



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: 21364 DATE: 11-02-2010
 PREPARED FOR: RENOVA LIGHTING
 CATALOG NUMBER: ECS-NVT4-MN-132-UNV-11L-CAL
 LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED "MIRO 4"
 SPECULAR ALUMINUM REFLECTOR, CLEAR LINEAR PRISMATIC
 ACRYLIC ENCLOSURE.
 LAMP: ONE 32 WATT T8 LINEAR FLUORESCENT LAMP RATED AT 2850 LUMENS.
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE1X32T8/UNV-ISL-SC
 MOUNTING: PENDANT
 ELECTRICAL VALUES: 120.0VAC, 0.2114A, 25.34W

Candela Distribution

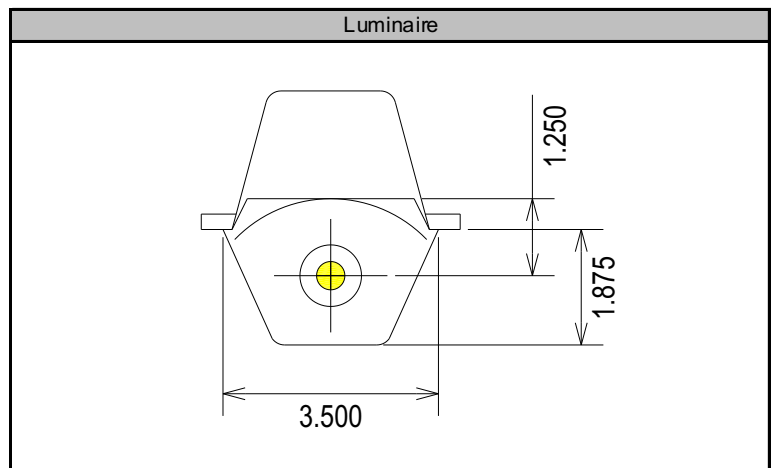
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	722	722	722	722	722	722	722	722	722	722	722	722	722	722	722	722	
5	718	713	719	716	718	716	719	713	718	713	719	716	718	716	719	713	68.1
15	684	684	703	704	705	704	703	684	684	684	703	704	705	704	703	684	196.4
25	618	636	668	669	673	669	668	636	618	636	668	669	673	669	668	636	299.2
35	528	555	581	546	514	546	581	555	528	555	581	546	514	546	581	555	340.7
45	420	482	416	364	375	364	416	482	420	482	416	364	375	364	416	482	323.4
55	298	348	295	339	362	339	295	348	298	348	295	339	362	339	295	348	296.2
65	177	195	267	329	366	329	267	195	177	195	267	329	366	329	267	195	264.4
75	72	130	247	344	377	344	247	130	72	130	247	344	377	344	247	130	251.2
85	11	101	233	314	341	314	233	101	11	101	233	314	341	314	233	101	223.8
90	3	80	194	270	297	270	194	80	3	80	194	270	297	270	194	80	
95	4	50	152	227	251	227	152	50	4	50	152	227	251	227	152	50	151.7
105	2	11	72	132	156	132	72	11	2	11	72	132	156	132	72	11	78.8
115	0	3	15	43	59	43	15	3	0	3	15	43	59	43	15	3	24.3
125	0	0	5	10	13	10	5	0	0	0	5	10	13	10	5	0	5.2
135	0	0	0	3	5	3	0	0	0	0	0	3	5	3	0	0	1.4
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
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	0

Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	563.8	19.8%	22.3%
0-40	904.5	31.7%	35.8%
0-60	1524.1	53.5%	60.4%
0-90	2263.5	79.4%	89.6%
90-180	261.6	9.2%	10.4%
0-180	2525.1	88.6%	100.0%

Total luminaire efficiency: 88.6%

CIE Type: Semi-Direct
 Spacing Criterion: 0 deg: 1.19 90 deg: 1.20
 180 deg: 1.19 270 deg: 1.20



