

LM-79-19 TEST REPORT

for

GREEN CREATIVE LTD

Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL,
Hong Kong

LED LUMINAIRES

Model: PXCYLDI4/XX/LEMD/LEMI/9035/KDIM010UNV/MD/MD/WH/CC

Laboratory: Leading Testing Laboratories

NVLAP CODE: 200960-0

3rd Floor, Bld. 2, NO. 96 Longchuanwu Rd Qianjiang Economy Dev. Zone, YuhangDist,
Hangzhou, Zhejiang Province, China 311100

Tel: +86571 86376106

www.ltlqa.com

Report No.: HZ24040033a

The laboratory that conducted the testing detailed in this report has been accredited for SSL by NVLAP.

Review by:

Wei Fei

Engineer: Wei Fei
May 30, 2024

Approve by:



April Zou

1 Manager: April Zou
May 30, 2024

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

TEST SUMMARY

Sample Tested: **PXCYLDI4/PM/LEMD/LEMI/9035/KDIM010UNV/MD/MD/WH/CC**

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
107.5	3178.5	29.57	0.9940
CCT (K)	CRI	Stabilization Time (Light & Power)	
3469	94.8	50	

Table 1: Executive Data Summary

Note: The above results are recorded/ derived from measurements made using an Integrating Sphere.

Test specifications:

Date of Receipt	: Apr. 29, 2024
Date of Test	: May 28, 2024
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	: IESNA LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products ANSI/IES TM-30-18 IES Method for Evaluating Light Source Color Rendition

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SAMPLE PHOTO



Figure 1- Overview of the sample

Equipment Under Test(EUT)

Name	: LED LUMINAIRES
Model	: PXCYLDI4/PM/LEMD/LEMI/9035/KDIM010UNV/MD/MD/WH/CC
Electrical Ratings	: 120V, 60Hz
Product Description	: 3500K
Manufacturer	: GREEN CREATIVE LTD
Address	: Room 3603, Level 36, Tower 1, Enterprise Square Five, 38 Wang Chiu Road, Kowloon Bay, KL, Hong Kong

TEST RESULTS

Test ambient temperature was 26.0 °C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 50 minutes, and the total operating time including stabilization was 55 minutes.

Sphere-Spectroradiometer Method

Parameter	Result
Test Voltage (V)	120.0
Voltage frequency (Hz)	60
Test Current (A)	0.248
Power Factor	0.9940
Test Power (W)	29.57
THD A%	11.28
Luminous Efficacy (lm/W)	107.5
Total Luminous Flux (lm)	3178.5
Color Rendering Index (CRI)	94.8
R9	82.8
Correlated Color Temperature (CCT)(K)	3469
Chromaticity Chroma x	0.4054
Chromaticity Chroma y	0.3875
Chromaticity Chroma u	0.2371
Chromaticity Chroma v	0.3400
Duv	-0.0014
Chromaticity Chroma u'	0.2371
Chromaticity Chroma v'	0.5099

Special Color Rendering Indices	
R1	96.6
R2	95.8
R3	93.1
R4	95.2
R5	95.5
R6	93.4
R7	95.8
R8	93.4
R9	82.8
R10	88.8
R11	94.8
R12	79.3
R13	96.3
R14	95.5

Table 2: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u', v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Goniophotometer Method

Test ambient temperature was 24.8 °C.

The photometric distance is 30 m.

Luminous data was taken at 0.5 vertical intervals and 10 horizontal intervals.

Parameter	Result
Test Voltage (V)	120.0
Voltage frequency (Hz)	60
Test Current (A)	0.249
Power Factor	0.9933
Power (W)	29.62
Luminous Efficacy (lm/W)	108.0
Total Luminous Flux (lm)	3199.1
Beam Angle (°)	68.4 (0°-180°) / 67.4 (90°-270°)
Center Beam Candle Power (cd)	1620
Maximum Beam Candle Power (cd)	2182 (At: C=230.0, Gamma=17.0)
Spacing Criteria	0.99 (0°-180°) / 0.98 (90°-270°)
Zonal Lumens in the 0°-60° Zone	68.06%
Zonal Lumens in the 60°-90° Zone	0.74%
Zonal Lumens in the 90°-120° Zone	2.96%
Zonal Lumens in the 120°-180° Zone	28.24%

