



DesignLights Consortium Test Report

Reference Standards

UL1598-2008

ANSI C82.77-10-2014

IES LM-79-2008

Prepared For

P.Q.L., Inc.

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Test Laboratory:

UL-CCIC Company Limited

Test Laboratory Address:

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Catalog Number

55735

Project Number

4790888268

Report Number

4790888268_25

Test Date

2023-07-25~2023-07-26

Issue Date

2023-07-28

Revision Date

N/A

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Approved By

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Wu, Elvis

The results contained in this report pertain only to the tested sample.

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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%	16377.7
Zonal Lumen Requirement 1(20°-50°)	IES LM-79-2008	≥30%	-10%	73.10%
Minimum Luminaire Efficacy (lm/W)-Luminaires	IES LM-79-2008	≥135	-3%	165.01
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3400
Allowable CCT (4000K)	IES LM-79-2008/ANSI C78.377-2015	3985±275	N/A	4159
Allowable CCT (5000K)	IES LM-79-2008/ANSI C78.377-2015	5029±283	N/A	5136
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3399
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3396
Minimum CRI	IES LM-79-2008/CIE 13.3-1995	≥70	-1	79
Minimum R9	IES LM-79-2008	≥40	-1	-9.0
Minimum Rg	IES LM-79-2008	≥89	-1	94
Minimum Rf	IES LM-79-2008	≥70	-1	82
Rcs,h1	IES LM-79-2008	-18%-23%	-1%	-14%
Unified Glare Rating (UGR)	IES LM-79-2008	≤28	N/A	27.5
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	0.9688
Total Harmonic Distortion (A%)	ANSI C82.77-10-2014	≤20%	5%	10.04%
In-Situ Temperature Measurement Test for LED 1 (°C)	UL1598-2008	≤105	N/A	60.9
In-Situ Temperature Measurement Test for Driver 1 (°C)	UL1598-2008	≤90	N/A	57.5
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	55735-135W-35K	Yang, Gavin X
Integrating Sphere Test	2023-07-26	55735-135W-40K	Yang, Gavin X
Integrating Sphere Test	2023-07-26	55735-135W-50K	Yang, Gavin X
Integrating Sphere Test	2023-07-25	55735-115W-35K	Yang, Gavin X
Integrating Sphere Test	2023-07-25	55735-100W-35K	Yang, Gavin X
Goniophotometer Test	2023-07-25	55735-135W-35K	Yang, Gavin X
Goniophotometer Test	2023-07-25	55735-135W-50K	Yang, Gavin X
THD and PF Test	2023-07-25	55735-135W-35K	Yang, Gavin X
THD and PF Test	2023-07-26	55735-135W-40K	Yang, Gavin X
THD and PF Test	2023-07-25	55735-135W-50K	Yang, Gavin X
THD and PF Test	2023-07-25	55735-115W-35K	Yang, Gavin X
THD and PF Test	2023-07-25	55735-100W-35K	Yang, Gavin X
In-Situ Temperature Measurement Test	2023-07-25	55735-135W-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: 55735

