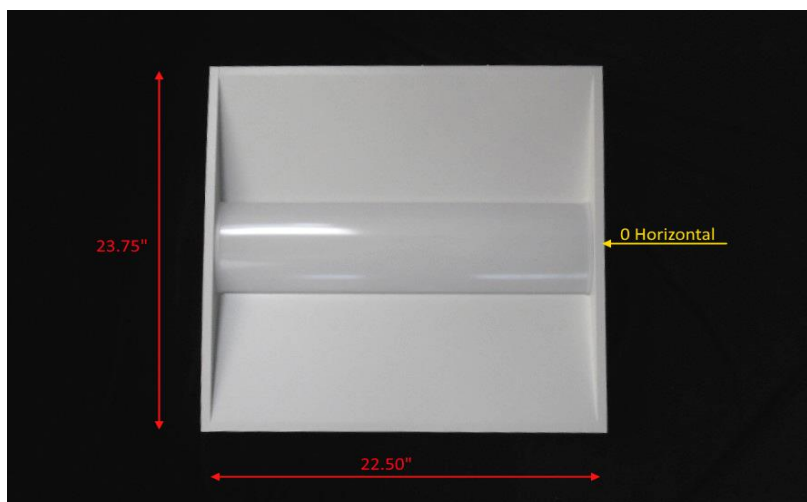


Report of Test

LLIA001406-001

Indoor Distribution Photometry Test Report

Catalog Number: F-VTC22/30/840/D-79
Recessed mounted, formed steel housing,
translucent white plastic center enclosure.
216 white LEDs, three LED boards with 72 LEDs each
One internal LED driver



Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

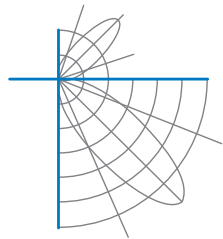
Performance Summary			
Input Voltage	120.0 V	Luminous Flux	3648.2 Lumens
Input Current	0.2546 A	Total Efficacy	126.2 Lm/W
Input Power	28.90 W	Downward Flux	3648.2 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.946		
Current THD	3.4 %		