Table 3: Test data per Goniophotometer Method

Spectral Power Distribution - Sphere Spectroradiometer Method

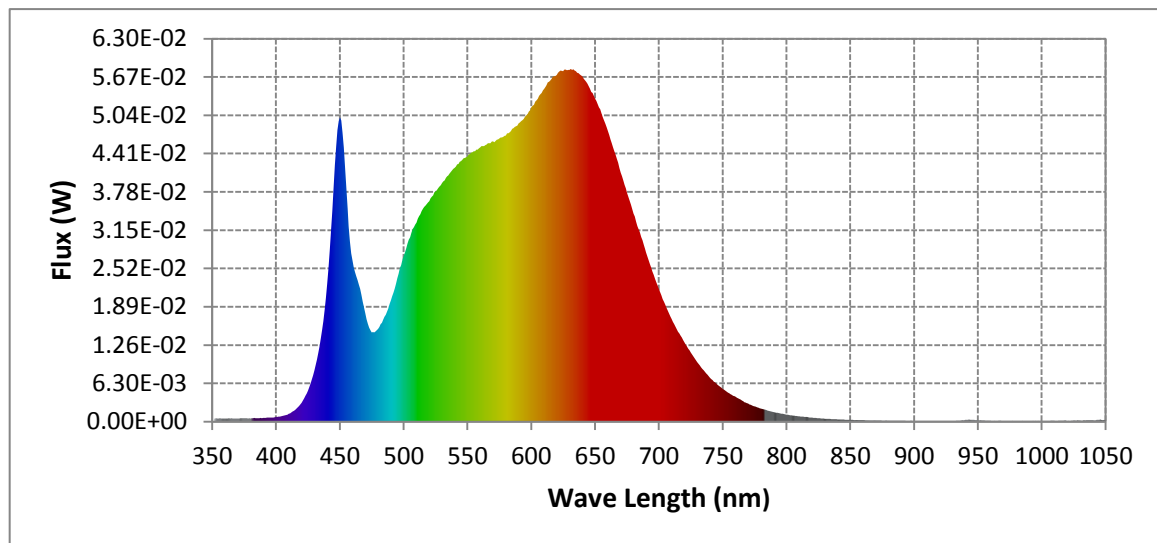
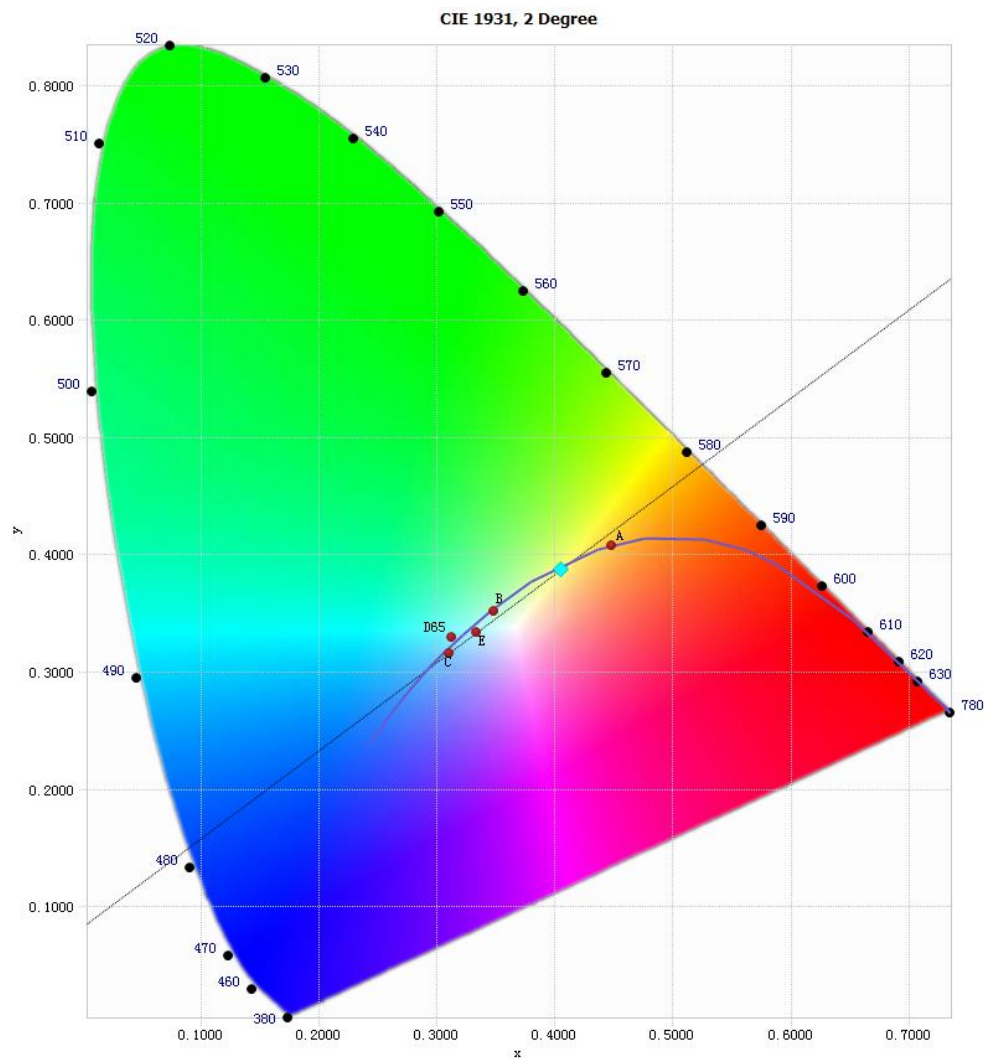


