



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: 21368 DATE: 11/11/2010
 PREPARED FOR: RENOVA LIGHTING
 CATALOG NUMBER: ECS-SVT4-MN-232-UNV-12L-CAL
 LUMINAIRE: MOLDED PLASTIC AND FORMED STEEL HOUSING, FORMED "MIRO 4"
 SPECULAR ALUMINUM REFLECTOR, CLEAR PATTERNED ACRYLIC ENCLOSURE.
 LAMP: TWO 32 WATT T8 LINEAR FLUORESCENT LAMPS RATED AT 2850 LUMENS EACH
 LAMP CATALOG NUMBER: PHILIPS F32T8/TL841/ALTO
 BALLAST: ONE SYLVANIA "QUICKTRONIC" QHE2X32T8/UNV-ISL-SC
 MOUNTING: PENDANT
 ELECTRICAL VALUES: 120.0VAC, 0.3990A, 47.81W

Candela Distribution

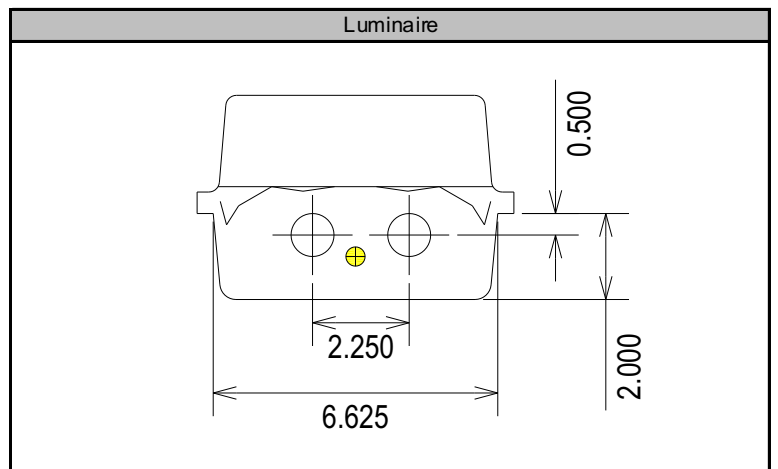
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	
5	1158	1156	1156	1148	1150	1148	1156	1156	1158	1156	1156	1148	1150	1148	1156	1156	109.3
15	1116	1100	1114	1156	1180	1156	1114	1100	1116	1100	1114	1156	1180	1156	1114	1100	321.8
25	1031	1028	1183	1318	1367	1318	1183	1028	1031	1028	1183	1318	1367	1318	1183	1028	546.1
35	904	971	1225	1312	1327	1312	1225	971	904	971	1225	1312	1327	1312	1225	971	721.4
45	739	889	1069	1112	1132	1112	1069	889	739	889	1069	1112	1132	1112	1069	889	771.7
55	542	713	831	889	902	889	831	713	542	713	831	889	902	889	831	713	705.0
65	347	488	601	691	730	691	601	488	347	488	601	691	730	691	601	488	575.1
75	181	291	442	557	595	557	442	291	181	291	442	557	595	557	442	291	445.2
85	50	159	319	420	453	420	319	159	50	159	319	420	453	420	319	159	314.6
90	20	113	247	344	377	344	247	113	20	113	247	344	377	344	247	113	
95	24	84	196	286	317	286	196	84	24	84	196	286	317	286	196	84	200.3
105	16	46	106	156	177	156	106	46	16	46	106	156	177	156	106	46	109.1
115	7	24	57	71	74	71	57	24	7	24	57	71	74	71	57	24	49.3
125	3	9	27	37	39	37	27	9	3	9	27	37	39	37	27	9	21.7
135	2	2	13	19	21	19	13	2	2	2	13	19	21	19	13	2	9.1
145	0	0	5	9	11	9	5	0	0	0	5	9	11	9	5	0	3.2
155	0	0	0	2	4	2	0	0	0	0	2	4	2	0	0	0	0.5
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	977.3	17.1%	19.9%
0-40	1698.7	29.8%	34.6%
0-60	3175.3	55.7%	64.8%
0-90	4510.2	79.1%	92.0%
90-180	393.2	6.9%	8.0%
0-180	4903.4	86.0%	100.0%

Total luminaire efficiency: 86.0%

CIE Type: Direct
 Spacing Criterion: 0 deg: 1.24 90 deg: 1.62
 180 deg: 1.24 270 deg: 1.62



