



DesignLights Consortium Test Report

Reference Standards

UL1598-2008

ANSI C82.77-10-2014

IES LM-79-2008

Prepared For

P.Q.L., Inc.

2285 Ward Avenue / Simi Valley, CA 93065

Test Laboratory:

UL-CCIC Company Limited

Test Laboratory Address:

No.2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China

Catalog Number

55736

Project Number

4790888268

Report Number

4790888268_26

Test Date

2023-07-24~2023-07-26

Issue Date

2023-07-28

Revision Date

N/A

Prepared By

Elaine Zhao

Zhao, Elaine

Approved By

Elvis Wu

Wu, Elvis

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Test Summary

DLC Technical Requirements V5.1- issued 2020-02-14

Requirement Category	Test Method	Requirements	Tolerance	Test Result
Minimum Light Output (lm)-Luminaires	IES LM-79-2008	≥10000	-10%	25632.8
Zonal Lumen Requirement 1(20°-50°)	IES LM-79-2008	≥30%	-10%	46.20%
Minimum Luminaire Efficacy (lm/W)-Luminaires	IES LM-79-2008	≥135	-3%	160.96
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3525
Allowable CCT (4000K)	IES LM-79-2008/ANSI C78.377-2015	3985±275	N/A	4204
Allowable CCT (5000K)	IES LM-79-2008/ANSI C78.377-2015	5029±283	N/A	5133
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3523
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3518
Minimum CRI	IES LM-79-2008/CIE 13.3-1995	≥70	-1	81
Minimum R9	IES LM-79-2008	≥40	-1	-5.0
Minimum Rg	IES LM-79-2008	≥89	-1	95
Minimum Rf	IES LM-79-2008	≥70	-1	81
Rcs,h1	IES LM-79-2008	-18%-23%	-1%	-13%
L70 Lumen maintenance (Hours)	N/A	≥50000	N/A	≥50000
L90 Lumen maintenance (Hours)	N/A	≥36000	N/A	≥36000
Power Factor	ANSI C82.77-10-2014	≥0.9	-0.03	0.9573
Total Harmonic Distortion (A%)	ANSI C82.77-10-2014	≤20%	5%	11.44%
In-Situ Temperature Measurement Test for LED 1 (°C)	UL1598-2008	≤105	N/A	77.2
In-Situ Temperature Measurement Test for Driver 1 (°C)	UL1598-2008	≤90	N/A	74.6
Max Chromaticity Shift (1000-6000h)	N/A	≤0.007	0.0004	0.0020
Minimum Luminaire Warranty (Years)	N/A	≥5	N/A	≥5

Test List

Sample Received Date: 2023-07-24

Test Item	Test Date	Model Number	Tests Conducted By
Integrating Sphere Test	2023-07-25	55736-200W-35K	Yang, Gavin X
Integrating Sphere Test	2023-07-25	55736-200W-40K	Yang, Gavin X
Integrating Sphere Test	2023-07-25	55736-200W-50K	Yang, Gavin X
Integrating Sphere Test	2023-07-25	55736-185W-35K	Yang, Gavin X
Integrating Sphere Test	2023-07-25	55736-155W-35K	Yang, Gavin X
Goniophotometer Test	2023-07-24	55736-200W-35K	Yang, Gavin X
Goniophotometer Test	2023-07-24	55736-200W-50K	Yang, Gavin X
THD and PF Test	2023-07-24	55736-200W-35K	Yang, Gavin X
THD and PF Test	2023-07-24	55736-200W-40K	Yang, Gavin X
THD and PF Test	2023-07-24	55736-200W-50K	Yang, Gavin X
THD and PF Test	2023-07-24	55736-185W-35K	Yang, Gavin X
THD and PF Test	2023-07-24	55736-155W-35K	Yang, Gavin X
In-Situ Temperature Measurement Test	2023-07-26	55736-200W-35K	Yang, Gavin X

Remark (if any)

1. UL test equipment information is recorded on Meter Use in UL’s Aurora database.
2. The accuracy method decision rule is applied when the compliance or verdict is made to the results of this report.

Product Description

Lamp/Luminaire Description: High-bay Luminaires for Commercial and Industrial Buildings

Model Number: 55736

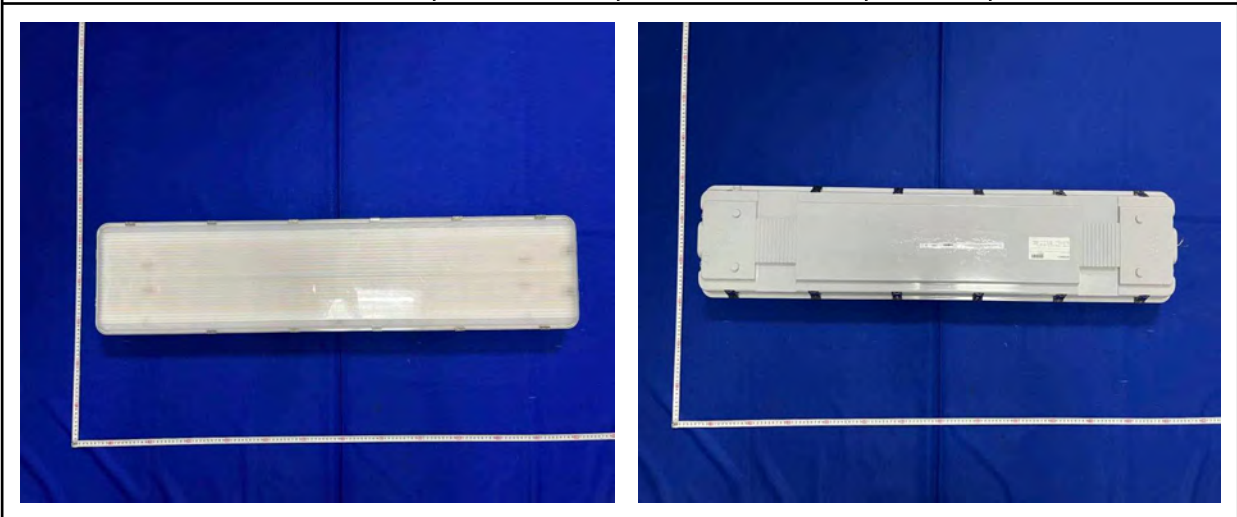
Electrical Parameter: 120-277V, 50/60Hz

LED Package: BXEN-xxE-21L-3C

Dimming Information: Continuous dimming capability

Products Scaled Value

Model Number	CCT	Luminous Flux	Power	Luminous Efficacy
55736-200W-35K	3500K	32000	200	160
55736-200W-40K	4000K	33000	200	165
55736-200W-50K	5000K	32400	200	162
55736-185W-35K	3500K	30155	185	163
55736-185W-40K	4000K	31080	185	168
55736-185W-50K	5000K	30525	185	165
55736-155W-35K	3500K	25730	155	166
55736-155W-40K	4000K	26505	155	171
55736-155W-50K	5000K	26040	155	168