Chart 1: Spectral Power Distribution

Spectral Distribution over Visible Wavelength							
WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)	WL(nm)	Radiant(Watts)
380	5.46E-04	485	1.72E-02	590	4.90E-02	695	2.47E-02
385	5.72E-04	490	2.00E-02	595	5.02E-02	700	2.19E-02
390	6.10E-04	495	2.36E-02	600	5.18E-02	705	1.93E-02
395	6.69E-04	500	2.73E-02	605	5.31E-02	710	1.69E-02
400	7.61E-04	505	3.03E-02	610	5.48E-02	715	1.48E-02
405	9.39E-04	510	3.28E-02	615	5.61E-02	720	1.30E-02
410	1.29E-03	515	3.50E-02	620	5.70E-02	725	1.13E-02
415	1.95E-03	520	3.63E-02	625	5.77E-02	730	9.78E-03
420	3.09E-03	525	3.79E-02	630	5.79E-02	735	8.49E-03
425	5.12E-03	530	3.93E-02	635	5.77E-02	740	7.22E-03
430	8.41E-03	535	4.05E-02	640	5.68E-02	745	6.25E-03
435	1.37E-02	540	4.18E-02	645	5.52E-02	750	5.39E-03
440	2.27E-02	545	4.29E-02	650	5.31E-02	755	4.67E-03
445	3.85E-02	550	4.36E-02	655	5.07E-02	760	4.11E-03
450	5.01E-02	555	4.45E-02	660	4.78E-02	765	3.48E-03
455	3.83E-02	560	4.51E-02	665	4.45E-02	770	2.98E-03
460	2.66E-02	565	4.56E-02	670	4.09E-02	775	2.51E-03
465	2.25E-02	570	4.61E-02	675	3.76E-02	780	2.15E-03
470	1.78E-02	575	4.66E-02	680	3.42E-02		
475	1.47E-02	580	4.71E-02	685	3.11E-02		
480	1.52E-02	585	4.82E-02	690	2.78E-02		

Table 4: Spectral Power Distribution Numerical Data per Sphere - Spectroradiometer Method

Chromaticity Diagram - Sphere Spectroradiometer Method



Tristimulus values(x, y): (0.4054, 0.3875)

Chart 2: Chromaticity Diagram per Sphere - Spectroradiometer Method

Note: The location on the diagram of the tristimulus coordinates are indicated by the blue diamond.

