LightLab INTERNATIONAL ALLENTOWN LLC

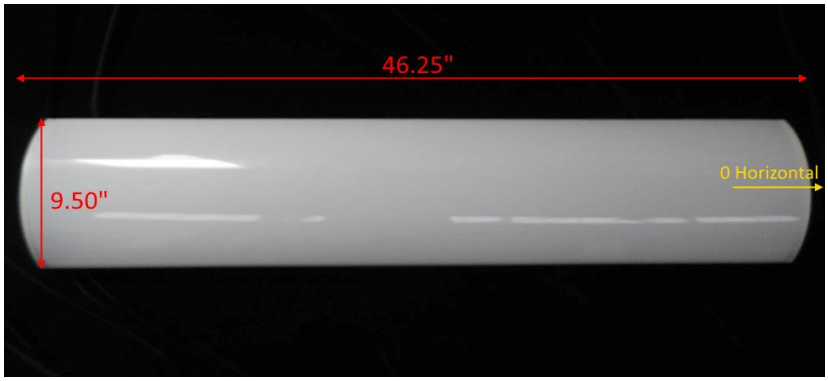
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-001

Indoor Distribution Photometry Test Report

Catalog Number: LWRAPA4-50PCS 30W Setting 4000K
Surface mounted, formed white painted steel housing, white painted steel reflector, translucent white linear ribbed plastic enclosure.
480 white LEDs, 240 CW LEDs and 240 WW LEDs on 4 boards
One PLC050S1050US-DEGAR LED driver



Prepared For:
Topaz Lighting, A Southwire Company
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	4025.0	Lumens
Input Current	0.2347	A	Total Efficacy	143.8	Lm/W
Input Power	27.99	W	Downward Flux	3866.2	Lumens
Frequency	60.00	Hz	Downward Flux	96.1	% of Total
Power Factor	0.994				
Current THD	9.3	%			

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

Test date: 08/16/2024
Report date: 09/03/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.09.04 14:01:36 -04'00'

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

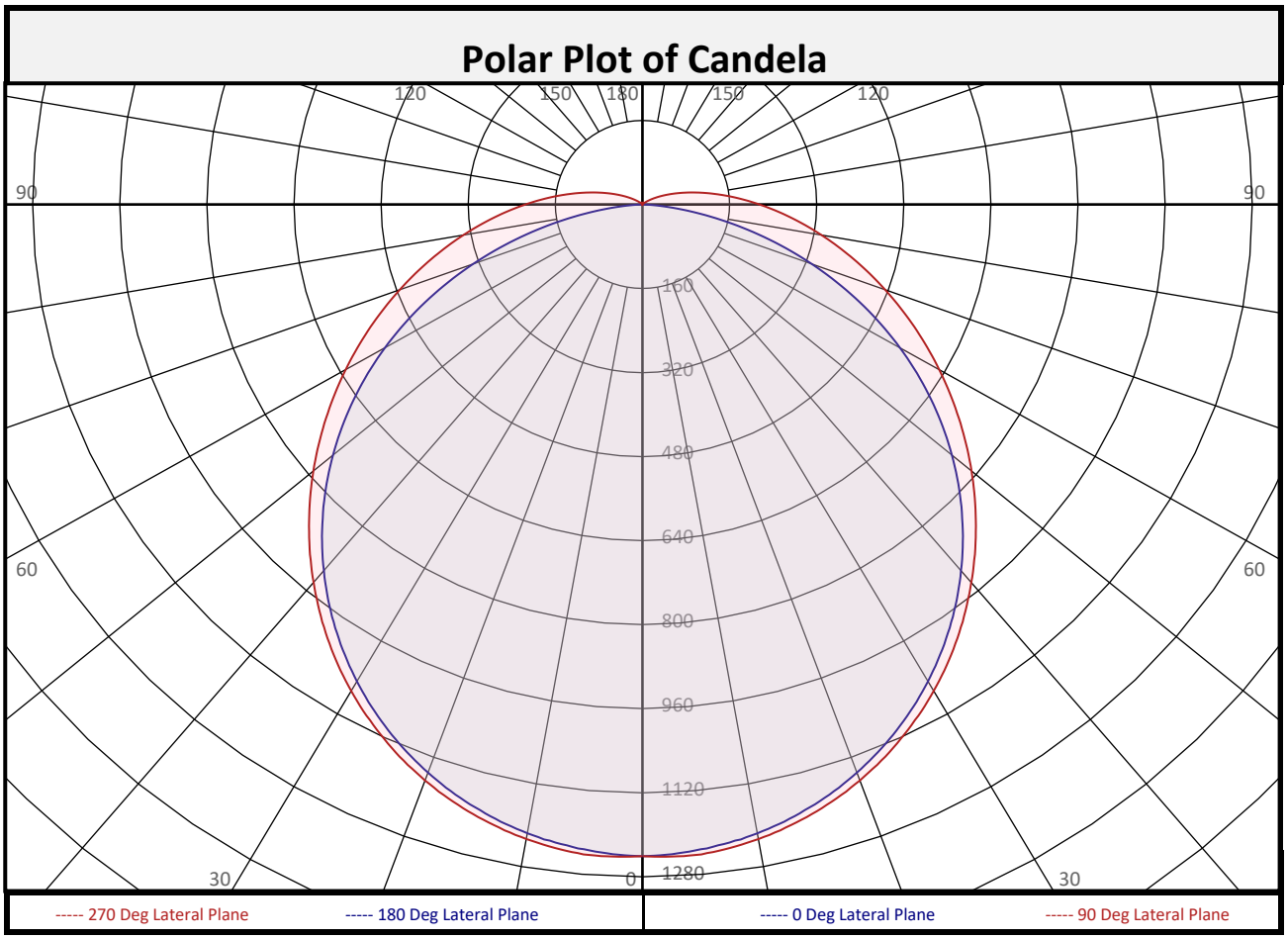
Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-001