Integrating Sphere Test

Model No.	55736-200W-35K		Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45	

Test Method

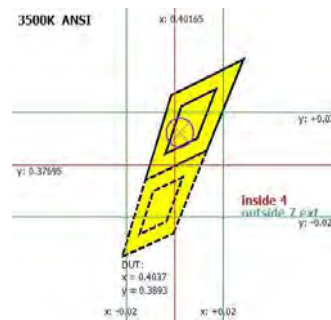
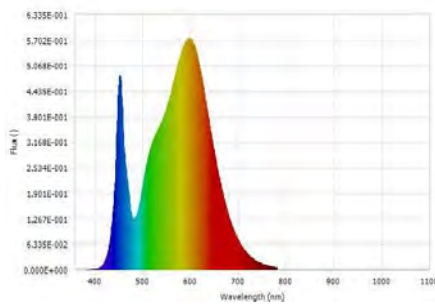
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 1 °C. The reference standard lamp is rated current 2.679A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.
 3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Integrating Sphere Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
24.8	119.89	60	1.6580	198.49	0.9985	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3525	81	-3.0	-0.0003	32019.5	161.32	N/A



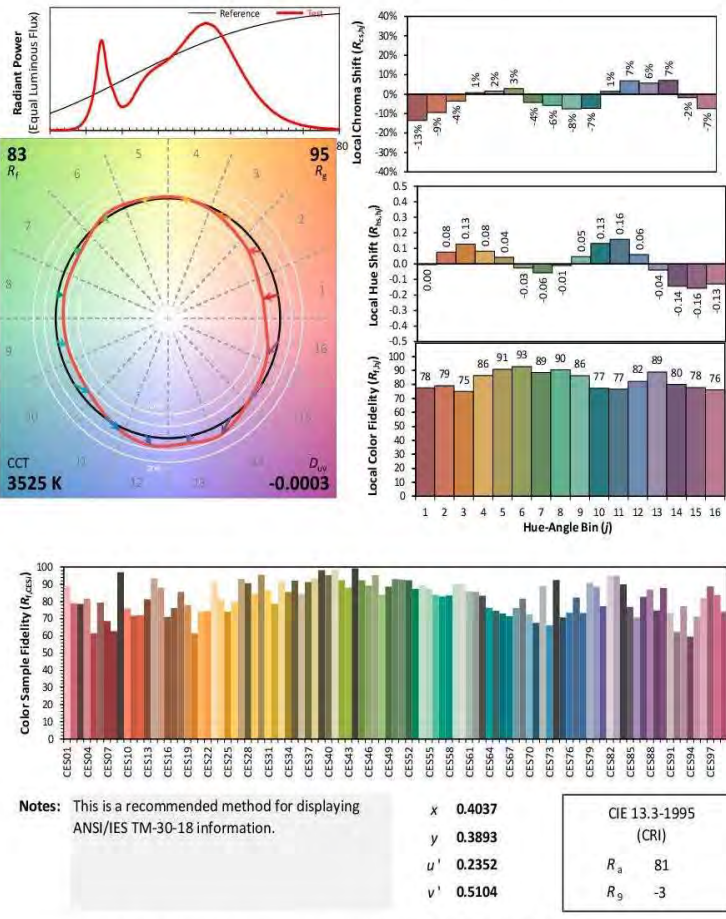
Luminous Flux (lm)	32019.5	Chrom x	0.4037
Chrom y	0.3893	Chrom u	0.2352
Chrom v	0.3403	Duv	-0.0003
Chrom u'	0.2352	Chrom v'	0.5104
CCT (K)	3525	Luminous Efficacy (lm/W)	161.32
Ra	81	R1	78.0
R2	88.0	R3	96.0
R4	78.0	R5	79.0
R6	84.0	R7	83.0
R8	58.0	R9	-3.0
R10	73.0	R11	77.0
R12	62.0	R13	81.0
R14	98.0	R15	71.0
Rf	83	Rg	95
Rcs,h1	-13%		

Integrating Sphere Test (Cont'd)

TM-30 Report

ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-21L-3C Manufacturer: P.Q.L., Inc.
 Date: 7/25/2023 Model: 55736-200W-35K



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

Integrating Sphere Test

Model No.	55736-200W-40K		Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45	

Test Method

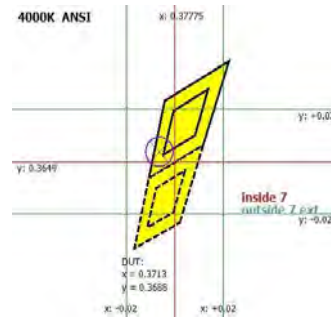
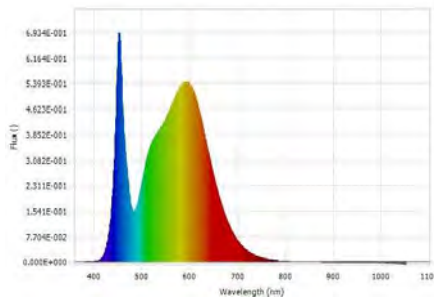
1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2.Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 1 °C. The reference standard lamp is rated current 2.679A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.
 3.The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Integrating Sphere Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
24.8	120.16	60	1.5939	191.23	0.9984	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
4204	82	1.0	-0.0010	32928.3	172.19	N/A



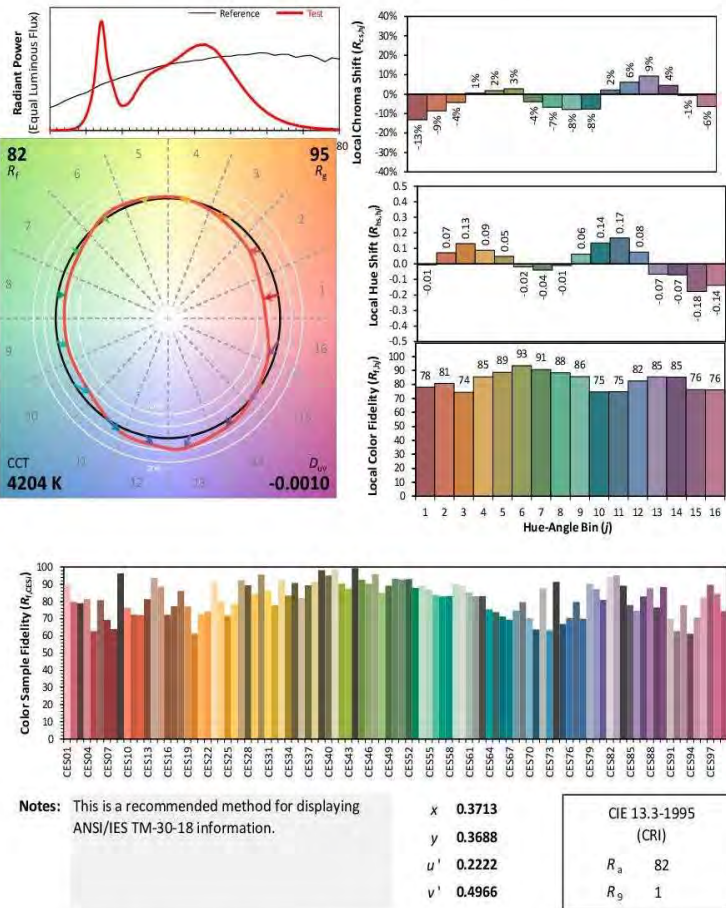
Luminous Flux (lm)	32928.3	Chrom x	0.3713
Chrom y	0.3688	Chrom u	0.2222
Chrom v	0.3311	Duv	-0.0010
Chrom u'	0.2222	Chrom v'	0.4966
CCT (K)	4204	Luminous Efficacy (lm/W)	172.19
Ra	82	R1	80.0
R2	88.0	R3	94.0
R4	80.0	R5	80.0
R6	83.0	R7	85.0
R8	62.0	R9	1.0
R10	72.0	R11	79.0
R12	59.0	R13	82.0
R14	97.0	R15	74.0
Rf	82	Rg	95
Rcs,h1	-13%		