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	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167
5	1158	1156	1156	1148	1150	1148	1156	1156	1158	1156	1156	1148	1150	1148	1156	1156
10	1143	1134	1127	1125	1131	1125	1127	1134	1143	1134	1127	1125	1131	1125	1127	1134
15	1116	1100	1114	1156	1180	1156	1114	1100	1116	1100	1114	1156	1180	1156	1114	1100
20	1079	1064	1138	1236	1280	1236	1138	1064	1079	1064	1138	1236	1280	1236	1138	1064
25	1031	1028	1183	1318	1367	1318	1183	1028	1031	1028	1183	1318	1367	1318	1183	1028
30	973	998	1222	1354	1390	1354	1222	998	973	998	1222	1354	1390	1354	1222	998
35	904	971	1225	1312	1327	1312	1225	971	904	971	1225	1312	1327	1312	1225	971
40	827	939	1173	1216	1230	1216	1173	939	827	939	1173	1216	1230	1216	1173	939
45	739	889	1069	1112	1132	1112	1069	889	739	889	1069	1112	1132	1112	1069	889
50	643	813	950	1006	1027	1006	950	813	643	813	950	1006	1027	1006	950	813
55	542	713	831	889	902	889	831	713	542	713	831	889	902	889	831	713
60	442	600	714	768	793	768	714	600	442	600	714	768	793	768	714	600
65	347	488	601	691	730	691	601	488	347	488	601	691	730	691	601	488
70	258	385	513	618	654	618	513	385	258	385	513	618	654	618	513	385
75	181	291	442	557	595	557	442	291	181	291	442	557	595	557	442	291
80	112	217	387	499	533	499	387	217	112	217	387	499	533	499	387	217
85	50	159	319	420	453	420	319	159	50	159	319	420	453	420	319	159
90	20	113	247	344	377	344	247	113	20	113	247	344	377	344	247	113
95	24	84	196	286	317	286	196	84	24	84	196	286	317	286	196	84
100	21	62	147	220	247	220	147	62	21	62	147	220	247	220	147	62
105	16	46	106	156	177	156	106	46	16	46	106	156	177	156	106	46
110	11	34	77	104	115	104	77	34	11	34	77	104	115	104	77	34
115	7	24	57	71	74	71	57	24	7	24	57	71	74	71	57	24
120	4	15	40	52	53	52	40	15	4	15	40	52	53	52	40	15
125	3	9	27	37	39	37	27	9	3	9	27	37	39	37	27	9
130	2	5	19	26	28	26	19	5	2	5	19	26	28	26	19	5
135	2	2	13	19	21	19	13	2	2	2	13	19	21	19	13	2
140	1	1	8	14	16	14	8	1	1	1	8	14	16	14	8	1
145	0	0	5	9	11	9	5	0	0	0	5	9	11	9	5	0
150	0	0	2	5	7	5	2	0	0	0	2	5	7	5	2	0
155	0	0	0	2	4	2	0	0	0	0	0	2	4	2	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	27.7	45-50	384.3	90-95	112.1	135-140	3.5
5-10	81.6	50-55	367.6	95-100	88.2	140-145	2.1
10-15	133.8	55-60	337.4	100-105	64.6	145-150	1.1
15-20	188.1	60-65	304.1	105-110	44.5	150-155	0.5
20-25	245.3	65-70	271.0	110-115	29.5	155-160	0.1
25-30	300.8	70-75	237.8	115-120	19.8	160-165	0.0
30-35	346.3	75-80	207.5	120-125	13.2	165-170	0.0
35-40	375.0	80-85	175.2	125-130	8.5	170-175	0.0
40-45	387.3	85-90	139.4	130-135	5.5	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	1.041	1.041	1.041	1.041	1.008	1.008	1.008	1.008	0.976	0.976	0.976	0.976
1	0.932	0.878	0.829	0.785	0.899	0.85	0.805	0.765	0.868	0.823	0.783	0.746
2	0.842	0.754	0.681	0.621	0.81	0.73	0.664	0.608	0.78	0.707	0.647	0.595
3	0.764	0.655	0.571	0.506	0.734	0.635	0.558	0.497	0.706	0.615	0.545	0.487
4	0.697	0.575	0.488	0.422	0.669	0.558	0.477	0.415	0.643	0.542	0.466	0.408
5	0.638	0.51	0.422	0.358	0.613	0.496	0.414	0.353	0.589	0.482	0.405	0.348
6	0.587	0.456	0.37	0.309	0.564	0.444	0.363	0.305	0.543	0.432	0.356	0.301
7	0.542	0.411	0.328	0.27	0.522	0.4	0.322	0.266	0.502	0.39	0.316	0.263
8	0.503	0.373	0.293	0.238	0.484	0.364	0.288	0.235	0.467	0.354	0.283	0.233
9	0.468	0.34	0.264	0.212	0.451	0.332	0.259	0.21	0.435	0.324	0.255	0.207
10	0.438	0.312	0.239	0.191	0.422	0.305	0.235	0.189	0.408	0.298	0.232	0.187

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.918	0.918	0.918	0.918	0.864	0.864	0.864	0.814	0.814	0.814	0.791
1	0.809	0.773	0.74	0.71	0.727	0.7	0.675	0.684	0.663	0.643	0.619
2	0.724	0.665	0.614	0.57	0.625	0.584	0.547	0.589	0.555	0.524	0.501
3	0.654	0.579	0.519	0.47	0.546	0.495	0.453	0.515	0.472	0.436	0.413
4	0.595	0.511	0.446	0.395	0.482	0.427	0.382	0.455	0.408	0.369	0.347
5	0.545	0.455	0.388	0.337	0.43	0.373	0.327	0.407	0.357	0.317	0.296
6	0.503	0.409	0.342	0.292	0.387	0.329	0.284	0.367	0.316	0.276	0.256
7	0.466	0.37	0.304	0.256	0.351	0.293	0.25	0.334	0.282	0.243	0.224
8	0.434	0.337	0.273	0.227	0.321	0.263	0.221	0.306	0.254	0.216	0.198
9	0.406	0.309	0.247	0.203	0.295	0.238	0.198	0.281	0.231	0.193	0.176
10	0.381	0.285	0.224	0.182	0.272	0.217	0.178	0.26	0.21	0.174	0.158

Average Luminance Table (cd/m²)

	0	45	90
0	5517	5517	5517
45	4771	5978	6036
55	4247	5295	5403
65	3597	4617	5175
75	2901	4450	5356
85	1921	4857	5843

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.