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	117.5	2.9%	90-100	95.5	2.4%	0-20	454.6	11.3%
10-20	337.1	8.4%	100-110	42.3	1.1%	0-30	967.7	24.0%
20-30	513.0	12.7%	110-120	15.2	0.4%	0-40	1590	39.5%
30-40	622.7	15.5%	120-130	4.1	0.1%	0-60	2848	70.7%
40-50	653.0	16.2%	130-140	1.1	0.0%	0-80	3675	91.3%
50-60	604.2	15.0%	140-150	0.5	0.0%	10-90	3749	93.1%
60-70	489.6	12.2%	150-160	0.0	0.0%	20-50	1789	44.4%
70-80	337.6	8.4%	160-170	0.0	0.0%	40-90	2276	56.5%
80-90	191.5	4.8%	170-180	0.0	0.0%	60-90	1019	25.3%
0-90	3866	96.1%	90-180	158.9	3.9%	0-180	4025	100.0%

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

Report of Test

LLIA002469-001

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
	0	22.5	45	67.5	90	112.5	135	157.5	180
0	1241	1241	1241	1241	1241	1241	1241	1241	1241
2.5	1239	1238	1239	1241	1243	1241	1239	1238	1239
5	1232	1233	1234	1239	1242	1239	1234	1233	1232
7.5	1226	1226	1228	1233	1236	1233	1228	1226	1226
10	1216	1216	1219	1224	1227	1224	1219	1216	1216
12.5	1204	1205	1207	1212	1215	1212	1207	1205	1204
15	1188	1190	1193	1199	1202	1199	1193	1190	1188
17.5	1171	1173	1177	1182	1186	1182	1177	1173	1171
20	1151	1154	1157	1164	1167	1164	1157	1154	1151
22.5	1129	1131	1136	1143	1146	1143	1136	1131	1129
25	1105	1107	1112	1119	1123	1119	1112	1107	1105
27.5	1078	1080	1086	1094	1098	1094	1086	1080	1078
30	1049	1051	1058	1066	1070	1066	1058	1051	1049
32.5	1017	1020	1027	1036	1040	1036	1027	1020	1017
35	984	987	994	1004	1009	1004	994	987	984
37.5	949	951	960	971	975	971	960	951	949
40	910	914	923	935	939	935	923	914	910
42.5	871	875	884	898	904	898	884	875	871
45	830	834	845	860	866	860	845	834	830
47.5	787	791	803	821	828	821	803	791	787
50	742	746	760	781	789	781	760	746	742
52.5	696	700	717	740	749	740	717	700	696
55	647	653	673	699	709	699	673	653	647
57.5	598	604	628	658	669	658	628	604	598
60	547	554	583	617	630	617	583	554	547
62.5	494	503	538	576	590	576	538	503	494
65	440	452	494	535	551	535	494	452	440
67.5	386	401	450	495	512	495	450	401	386
70	331	351	407	457	474	457	407	351	331
72.5	276	302	366	418	438	418	366	302	276
