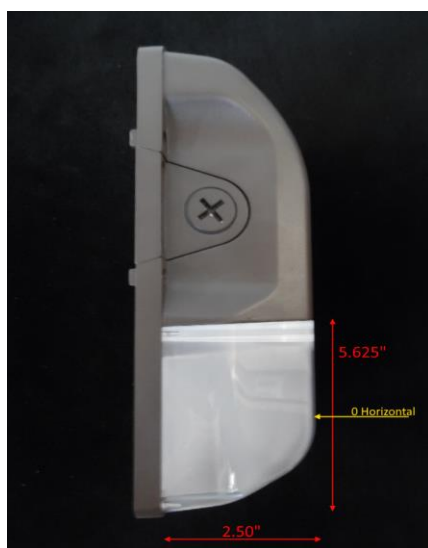


Report of Test

LLIA001306-003

Indoor Distribution Photometry Test Report

Catalog Number: F-WPC/30W/CTS/BZ-96 - 4000K Setting
Surface mounted, cast aluminum housing, formed white enamel
aluminum reflector, clear linear prismatic lens with frosted side sections.
120 white LEDs, one MWP03-30W-15C4B*2-2835-A0 LED board
One HB-LPG030G-52 LED Driver



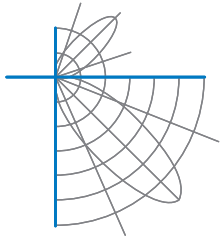
Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	3943.5 Lumens
Input Current	0.2269 A	Total Efficacy	146.1 Lm/W
Input Power	27.00 W	Downward Flux	3530.2 Lumens
Frequency	60.00 Hz	Downward Flux	89.5 % of Total
Power Factor	0.992		
Current THD	8.2 %		

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

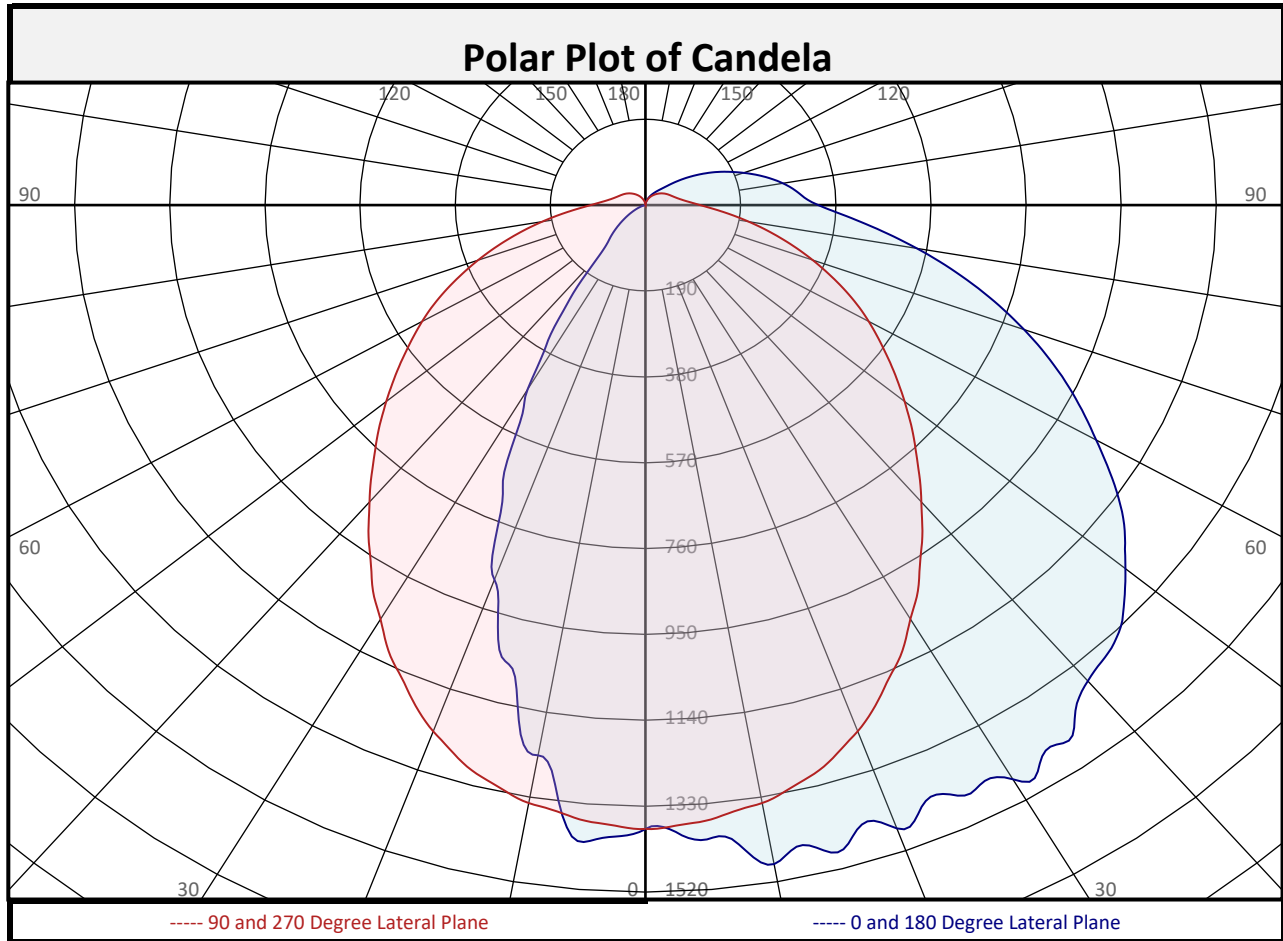
Test date: 08/25/2020
Report date: 08/26/2020

