



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: 21384 DATE: 12/01/2010
 PREPARED FOR: RENOVA LIGHTING SYSTEMS
 CATALOG NUMBER: ECS-SVW4-MN-132-UNV-11L-CRL
 LUMINAIRE: 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/TL835/ALTO
 BALLAST: ONE SYLVANIA QHE1X32T8/UNV-ISL-SC
 MOUNTING: SURFACE
 ELECTRICAL VALUES: 120.0VAC, 0.2165A, 25.82W

Candela Distribution

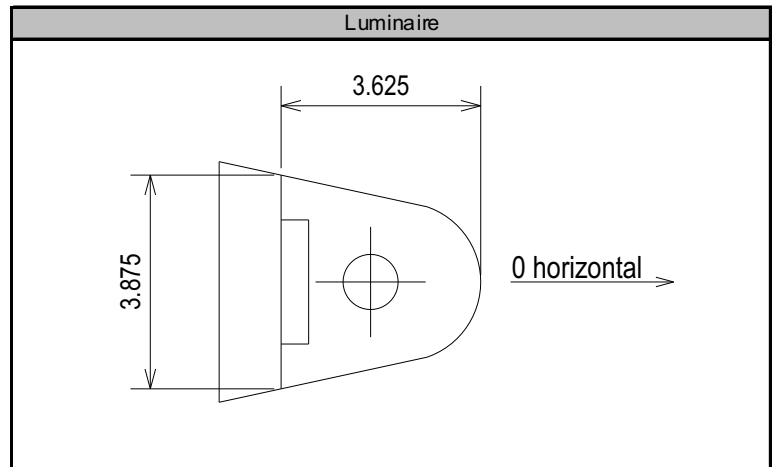
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	Flux
0	366	366	366	366	366	366	366	366	366	366	366	366	366	366	366	366	
5	365	364	366	365	363	366	368	366	367	366	368	366	363	365	366	364	34.8
15	369	365	361	355	352	355	353	347	345	347	353	355	352	355	361	365	100.3
25	396	384	360	337	329	324	302	271	254	271	302	324	329	337	360	384	151.6
35	459	432	371	314	294	267	208	170	162	170	208	267	294	314	371	432	185.8
45	526	488	393	293	245	183	132	119	107	119	132	183	245	293	393	488	209.1
55	541	498	391	261	177	106	83	57	47	57	83	106	177	261	391	498	208.7
65	511	462	345	197	100	54	41	27	19	27	41	54	100	197	345	462	184.5
75	456	409	282	121	38	17	15	5	2	5	15	17	38	121	282	409	148.4
85	415	377	250	75	6	1	1	1	2	1	1	1	6	75	250	377	126.0
90	402	369	245	69	0	0	0	1	1	1	0	0	0	69	245	369	
95	404	371	245	72	4	0	0	0	2	0	0	0	4	72	245	371	122.9
105	438	399	275	116	35	15	12	2	2	2	12	15	35	116	275	399	142.9
115	491	447	333	192	95	49	38	20	17	20	38	49	95	192	333	447	176.3
125	518	477	377	253	168	99	70	48	40	48	70	99	168	253	377	477	197.8
135	505	463	374	278	232	167	127	100	90	100	127	167	232	278	374	463	196.6
145	440	407	349	296	279	244	191	167	163	167	191	244	279	296	349	407	175.1
155	378	359	334	314	310	302	275	244	237	244	275	302	310	314	334	359	141.1
165	348	341	336	330	331	333	329	322	321	322	329	333	331	330	336	341	93.6
175	342	339	341	339	342	342	345	344	346	344	345	342	342	339	341	339	32.5
180	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	

Zonal Lumen Summary

Zone	Lumens	% of Lamp	% of Luminaire
0-30	286.8	10.1%	10.9%
0-40	472.6	16.6%	18.0%
0-60	890.3	31.2%	33.9%
0-90	1349.3	47.3%	51.3%
90-180	1278.9	44.9%	48.7%
0-180	2628.2	92.2%	100.0%

Total luminaire efficiency: 92.2%

CIE Type: Direct/Indirect
 Spacing Criterion: 0 deg: 2.03 90 deg: 1.27
 180 deg: 0.95 270 deg: 1.27