75	221	255	326	382	402	382	326	255	221
77.5	168	211	288	346	367	346	288	211	168
80	118	170	252	312	334	312	252	170	118
82.5	73	133	219	280	302	280	219	133	73
85	35	101	188	249	271	249	188	101	35
87.5	10	75	159	221	243	221	159	75	10
90	0	53	134	194	215	194	134	53	0

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

Report of Test

LLIA002469-001

Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	0	53	134	194	215	194	134	53	0
	92.5	0	36	111	169	190	169	111	36	0
	95	0	24	91	146	166	146	91	24	0
	97.5	0	15	73	125	144	125	73	15	0
	100	0	9	58	106	124	106	58	9	0
	102.5	0	5	46	89	105	89	46	5	0
	105	0	3	35	73	89	73	35	3	0
	107.5	0	2	26	60	74	60	26	2	0
	110	0	1	19	48	61	48	19	1	0
	112.5	0	0	14	38	49	38	14	0	0
	115	0	0	10	29	39	29	10	0	0
	117.5	0	0	7	22	30	22	7	0	0
	120	0	0	5	16	23	16	5	0	0
	122.5	0	0	3	12	17	12	3	0	0
	125	0	0	2	8	12	8	2	0	0
	127.5	0	0	2	6	9	6	2	0	0
	130	0	0	2	4	6	4	2	0	0
	132.5	0	0	1	3	4	3	1	0	0
	135	0	0	2	2	3	2	2	0	0
	137.5	0	0	1	2	2	2	1	0	0
	140	0	0	1	2	2	2	1	0	0
	142.5	0	0	1	2	2	2	1	0	0
	145	0	0	1	2	2	2	1	0	0
	147.5	0	0	0	1	2	1	0	0	0
	150	0	0	0	1	1	1	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

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-001

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	118	118	118	118		115	115	115	115		109	109	109		103	103	103		98	98	98	96
1	106	101	96	92		103	98	94	90		93	90	86		89	86	83		84	82	80	77
2	96	87	80	74		93	85	78	72		81	75	70		77	72	68		73	69	66	63
3	87	76	68	61		84	74	66	60		71	64	58		67	62	57		64	59	55	53
4	80	67	58	51		77	66	57	51		63	55	49		60	53	48		57	52	47	45
5	73	60	51	44		71	59	50	43		56	48	42		54	47	42		51	45	41	39
6	68	54	45	38		65	53	44	38		50	43	37		48	42	36		46	40	36	34
7	63	49	40	34		61	48	39	33		46	38	33		44	37	32		42	36	32	30
8	58	44	36	30		56	44	35	30		42	34	29		40	34	29		39	33	28	26
9	54	41	32	27		53	40	32	27		39	31	26		37	31	26		36	30	26	24
10	51	38	30	24		50	37	29	24		36	29	24		34	28	23		33	27	23	21

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	34.5	7.54	7.68
8.0	19.4	10.05	10.24
10.0	12.4	12.56	12.80
12.0	8.6	15.07	15.36
14.0	6.3	17.59	17.92
16.0	4.8	20.10	20.48