Signed: _____



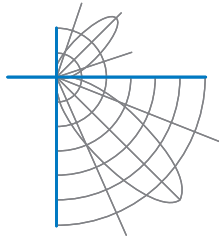
Report of Test

LLIA001306-003



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	131.8	3.3%	90-100	135.5	3.4%	0-20	495.9	12.6%
10-20	364.1	9.2%	100-110	102.3	2.6%	0-30	1004	25.5%
20-30	508.0	12.9%	110-120	73.4	1.9%	0-40	1559	39.5%
30-40	554.9	14.1%	120-130	48.0	1.2%	0-60	2595	65.8%
40-50	538.0	13.6%	130-140	28.3	0.7%	0-80	3329	84.4%
50-60	497.8	12.6%	140-150	15.7	0.4%	10-90	3398	86.2%
60-70	422.0	10.7%	150-160	7.3	0.2%	20-50	1601	40.6%
70-80	312.6	7.9%	160-170	2.4	0.1%	40-90	1971	50.0%
80-90	201.0	5.1%	170-180	0.3	0.0%	60-90	935.7	23.7%
0-90	3530	89.5%	90-180	413.3	10.5%	0-180	3944	100.0%

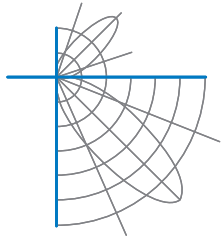


Report of Test

LLIA001306-003

Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	1381	1381	1381	1381	1381	1381	1381	1381	1381
	2.5	1388	1387	1379	1372	1375	1383	1390	1395	1398
	5	1409	1410	1399	1372	1368	1383	1392	1407	1414
	7.5	1427	1411	1399	1377	1353	1373	1399	1357	1329
	10	1481	1468	1395	1375	1344	1365	1334	1235	1236
	12.5	1451	1446	1430	1361	1324	1361	1228	1209	1167
	15	1483	1455	1419	1334	1303	1333	1203	1074	1052
	17.5	1437	1441	1379	1316	1273	1280	1126	1026	979
	20	1468	1405	1377	1299	1239	1204	1020	916	881
	22.5	1441	1428	1336	1275	1199	1131	975	852	770
	25	1439	1370	1285	1241	1153	1075	891	721	673
	27.5	1446	1375	1283	1184	1111	1023	817	636	542
	30	1467	1351	1234	1135	1058	958	747	518	469
	32.5	1465	1365	1193	1094	1012	879	643	443	368
	35	1454	1329	1177	1051	957	808	568	351	286
	37.5	1410	1304	1131	988	909	750	492	281	207
	40	1374	1246	1113	931	857	703	419	213	136
	42.5	1358	1205	1065	891	809	654	367	152	110
	45	1337	1178	1015	853	763	603	314	120	97
	47.5	1296	1150	968	801	719	557	274	105	84
50	1251	1111	916	761	675	519	236	92	71	
52.5	1207	1072	876	731	633	482	206	79	59	
55	1157	1031	838	694	592	445	178	68	49	
57.5	1099	985	798	661	553	409	157	58	39	
60	1039	933	756	626	515	375	140	48	31	
62.5	983	883	711	587	476	343	126	40	24	
65	925	833	666	547	436	312	112	33	19	
67.5	866	781	624	501	395	280	99	27	13	
70	804	725	581	453	355	250	87	21	10	
72.5	741	668	536	410	316	220	76	17	6	
75	676	610	490	373	278	191	67	13	4	
77.5	613	552	443	336	243	165	58	11	2	
80	549	496	397	300	209	141	51	8	1	
82.5	488	442	353	266	178	120	45	7	0	
85	432	392	313	234	150	103	41	7	0	
87.5	383	349	278	207	128	89	37	6	0	
90	345	315	250	184	110	77	34	6	0	