Integrating Sphere Test (Cont'd)

TM-30 Report

ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-21L-3C Manufacturer: P.Q.L., Inc.
 Date: 7/25/2023 Model: 55736-200W-40K



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

Integrating Sphere Test

Model No.	55736-200W-50K		Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45	

Test Method

1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.

2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 1 °C. The reference standard lamp is rated current 2.679A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.

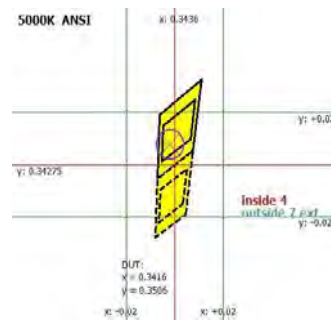
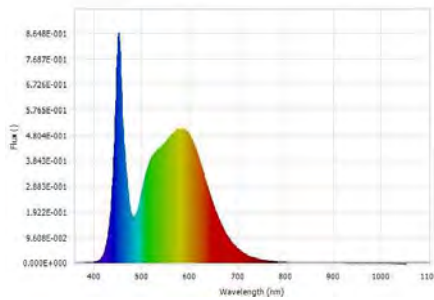
3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Integrating Sphere Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
24.8	120.1	60	1.6625	199.39	0.9986	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
5133	81	-5.0	0.0009	32683.4	163.92	N/A



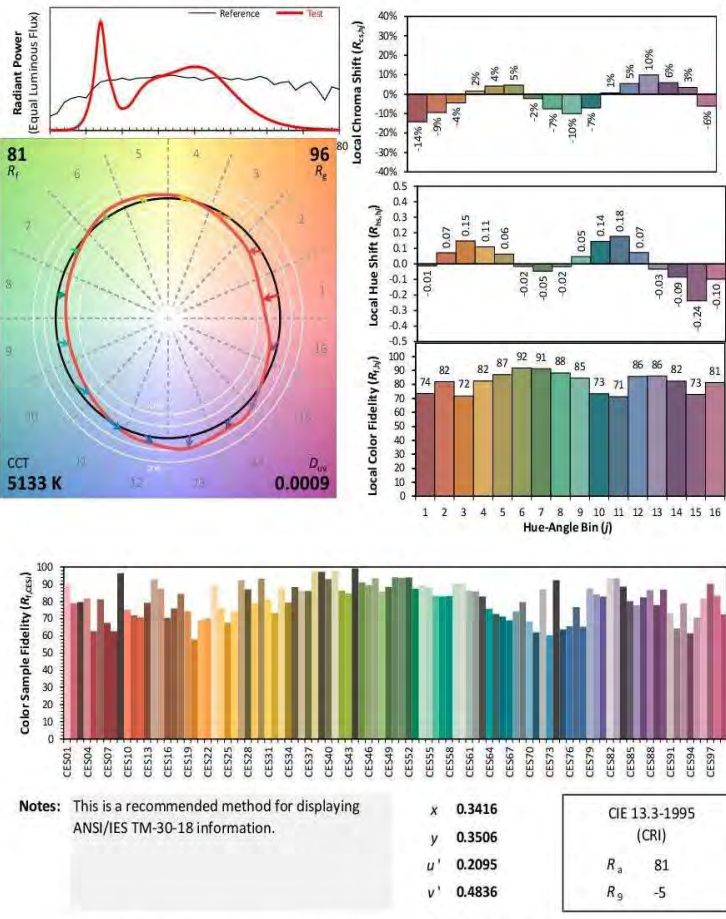
Luminous Flux (lm)	32683.4	Chrom x	0.3416
Chrom y	0.3506	Chrom u	0.2095
Chrom v	0.3224	Duv	0.0009
Chrom u'	0.2095	Chrom v'	0.4836
CCT (K)	5133	Luminous Efficacy (lm/W)	163.92
Ra	81	R1	79.0
R2	86.0	R3	91.0
R4	81.0	R5	80.0
R6	80.0	R7	85.0
R8	64.0	R9	-5.0
R10	66.0	R11	80.0
R12	59.0	R13	80.0
R14	95.0	R15	73.0
Rf	81	Rg	96
Rcs,h1	-14%		

Integrating Sphere Test (Cont'd)

TM-30 Report

ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-21L-3C Manufacturer: P.Q.L., Inc.
 Date: 7/25/2023 Model: 55736-200W-50K



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Integrating Sphere Test

Model No.	55736-185W-35K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

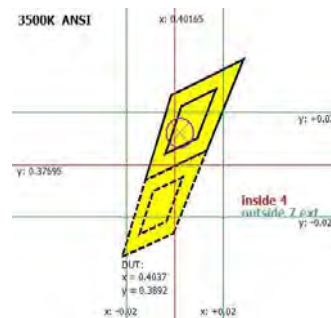
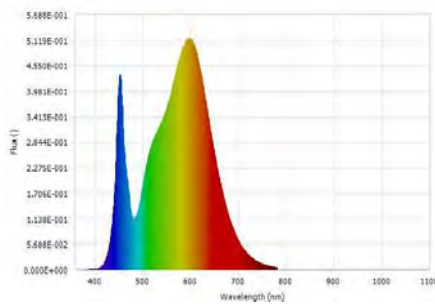
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 1 °C. The reference standard lamp is rated current 2.679A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.
 3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Integrating Sphere Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
24.8	120.01	60	1.4865	178.12	0.9985	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3523	81	-3.0	-0.0003	28878.3	162.13	N/A



