



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: 21374 DATE: 12/08/2010
 PREPARED FOR: RENOVA LIGHTING
 CATALOG NUMBER: ECS-WVT4-MN-632-UNV-23L-CAL
 LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED "MIRO 4"
 SPECULAR ALUMINUM REFLECTOR, CLEAR ACRYLIC ENCLOSURE WITH
 CLEAR LINEAR PRISMATIC SIDES AND FROSTED ENDS.
 LAMP: SIX 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL835/ALTO
 BALLAST: TWO SYLVANIA "QUICKTRONIC" QHE3X32T8/UNV-ISL-SC
 MOUNTING: PENDANT
 ELECTRICAL VALUES: 120.0VAC, 1.111A, 133.2W

Candela Distribution

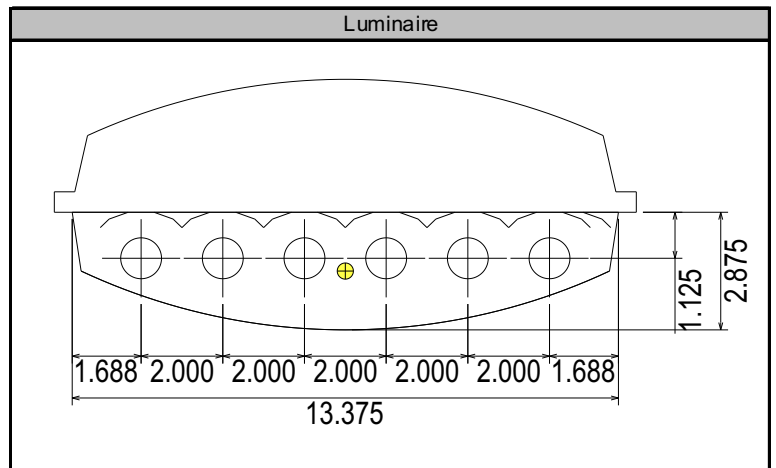
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	
5	4713	4705	4707	4684	4679	4684	4707	4705	4713	4705	4707	4684	4679	4684	4707	4705	443.5
15	4539	4464	4281	4103	4046	4103	4281	4464	4539	4464	4281	4103	4046	4103	4281	4464	1206.5
25	4204	3965	3645	3720	3814	3720	3645	3965	4204	3965	3645	3720	3814	3720	3645	3965	1772.3
35	3694	3278	3389	3480	3428	3480	3389	3278	3694	3278	3389	3480	3428	3480	3389	3278	2137.8
45	3045	2637	2813	2721	2791	2721	2813	2637	3045	2637	2813	2721	2791	2721	2813	2637	2155.2
55	2284	2091	2157	2544	2587	2544	2157	2091	2284	2091	2157	2544	2587	2544	2157	2091	2056.3
65	1442	1298	1713	1935	1996	1935	1713	1298	1442	1298	1713	1935	1996	1935	1713	1298	1653.4
75	599	780	1024	1162	1205	1162	1024	780	599	780	1024	1162	1205	1162	1024	780	1030.7
85	113	275	464	609	670	609	464	275	113	275	464	609	670	609	464	275	505.6
90	53	195	404	555	604	555	404	195	53	195	404	555	604	555	404	195	
95	53	164	282	376	413	376	282	164	53	164	282	376	413	376	282	164	304.5
105	51	93	188	273	309	273	188	93	51	93	188	273	309	273	188	93	195.5
115	28	52	133	190	216	190	133	52	28	52	133	190	216	190	133	52	123.8
125	14	21	68	110	133	110	68	21	14	21	68	110	133	110	68	21	62.7
135	8	9	30	54	64	54	30	9	8	9	30	54	64	54	30	9	25.7
145	5	5	10	21	26	21	10	5	5	5	10	21	26	21	10	5	8.5
155	0	0	0	5	9	5	0	0	0	0	0	5	9	5	0	0	1.2
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	3422.2	20.0%	25.0%
0-40	5560.1	32.5%	40.6%
0-60	9771.6	57.1%	71.4%
0-90	12961.3	75.8%	94.7%
90-180	721.8	4.2%	5.3%
0-180	13683.1	80.0%	100.0%

Total luminaire efficiency: 80.0%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.24 90 deg: 1.19
 180 deg: 1.24 270 deg: 1.19