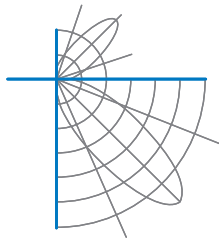


Report of Test

LLIA001306-003

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	345	315	250	184	110	77	34	6	0
	92.5	321	293	231	167	96	68	32	6	0
	95	307	279	217	154	86	61	30	5	0
	97.5	293	266	205	143	78	56	28	5	0
	100	278	252	193	134	72	52	27	5	0
	102.5	261	237	182	126	68	49	25	5	0
	105	244	221	171	118	64	46	25	5	0
	107.5	226	205	160	111	60	45	24	5	0
	110	208	189	150	105	58	43	23	5	0
	112.5	191	174	140	99	55	42	22	5	0
	115	174	160	130	93	53	41	22	5	0
	117.5	158	145	120	87	51	40	21	5	0
	120	141	130	110	81	49	39	21	5	0
	122.5	125	116	101	76	47	37	20	5	0
	125	109	103	92	71	45	36	19	5	0
	127.5	95	90	83	66	43	34	19	5	0
	130	81	78	75	61	41	33	18	5	0
	132.5	68	68	68	56	38	31	17	5	0
	135	58	60	62	52	36	29	16	5	0
	137.5	50	53	56	48	34	27	15	4	0
	140	44	48	51	44	31	25	14	4	0
	142.5	39	43	46	40	29	23	13	4	0
	145	35	38	41	36	27	21	12	3	0
	147.5	31	34	37	33	25	19	10	3	0
150	28	30	33	29	23	17	10	3	0	
152.5	25	27	29	26	20	16	8	3	0	
155	21	23	26	23	18	14	7	2	0	
157.5	18	20	22	20	16	12	6	2	0	
160	16	17	19	17	14	10	5	2	0	
162.5	13	14	16	14	12	9	5	2	0	
165	10	11	13	12	10	7	4	2	0	
167.5	8	9	10	9	8	6	3	2	0	
170	6	7	7	7	6	4	3	2	0	
172.5	5	5	5	5	4	3	2	1	0	
175	3	3	3	3	3	2	2	1	0	
177.5	1	1	2	1	2	2	1	1	0	
180	0	0	0	0	0	0	0	0	0	



Report of Test

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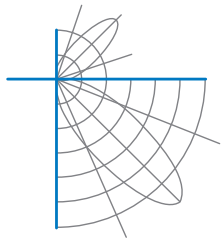
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																						
Effective Floor Cavity Reflectance 0.20																						
RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	117	117	117	117		113	113	113	113		105	105	105		99	99	99		92	92	92	90
1	105	100	95	91		101	96	92	88		90	87	83		84	82	79		79	77	75	72
2	95	86	79	73		91	84	77	71		78	73	68		73	69	65		69	65	62	59
3	87	76	67	61		83	73	66	60		69	62	57		65	59	55		61	56	53	50
4	79	67	58	52		76	65	57	51		61	54	49		58	52	47		55	49	45	43
5	73	60	51	45		70	59	50	44		55	48	42		52	46	41		49	44	40	37
6	68	54	45	39		65	53	45	38		50	43	37		47	41	36		45	39	35	33
7	63	49	41	35		61	48	40	34		46	38	33		43	37	32		41	36	31	29
8	59	45	37	31		56	44	36	31		42	35	30		40	34	29		38	32	28	26
9	55	42	33	28		53	41	33	28		39	32	27		37	31	26		35	30	26	24
10	51	38	31	25		50	38	30	25		36	29	25		34	28	24		33	27	23	22