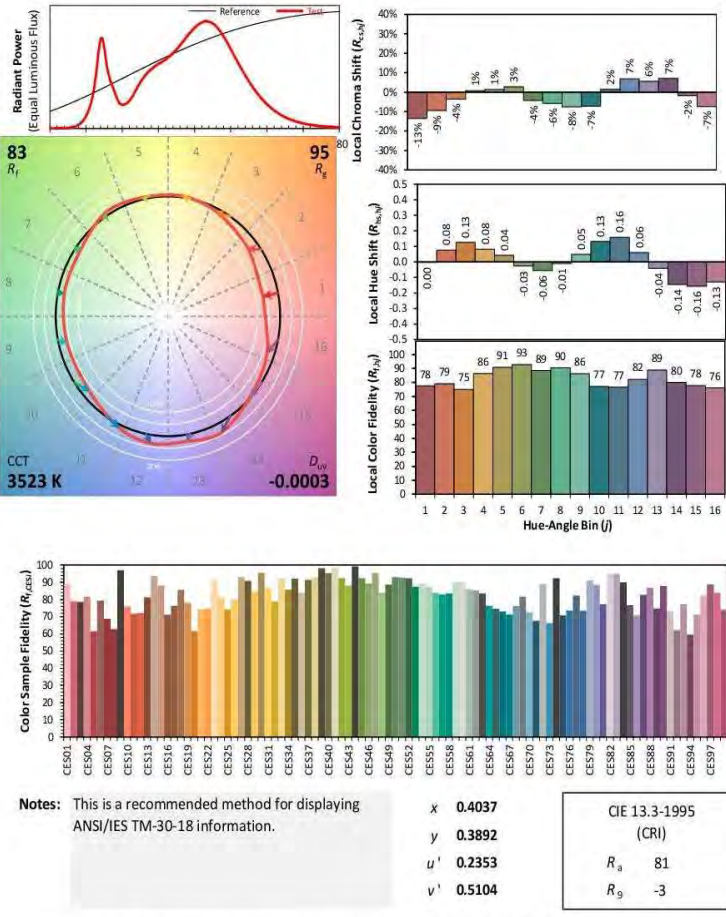
Luminous Flux (lm)	28878.3	Chrom x	0.4037
Chrom y	0.3892	Chrom u	0.2353
Chrom v	0.3403	Duv	-0.0003
Chrom u'	0.2353	Chrom v'	0.5104
CCT (K)	3523	Luminous Efficacy (lm/W)	162.13
Ra	81	R1	79.0
R2	89.0	R3	96.0
R4	78.0	R5	79.0
R6	85.0	R7	83.0
R8	58.0	R9	-3.0
R10	73.0	R11	77.0
R12	62.0	R13	81.0
R14	98.0	R15	71.0
Rf	83	Rg	95
Rcs,h1	-13%		

Integrating Sphere Test (Cont'd)

TM-30 Report

ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-21L-3C Manufacturer: P.Q.L., Inc.
 Date: 7/25/2023 Model: 55736-185W-35K



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

Integrating Sphere Test

Model No.	55736-155W-35K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

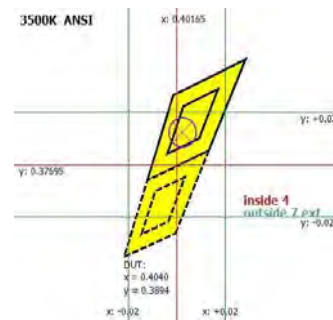
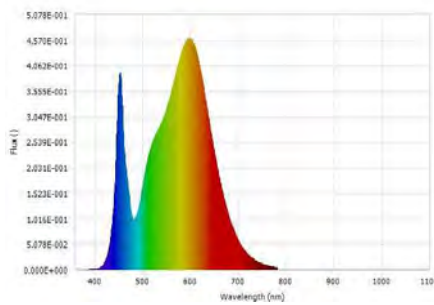
1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2.Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 1 °C. The reference standard lamp is rated current 2.679A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.
 3.The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption factor is applied in the final test result. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Integrating Sphere Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
24.8	120.09	60	1.2980	155.61	0.9983	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3518	81	-3.0	-0.0003	25632.8	164.72	N/A



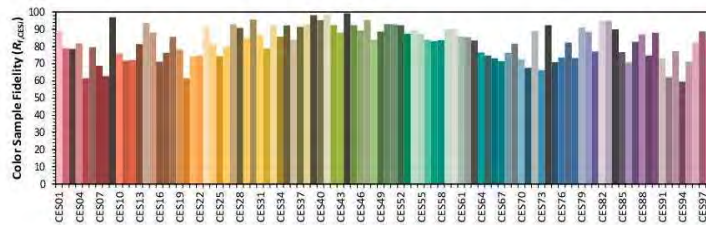
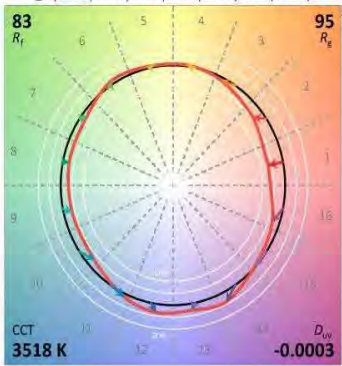
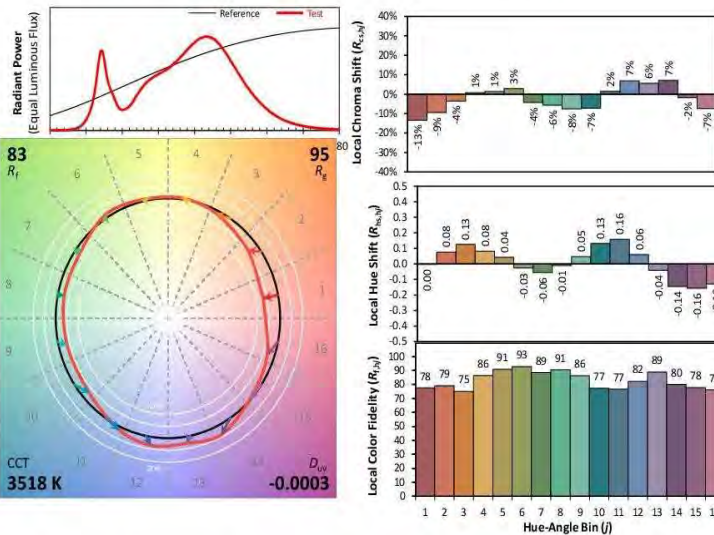
Luminous Flux (lm)	25632.8	Chrom x	0.4040
Chrom y	0.3894	Chrom u	0.2354
Chrom v	0.3403	Duv	-0.0003
Chrom u'	0.2354	Chrom v'	0.5105
CCT (K)	3518	Luminous Efficacy (lm/W)	164.72
Ra	81	R1	79.0
R2	89.0	R3	96.0
R4	79.0	R5	79.0
R6	85.0	R7	83.0
R8	58.0	R9	-3.0
R10	73.0	R11	77.0
R12	62.0	R13	81.0
R14	98.0	R15	71.0
Rf	83	Rg	95
Rcs,h1	-13%		

Integrating Sphere Test (Cont'd)

TM-30 Report

ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-21L-3C Manufacturer: P.Q.L., Inc.
 Date: 7/25/2023 Model: 55736-155W-35K



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

x	0.4040	CIE 13.3-1995 (CRI)
y	0.3894	
u'	0.2354	
v'	0.5105	

R_a 81
 R_9 -3

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Goniophotometer Test

Model No.	55736-200W-35K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

- 1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
- 2.Photometric parameters were measured using a type C goniophotometer and software.
- 3.The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The reference standard lamp is rated current 3.8581A, 3.8558A, 3.8466A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.
- 4.The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonallumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. Photometric distance was more than five times of the largest dimension of the test SSL product.