Approved By: MG

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	722	722	722	722	722	722	722	722	722	722	722	722	722	722	722	722
5	718	713	719	716	718	716	719	713	718	713	719	716	718	716	719	713
10	705	704	707	715	719	715	707	704	705	704	707	715	719	715	707	704
15	684	684	703	704	705	704	703	684	684	684	703	704	705	704	703	684
20	654	663	678	698	703	698	678	663	654	663	678	698	703	698	678	663
25	618	636	668	669	673	669	668	636	618	636	668	669	673	669	668	636
30	575	601	632	610	590	610	632	601	575	601	632	610	590	610	632	601
35	528	555	581	546	514	546	581	555	528	555	581	546	514	546	581	555
40	476	525	502	429	415	429	502	525	476	525	502	429	415	429	502	525
45	420	482	416	364	375	364	416	482	420	482	416	364	375	364	416	482
50	360	428	334	353	370	353	334	428	360	428	334	353	370	353	334	428
55	298	348	295	339	362	339	295	348	298	348	295	339	362	339	295	348
60	236	274	276	340	353	340	276	274	236	274	276	340	353	340	276	274
65	177	195	267	329	366	329	267	195	177	195	267	329	366	329	267	195
70	122	155	251	333	359	333	251	155	122	155	251	333	359	333	251	155
75	72	130	247	344	377	344	247	130	72	130	247	344	377	344	247	130
80	32	114	250	353	383	353	250	114	32	114	250	353	383	353	250	114
85	11	101	233	314	341	314	233	101	11	101	233	314	341	314	233	101
90	3	80	194	270	297	270	194	80	3	80	194	270	297	270	194	80
95	4	50	152	227	251	227	152	50	4	50	152	227	251	227	152	50
100	2	26	113	178	201	178	113	26	2	26	113	178	201	178	113	26
105	2	11	72	132	156	132	72	11	2	11	72	132	156	132	72	11
110	1	6	36	87	108	87	36	6	1	6	36	87	108	87	36	6
115	0	3	15	43	59	43	15	3	0	3	15	43	59	43	15	3
120	0	0	9	17	24	17	9	0	0	0	9	17	24	17	9	0
125	0	0	5	10	13	10	5	0	0	0	5	10	13	10	5	0
130	0	0	2	7	8	7	2	0	0	0	2	7	8	7	2	0
135	0	0	0	3	5	3	0	0	0	0	0	3	5	3	0	0
140	0	0	0	2	2	2	0	0	0	0	0	2	2	2	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	17.1	45-50	158.2	90-95	85.6	135-140	0.4
5-10	51.0	50-55	151.0	95-100	66.1	140-145	0.2
10-15	83.5	55-60	145.2	100-105	47.7	145-150	0.0
15-20	113.0	60-65	135.0	105-110	31.1	150-155	0.0
20-25	139.5	65-70	129.4	110-115	16.9	155-160	0.0
25-30	159.7	70-75	126.1	115-120	7.4	160-165	0.0
30-35	170.4	75-80	125.1	120-125	3.3	165-170	0.0
35-40	170.4	80-85	119.2	125-130	1.9	170-175	0.0
40-45	165.3	85-90	104.6	130-135	1.0	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	1.069	1.069	1.069	1.069	1.033	1.033	1.033	1.033	0.998	0.998	0.998	0.998
1	0.951	0.891	0.838	0.79	0.914	0.86	0.811	0.768	0.879	0.83	0.786	0.746
2	0.859	0.766	0.689	0.625	0.824	0.739	0.669	0.611	0.791	0.714	0.65	0.596
3	0.781	0.668	0.581	0.513	0.749	0.646	0.566	0.502	0.718	0.624	0.551	0.492
4	0.715	0.59	0.5	0.432	0.685	0.571	0.487	0.424	0.656	0.553	0.475	0.416
5	0.657	0.526	0.436	0.371	0.63	0.51	0.426	0.364	0.604	0.494	0.416	0.358
6	0.607	0.473	0.385	0.323	0.582	0.459	0.377	0.318	0.558	0.446	0.369	0.313
7	0.562	0.429	0.344	0.285	0.54	0.417	0.337	0.281	0.519	0.405	0.33	0.277
8	0.523	0.391	0.309	0.254	0.503	0.38	0.303	0.25	0.483	0.37	0.297	0.247
9	0.489	0.358	0.28	0.228	0.47	0.349	0.275	0.225	0.452	0.34	0.27	0.222
10	0.458	0.331	0.256	0.207	0.441	0.322	0.251	0.204	0.425	0.314	0.247	0.202

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.933	0.933	0.933	0.933	0.874	0.874	0.874	0.82	0.82	0.82	0.794
1	0.814	0.774	0.739	0.706	0.723	0.694	0.667	0.676	0.653	0.631	0.605
2	0.729	0.667	0.614	0.568	0.623	0.579	0.541	0.583	0.547	0.515	0.489
3	0.661	0.584	0.522	0.471	0.547	0.495	0.451	0.512	0.469	0.432	0.407
4	0.604	0.518	0.452	0.4	0.486	0.43	0.384	0.456	0.409	0.37	0.346
5	0.556	0.465	0.397	0.345	0.437	0.379	0.333	0.411	0.361	0.321	0.299
6	0.515	0.42	0.353	0.303	0.396	0.338	0.293	0.374	0.323	0.283	0.262
7	0.479	0.383	0.316	0.268	0.362	0.304	0.26	0.342	0.291	0.252	0.232
8	0.448	0.351	0.286	0.24	0.333	0.275	0.233	0.315	0.264	0.226	0.208
9	0.42	0.323	0.26	0.216	0.307	0.251	0.211	0.292	0.242	0.205	0.187
10	0.395	0.299	0.239	0.197	0.285	0.23	0.192	0.272	0.222	0.187	0.17

Average Luminance Table (cd/m²)

	0	45	90
0	4028	4028	4028
45	3221	2709	2289
55	2780	2165	2446
65	2190	2323	2874
75	1375	2743	3658
85	490	3751	4521

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.