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	
10.0	13.8	11.64	11.50	
12.0	9.6	13.97	13.81	
14.0	7.0	16.29	16.11	
16.0	5.4	18.62	18.41	
18.0	4.3	20.95	20.71	
20.0	3.5	23.28	23.01	

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	152174	152174	152174
45	90595	67945	75336
55	77856	55571	62302
65	63700	45157	50780
75	49209	35031	37574
85	34465	24474	25026

Spacing Criterion	
0 degree plane:	1.6
90 degree plane:	1.2
180 degree plane:	0.8
270 degree plane:	1.2



Report of Test

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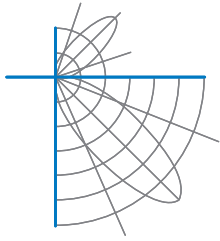
UGR TABLE - CORRECTED

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	28.6	30.1	29.2	30.6	31.2	23.5	25.0	24.1	25.5	26.1
	3H	30.9	32.2	31.4	32.7	33.3	25.2	26.5	25.7	27.0	27.6
	4H	31.9	33.1	32.4	33.6	34.3	25.8	27.0	26.3	27.5	28.2
	6H	32.7	33.9	33.3	34.4	35.1	26.3	27.4	26.8	27.9	28.6
	8H	33.1	34.2	33.7	34.8	35.4	26.4	27.5	27.0	28.1	28.7
	12H	33.4	34.5	34.0	35.0	35.7	26.6	27.6	27.2	28.2	28.9
4H	2H	28.9	30.1	29.4	30.6	31.3	24.2	25.5	24.8	26.0	26.7
	3H	31.3	32.4	31.9	33.0	33.6	26.1	27.1	26.6	27.7	28.4
	4H	32.5	33.4	33.1	34.0	34.7	26.8	27.8	27.4	28.4	29.0
	6H	33.5	34.3	34.1	35.0	35.7	27.4	28.2	28.0	28.9	29.6
	8H	34.0	34.7	34.6	35.4	36.1	27.6	28.4	28.3	29.1	29.8
	12H	34.4	35.1	35.0	35.8	36.5	27.8	28.6	28.5	29.2	29.9
8H	4H	32.6	33.4	33.2	34.0	34.7	27.3	28.1	27.9	28.7	29.4
	6H	33.8	34.4	34.4	35.1	35.8	28.1	28.7	28.7	29.4	30.1
	8H	34.3	34.9	35.0	35.6	36.3	28.4	29.0	29.1	29.7	30.4
	12H	34.9	35.4	35.6	36.1	36.9	28.7	29.2	29.4	29.9	30.7
12H	4H	32.6	33.3	33.2	33.9	34.7	27.4	28.1	28.1	28.8	29.5
	6H	33.8	34.4	34.5	35.0	35.8	28.3	28.8	28.9	29.5	30.3
	8H	34.4	34.9	35.1	35.6	36.4	28.6	29.2	29.3	29.8	30.6