Nominal CCT Quadrangles – Sphere Spectroradiometer Method

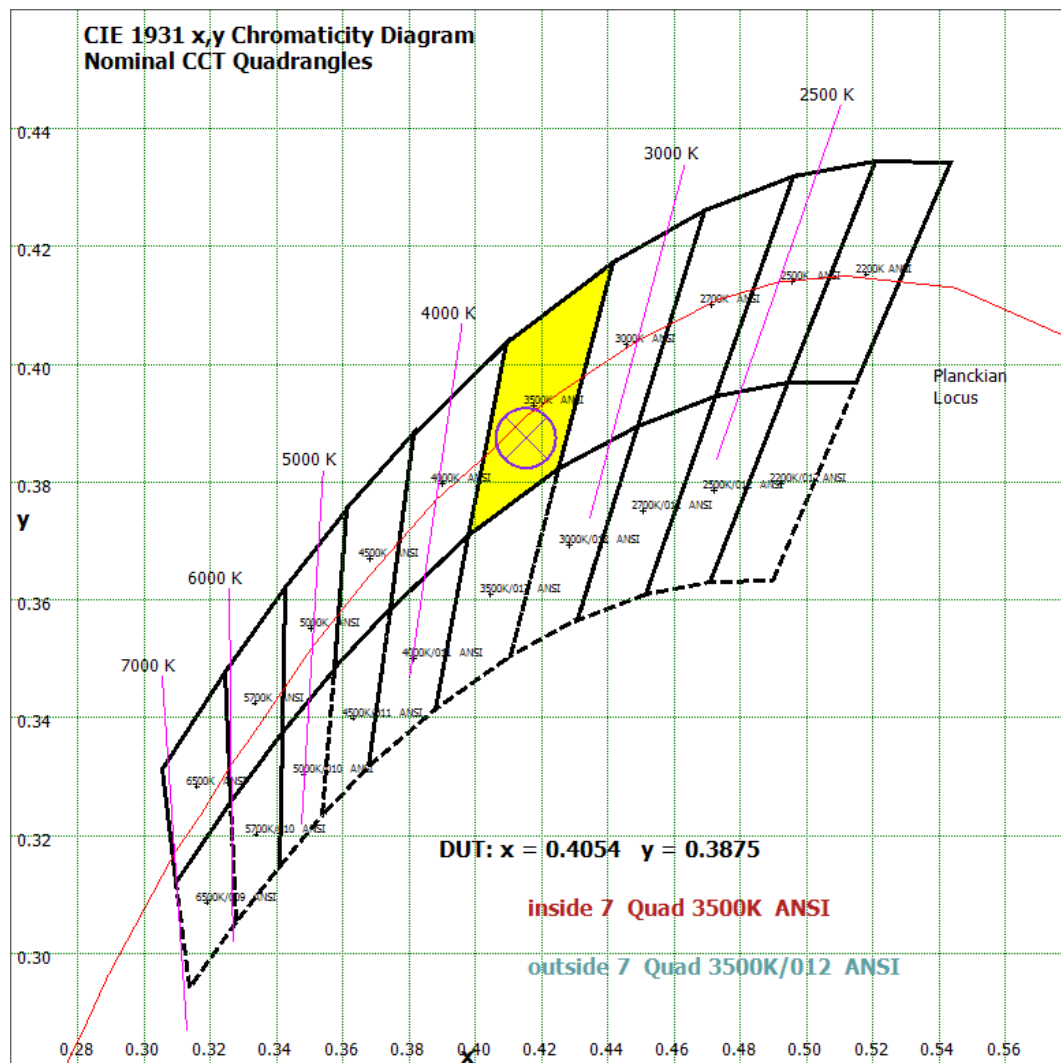


Chart 3: Plot of Lamp x/y coordinates on CIE 1931 Chromaticity Diagram

Color Rendition Report – Sphere Spectroradiometer Method

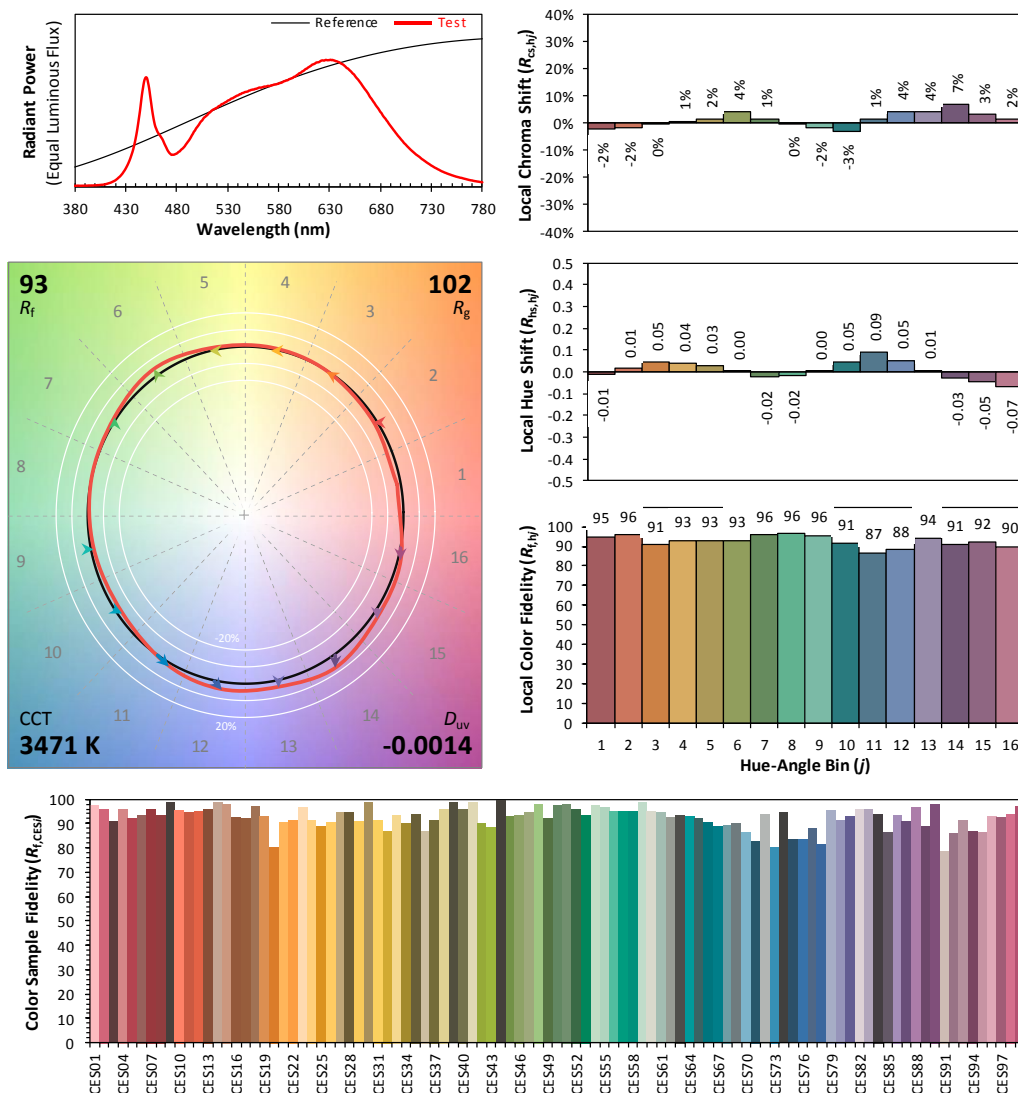
ANSI/IES TM-30-18 Color Rendition Report

Source: LED

Manufacturer: GREEN CREATIVE LTD

Date: 2024/05/28

Model: PXCYLDI4/PM/LEMD/LEMI/9035/KDIM010UNV/MD/MD/WH/CC



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4054
 y 0.3875
 u' 0.2371
 v' 0.5099

CIE 13.3-1995
 (CRI)
 R_a 95
 R_g 83

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

Chart 4: Full Report Created with the IES TM-30 Calculator

Note: The values in this diagram might be a little different from the values in Table 2 due to rounding.

Zonal Lumen Tabulation- Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0- 10	177.955	5.56%
10- 20	589.029	18.41%
20- 30	801.227	25.05%
30- 40	467.52	14.61%
40- 50	116.267	3.63%
50- 60	25.254	0.79%
60- 70	11.039	0.35%
70- 80	7.019	0.22%
80- 90	5.681	0.18%
90-100	14.456	0.45%
100-110	27.389	0.86%
110-120	52.766	1.65%
120-130	95.025	2.97%
130-140	150.214	4.70%
140-150	200.891	6.28%
150-160	222.698	6.96%
160-170	172.852	5.40%
170-180	61.813	1.93%
Total	3199.1	100%

$\gamma(^{\circ})$	Lumens	% Total
0- 60	2177.25	68.06%
60- 90	23.739	0.74%
0-90	2200.99	68.80%
90- 180	998.104	31.20%
0- 180	3199.1	100%