This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 02/08/2021

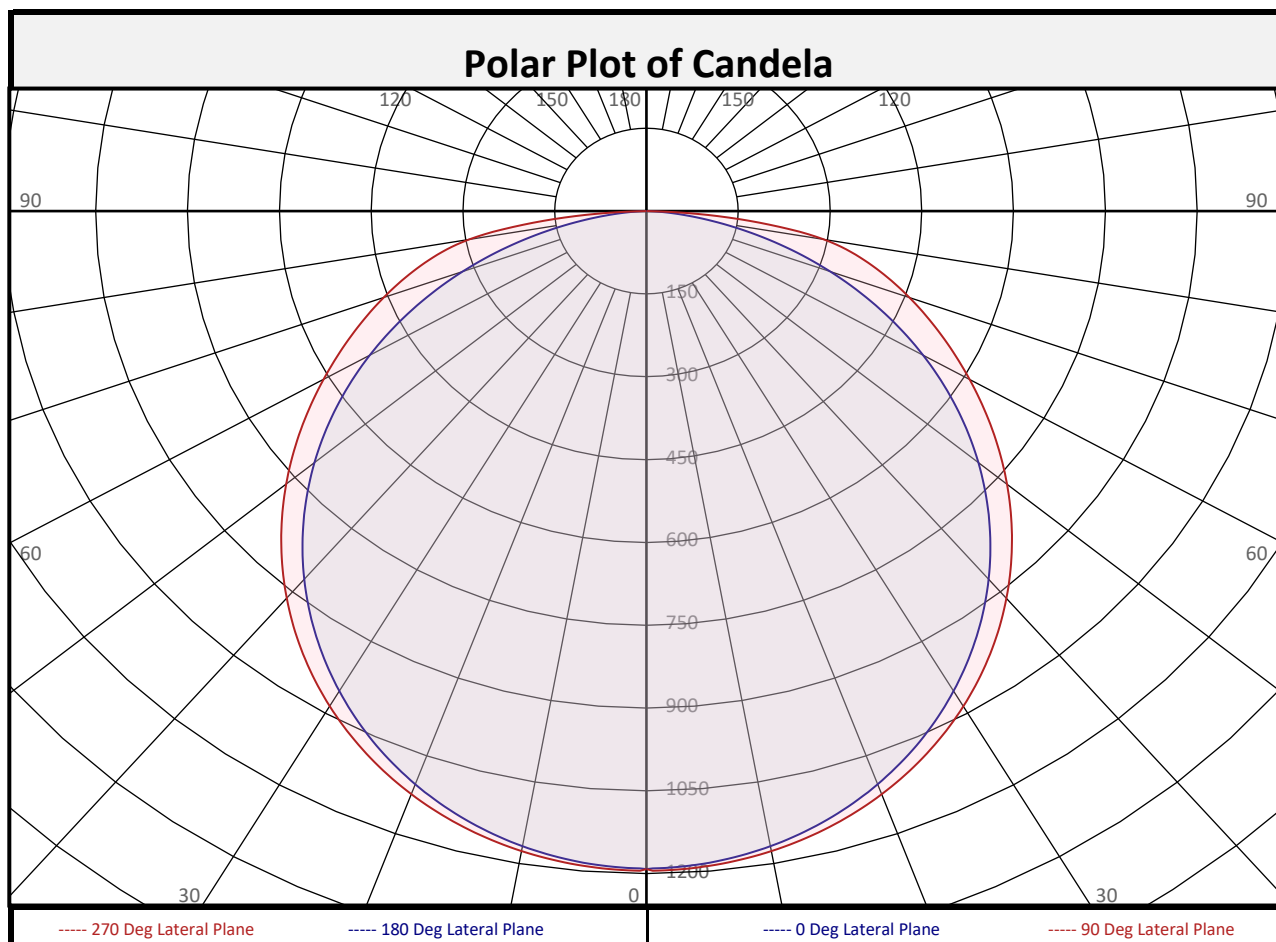
Report date: 02/09/2021

Signed: _____

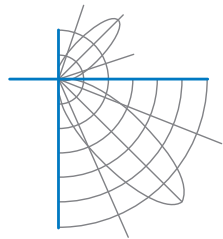


Report of Test

LLIA001406-001



Zonal Flux Summary											
Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total		Zone (Deg Vert)	Flux (Lumens)	Percent of Total	
0-10	112.9	3.1%		90-100	0.0	0.0%		0-20	436.8	12.0%	
10-20	323.9	8.9%		100-110	0.0	0.0%		0-30	930.6	25.5%	
20-30	493.8	13.5%		110-120	0.0	0.0%		0-40	1532	42.0%	
30-40	600.9	16.5%		120-130	0.0	0.0%		0-60	2750	75.4%	
40-50	632.4	17.3%		130-140	0.0	0.0%		0-80	3541	97.1%	
50-60	586.0	16.1%		140-150	0.0	0.0%		10-90	3535	96.9%	
60-70	473.1	13.0%		150-160	0.0	0.0%		20-50	1727	47.3%	
70-80	318.0	8.7%		160-170	0.0	0.0%		40-90	2117	58.0%	
80-90	107.2	2.9%		170-180	0.0	0.0%		60-90	898.2	24.6%	
0-90	3648	100.0%		90-180	0.0	0.0%		0-180	3648	100.0%	

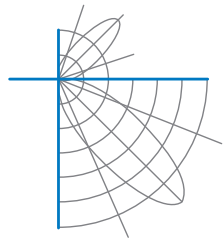


Report of Test

LLIA001406-001

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	1192	1192	1192	1192	1192	1192	1192	1192	1192
	2.5	1189	1189	1190	1192	1194	1192	1190	1189	1189
	5	1185	1185	1186	1189	1190	1189	1186	1185	1185
	7.5	1177	1178	1180	1183	1185	1183	1180	1178	1177
	10	1168	1169	1171	1175	1177	1175	1171	1169	1168
	12.5	1156	1157	1160	1165	1167	1165	1160	1157	1156
	15	1141	1143	1147	1152	1155	1152	1147	1143	1141
	17.5	1124	1126	1132	1137	1141	1137	1132	1126	1124
	20	1105	1107	1114	1120	1124	1120	1114	1107	1105
	22.5	1083	1086	1094	1101	1105	1101	1094	1086	1083
	25	1059	1062	1071	1080	1084	1080	1071	1062	1059
	27.5	1032	1037	1047	1057	1061	1057	1047	1037	1032
	30	1004	1009	1020	1031	1036	1031	1020	1009	1004
	32.5	973	979	992	1003	1008	1003	992	979	973
	35	941	947	961	974	979	974	961	947	941
	37.5	906	914	929	942	948	942	929	914	906
	40	870	878	894	909	915	909	894	878	870
	42.5	832	841	859	874	881	874	859	841	832
	45	792	802	821	838	845	838	821	802	792
	47.5	751	761	782	800	808	800	782	761	751
	50	708	720	742	761	769	761	742	720	708
	52.5	663	676	700	721	730	721	700	676	663
	55	618	631	657	680	690	680	657	631	618
	57.5	570	585	613	639	650	639	613	585	570
	60	522	538	568	597	610	597	568	538	522
	62.5	472	490	523	555	570	555	523	490	472
	65	422	441	478	515	532	515	478	441	422
	67.5	371	392	433	475	494	475	433	392	371
	70	319	342	389	436	457	436	389	342	319
	72.5	268	293	345	397	420	397	345	293	268
	75	216	244	303	358	382	358	303	244	216
	77.5	166	197	262	318	342	318	262	197	166
	80	119	152	221	273	293	273	221	152	119
	82.5	76	111	173	208	220	208	173	111	76
	85	40	70	107	126	135	126	107	70	40
	87.5	14	24	38	45	48	45	38	24	14
90	0	0	0	0	0	0	0	0	0	