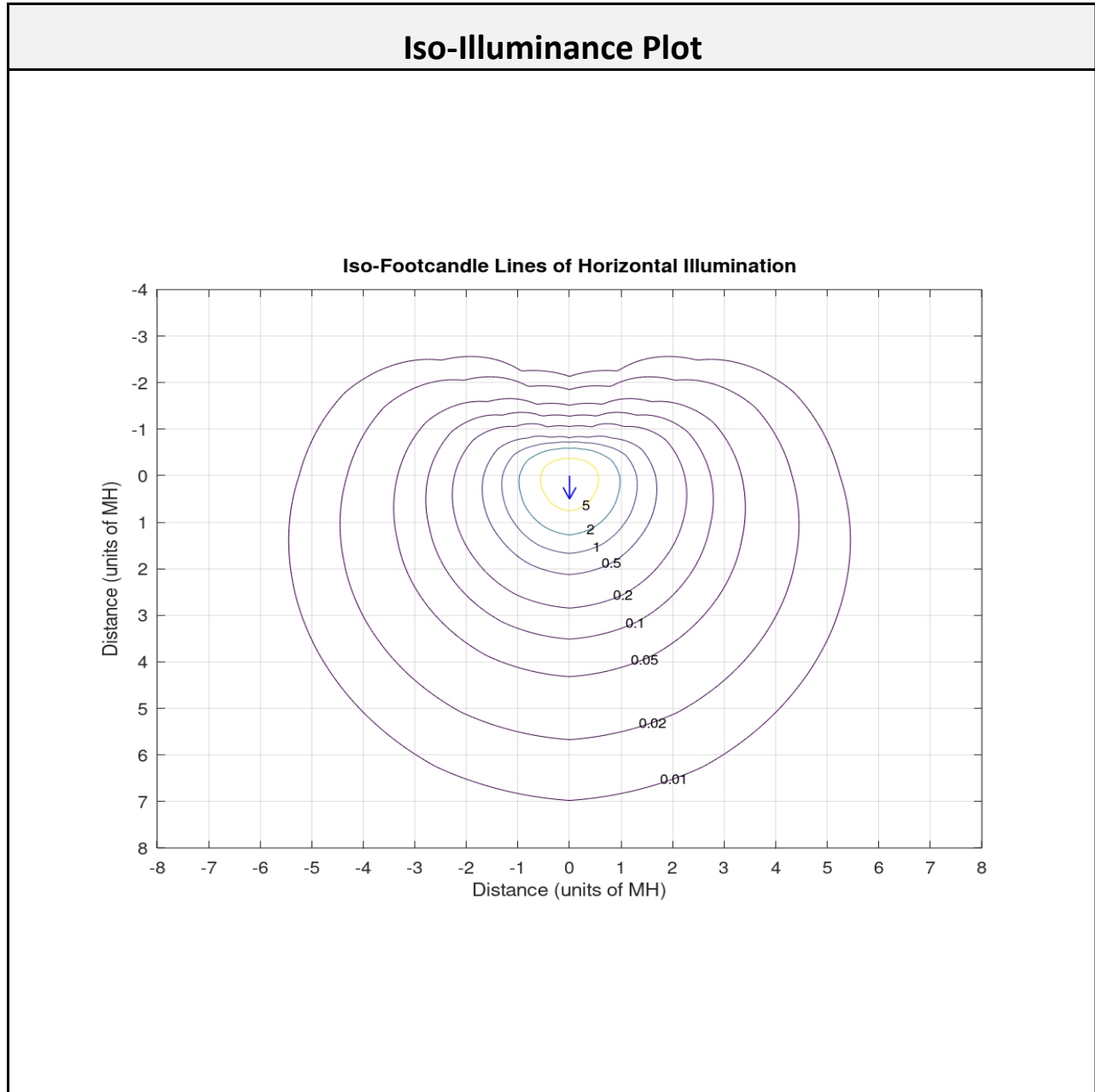
Maximum UGR = 36.9



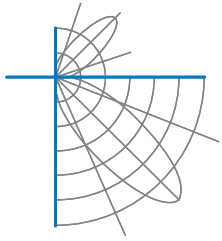
Report of Test

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Iso-Illuminance Plot

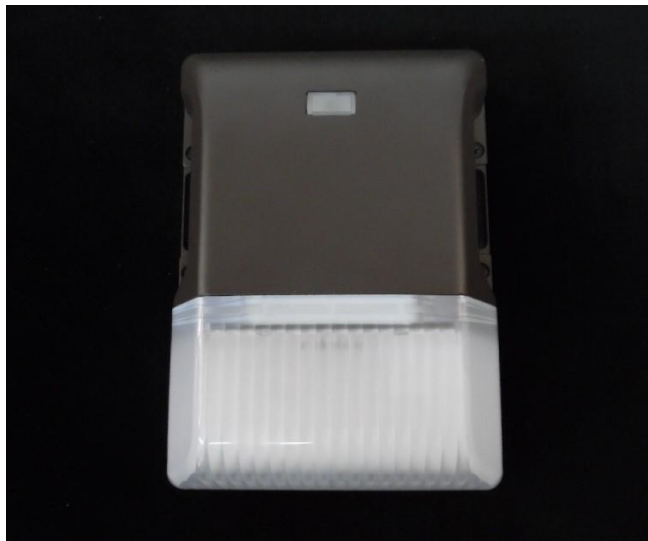


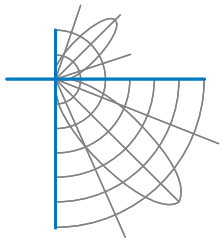
The isofootcandle values shown in the plot above are based on a mounting height of $h = 12.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.



Report of Test
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Additional Pictures of Test Subject





Report of Test

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Test Distance 9.5 m
Ambient Temperature 25.5 °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.