Goniophotometer Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.7	119.91	60	1.6745	200.589	0.9990	3.45%	Horizontal

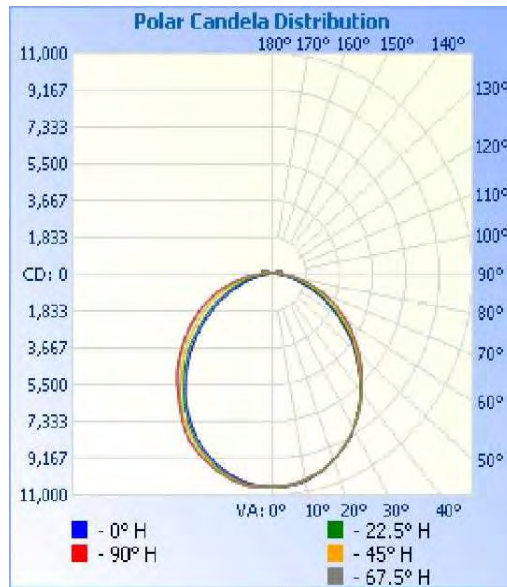
Test Results

Luminous Flux (lm)	Zonal Lumen Requirement 1	Zonal Lumen Requirement 2	Beam Angle (50%)		Luminous Efficacy (lm/W)
	20°-50°	N/A	Horizontal Spread	Vertical Spread	
32287.1	46.30%	N/A	116.2	106.8	160.96

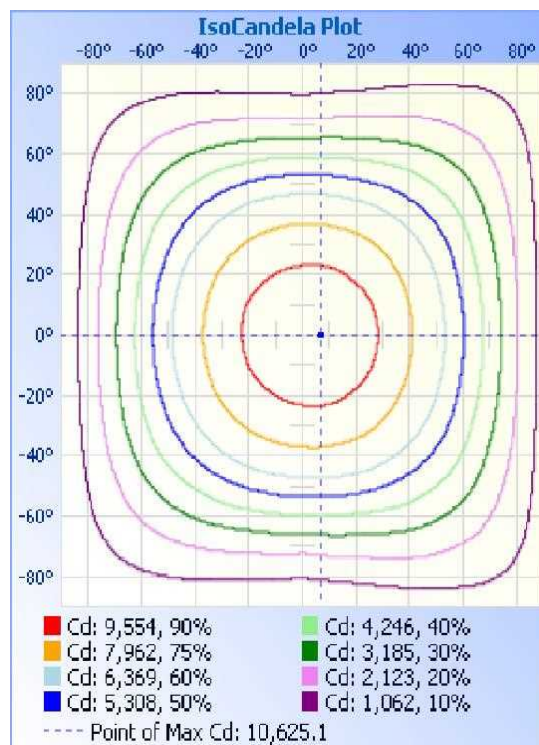
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
N/A	N/A	N/A	N/A

Goniophotometer Test (Cont'd)
Polar Candela Distribution



IsoCandela Plot



Goniophotometer Test (Cont'd)
Zonal Lumen Summary

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	8257.2	25.60%
0-40	13501.9	41.80%
0-60	23702.1	73.40%
60-90	7240.3	22.40%
70-100	3944.1	12.20%
90-120	1111.6	3.40%
0-90	30942.4	95.80%
90-180	1344.7	4.20%
0-180	32287.1	100.00%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	252.3	0.80%	90-95	257.7	0.80%
5-10	751.0	2.30%	95-100	220.5	0.70%
10-15	1225.3	3.80%	100-105	201.2	0.60%
15-20	1656.7	5.10%	105-110	177.4	0.50%
20-25	2032.0	6.30%	110-115	145.0	0.40%
25-30	2340.0	7.20%	115-120	109.9	0.30%
30-35	2560.5	7.90%	120-125	77.6	0.20%
35-40	2684.2	8.30%	125-130	51.6	0.20%
40-45	2707.3	8.40%	130-135	32.5	0.10%
45-50	2656.2	8.20%	135-140	19.6	0.10%
50-55	2526.2	7.80%	140-145	12.4	0.00%
55-60	2310.5	7.20%	145-150	9.0	0.00%
60-65	2042.9	6.30%	150-155	7.8	0.00%
65-70	1731.4	5.40%	155-160	7.0	0.00%
70-75	1384.4	4.30%	160-165	6.2	0.00%
75-80	1028.7	3.20%	165-170	5.1	0.00%
80-85	669.6	2.10%	170-175	3.2	0.00%
85-90	383.3	1.20%	175-180	1.1	0.00%

Goniophotometer Test (Cont'd)
Intensity Data(cd)