Spacing Criterion

0 deg:	1.3
90 deg:	1.3
180 deg:	1.3
270 deg:	1.3

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	4378	4378	4378
45	4141	3498	3351
55	3982	3201	3087
65	3676	2864	2838
75	3011	2518	2632
85	1431	2274	2550

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 112.6°

Field Angle: 159.3°

90-270 Degree Plane

Beam Angle: 121.0°

Field Angle: 199.9°

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

Report of Test

LLIA002469-001

UGR Table - Corrected

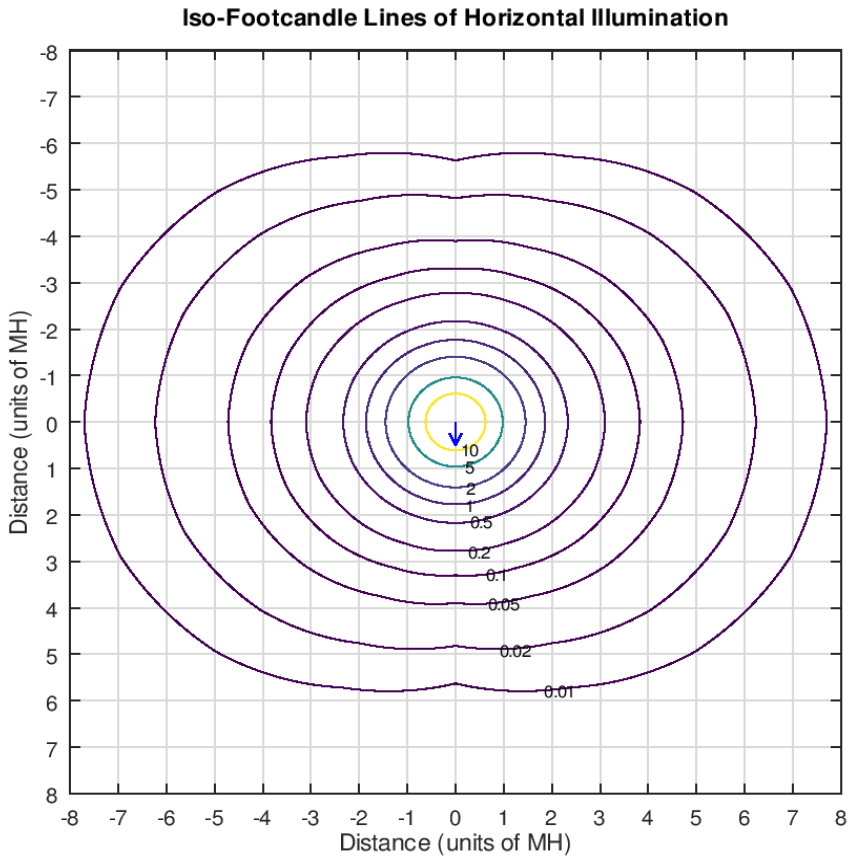
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	15.0	16.6	15.5	17.0	17.4	16.3	17.9	16.7	18.3	18.7
	3H	16.6	18.0	17.0	18.4	18.9	18.6	20.0	19.0	20.4	20.9
	4H	17.1	18.4	17.5	18.9	19.3	19.6	21.0	20.1	21.4	21.9
	6H	17.3	18.6	17.8	19.1	19.5	20.7	22.0	21.2	22.4	22.9
	8H	17.4	18.6	17.9	19.1	19.6	21.2	22.5	21.7	22.9	23.4
	12H	17.4	18.6	17.9	19.0	19.5	21.8	23.0	22.3	23.4	24.0
4H	2H	15.8	17.1	16.2	17.6	18.0	16.8	18.1	17.2	18.6	19.0
	3H	17.5	18.7	18.0	19.2	19.7	19.3	20.4	19.7	20.9	21.4
	4H	18.1	19.2	18.6	19.7	20.2	20.5	21.6	21.0	22.1	22.6
	6H	18.5	19.5	19.0	20.0	20.5	21.8	22.7	22.3	23.2	23.8
	8H	18.6	19.5	19.1	20.0	20.6	22.4	23.3	22.9	23.8	24.3
	12H	18.7	19.5	19.2	20.0	20.6	23.1	23.9	23.6	24.4	25.0
8H	4H	18.7	19.6	19.2	20.1	20.6	20.7	21.6	21.2	22.1	22.7
	6H	19.2	20.0	19.8	20.5	21.1	22.2	22.9	22.7	23.5	24.0
	8H	19.4	20.1	19.9	20.6	21.2	22.9	23.6	23.5	24.2	24.7
	12H	19.5	20.1	20.0	20.6	21.3	23.8	24.4	24.3	24.9	25.6
12H	4H	18.8	19.6	19.4	20.2	20.7	20.8	21.5	21.3	22.1	22.7
	6H	19.4	20.1	20.0	20.7	21.3	22.2	22.9	22.8	23.4	24.0
	8H	19.7	20.3	20.2	20.8	21.5	23.0	23.6	23.6	24.2	24.8