Table 5: Zonal Lumen

Illuminance Plots- Goniophotometer Method

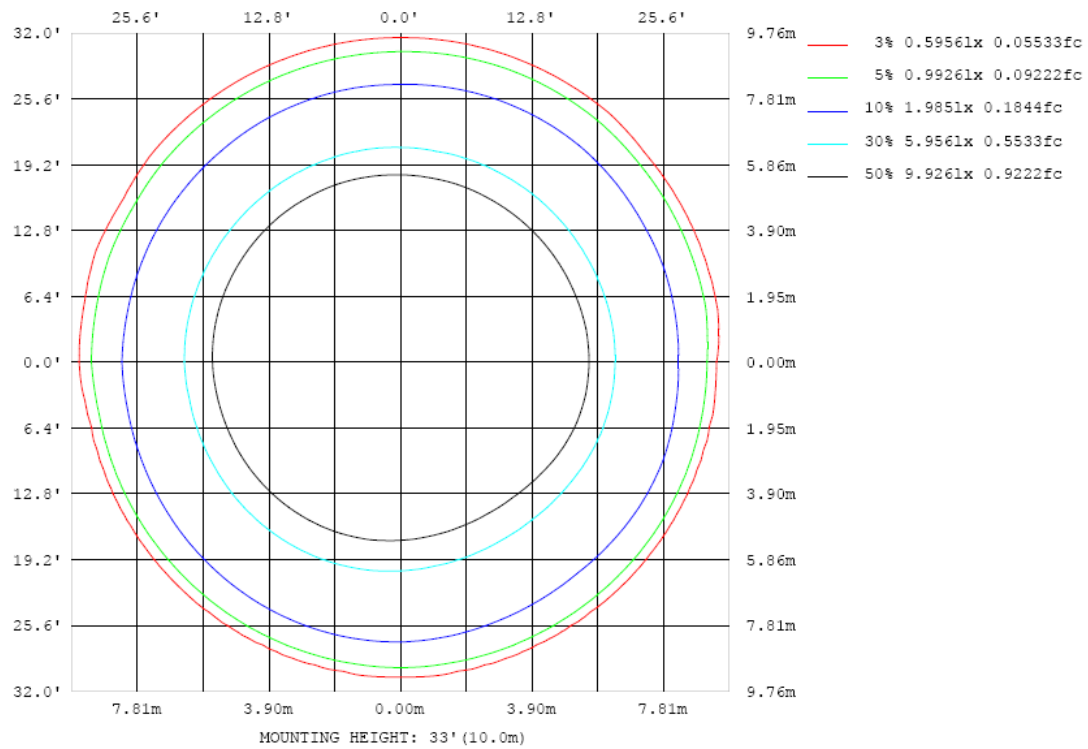


Chart 5: Illuminance Plot (Footcandles)

