

LM-79-08 Test Report

For

SATCO PRODUCTS INC.

(Brand Name: SATCO/NUVO)

110 Heartland Blvd. Brentwood NY 11717

LED Downlights

Model name(s):
S11872

Representative (Tested) Model:

S11872 (Setting at 2700K)

S11872 (Setting at 3000K)

S11872 (Setting at 3500K)

S11872 (Setting at 4000K)

S11872 (Setting at 5000K)

Test & Report By:



Engineer: Candy Chen

Date:2022-12-12

Review By:



Manager: Jason Luo

1.1 Product Information:

Organization Name	SATCO PRODUCTS INC.	
Brand Name	SATCO/NUVO	
Model Number	S11872	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	LED Downlights	
Rated Voltage / Frequency	120V/60HZ	
Nominal Power	15W	
Rated Initial Lamp Lumen	--	
Declared CCT	2700K, 3000K, 3500K, 4000K, 5000K(color tunable)	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-##90RA35000U1	
Sample Number	BLC2212001E-B1-PL	
Luminaire Aperture (for Downlights Retrofit)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		

1.2 Test Specifications:

Date of Receipt	2022-12-06
Date of Test	2022-12-10
Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	BL-QP-033

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.
 Goniophotometer near field detector $f1'=1.13\%$, Test distance: 1.599m.

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

Self-absorption:
 S11872:1.0225

2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-12-10	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	S11872 (Setting at 2700K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
BLC2212001E-B1-PL	120.0	60	0.127	14.72	0.968

Sphere-Spectroradiometer Method:

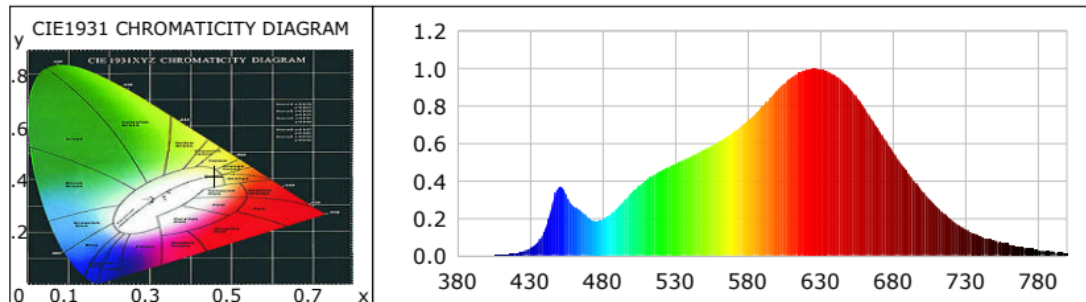
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	2753
Duv	0.00071
Chromaticity (x, y)	x=0.4568 y=0.4118
Chromaticity (u', v')	u(u')=0.2600 v'=0.5273
Color Rendering Index (CRI)	95.1
R9	67

Special Color Rendering Indices			
R1	96	R9	67
R2	98	R10	94
R3	99	R11	98
R4	96	R12	87
R5	96	R13	96
R6	98	R14	99
R7	93	R15	91
R8	85	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1107.7
Luminous Efficacy (lm/W)	75.25
Beam Angle °	112.5
Center Beam Candle Power (cd)	397