Maximum UGR = 25.6

Report of Test

LLIA002469-001

Iso-Illuminance Plot

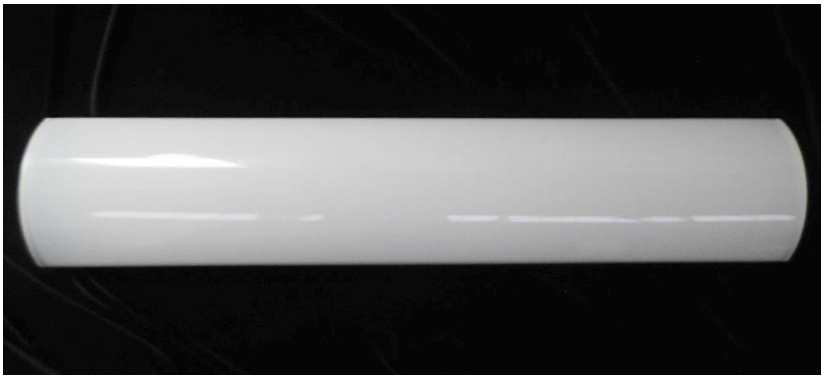


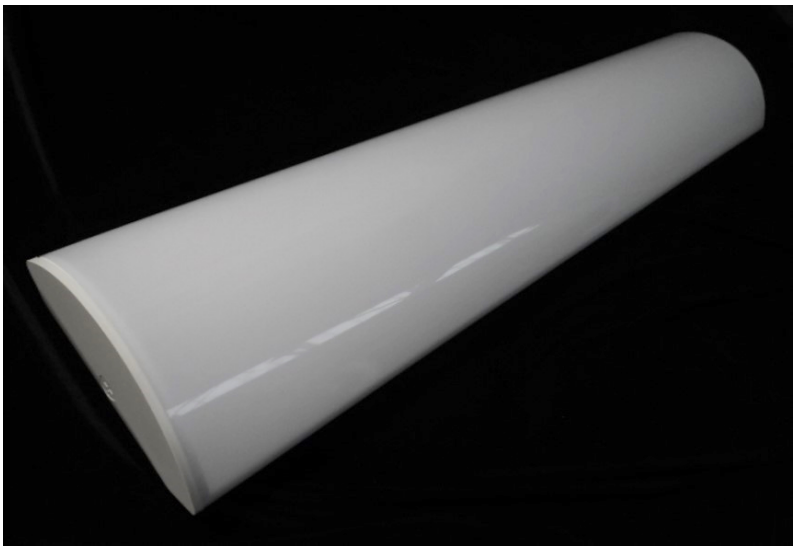
The isofootcandle values shown in the plot above are based on a mounting height of h = 8.0 feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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

Report of Test

LLIA002469-001

Additional Pictures of Test Subject





Report of Test

LLIA002469-001

Test Distance	9.5 m
Ambient Temperature	25.1 °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-41-20 and LM-46-20.

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.