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	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747	4747
5	4713	4705	4707	4684	4679	4684	4707	4705	4713	4705	4707	4684	4679	4684	4707	4705
10	4647	4617	4547	4454	4419	4454	4547	4617	4647	4617	4547	4454	4419	4454	4547	4617
15	4539	4464	4281	4103	4046	4103	4281	4464	4539	4464	4281	4103	4046	4103	4281	4464
20	4389	4248	3939	3802	3810	3802	3939	4248	4389	4248	3939	3802	3810	3802	3939	4248
25	4204	3965	3645	3720	3814	3720	3645	3965	4204	3965	3645	3720	3814	3720	3645	3965
30	3970	3640	3471	3726	3770	3726	3471	3640	3970	3640	3471	3726	3770	3726	3471	3640
35	3694	3278	3389	3480	3428	3480	3389	3278	3694	3278	3389	3480	3428	3480	3389	3278
40	3388	2935	3207	3053	3001	3053	3207	2935	3388	2935	3207	3053	3001	3053	3207	2935
45	3045	2637	2813	2721	2791	2721	2813	2637	3045	2637	2813	2721	2791	2721	2813	2637
50	2681	2376	2409	2657	2817	2657	2409	2376	2681	2376	2409	2657	2817	2657	2409	2376
55	2284	2091	2157	2544	2587	2544	2157	2091	2284	2091	2157	2544	2587	2544	2157	2091
60	1866	1708	2043	2212	2324	2212	2043	1708	1866	1708	2043	2212	2324	2212	2043	1708
65	1442	1298	1713	1935	1996	1935	1713	1298	1442	1298	1713	1935	1996	1935	1713	1298
70	1011	1034	1395	1553	1604	1553	1395	1034	1011	1034	1395	1553	1604	1553	1395	1034
75	599	780	1024	1162	1205	1162	1024	780	599	780	1024	1162	1205	1162	1024	780
80	292	491	695	828	885	828	695	491	292	491	695	828	885	828	695	491
85	113	275	464	609	670	609	464	275	113	275	464	609	670	609	464	275
90	53	195	404	555	604	555	404	195	53	195	404	555	604	555	404	195
95	53	164	282	376	413	376	282	164	53	164	282	376	413	376	282	164
100	59	121	231	324	360	324	231	121	59	121	231	324	360	324	231	121
105	51	93	188	273	309	273	188	93	51	93	188	273	309	273	188	93
110	39	71	158	229	257	229	158	71	39	71	158	229	257	229	158	71
115	28	52	133	190	216	190	133	52	28	52	133	190	216	190	133	52
120	20	35	97	155	181	155	97	35	20	35	97	155	181	155	97	35
125	14	21	68	110	133	110	68	21	14	21	68	110	133	110	68	21
130	11	13	48	76	87	76	48	13	11	13	48	76	87	76	48	13
135	8	9	30	54	64	54	30	9	8	9	30	54	64	54	30	9
140	6	7	18	34	42	34	18	7	6	7	18	34	42	34	18	7
145	5	5	10	21	26	21	10	5	5	5	10	21	26	21	10	5
150	0	1	1	12	16	12	1	1	0	1	1	12	16	12	1	1
155	0	0	0	5	9	5	0	0	0	0	0	5	9	5	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	112.9	45-50	1070.8	90-95	173.9	135-140	9.7
5-10	330.5	50-55	1058.4	95-100	130.6	140-145	5.6
10-15	523.3	55-60	997.8	100-105	108.5	145-150	3.0
15-20	683.2	60-65	898.6	105-110	86.9	150-155	1.0
20-25	821.8	65-70	754.8	110-115	69.8	155-160	0.1
25-30	950.5	70-75	599.3	115-120	54.0	160-165	0.0
30-35	1048.0	75-80	431.4	120-125	38.1	165-170	0.0
35-40	1089.8	80-85	286.9	125-130	24.6	170-175	0.0
40-45	1084.4	85-90	218.7	130-135	15.9	175-180	0.0



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	0.971	0.971	0.971	0.971	0.943	0.943	0.943	0.943	0.916	0.916	0.916	0.916
1	0.881	0.835	0.795	0.758	0.853	0.812	0.775	0.742	0.827	0.789	0.756	0.726
2	0.8	0.724	0.662	0.61	0.773	0.704	0.647	0.599	0.748	0.685	0.633	0.588
3	0.729	0.633	0.56	0.503	0.704	0.616	0.549	0.495	0.68	0.6	0.538	0.488
4	0.667	0.559	0.482	0.424	0.643	0.545	0.473	0.418	0.621	0.532	0.465	0.413
5	0.613	0.499	0.42	0.363	0.591	0.487	0.413	0.359	0.571	0.475	0.406	0.355
6	0.565	0.448	0.371	0.316	0.546	0.438	0.365	0.313	0.528	0.428	0.36	0.31
7	0.524	0.406	0.331	0.279	0.506	0.397	0.326	0.276	0.489	0.388	0.321	0.274
8	0.487	0.37	0.297	0.248	0.471	0.362	0.293	0.246	0.456	0.355	0.289	0.244
9	0.454	0.339	0.269	0.223	0.44	0.332	0.266	0.221	0.426	0.326	0.263	0.22
10	0.426	0.312	0.246	0.202	0.413	0.307	0.243	0.201	0.4	0.301	0.24	0.199

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	0.866	0.866	0.866	0.866	0.82	0.82	0.82	0.778	0.778	0.778	0.758
1	0.777	0.747	0.72	0.695	0.709	0.687	0.666	0.673	0.655	0.639	0.619
2	0.701	0.65	0.606	0.568	0.617	0.581	0.549	0.587	0.557	0.53	0.51
3	0.636	0.57	0.517	0.474	0.542	0.498	0.46	0.517	0.479	0.447	0.427
4	0.581	0.506	0.448	0.403	0.482	0.433	0.393	0.46	0.418	0.383	0.364
5	0.534	0.453	0.393	0.347	0.433	0.381	0.34	0.414	0.369	0.332	0.314
6	0.494	0.409	0.349	0.304	0.391	0.338	0.298	0.375	0.328	0.292	0.274
7	0.459	0.372	0.312	0.269	0.357	0.304	0.264	0.342	0.295	0.259	0.242
8	0.428	0.34	0.282	0.24	0.327	0.275	0.236	0.315	0.267	0.232	0.216
9	0.401	0.313	0.256	0.216	0.302	0.25	0.213	0.291	0.244	0.21	0.195
10	0.377	0.29	0.235	0.196	0.28	0.229	0.194	0.27	0.224	0.191	0.176

Average Luminance Table (cd/m²)

	0	45	90
0	11052	11052	11052
45	9526	7980	7746
55	8609	7038	8203
65	7106	6822	7657
75	4469	5450	6086
85	1841	3904	5183

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.

