48	43
85	8	19	22	23	23	23	22	19	8	19	22	23	23	23	22	19
90	0	0	0	1	1	1	0	0	0	0	0	1	1	1	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	20.4	45-50	156.0	90-95	0.0	135-140	0.0
5-10	60.5	50-55	128.8	95-100	0.0	140-145	0.0
10-15	98.5	55-60	100.7	100-105	0.0	145-150	0.0
15-20	131.6	60-65	76.7	105-110	0.0	150-155	0.0
20-25	157.0	65-70	57.5	110-115	0.0	155-160	0.0
25-30	173.7	70-75	42.8	115-120	0.0	160-165	0.0
30-35	183.1	75-80	29.6	120-125	0.0	165-170	0.0
35-40	184.7	80-85	16.8	125-130	0.0	170-175	0.0
40-45	175.4	85-90	5.7	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			
Wall Reflectance	70	50	30	10	70	50	30	10	70	50	30	10
Room Cavity Ratio (RCR)												
0	0.841	0.841	0.841	0.841	0.821	0.821	0.821	0.821	0.802	0.802	0.802	0.802
1	0.779	0.747	0.719	0.694	0.76	0.731	0.705	0.682	0.742	0.716	0.692	0.671
2	0.718	0.663	0.618	0.58	0.7	0.65	0.608	0.573	0.683	0.637	0.599	0.567
3	0.662	0.591	0.537	0.494	0.645	0.58	0.53	0.49	0.629	0.57	0.523	0.486
4	0.612	0.53	0.472	0.428	0.596	0.521	0.467	0.425	0.581	0.512	0.461	0.422
5	0.567	0.479	0.419	0.375	0.552	0.471	0.414	0.373	0.538	0.464	0.411	0.371
6	0.526	0.435	0.375	0.332	0.513	0.428	0.371	0.331	0.5	0.422	0.368	0.329
7	0.49	0.397	0.338	0.297	0.478	0.391	0.335	0.296	0.466	0.386	0.333	0.295
8	0.457	0.364	0.307	0.268	0.447	0.359	0.305	0.267	0.436	0.355	0.302	0.266
9	0.428	0.336	0.28	0.243	0.419	0.332	0.278	0.242	0.409	0.328	0.277	0.242
10	0.402	0.311	0.257	0.222	0.393	0.307	0.256	0.222	0.385	0.304	0.254	0.221

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	0.766	0.766	0.766	0.766	0.734	0.734	0.734	0.704	0.704	0.704	0.69
1	0.708	0.687	0.668	0.65	0.66	0.645	0.63	0.636	0.623	0.612	0.598
2	0.651	0.613	0.581	0.554	0.591	0.565	0.541	0.571	0.549	0.53	0.516
3	0.599	0.55	0.51	0.477	0.531	0.498	0.469	0.514	0.486	0.461	0.447
4	0.553	0.496	0.451	0.416	0.48	0.442	0.411	0.466	0.433	0.406	0.392
5	0.513	0.45	0.403	0.367	0.436	0.395	0.363	0.424	0.388	0.359	0.346
6	0.477	0.41	0.362	0.326	0.399	0.356	0.324	0.388	0.351	0.321	0.308
7	0.446	0.376	0.328	0.293	0.366	0.323	0.291	0.357	0.318	0.289	0.276
8	0.417	0.346	0.298	0.265	0.338	0.295	0.263	0.33	0.291	0.262	0.249
9	0.392	0.32	0.273	0.241	0.313	0.27	0.24	0.306	0.267	0.238	0.227
10	0.369	0.297	0.252	0.22	0.291	0.249	0.219	0.285	0.246	0.218	0.207

Average Luminance Table (cd/m²)

	0	45	90
0	9828	9828	9828
45	9077	6860	5686
55	7367	4926	3516
65	4616	3387	2754
75	2670	3150	2893
85	1113	2895	3075

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.