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	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569	10569
1	10582	10592	10579	10565	10567	10538	10538	10572	10570	10587	10584	10574	10570	10542	10535	10556	10547
2	10581	10585	10563	10548	10537	10511	10515	10557	10563	10586	10584	10583	10577	10548	10540	10564	10549
3	10572	10576	10546	10531	10528	10499	10494	10542	10560	10595	10589	10585	10578	10546	10538	10562	10543
4	10577	10569	10539	10530	10529	10492	10480	10528	10547	10590	10584	10592	10592	10553	10538	10558	10540
5	10566	10551	10529	10522	10519	10480	10465	10506	10534	10573	10579	10599	10611	10564	10535	10548	10527
6	10551	10534	10509	10503	10501	10466	10445	10480	10520	10560	10578	10603	10621	10575	10534	10540	10512
7	10534	10511	10487	10476	10469	10442	10436	10451	10485	10538	10574	10603	10625	10582	10537	10530	10497
8	10515	10492	10465	10445	10442	10418	10415	10419	10460	10513	10567	10597	10606	10578	10540	10514	10479
9	10487	10467	10438	10412	10410	10390	10381	10384	10425	10487	10553	10574	10588	10566	10542	10493	10454
10	10459	10438	10397	10373	10368	10358	10339	10346	10384	10451	10522	10544	10563	10546	10533	10467	10417
11	10408	10392	10345	10320	10315	10317	10292	10297	10338	10414	10478	10515	10535	10526	10512	10432	10368
12	10355	10345	10301	10272	10271	10269	10245	10255	10288	10376	10438	10493	10507	10501	10481	10390	10316
13	10300	10291	10249	10223	10222	10219	10188	10204	10238	10340	10396	10461	10468	10476	10442	10348	10261
14	10242	10234	10201	10181	10184	10168	10132	10157	10180	10292	10354	10423	10422	10439	10396	10303	10208
15	10187	10169	10146	10142	10137	10118	10078	10103	10124	10237	10308	10369	10372	10392	10351	10252	10150
16	10132	10109	10089	10098	10079	10066	10010	10037	10067	10176	10263	10321	10320	10337	10296	10203	10095
17	10065	10032	10022	10035	10016	10000	9942	9966	9998	10109	10202	10263	10264	10277	10238	10141	10027
18	9995	9957	9965	9972	9939	9928	9861	9892	9931	10037	10135	10210	10208	10214	10169	10071	9950
19	9918	9873	9894	9906	9864	9841	9791	9810	9861	9972	10061	10153	10146	10150	10088	9998	9875
20	9841	9793	9815	9829	9785	9758	9717	9730	9785	9900	9984	10090	10092	10089	10007	9925	9801
25	9446	9390	9384	9426	9380	9363	9316	9300	9361	9503	9594	9746	9788	9763	9610	9544	9408
30	8899	8865	8862	8915	8899	8831	8807	8774	8810	8966	9118	9299	9362	9342	9157	9017	8851
35	8256	8230	8277	8325	8288	8253	8210	8140	8187	8351	8581	8713	8751	8764	8615	8374	8226
40	7554	7540	7606	7611	7609	7546	7510	7422	7454	7639	7903	7995	8065	8031	7939	7670	7516
45	6728	6767	6810	6900	6929	6834	6738	6649	6654	6882	7129	7330	7452	7335	7160	6871	6696
50	5898	5987	6067	6226	6237	6143	5956	5859	5845	6095	6392	6707	6782	6678	6384	6073	5881
55	5024	5147	5295	5454	5488	5395	5175	5011	4960	5224	5609	5951	6065	5955	5615	5216	5000
60	4115	4252	4470	4690	4727	4636	4394	4178	4067	4356	4817	5190	5303	5210	4829	4357	4095
65	3255	3416	3709	3934	3949	3890	3633	3356	3224	3539	4065	4457	4563	4466	4049	3527	3249
70	2438	2632	2942	3158	3183	3116	2867	2552	2409	2754	3298	3672	3793	3683	3255	2713	2420
75	1698	1894	2197	2374	2391	2341	2141	1853	1703	2038	2557	2901	3005	2904	2510	1985	1694
80	1066	1243	1503	1626	1627	1612	1470	1213	1072	1375	1822	2091	2162	2099	1788	1332	1060
85	543	690	883	944	937	940	862	668	543	796	1124	1297	1335	1309	1106	763	535
90	247	380	536	581	570	572	513	355	242	442	675	771	784	788	669	422	248
95	204	300	445	503	499	496	415	271	196	333	520	600	616	612	515	314	203
100	176	245	405	493	506	475	375	222	171	269	461	567	595	571	447	251	174
105	145	191	364	488	520	467	337	176	145	212	415	560	606	554	396	194	144
110	117	139	304	446	491	427	282	131	119	159	352	515	575	506	332	142	117
115	92	91	234	376	423	360	222	93	95	109	280	439	499	429	260	99	91
120	70	60	162	296	341	283	160	64	74	72	201	347	403	339	190	68	69
125	52	40	102	219	256	209	105	49	56	49	130	259	306	251	127	48	52
130	40	33	60	151	182	143	63	38	44	38	78	181	218	175	77	38	40
135	33	30	38	94	120	90	38	31	34	31	45	116	146	111	47	32	33
140	29	27	27	55	71	54	27	27	29	28	29	67	88	66	30	30	30
145	28	28	29	34	44	34	27	26	28	26	27	41	53	41	29	28	28
150	29	29	30	31	31	31	29	28	28	27	28	31	33	32	31	30	28
155	33	32	32	33	33	32	31	31	31	30	31	33	34	34	33	32	32
160	36	36	35	35	35	34	34	35	35	35	34	35	36	37	36	36	36
165	42	41	40	40	40	38	40	41	40	40	40	40	41	41	42	41	41
170	46	45	45	44	44	44	45	44	45	45	44	45	45	45	46	46	46
175	46	46	46	45	46	45	46	46	46	46	46	45	46	46	46	46	47
180	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47

Goniophotometer Test

Model No.	55736-200W-50K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

- 1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
- 2.Photometric parameters were measured using a type C goniophotometer and software.
- 3.The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample. The reference standard lamp is rated current 3.8581A, 3.8558A, 3.8466A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.
- 4.The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonallumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals. Photometric distance was more than five times of the largest dimension of the test SSL product.

Goniophotometer Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.7	120.01	60	1.6649	199.574	0.9988	3.96%	Horizontal

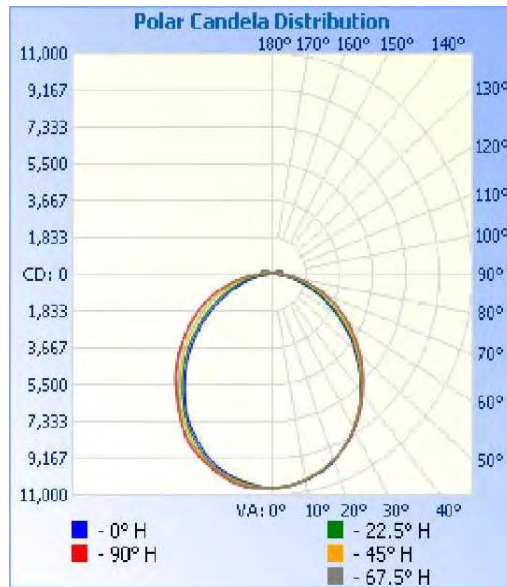
Test Results

Luminous Flux (lm)	Zonal Lumen Requirement 1	Zonal Lumen Requirement 2	Beam Angle (50%)		Luminous Efficacy (lm/W)
	20°-50°	N/A	Horizontal Spread	Vertical Spread	
32682.3	46.20%	N/A	116.9	107.3	163.76