Spectral Power Distribution and Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0000	0.0007	535	0.4717	11.8672	690	0.6743	16.9637
385	0.0008	0.0204	540	0.4899	12.3246	695	0.6136	15.4355
390	0.0013	0.0324	545	0.5095	12.8167	700	0.5543	13.9439
395	0.0013	0.0339	550	0.5259	13.2287	705	0.5011	12.6059
400	0.0010	0.0252	555	0.5467	13.7522	710	0.4449	11.1931
405	0.0013	0.0336	560	0.5657	14.2295	715	0.3933	9.8943
410	0.0025	0.0623	565	0.5876	14.7807	720	0.3461	8.7055
415	0.0058	0.1463	570	0.6088	15.3157	725	0.3027	7.6158
420	0.0129	0.3251	575	0.6332	15.9297	730	0.2619	6.5880
425	0.0221	0.5552	580	0.6584	16.5632	735	0.2254	5.6692
430	0.0389	0.9773	585	0.6880	17.3074	740	0.1921	4.8333
435	0.0684	1.7196	590	0.7216	18.1536	745	0.1659	4.1735
440	0.1318	3.3153	595	0.7574	19.0534	750	0.1384	3.4809
445	0.2598	6.5357	600	0.7981	20.0766	755	0.1190	2.9927
450	0.3667	9.2235	605	0.8407	21.1490	760	0.1052	2.6461
455	0.3264	8.2108	610	0.8814	22.1722	765	0.0935	2.3521
460	0.2635	6.6277	615	0.9200	23.1426	770	0.0800	2.0134
465	0.2415	6.0759	620	0.9538	23.9946	775	0.0694	1.7446
470	0.2054	5.1676	625	0.9774	24.5884	780	0.0616	1.5505
475	0.1834	4.6132	630	0.9918	24.9504	785	0.0509	1.2796
480	0.1931	4.8565	635	0.9989	25.1277	790	0.0443	1.1136
485	0.2175	5.4722	640	0.9980	25.1058	795	0.0368	0.9264
490	0.2526	6.3537	645	0.9859	24.8021	800	0.0295	0.7430
495	0.2945	7.4088	650	0.9667	24.3171			
500	0.3363	8.4601	655	0.9327	23.4629			
505	0.3722	9.3630	660	0.8943	22.4965			
510	0.4025	10.1262	665	0.8464	21.2925			
515	0.4294	10.8030	670	0.7931	19.9499			
520	0.4530	11.3956	675	0.7335	18.4508			
525	0.4717	11.8672	680	0.6743	16.9637			
530	0.4899	12.3246	685	0.6136	15.4355			

Zonal Lumen Tabulation

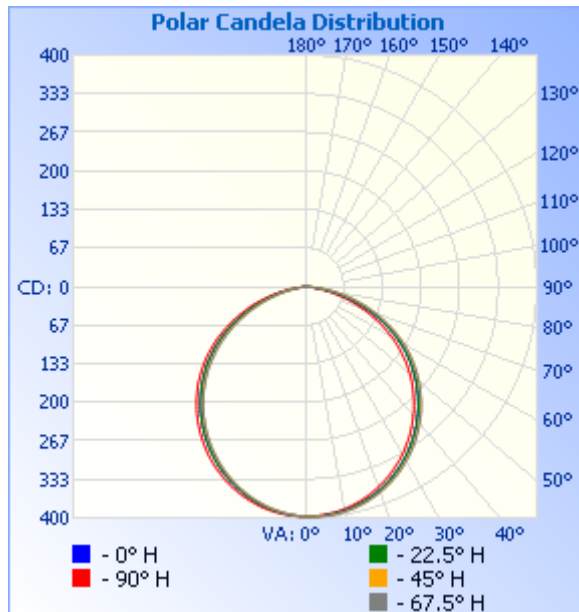
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	307.8	27.8%	27.8%
0-40	504.1	45.5%	45.5%
0-60	891.8	80.5%	80.5%
60-90	215.1	19.4%	19.4%
70-100	80.0	7.2%	7.2%
90-120	0.1	0%	0%
0-90	1,106.9	99.9%	99.9%
90-180	0.7	0.1%	0.1%
0-180	1,107.6	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	37.6	3.4%	90-100	0.0	0%
10-20	107.5	9.7%	100-110	0.0	0%
20-30	162.8	14.7%	110-120	0.1	0%
30-40	196.3	17.7%	120-130	0.1	0%
40-50	204.0	18.4%	130-140	0.1	0%
50-60	183.7	16.6%	140-150	0.1	0%
60-70	135.1	12.2%	150-160	0.1	0%
70-80	68.5	6.2%	160-170	0.1	0%
80-90	11.5	1.0%	170-180	0.0	0%