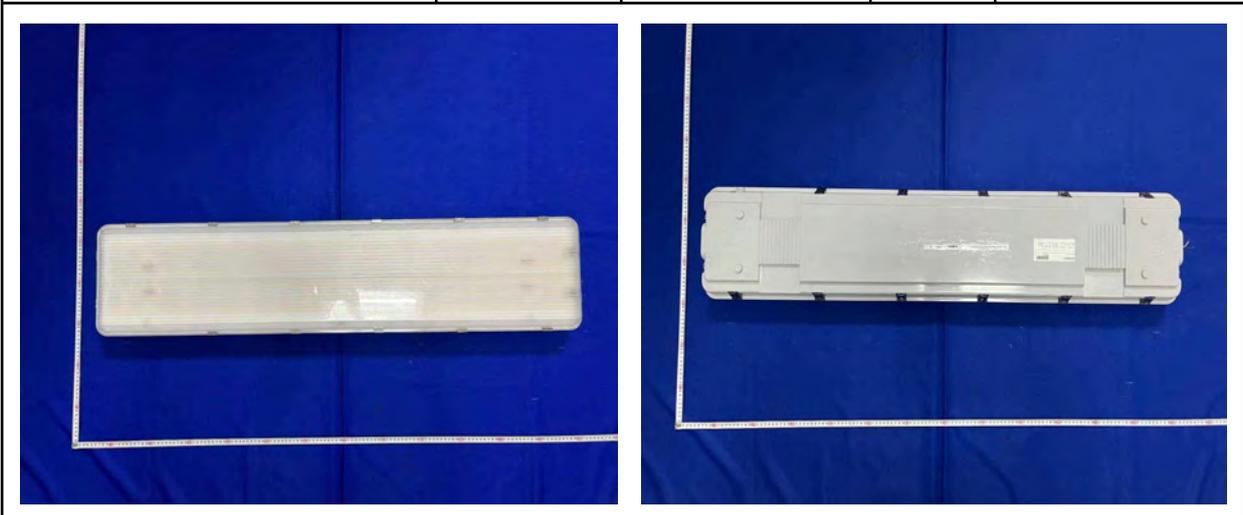
Electrical Parameter: 120-277V, 50/60Hz

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

Dimming Information: Continuous dimming capability

Products Scaled Value

Model Number	CCT	Luminous Flux	Power	Luminous Efficacy
55735-135W-35K	3500K	22005	135	163
55735-135W-40K	4000K	22680	135	168
55735-135W-50K	5000K	22275	135	165
55735-115W-35K	3500K	19090	115	166
55735-115W-40K	4000K	19665	115	171
55735-115W-50K	5000K	19320	115	168
55735-100W-35K	3500K	16900	100	169
55735-100W-40K	4000K	17400	100	174
55735-100W-50K	5000K	17100	100	171



Integrating Sphere Test

Model No.	55735-135W-35K	Sample ID.	6288623
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

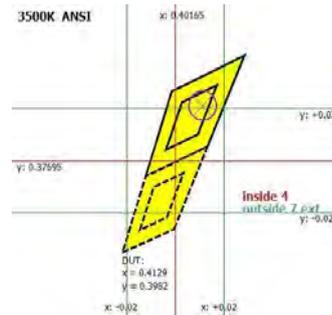
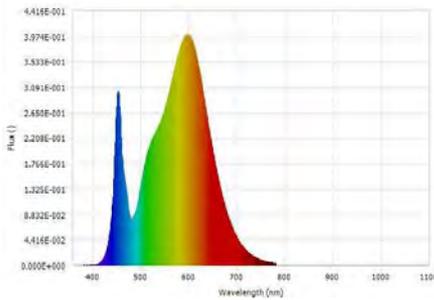
1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2.Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 1 °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	119.93	60	1.0867	129.48	0.9935	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3400	79	-9.0	0.0016	21493.9	166.00	N/A



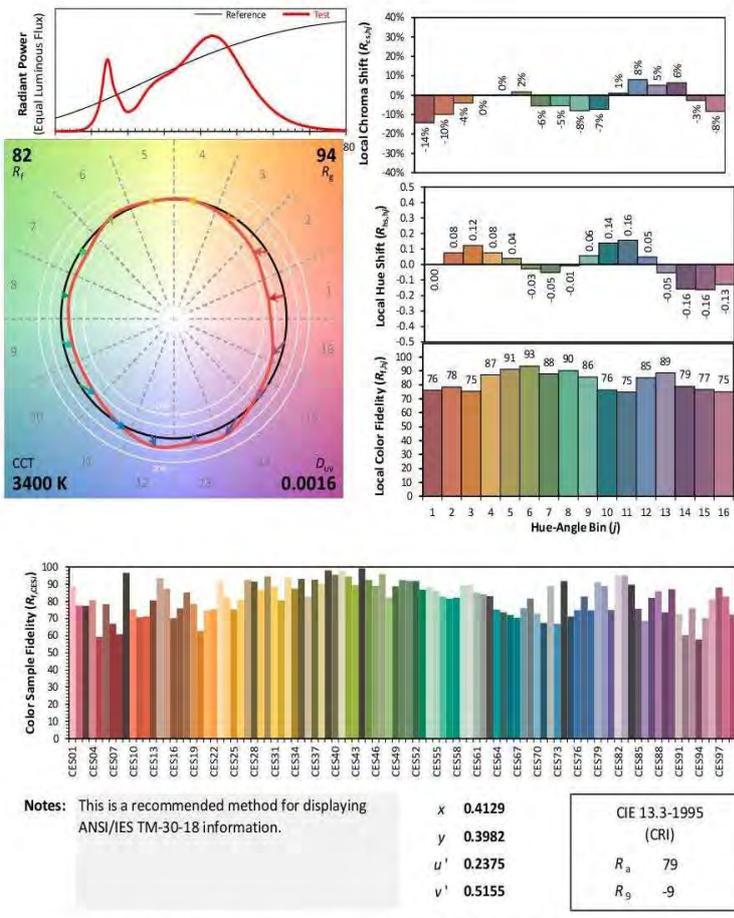
Luminous Flux (lm)	21493.9	Chrom x	0.4129
Chrom y	0.3982	Chrom u	0.2375
Chrom v	0.3436	Duv	0.0016
Chrom u'	0.2375	Chrom v'	0.5155
CCT (K)	3400	Luminous Efficacy (lm/W)	166.00
Ra	79	R1	77.0
R2	88.0	R3	96.0
R4	77.0	R5	77.0
R6	84.0	R7	82.0
R8	55.0	R9	-9.0
R10	72.0	R11	75.0
R12	60.0	R13	79.0
R14	98.0	R15	69.0
Rf	82	Rg	94
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: 55735-135W-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.	55735-135W-40K		Sample ID.	6288623
Operate time (Min.)	90	Stabilization time (Min.)	45	