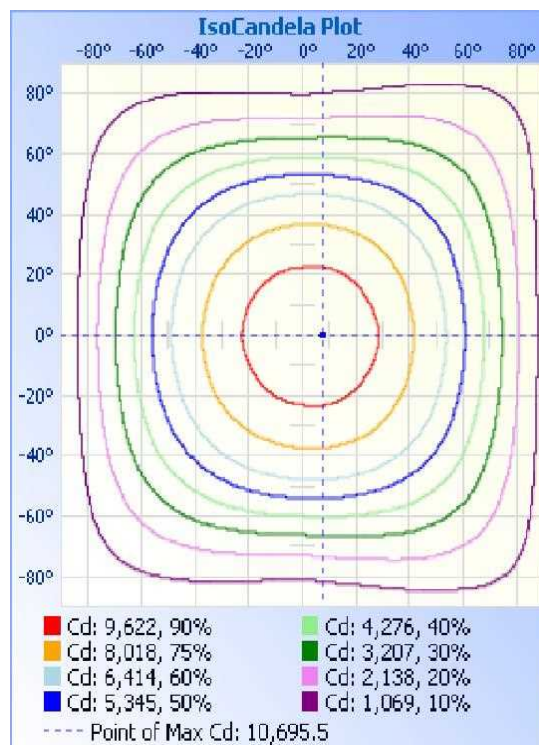
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
N/A	N/A	N/A	N/A

Goniophotometer Test (Cont'd)
Polar Candela Distribution



IsoCandela Plot



Goniophotometer Test (Cont'd)
Zonal Lumen Summary

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	8288.8	25.40%
0-40	13577.8	41.50%
0-60	23918.5	73.20%
60-90	7391.7	22.60%
70-100	4039.0	12.40%
90-120	1134.5	3.50%
0-90	31310.2	95.80%
90-180	1372.1	4.20%
0-180	32682.3	100.00%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	253.4	0.80%	90-95	263.4	0.80%
5-10	752.0	2.30%	95-100	224.9	0.70%
10-15	1226.4	3.80%	100-105	205.1	0.60%
15-20	1662.6	5.10%	105-110	180.9	0.60%
20-25	2041.7	6.20%	110-115	148.0	0.50%
25-30	2352.7	7.20%	115-120	112.2	0.30%
30-35	2580.1	7.90%	120-125	79.4	0.20%
35-40	2708.9	8.30%	125-130	52.8	0.20%
40-45	2739.5	8.40%	130-135	33.2	0.10%
45-50	2691.0	8.20%	135-140	20.0	0.10%
50-55	2562.6	7.80%	140-145	12.6	0.00%
55-60	2347.6	7.20%	145-150	9.1	0.00%
60-65	2076.3	6.40%	150-155	7.8	0.00%
65-70	1764.6	5.40%	155-160	7.0	0.00%
70-75	1413.9	4.30%	160-165	6.2	0.00%
75-80	1052.0	3.20%	165-170	5.1	0.00%
80-85	690.5	2.10%	170-175	3.2	0.00%
85-90	394.3	1.20%	175-180	1.1	0.00%

Goniophotometer Test (Cont'd)

Intensity Data(cd)

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	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633	10633
1	10636	10644	10629	10625	10618	10593	10595	10628	10629	10649	10642	10637	10633	10610	10606	10631	10620
2	10622	10628	10614	10606	10600	10568	10562	10605	10618	10650	10650	10652	10648	10616	10604	10627	10608
3	10606	10610	10594	10591	10591	10553	10540	10581	10599	10637	10644	10653	10656	10616	10598	10615	10596
4	10588	10585	10577	10583	10587	10542	10518	10556	10578	10622	10632	10653	10663	10615	10583	10599	10574
5	10561	10552	10552	10566	10577	10531	10498	10523	10552	10600	10617	10656	10679	10622	10568	10567	10545
6	10529	10520	10524	10543	10556	10510	10473	10486	10518	10566	10603	10664	10693	10634	10556	10538	10513
7	10494	10487	10498	10512	10529	10486	10445	10453	10486	10532	10588	10662	10696	10636	10546	10510	10485
8	10466	10457	10463	10475	10498	10456	10416	10420	10452	10503	10569	10645	10686	10626	10537	10487	10450
9	10428	10420	10413	10438	10464	10420	10386	10390	10429	10478	10547	10620	10666	10605	10522	10455	10417
10	10395	10379	10364	10392	10422	10381	10348	10360	10400	10456	10518	10590	10641	10582	10503	10424	10377
11	10357	10340	10306	10341	10377	10336	10302	10325	10365	10426	10485	10556	10618	10554	10473	10388	10338
12	10316	10297	10255	10291	10327	10280	10255	10289	10327	10401	10443	10519	10590	10526	10433	10355	10299
13	10274	10255	10204	10240	10281	10226	10207	10243	10282	10363	10400	10477	10547	10487	10394	10329	10262
14	10234	10213	10154	10199	10240	10177	10155	10198	10229	10326	10360	10427	10494	10442	10354	10299	10224
15	10188	10168	10098	10150	10194	10130	10105	10145	10177	10283	10323	10375	10441	10386	10307	10263	10181
16	10145	10112	10045	10103	10139	10077	10050	10087	10121	10236	10282	10320	10393	10328	10267	10229	10133
17	10095	10049	9991	10044	10072	10015	9990	10028	10067	10182	10240	10272	10342	10268	10213	10187	10080
18	10035	9981	9936	9973	10000	9944	9928	9964	10010	10129	10188	10220	10292	10208	10159	10137	10016
19	9964	9912	9880	9898	9925	9864	9861	9899	9949	10071	10133	10169	10236	10145	10097	10074	9942
20	9881	9839	9818	9820	9848	9780	9790	9819	9877	10006	10066	10115	10173	10081	10032	10003	9860
25	9423	9404	9429	9415	9455	9401	9393	9366	9409	9555	9679	9770	9873	9744	9681	9561	9416
30	8920	8862	8901	8903	8982	8916	8892	8860	8908	9057	9218	9386	9471	9365	9207	9040	8901
35	8297	8285	8292	8338	8380	8349	8273	8238	8289	8446	8656	8808	8853	8811	8644	8454	8296
40	7570	7568	7612	7645	7692	7659	7614	7548	7574	7757	8012	8120	8180	8117	7998	7716	7550
45	6771	6796	6859	6952	7010	6926	6839	6774	6796	7018	7263	7458	7563	7419	7230	6925	6752
50	5933	6023	6113	6290	6314	6225	6056	5966	5956	6210	6509	6813	6891	6758	6444	6127	5933
55	5057	5174	5327	5511	5572	5486	5283	5134	5084	5346	5732	6060	6180	6034	5673	5273	5049
60	4144	4270	4492	4724	4798	4709	4492	4283	4187	4473	4930	5305	5409	5272	4884	4400	4134
65	3279	3433	3733	3962	4014	3960	3718	3449	3316	3634	4158	4554	4663	4524	4098	3564	3283
70	2456	2650	2970	3192	3250	3184	2948	2640	2500	2850	3390	3773	3887	3737	3304	2750	2449
75	1712	1900	2209	2385	2431	2394	2204	1920	1774	2116	2640	2991	3081	2947	2541	2005	1708
80	1073	1244	1508	1634	1658	1660	1528	1273	1130	1441	1898	2172	2236	2144	1820	1352	1076
85	537	690	885	954	962	976	904	709	586	850	1183	1358	1385	1339	1126	770	536
90	246	379	536	584	577	583	531	372	262	468	703	802	808	802	678	426	246
95	207	303	451	510	508	495	427	280	201	346	538	617	629	623	525	321	206
100	178	246	410	501	514	484	386	229	177	279	474	578	604	581	456	254	177
105	146	190	367	494	530	478	345	182	150	219	426	572	617	565	404	197	146
110	117	137	306	452	501	436	291	136	123	164	362	528	589	516	337	144	117
115	92	90	234	380	432	368	228	96	98	114	288	450	514	439	266	100	92
120	69	58	164	300	346	290	164	68	76	75	209	358	413	346	194	67	70
125	51	42	103	222	262	213	108	51	57	50	135	268	313	257	130	48	51
130	40	35	60	152	185	147	65	40	44	39	80	186	223	179	79	39	40
135	34	30	38	95	122	92	39	31	36	31	47	120	150	114	48	33	34
140	30	28	28	56	73	54	27	28	30	28	30	70	90	68	30	30	30
145	29	27	29	34	45	34	28	26	28	26	28	43	54	42	30	28	28
150	29	29	30	32	33	30	28	27	27	28	29	32	33	33	31	29	29
155	33	32	31	32	32	32	31	31	31	31	32	33	35	34	33	32	32
160	36	36	34	36	35	35	34	34	35	34	34	36	36	37	36	37	36
165	41	41	40	40	40	40	40	40	41	40	40	40	41	40	41	42	42
170	46	46	45	44	44	44	45	44	45	44	45	44	44	44	46	46	46
175	46	46	45	45	44	44	45	45	46	46	45	45	45	45	46	47	46
180	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47