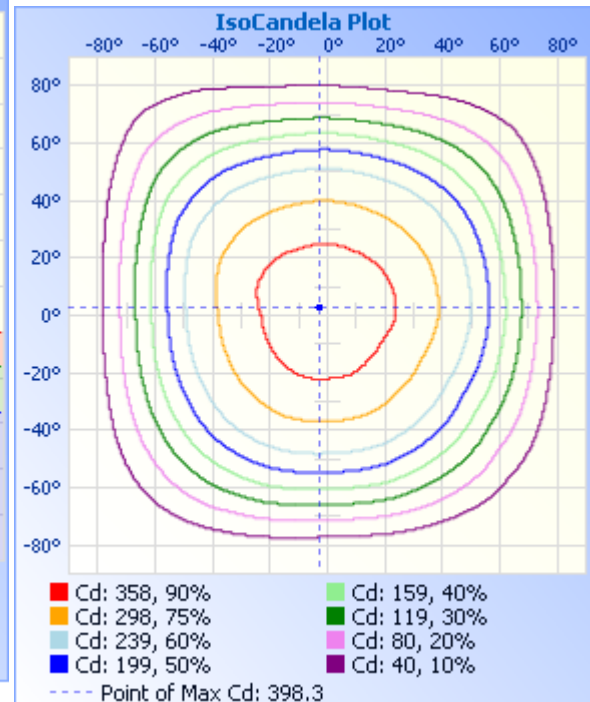
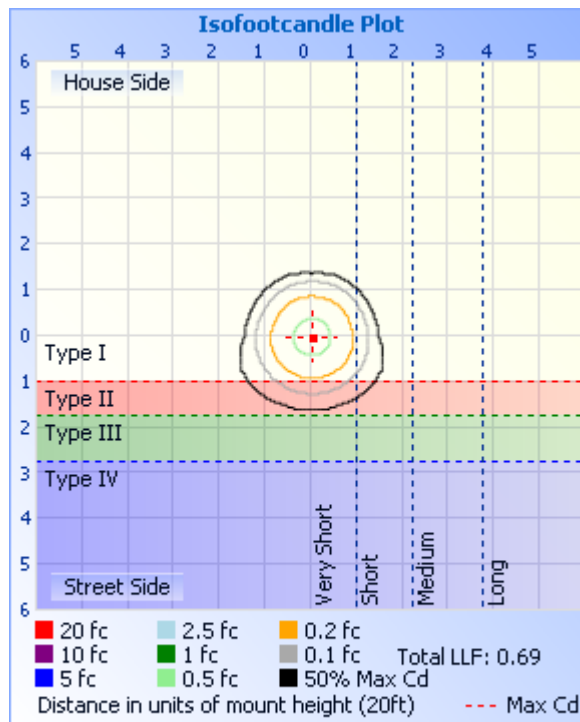
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width
17.0ft	1.37 fc	50.9 ft 50.5 ft
34.0ft	0.34 fc	101.7 ft 100.9 ft
51.0ft	0.15 fc	152.6 ft 151.4 ft
68.0ft	0.09 fc	203.5 ft 201.9 ft
85.0ft	0.05 fc	254.4 ft 252.3 ft
102.0ft	0.04 fc	305.2 ft 302.8 ft

■ Vert. Spread: 112.5°
■ Horiz. Spread: 112.1°



Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	397	397	397	397	397	397	397	397	397	397	397	397	397	397	397	397	397
1	397	398	398	398	397	397	397	397	397	397	397	397	397	397	397	397	397
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93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Laboratory: UTEST TECHNICAL LABORATORY CO. LTD A2LA Certificate# 4810.01

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Report Format Number BL-FM-SA-012

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117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-12-10	Test Ambient:	25.0 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	S11872 (Setting at 3000K)		

Sphere-Spectroradiometer Method:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
BLC2212001E-B1-PL	120.0	60	0.128	14.91	0.968

Sphere-Spectroradiometer Method:

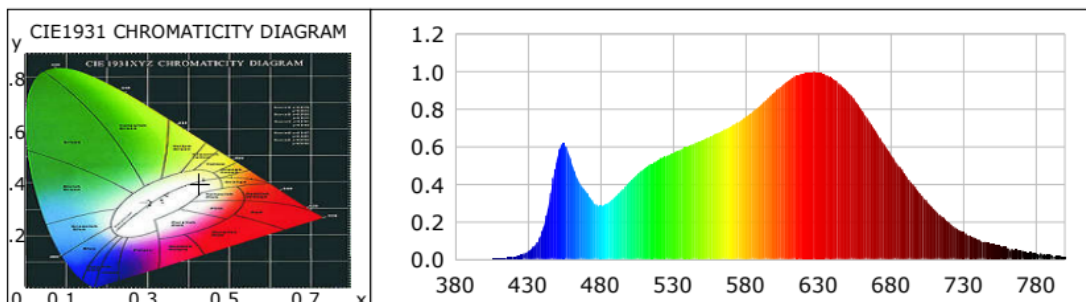
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3103
Duv	-0.00186
Chromaticity (x, y)	x=0.4272 y=0.3960
Chromaticity (u', v')	u(u')=0.2478 v'=0.5167
Color Rendering Index (CRI)	96.4
R9	79