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	366	366	366	366	366	366	366	366	366	366	366	366	366	366	366	366
5	365	364	366	365	363	366	368	366	367	366	368	366	363	365	366	364
10	364	363	363	361	359	362	364	361	361	361	364	362	359	361	363	363
15	369	365	361	355	352	355	353	347	345	347	353	355	352	355	361	365
20	378	372	359	347	342	343	334	317	308	317	334	343	342	347	359	372
25	396	384	360	337	329	324	302	271	254	271	302	324	329	337	360	384
30	425	404	363	326	312	299	258	215	198	215	258	299	312	326	363	404
35	459	432	371	314	294	267	208	170	162	170	208	267	294	314	371	432
40	496	461	382	304	271	227	163	144	140	144	163	227	271	304	382	461
45	526	488	393	293	245	183	132	119	107	119	132	183	245	293	393	488
50	541	500	399	279	213	141	109	85	71	85	109	141	213	279	399	500
55	541	498	391	261	177	106	83	57	47	57	83	106	177	261	391	498
60	529	483	371	233	139	78	57	40	31	40	57	78	139	233	371	483
65	511	462	345	197	100	54	41	27	19	27	41	54	100	197	345	462
70	485	436	313	157	65	33	27	16	11	16	27	33	65	157	313	436
75	456	409	282	121	38	17	15	5	2	5	15	17	38	121	282	409
80	431	389	260	94	19	8	1	1	1	1	1	8	19	94	260	389
85	415	377	250	75	6	1	1	1	2	1	1	1	6	75	250	377
90	402	369	245	69	0	0	0	1	1	1	0	0	0	69	245	369
95	404	371	245	72	4	0	0	0	2	0	0	0	4	72	245	371
100	416	379	254	90	17	5	0	0	1	0	0	5	17	90	254	379
105	438	399	275	116	35	15	12	2	2	2	12	15	35	116	275	399
110	466	424	301	152	61	28	25	10	9	10	25	28	61	152	301	424
115	491	447	333	192	95	49	38	20	17	20	38	49	95	192	333	447
120	509	465	360	227	132	72	50	32	25	32	50	72	132	227	360	465
125	518	477	377	253	168	99	70	48	40	48	70	99	168	253	377	477
130	519	477	381	269	202	130	98	68	60	68	98	130	202	269	381	477
135	505	463	374	278	232	167	127	100	90	100	127	167	232	278	374	463
140	477	437	360	286	258	206	155	134	127	134	155	206	258	286	360	437
145	440	407	349	296	279	244	191	167	163	167	191	244	279	296	349	407
150	402	381	339	305	296	277	233	200	196	200	233	277	296	305	339	381
155	378	359	334	314	310	302	275	244	237	244	275	302	310	314	334	359
160	357	346	334	323	322	321	308	290	286	290	308	321	322	323	334	346
165	348	341	336	330	331	333	329	322	321	322	329	333	331	330	336	341
170	342	339	338	335	337	340	341	338	339	338	341	340	337	335	338	339
175	342	339	341	339	342	342	345	344	346	344	345	342	342	339	341	339
180	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342	342

Zonal Lumen Tabulation (5 degree zones)

Zone	Lumens	Zone	Lumens	Zone	Lumens	Zone	Lumens
0-5	8.8	45-50	106.3	90-95	60.5	135-140	96.7
5-10	26.1	50-55	106.1	95-100	62.4	140-145	91.2
10-15	42.6	55-60	102.6	100-105	67.3	145-150	83.9
15-20	57.7	60-65	96.4	105-110	75.5	150-155	75.4
20-25	70.7	65-70	88.2	110-115	84.2	155-160	65.6
25-30	81.0	70-75	78.5	115-120	92.1	160-165	53.8
30-35	89.2	75-80	69.9	120-125	97.6	165-170	39.8
35-40	96.5	80-85	64.4	125-130	100.3	170-175	24.4
40-45	102.8	85-90	61.7	130-135	99.9	175-180	8.2



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	1.07	1.07	1.07	1.07	0.991	0.991	0.991	0.991	0.916	0.916	0.916	0.916
1	0.96	0.905	0.855	0.811	0.885	0.837	0.794	0.755	0.814	0.772	0.735	0.701
2	0.869	0.779	0.706	0.645	0.799	0.721	0.657	0.602	0.733	0.665	0.609	0.561
3	0.789	0.678	0.594	0.527	0.725	0.628	0.553	0.494	0.664	0.58	0.514	0.46
4	0.72	0.596	0.507	0.44	0.66	0.552	0.473	0.412	0.605	0.51	0.44	0.385
5	0.659	0.528	0.438	0.373	0.604	0.489	0.409	0.35	0.553	0.453	0.381	0.328
6	0.605	0.471	0.383	0.32	0.556	0.437	0.358	0.301	0.509	0.405	0.334	0.282
7	0.558	0.423	0.338	0.278	0.513	0.394	0.316	0.262	0.47	0.365	0.295	0.246
8	0.517	0.383	0.3	0.244	0.475	0.356	0.282	0.23	0.436	0.331	0.263	0.216
9	0.48	0.348	0.269	0.216	0.442	0.325	0.253	0.204	0.406	0.302	0.237	0.192
10	0.448	0.318	0.242	0.193	0.413	0.297	0.228	0.182	0.38	0.277	0.214	0.171

Ceiling Cavity Reflectance	50				30			10			0
	70	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)											
0	0.775	0.775	0.775	0.775	0.647	0.647	0.647	0.529	0.529	0.529	0.473
1	0.682	0.651	0.623	0.597	0.54	0.519	0.5	0.437	0.422	0.409	0.359
2	0.611	0.56	0.517	0.48	0.464	0.432	0.404	0.375	0.351	0.331	0.287
3	0.552	0.489	0.438	0.396	0.404	0.366	0.334	0.326	0.298	0.274	0.235
4	0.502	0.431	0.376	0.333	0.357	0.315	0.281	0.288	0.257	0.231	0.197
5	0.46	0.383	0.327	0.283	0.318	0.275	0.24	0.258	0.225	0.198	0.168
6	0.423	0.344	0.287	0.245	0.286	0.242	0.208	0.233	0.199	0.173	0.145
7	0.392	0.311	0.255	0.214	0.26	0.216	0.183	0.212	0.178	0.152	0.127
8	0.364	0.282	0.228	0.189	0.237	0.193	0.162	0.194	0.16	0.135	0.113
9	0.34	0.258	0.205	0.168	0.217	0.175	0.144	0.179	0.145	0.121	0.101
10	0.319	0.237	0.186	0.151	0.2	0.159	0.13	0.165	0.133	0.109	0.091

Average Luminance Table (cd/m²)

	0	45	90
0	3296	3296	3296
45	3237	2847	3113
55	3356	2953	2784
65	3304	2799	2138
75	3173	2561	1325
85	3240	2677	604

Note: The zonal cavity calculation technique is accurate when luminaires with symmetric candela distributions are employed and when the luminaires are located symmetrically throughout the room. This unit has special characteristics and therefore these values should be used with caution.

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.