THD and PF Test

Model No.	55736-200W-35K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

1. The samples were tested according to the ANSI C82.77-10-2014.
2. The ambient temperature condition was maintained at 25 °C ± 1 °C. The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.6	119.91	60	1.6745	200.589	0.9990	3.45%	Horizontal
24.6	276.93	60	0.7595	204.24	0.9711	9.45%	Horizontal

THD and PF Test

Model No.	55736-200W-40K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

1. The samples were tested according to the ANSI C82.77-10-2014.
2. The ambient temperature condition was maintained at 25 °C ± 1 °C. The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.7	119.94	60	1.6747	192.23	0.9988	4.12%	Horizontal
24.7	276.95	60	0.7327	196.68	0.9692	9.79%	Horizontal

THD and PF Test

Model No.	55736-200W-50K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

1. The samples were tested according to the ANSI C82.77-10-2014.
2. The ambient temperature condition was maintained at 25 °C ± 1 °C. The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.7	120.01	60	1.6650	199.57	0.9988	3.96%	Horizontal
24.7	276.90	60	0.7603	204.46	0.9711	9.56%	Horizontal

THD and PF Test

Model No.	55736-185W-35K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

1. The samples were tested according to the ANSI C82.77-10-2014.
2. The ambient temperature condition was maintained at 25 °C ± 1 °C. The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.7	119.88	60	1.5016	179.80	0.9989	4.10%	Horizontal
24.7	276.97	60	0.6719	179.40	0.9643	10.48%	Horizontal

THD and PF Test

Model No.	55736-155W-35K	Sample ID.	6288627
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

1. The samples were tested according to the ANSI C82.77-10-2014.
2. The ambient temperature condition was maintained at 25 °C ± 1 °C. The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.7	119.99	60	1.3079	156.76	0.9987	4.40%	Horizontal
24.7	276.92	60	0.6071	160.96	0.9573	11.44%	Horizontal

In-Situ Temperature Measurement Test

Model No.	55736-200W-35K	Sample ID.	6288627
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Test Method

- In-Situ Temperature Measurement Test is conducted according to the UL 1598-2008, Section 14.
- The testing was conducted in a room with ambient temperature of 25 °C ± 5 °C. The apparatus construction followed those described in UL1598-2008 for normal temperature testing. Thermocouples were placed on the LED package in the locations indicated by LM-80 report. Thermocouples were placed on the LED driver case in the locations specified by the manufacture if necessary. The temperature was recorded after the lamp was operated by 7.5 hours.
- The data and photos in LM-80 test report is provided by the customer/ The data and photos in driver specification is provided by the customer.

In-Situ Temperature Measurement Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
24.3	119.91	60	1.6745	200.589	0.9990	3.45%	Horizontal

Test Results (LEDs)

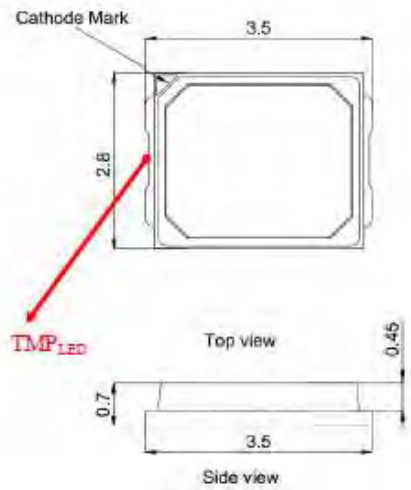
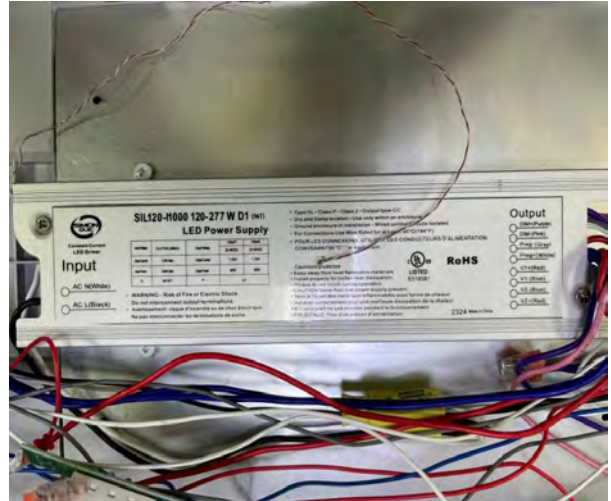
Thermocouple Location	Declared Light Source Current (mA)	Temperature for Light Source (°C)		Max Chromaticity Shift (1000-6000h)	LED Model Number	LM-80 Limit Current (mA)	LM-80 Limit Temp (°C)
		Test Result	Test Result (Correct to 25 °C)				
Ambient TEMP	N/A	24.3	25.0				
TMP of Location 1	65	76.5	77.2	0.0020	BXEN-xxE-21L-3C	240	105

Test Results (Drivers)

Thermocouple Location	Temperature for Driver (°C)		Driver Model Number	Driver Limit Temp (°C)
	Test Result	Test Result (Correct to 25 °C)		
Ambient TEMP	24.3	25.0		
TMP of Location 1	73.9	74.6	SIL 120-I1000 120-277 W D1	90

In-Situ Temperature Measurement Test (Cont'd)

Test Photos for Ts Point of Light Sources & Tc Point of Drivers





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