Special Color Rendering Indices			
R1	98	R9	79
R2	99	R10	99
R3	99	R11	98
R4	97	R12	82
R5	98	R13	99
R6	96	R14	99
R7	94	R15	96
R8	90	--	--

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1174.6
Luminous Efficacy (lm/W)	78.78

Spectral Power Distribution and Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0001	0.0021	535	0.5475	13.4575	690	0.6770	16.6416
385	0.0008	0.0206	540	0.5671	13.9400	695	0.6143	15.0987
390	0.0009	0.0212	545	0.5830	14.3301	700	0.5578	13.7104
395	0.0008	0.0193	550	0.5998	14.7431	705	0.5021	12.3414
400	0.0009	0.0227	555	0.6171	15.1696	710	0.4497	11.0545
405	0.0013	0.0317	560	0.6344	15.5932	715	0.3982	9.7891
410	0.0023	0.0562	565	0.6534	16.0611	720	0.3491	8.5804
415	0.0051	0.1264	570	0.6720	16.5180	725	0.3035	7.4603
420	0.0125	0.3079	575	0.6870	16.8869	730	0.2645	6.5024
425	0.0217	0.5341	580	0.7082	17.4068	735	0.2273	5.5864
430	0.0404	0.9931	585	0.7317	17.9846	740	0.1960	4.8189
435	0.0749	1.8411	590	0.7547	18.5521	745	0.1669	4.1032
440	0.1494	3.6729	595	0.7866	19.3346	750	0.1419	3.4882
445	0.3095	7.6085	600	0.8196	20.1468	755	0.1193	2.9328
450	0.5260	12.9297	605	0.8554	21.0264	760	0.1062	2.6101
455	0.6187	15.2085	610	0.8920	21.9268	765	0.0937	2.3028
460	0.5206	12.7969	615	0.9252	22.7409	770	0.0808	1.9849
465	0.4189	10.2971	620	0.9559	23.4971	775	0.0717	1.7613
470	0.3605	8.8602	625	0.9794	24.0743	780	0.0619	1.5215
475	0.3062	7.5260	630	0.9923	24.3917	785	0.0508	1.2480
480	0.2840	6.9800	635	0.9986	24.5456	790	0.0454	1.1159
485	0.2993	7.3561	640	0.9957	24.4741	795	0.0356	0.8758
490	0.3301	8.1150	645	0.9851	24.2144	800	0.0298	0.7328
495	0.3689	9.0667	650	0.9637	23.6878			
500	0.4120	10.1270	655	0.9351	22.9848			
505	0.4486	11.0272	660	0.8964	22.0331			
510	0.4829	11.8688	665	0.8496	20.8825			
515	0.5094	12.5223	670	0.7947	19.5343			
520	0.5304	13.0367	675	0.7373	18.1227			
525	0.5475	13.4575	680	0.6770	16.6416			
530	0.5671	13.9400	685	0.6143	15.0987			

2.3 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-12-10	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	S11872 (Setting at 3500K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
BLC2212001E-B1-PL	120.0	60	0.126	14.68	0.967

Sphere-Spectroradiometer Method:

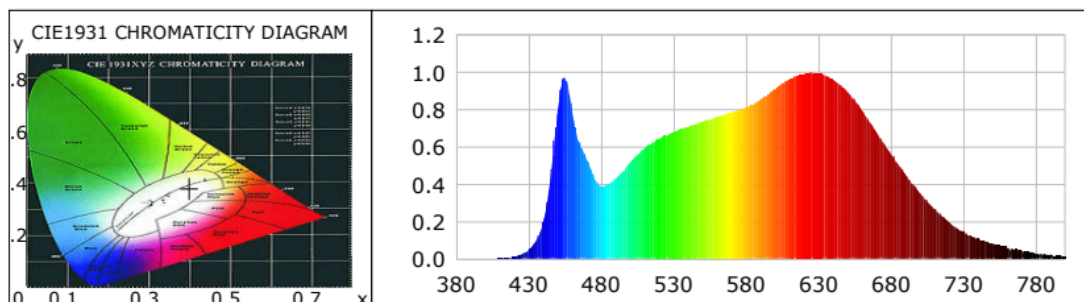
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	3608
Duv	-0.00231
Chromaticity (x, y)	x=0.3972 y=0.3814
Chromaticity (u', v')	u(u')=0.2343 v'=0.5061
Color Rendering Index (CRI)	96.7
R9	88