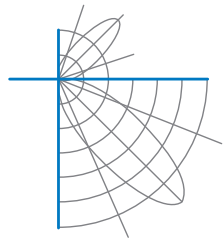


Report of Test

LLIA001406-001

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	90	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0
	137.5	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0
	142.5	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0
	147.5	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0
	152.5	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0
	157.5	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0
	162.5	0	0	0	0	0	0	0	0	0
	165	0	0	0	0	0	0	0	0	0
	167.5	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0
	172.5	0	0	0	0	0	0	0	0	0
	175	0	0	0	0	0	0	0	0	0
	177.5	0	0	0	0	0	0	0	0	0
	180	0	0	0	0	0	0	0	0	0



Report of Test

LLIA001406-001

Coefficients of Utilization/Room Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

RC	80					70					50					30					10				0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0			
RCR																									
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100			
1	108	103	98	94		105	100	96	92		96	93	89		92	89	87		89	86	84	82			
2	98	89	82	76		95	87	80	75		83	78	73		80	75	71		77	73	70	67			
3	89	78	69	62		86	76	68	62		73	66	61		70	64	60		68	63	58	56			
4	81	69	59	52		79	67	59	52		65	57	51		62	56	51		60	55	50	48			
5	74	61	52	45		72	60	51	45		58	50	44		56	49	44		54	48	43	41			
6	69	55	46	39		67	54	45	39		52	44	39		50	43	38		49	43	38	36			
7	64	50	41	34		62	49	40	34		47	40	34		46	39	34		44	38	33	31			
8	59	45	37	31		58	45	36	31		43	36	30		42	35	30		41	35	30	28			
9	55	42	33	28		54	41	33	27		40	32	27		39	32	27		38	32	27	25			
10	52	38	30	25		50	38	30	25		37	30	25		36	29	25		35	29	24	23			

For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

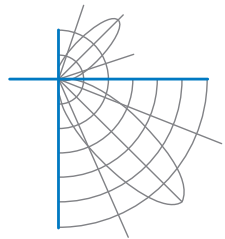
Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft)	
		0-180 deg	90-270 deg
6.0	33.1	7.51	7.75
8.0	18.6	10.02	10.33
10.0	11.9	12.52	12.91
12.0	8.3	15.03	15.49
14.0	6.1	17.53	18.07
16.0	4.7	20.04	20.65

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	3457	3457	3457
45	3249	3368	3465
55	3124	3322	3489
65	2895	3280	3651
75	2423	3397	4284
85	1340	3545	4493

Spacing Criterion

0 degree plane:	1.3
90 degree plane:	1.3
180 degree plane:	1.3
270 degree plane:	1.3