Luminous Intensity Distribution Plots- Goniophotometer Method

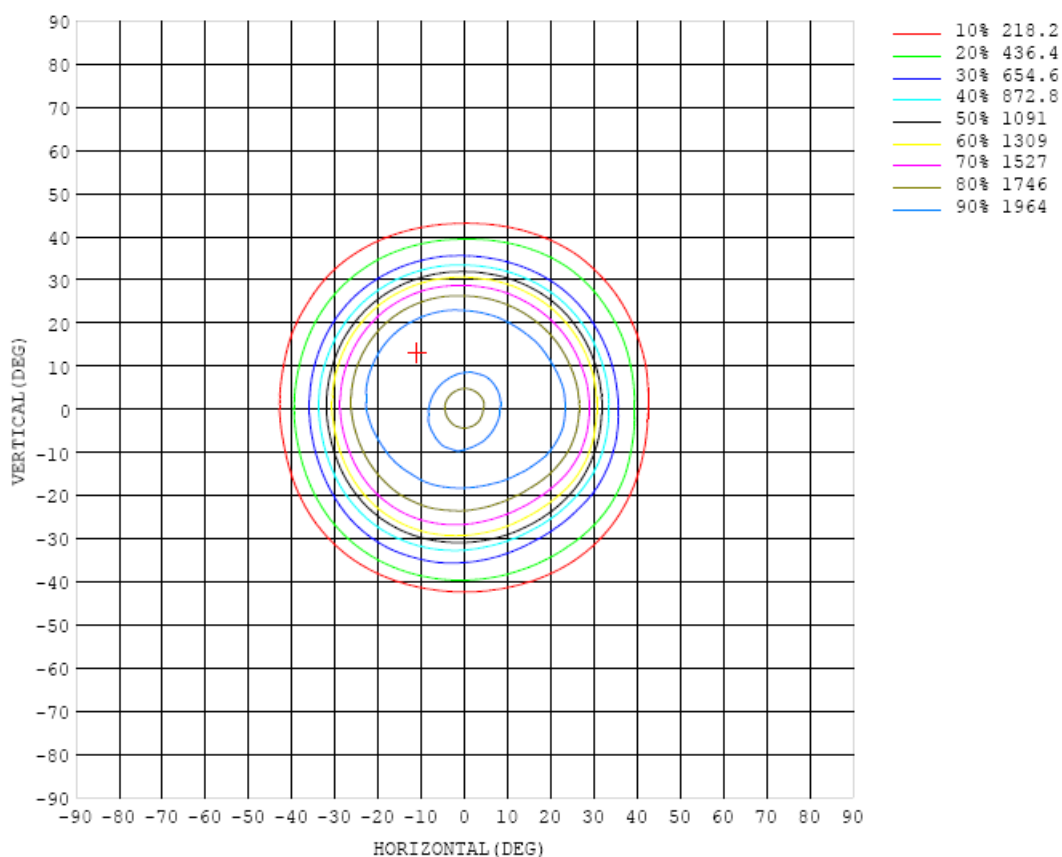


Chart 6: Isocandela Plot

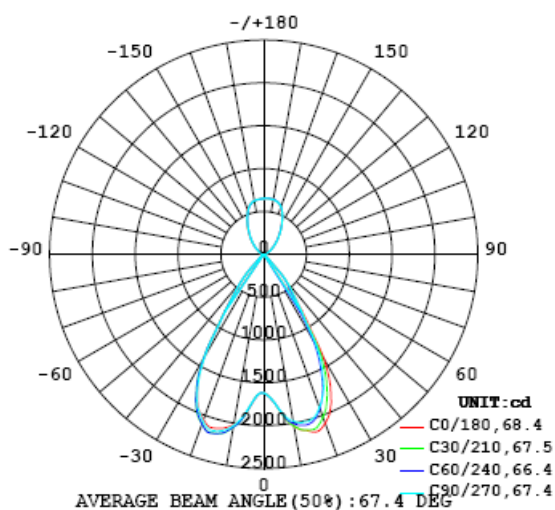


Chart 7: Polar Candela Distribution

Luminous Intensity Data- Goniophotometer Method

Table--1 UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620
5	1780	1781	1779	1781	1777	1778	1779	1779	1776	1779	1775	1779	1775	1777	1781	1778	1774	1778	1773
10	2035	2038	2038	2035	2024	2014	2002	1996	1984	1974	1967	1968	1967	1975	1982	1986	1994	2005	2016
15	2140	2150	2137	2119	2099	2072	2050	2028	2014	2019	2013	2032	2028	2040	2047	2060	2067	2086	2103
20	2101	2084	2057	2021	1979	1938	1915	1902	1897	1899	1911	1927	1933	1943	1961	1980	1994	2022	2060
25	1864	1850	1812	1752	1690	1640	1619	1619	1630	1652	1668	1692	1706	1721	1733	1751	1771	1799	1837
30	1403	1393	1360	1303	1233	1184	1161	1178	1200	1233	1264	1290	1309	1323	1331	1336	1343	1363	1395
35	705	706	685	660	617	602	603	630	659	687	710	725	734	736	725	719	716	717	745
40	408	411	423	415	404	393	396	399	409	419	420	417	412	404	397	395	396	397	407
45	101	99.5	97.2	96.1	95.8	95.1	94.7	95.2	95.7	95.8	95.7	96.2	97.4	98.5	99.1	100	101	101	107
50	47.6	47.2	46.8	46.4	46.9	46.2	45.0	44.4	44.0	44.1	44.2	44.8	45.6	45.8	46.7	47.5	47.9	48.1	50.3
55	26.3	26.2	26.1	25.9	26.6	26.2	25.3	24.8	24.5	24.4	24.4	24.6	25.2	25.3	25.7	25.9	26.1	26.0	27.4
60	15.9	15.9	15.8	15.6	16.3	16.0	15.5	15.3	15.1	15.0	15.0	15.2	15.3	15.3	15.7	16.0	15.8	15.6	16.5
65	10.8	10.8	10.7	10.2	11.0	10.8	10.5	10.6	10.4	10.4	10.4	10.5	10.6	10.4	10.8	11.4	11.2	10.5	11.1
70	8.20	8.09	7.89	7.35	8.12	8.07	7.91	8.12	8.02	7.95	7.94	8.00	8.08	7.90	8.36	8.89	9.07	8.18	8.49
75	6.62	6.53	6.24	5.57	6.41	6.46	6.26	6.76	6.62	6.52	6.54	6.49	6.64	6.63	6.88	7.48	7.59	6.76	7.37
80	5.71	5.60	5.29	4.49	5.40	5.51	5.29	5.92	5.88	5.73	5.75	5.66	5.83	5.89	6.07	6.65	6.72	5.89	6.64
85	5.25	5.12	4.81	3.80	4.86	5.02	4.76	5.42	5.49	5.32	5.28	5.19	5.28	5.46	5.55	6.21	6.23	5.43	6.25
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	13.9	15.3	15.9	15.9	16.6	16.9	15.6	16.6	14.5	14.7	13.5	14.3	14.0	13.8	13.1	13.5	13.5	12.9	12.0
100	20.0	21.5	21.8	21.4	21.9	22.4	21.9	22.3	20.6	20.6	19.5	20.4	19.9	19.5	18.6	18.4	18.2	17.7	16.8
105	28.5	30.2	29.9	29.5	30.0	30.5	30.1	30.7	29.0	28.9	28.0	28.7	28.0	27.5	26.3	25.6	25.3	25.3	23.9
110	41.1	43.0	42.6	41.9	41.9	42.2	42.4	42.9	41.5	41.0	40.4	40.5	40.0	38.9	37.6	36.4	36.3	35.7	34.1
115	58.9	61.3	60.8	60.1	59.6	59.6	59.8	60.7	59.7	58.9	58.3	58.1	57.4	55.9	54.2	52.6	51.2	49.8	48.3
120	82.5	86.5	86.5	85.9	84.5	83.8	84.1	85.7	85.3	84.3	83.5	83.0	81.9	79.9	77.6	75.5	73.1	70.9	69.2
125	115	120	120	120	118	117	118	120	120	119	118	117	115	113	109	107	103	100	98.1
130	157	163	163	163	161	160	160	162	164	163	162	160	158	155	151	148	143	139	136
135	209	214	215	214	211	209	211	213	215	215	213	211	208	205	201	196	191	186	183
140	269	275	275	275	272	270	272	273	275	275	273	271	268	264	259	254	248	243	241
145	340	347	348	348	347	344	345	347	346	347	345	342	338	334	329	323	317	311	307
150	422	428	429	431	430	428	429	430	429	429	428	425	420	415	410	403	397	390	385
155	507	515	517	518	518	518	518	518	517	515	513	510	505	501	495	489	482	477	472
160	581	589	591	592	592	592	591	591	588	587	585	584	581	576	571	566	562	557	554
165	627	631	633	634	635	634	635	633	631	629	628	628	626	624	621	618	614	611	610
170	646	649	650	651	651	651	650	650	647	647	646	645	644	643	642	640	638	636	636
175	655	656	656	656	657	655	656	656	653	653	651	651	650	649	649	649	648	647	646
180	653	653	653	653	653	653	653	653	653	653	653	653	653	653	653	653	653	653	653