Special Color Rendering Indices			
R1	98	R9	88
R2	99	R10	99
R3	99	R11	99
R4	97	R12	77
R5	97	R13	99
R6	96	R14	99
R7	94	R15	97
R8	93	--	--

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1255.8
Luminous Efficacy (lm/W)	85.54

Spectral Power Distribution and Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0074	535	0.6612	15.6183	690	0.6765	15.9797
385	0.0008	0.0188	540	0.6785	16.0265	695	0.6184	14.6065
390	0.0014	0.0334	545	0.6938	16.3868	700	0.5593	13.2115
395	0.0007	0.0172	550	0.7083	16.7305	705	0.5036	11.8946
400	0.0017	0.0411	555	0.7215	17.0424	710	0.4513	10.6608
405	0.0013	0.0308	560	0.7352	17.3663	715	0.3983	9.4070
410	0.0016	0.0384	565	0.7481	17.6706	720	0.3503	8.2743
415	0.0054	0.1279	570	0.7606	17.9656	725	0.3055	7.2158
420	0.0122	0.2884	575	0.7716	18.2260	730	0.2657	6.2753
425	0.0250	0.5907	580	0.7811	18.4507	735	0.2286	5.3997
430	0.0476	1.1243	585	0.7955	18.7891	740	0.1957	4.6237
435	0.0955	2.2560	590	0.8136	19.2183	745	0.1672	3.9504
440	0.1948	4.6017	595	0.8299	19.6021	750	0.1430	3.3779
445	0.4220	9.9683	600	0.8564	20.2285	755	0.1190	2.8098
450	0.7844	18.5281	605	0.8826	20.8484	760	0.1064	2.5133
455	0.9739	23.0049	610	0.9100	21.4955	765	0.0961	2.2691
460	0.7949	18.7761	615	0.9403	22.2108	770	0.0809	1.9100
465	0.6232	14.7203	620	0.9638	22.7643	775	0.0711	1.6801
470	0.5374	12.6925	625	0.9833	23.2254	780	0.0605	1.4302
475	0.4403	10.4008	630	0.9928	23.4510	785	0.0505	1.1920
480	0.3891	9.1904	635	1.0000	23.6205	790	0.0444	1.0482
485	0.4002	9.4529	640	0.9962	23.5300	795	0.0356	0.8400
490	0.4305	10.1680	645	0.9829	23.2169	800	0.0285	0.6743
495	0.4703	11.1079	650	0.9607	22.6931			
500	0.5177	12.2280	655	0.9321	22.0165			
505	0.5583	13.1874	660	0.8935	21.1048			
510	0.5930	14.0071	665	0.8497	20.0696			
515	0.6202	14.6483	670	0.7954	18.7873			
520	0.6434	15.1984	675	0.7352	17.3661			
525	0.6612	15.6183	680	0.6765	15.9797			
530	0.6785	16.0265	685	0.6184	14.6065			

2.4 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-12-10	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	S11872 (Setting at 4000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
BLC2212001E-B1-PL	120.0	60	0.126	14.66	0.967

Sphere-Spectroradiometer Method:

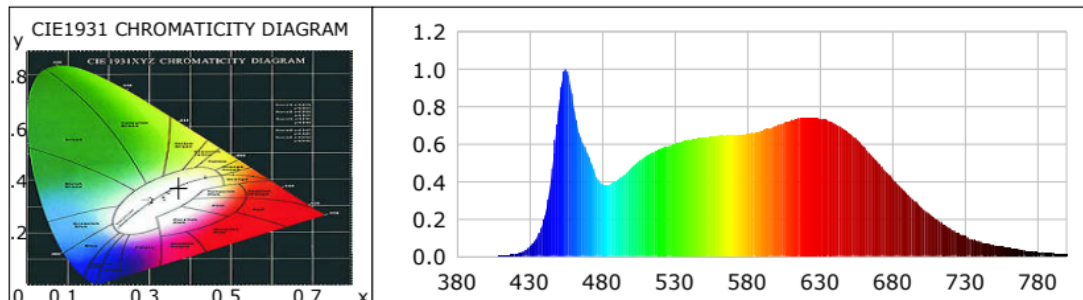
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	4198
Duv	-0.00099
Chromaticity (x, y)	x=0.3716 y=0.3690
Chromaticity (u', v')	u(u')=0.2223 v'=0.4968
Color Rendering Index (CRI)	96.2
R9	91