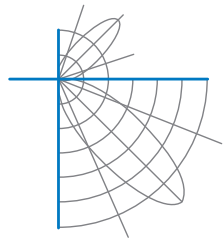
Report of Test

LLIA001406-001

UGR TABLE - CORRECTED

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	20.7	22.4	21.1	22.7	23.1	21.4	23.1	21.8	23.4	23.7
	3H	22.6	24.1	22.9	24.4	24.8	23.8	25.3	24.2	25.6	26.0
	4H	23.2	24.6	23.6	25.0	25.4	24.9	26.3	25.3	26.7	27.0
	6H	23.6	25.0	24.0	25.3	25.7	26.0	27.3	26.4	27.7	28.1
	8H	23.8	25.0	24.2	25.4	25.8	26.4	27.7	26.8	28.1	28.5
	12H	23.8	25.0	24.2	25.4	25.8	26.7	27.9	27.1	28.3	28.7
4H	2H	21.5	23.0	21.9	23.3	23.7	22.1	23.5	22.5	23.8	24.2
	3H	23.6	24.8	24.0	25.2	25.6	24.7	25.9	25.1	26.3	26.7
	4H	24.4	25.5	24.8	25.9	26.3	25.9	27.1	26.4	27.5	27.9
	6H	25.0	25.9	25.4	26.4	26.8	27.2	28.2	27.7	28.7	29.1
	8H	25.1	26.0	25.6	26.5	26.9	27.8	28.7	28.2	29.1	29.6
	12H	25.2	26.0	25.7	26.5	27.0	28.1	28.9	28.6	29.4	29.9
8H	4H	24.9	25.9	25.4	26.3	26.8	26.3	27.2	26.8	27.7	28.1
	6H	25.7	26.5	26.2	26.9	27.4	27.8	28.5	28.3	29.0	29.5
	8H	26.0	26.6	26.5	27.1	27.6	28.4	29.1	28.9	29.6	30.1
	12H	26.1	26.7	26.6	27.2	27.8	28.9	29.5	29.4	30.0	30.6
12H	4H	25.1	25.9	25.6	26.4	26.9	26.3	27.2	26.8	27.6	28.1
	6H	25.9	26.6	26.5	27.1	27.6	27.9	28.6	28.4	29.0	29.6
	8H	26.3	26.9	26.8	27.4	27.9	28.6	29.2	29.1	29.7	30.2

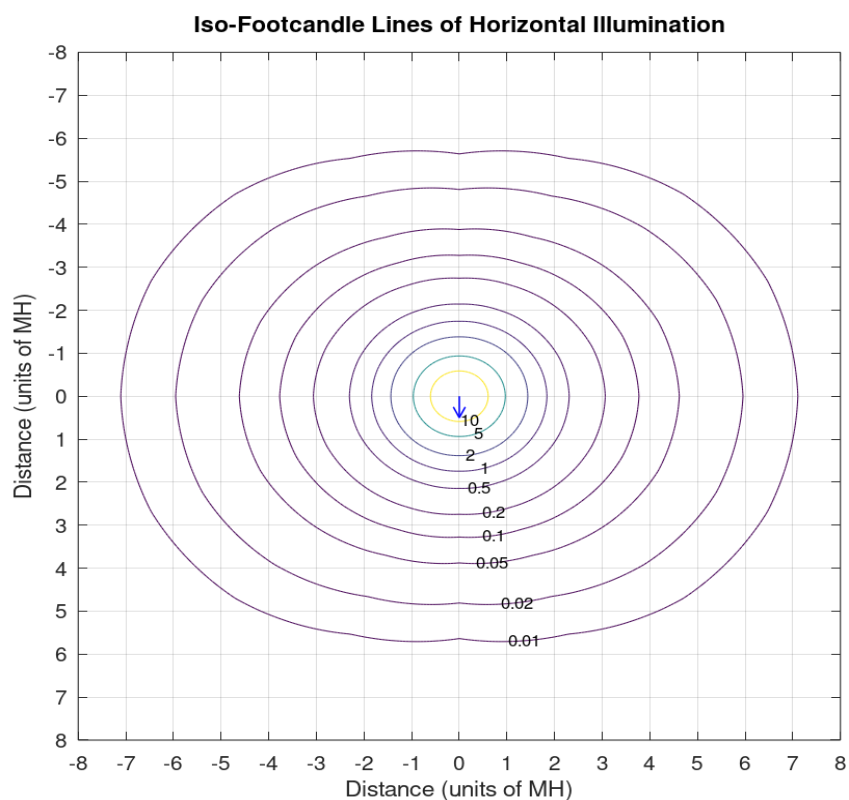
Maximum UGR = 30.6



Report of Test

LLIA001406-001

Iso-Illuminance Plot



The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.

Report of Test

LLIA001406-001

Test Distance 9.5 m
Ambient Temperature 25.0 °C

Notes

The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of IES LM-79-19. Format of reports and angular increments based on IES LM-41-14 and LM-46-04.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE C-Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with ‡ are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.