Table 6: Luminous Intensity Data

Table--2		UNIT: cd																	
C (DEG)	γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	
0		1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	1620	
5		1769	1769	1770	1769	1768	1767	1766	1760	1758	1757	1759	1756	1757	1756	1754	1754	1763	
10		2033	2041	2050	2050	2050	2048	2040	2032	2025	2011	2011	2003	2000	2003	2008	2010	2022	
15		2133	2147	2163	2171	2172	2163	2153	2136	2136	2126	2134	2119	2129	2123	2122	2120	2127	
20		2078	2093	2105	2111	2117	2109	2097	2084	2073	2068	2060	2060	2057	2065	2065	2071	2089	
25		1858	1869	1874	1876	1878	1876	1869	1857	1838	1825	1826	1814	1822	1822	1835	1844	1867	
30		1411	1413	1413	1409	1410	1403	1400	1393	1375	1363	1364	1359	1359	1364	1375	1388	1406	
35		750	742	734	726	721	722	715	715	696	686	684	682	682	680	687	697	709	
40		397	396	397	396	396	400	400	402	401	411	417	425	427	422	415	418	415	
45		108	108	109	110	111	110	109	108	107	106	106	106	106	106	106	106	105	
50		51.0	51.7	52.7	53.6	53.9	53.0	51.9	50.5	49.6	48.6	48.5	48.8	49.5	49.8	49.8	49.5	49.4	
55		27.7	28.2	29.0	29.7	30.1	29.4	28.5	27.4	27.0	26.5	26.4	26.3	27.0	27.2	27.2	27.2	27.2	
60		16.6	16.9	17.4	17.8	18.0	17.6	17.0	16.2	16.0	15.8	15.6	15.5	16.0	16.4	16.4	16.4	16.5	
65		11.0	11.0	11.3	11.6	11.6	11.5	11.1	10.3	10.2	10.2	10.0	9.80	10.3	10.7	10.9	10.9	10.9	
70		8.21	8.21	8.38	8.56	8.60	8.43	8.21	7.54	7.40	7.52	7.23	6.94	7.42	7.87	8.06	8.20	8.30	
75		6.88	6.80	6.80	6.97	6.95	6.76	6.65	5.97	5.84	5.97	5.76	5.34	5.85	6.30	6.58	6.71	6.77	
80		6.22	6.25	6.04	6.16	6.13	5.83	5.74	5.04	4.86	5.07	4.87	4.37	5.03	5.63	5.80	5.76	5.81	
85		5.84	5.74	5.65	5.94	5.93	5.60	5.52	4.71	4.49	4.72	4.61	4.16	4.73	5.01	5.27	5.24	5.28	
90		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
95		11.2	11.5	10.9	12.4	11.6	11.8	11.6	12.5	12.5	13.1	11.3	9.98	8.63	9.63	10.1	10.5	12.5	
100		15.5	15.0	14.3	15.5	14.7	15.0	14.9	15.9	16.3	16.4	15.0	14.0	12.7	14.0	15.2	16.3	18.6	
105		22.8	21.6	21.1	21.7	21.2	21.6	21.6	22.8	23.2	23.0	21.5	20.8	19.6	21.0	22.9	24.7	27.1	
110		32.6	31.7	30.7	31.0	30.3	31.2	31.2	32.5	32.6	32.2	31.0	30.4	29.7	31.5	34.4	36.7	39.5	
115		47.1	46.0	45.7	45.9	44.7	45.5	46.0	45.7	45.8	45.5	44.6	44.8	44.6	47.4	51.0	53.9	57.1	
120		66.4	65.4	64.9	65.1	64.1	64.4	64.7	64.4	64.5	64.7	63.9	64.9	65.2	68.8	73.5	76.8	80.2	
125		93.7	92.5	91.6	91.6	90.5	90.4	90.5	90.7	90.7	90.8	90.4	91.4	93.7	99.5	105	109	112	
130		131	130	129	129	127	127	127	127	127	126	127	129	132	139	146	150	154	
135		179	177	176	176	174	174	174	174	173	172	173	176	180	189	196	200	205	
140		235	233	232	231	229	229	229	229	228	227	228	232	237	245	254	259	264	
145		301	298	297	296	294	293	293	293	293	293	295	299	306	314	323	329	335	
150		378	376	373	371	370	368	368	369	370	372	376	381	387	395	403	411	418	
155		464	460	458	456	454	454	453	454	457	460	464	468	475	483	491	497	502	
160		547	543	541	539	536	538	539	541	543	546	549	554	558	563	569	572	575	
165		607	604	603	602	600	601	602	603	606	609	612	615	618	621	622	623	625	
170		634	633	631	632	632	634	635	637	638	640	641	643	644	645	645	644	645	
175		646	645	645	645	643	645	646	645	646	647	648	648	649	652	653	653	653	
180		653	653	653	653	653	653	653	653	653	653	653	653	653	653	653	653	653	