Special Color Rendering Indices			
R1	98	R9	91
R2	99	R10	99
R3	99	R11	97
R4	95	R12	71
R5	96	R13	99
R6	96	R14	99
R7	94	R15	96
R8	94	--	--

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1275.8
Luminous Efficacy (lm/W)	87.03

Spectral Power Distribution and Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0002	0.0048	535	0.5866	16.9622	690	0.4996	14.4453
385	0.0010	0.0278	540	0.5983	17.3000	695	0.4550	13.1578
390	0.0006	0.0173	545	0.6122	17.7015	700	0.4138	11.9651
395	0.0005	0.0148	550	0.6212	17.9628	705	0.3733	10.7940
400	0.0015	0.0428	555	0.6281	18.1628	710	0.3331	9.6305
405	0.0014	0.0391	560	0.6339	18.3279	715	0.2957	8.5503
410	0.0020	0.0584	565	0.6401	18.5078	720	0.2602	7.5240
415	0.0054	0.1550	570	0.6437	18.6121	725	0.2285	6.6079
420	0.0128	0.3698	575	0.6452	18.6568	730	0.1987	5.7448
425	0.0252	0.7295	580	0.6476	18.7259	735	0.1695	4.9021
430	0.0498	1.4408	585	0.6486	18.7532	740	0.1466	4.2394
435	0.0995	2.8784	590	0.6536	18.8982	745	0.1248	3.6076
440	0.1977	5.7157	595	0.6621	19.1441	750	0.1073	3.1028
445	0.4131	11.9440	600	0.6698	19.3682	755	0.0898	2.5955
450	0.7825	22.6254	605	0.6831	19.7522	760	0.0795	2.2987
455	1.0000	28.9152	610	0.6991	20.2135	765	0.0716	2.0708
460	0.8245	23.8412	615	0.7143	20.6541	770	0.0596	1.7230
465	0.6421	18.5673	620	0.7263	21.0003	775	0.0536	1.5497
470	0.5516	15.9503	625	0.7395	21.3816	780	0.0442	1.2775
475	0.4472	12.9299	630	0.7409	21.4245	785	0.0381	1.1014
480	0.3863	11.1692	635	0.7417	21.4465	790	0.0332	0.9598
485	0.3841	11.1059	640	0.7351	21.2556	795	0.0268	0.7751
490	0.4052	11.7170	645	0.7281	21.0535	800	0.0224	0.6468
495	0.4345	12.5638	650	0.7115	20.5744			
500	0.4728	13.6706	655	0.6883	19.9011			
505	0.5067	14.6523	660	0.6585	19.0400			
510	0.5349	15.4668	665	0.6272	18.1364			
515	0.5562	16.0817	670	0.5874	16.9839			
520	0.5740	16.5960	675	0.5442	15.7356			
525	0.5866	16.9622	680	0.4996	14.4453			
530	0.5983	17.3000	685	0.4550	13.1578			

2.5 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2022-12-10	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	S11872 (Setting at 5000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
BLC2212001E-B1-PL	120.0	60	0.126	14.65	0.967

Sphere-Spectroradiometer Method:

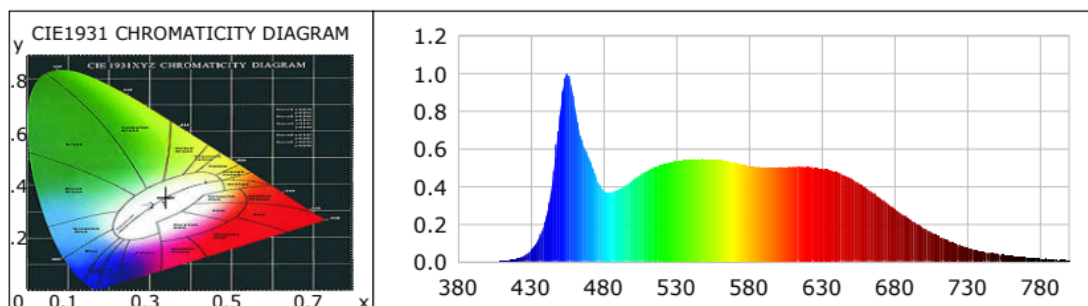
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	5262
Duv	0.00386
Chromaticity (x, y)	x=0.3385 y=0.3539
Chromaticity (u', v')	u(u')=0.2061 v'=0.4848
Color Rendering Index (CRI)	94.6
R9	81

Special Color Rendering Indices			
R1	96	R9	81
R2	99	R10	95
R3	98	R11	93
R4	92	R12	69
R5	93	R13	97
R6	95	R14	99
R7	94	R15	94
R8	91	--	--

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	1246.7
Luminous Efficacy (lm/W)	85.10

Spectral Power Distribution and Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.0136	535	0.5237	18.2349	690	0.3366	11.7189
385	0.0009	0.0300	540	0.5315	18.5081	695	0.3082	10.7305
390	0.0005	0.0190	545	0.5397	18.7933	700	0.2802	9.7567
395	0.0009	0.0327	550	0.5427	18.8973	705	0.2527	8.8004
400	0.0007	0.0235	555	0.5443	18.9528	710	0.2285	7.9563
405	0.0014	0.0486	560	0.5439	18.9377	715	0.2003	6.9729
410	0.0025	0.0881	565	0.5420	18.8742	720	0.1772	6.1700
415	0.0068	0.2358	570	0.5381	18.7353	725	0.1550	5.3975
420	0.0151	0.5241	575	0.5323	18.5356	730	0.1354	4.7138
425	0.0297	1.0350	580	0.5239	18.2434	735	0.1173	4.0856
430	0.0589	2.0500	585	0.5165	17.9853	740	0.1010	3.5176
435	0.1142	3.9765	590	0.5100	17.7602	745	0.0869	3.0268
440	0.2184	7.6036	595	0.5043	17.5587	750	0.0726	2.5279
445	0.4239	14.7591	600	0.5005	17.4270	755	0.0615	2.1423
450	0.7765	27.0371	605	0.4990	17.3749	760	0.0562	1.9571
455	1.0000	34.8206	610	0.5007	17.4355	765	0.0493	1.7181
460	0.8433	29.3658	615	0.5012	17.4535	770	0.0416	1.4485
465	0.6491	22.6011	620	0.5033	17.5255	775	0.0377	1.3140
470	0.5507	19.1747	625	0.5043	17.5589	780	0.0315	1.0979
475	0.4488	15.6290	630	0.5036	17.5359	785	0.0254	0.8861
480	0.3784	13.1768	635	0.5020	17.4792	790	0.0242	0.8413
485	0.3683	12.8243	640	0.4940	17.2021	795	0.0189	0.6588
490	0.3811	13.2692	645	0.4870	16.9568	800	0.0158	0.5503
495	0.4037	14.0588	650	0.4753	16.5499			
500	0.4330	15.0767	655	0.4606	16.0378			
505	0.4592	15.9905	660	0.4428	15.4188			
510	0.4820	16.7838	665	0.4193	14.6020			
515	0.5021	17.4845	670	0.3935	13.7007			
520	0.5160	17.9657	675	0.3679	12.8094			
525	0.5237	18.2349	680	0.3366	11.7189			
530	0.5315	18.5081	685	0.3082	10.7305			

3. Test Equipment

Equipment Name	Model No.	Serial No.	Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2022-01-18
AC Power Source	CHP-500C	DYBWD010159	2022-01-25
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2022-01-25
Digital Power Meter	WT500	DYDWQ20010	2022-01-25
Integral Sphere (2M)	2M	DYJCE120067	2022-01-18
Digital Power Meter	WT500	DYDWQ200006	2022-01-25
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2022-01-18
Expand Uncertainty: Photometric Measurement (Sphere): 2.08%, k=2 Chromaticity Measurement(Sphere):25.6K, k=2 Photometric Measurement(Goniophotometer):2.645%, k=2			

***** END OF REPORT *****