Table 7: Luminous Intensity Data

EQUIPMENT LIST

Test Equipment	Model	Equipment No.	Calibration Date	Calibration Due date
Goniophotometer system	GO-R5000	HZTE011-01	Feb. 18, 2024	-
Digital Power Meter	PF2010A	HZTE028-01	Aug. 01, 2023	Jul. 31, 2024
AC Power Supply	DPS1060	HZTE001-06	Aug. 01, 2023	Jul. 31, 2024
DC Power Supply	WY12010	HZTE004-03	Aug. 01, 2023	Jul. 31, 2024
Temperature recorder	JM624U	HZTE018-08	Aug. 04, 2023	Aug. 03, 2024
Temperature and humidity recorder	JR900	HZTE018-01	Aug. 04, 2023	Aug. 03, 2024
Standard source	D908	HZTE012-01	Aug. 14, 2018	-
Integrate Sphere system	3M	HZTE015-04	Feb. 18, 2024	-
Digital Power Meter	WT210	HZTE008-01	Aug. 01, 2023	Jul. 31, 2024
AC Power Supply	PCR 500L	HZTE001-07	Aug. 01, 2023	Jul.31, 2024
DC Power Supply	IT6154	HZTE004-04	Aug. 01, 2023	Jul. 31, 2024
Standard source	SCL-1400	HZTE012-06	Nov. 04, 2021	-
Temperature and humidity recorder	JR900	HZTE018-02	Aug. 04, 2023	Aug. 03, 2024
Temperature Meter	TES1310	HZTE017-01	Aug. 04, 2023	Aug. 03, 2024

Table 8: Test Equipment List

TEST METHODS

Seasoning of SSL Product

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning. Therefore, no seasoning was performed.

Sphere-Spectroradiometer Method- Photometric and Electrical Measurements

A Labsphere Model CDS 2100 Spectroradiometer and 3 Meter Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit. The coating reflectance of each sphere is 98%. The measure geometry is 4π . Self-absorption correction is conducted in testing. Bandwidth of spectroradiometer is 350nm-1050nm.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation.

The stabilization time typically ranges from 30 min (small integrated LED lamps) to 2 or more hours for large SSL luminaires). It can be judged that stability is reached when the variation (maximum – minimum) of at least 3 readings of the light output and electrical power over a period of 20 min, taken 10 minutes apart, is less than 0.5 %.

Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

The standard reference of the integrated sphere system is halogen incandescent lamp, the intensity distribution type is omni-directional, and is traceable to the National Institute of Standards and Technology.

The uncertainty of integrating sphere system reported in this document is expanded uncertainty is 2.1% with a coverage factor $k=2$.

Goniophotometer Method

Photometric and Electrical Measurements

An EVERFINE Type C Model GO-R5000 Goniophotometer was used to measure the intensity at each angle of distribution for each sample. The photometric distance is 2.475m for near-field measurement or 30m for far-field measurement. Bandwidth of spectroradiometer is 380nm-780nm.

Ambient temperature was measured at the same height of the sample mounted on the Goniophotometer equipment. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation.

The stabilization time typically ranges from 30 min (small integrated LED lamps) to 2 or more hours for large SSL luminaires). It can be judged that stability is reached when the variation (maximum – minimum) of at least 3 readings of the light output and electrical power over a period of 20 min, taken 10 minutes apart, is less than 0.5 %.

Electrical measurements including voltage, current, and power were measured using the Everfine Digital Power Meter.

Some graphics were created with Photometric Plus software.

The standard reference of the Goniophotometer system is halogen incandescent lamp, the intensity distribution type is omni-directional, and is traceable to the National Institute of Metrology P.R. China.

The uncertainty of goniophotometer system reported in this document is expanded uncertainty is 2.3% with a coverage factor $k=2$.

Color Characteristics Measurements

The color characteristics of SSL products include chromaticity coordinates, correlated color temperature, and color rendering index. These characteristics of SSL products may be spatially non-uniform, and thus, in order that they can be specified accurately, the color quantities shall be measured as values that are spatially average, weighted to intensity, over the angular range where light is intentionally emitted from the SSL product. The color characteristics measurements are using gonio-spectroradiometer.

*** End of Report ***

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