Test Method

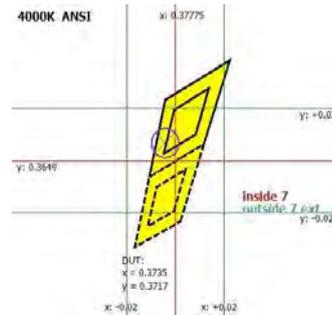
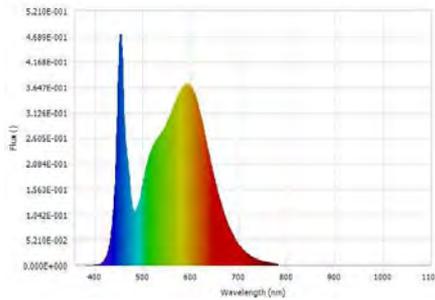
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 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	119.94	60	1.0346	123.56	0.9957	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
4159	82	0.0	-0.0003	21625.2	175.02	N/A



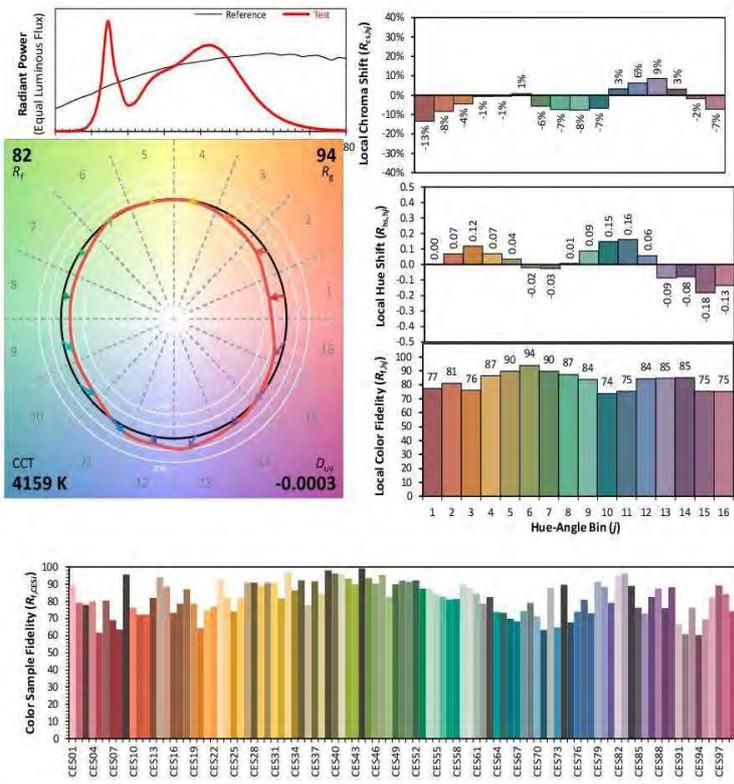
Luminous Flux (lm)	21625.2	Chrom x	0.3735
Chrom y	0.3717	Chrom u	0.2225
Chrom v	0.3322	Duv	-0.0003
Chrom u'	0.2225	Chrom v'	0.4983
CCT (K)	4159	Luminous Efficacy (lm/W)	175.02
Ra	82	R1	80.0
R2	89.0	R3	95.0
R4	79.0	R5	80.0
R6	84.0	R7	84.0
R8	61.0	R9	0.0
R10	74.0	R11	78.0
R12	58.0	R13	82.0
R14	98.0	R15	73.0
Rf	82	Rg	94
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: 7/26/2023 Model: 55735-135W-40K



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

x	0.3735
y	0.3717
u'	0.2225
v'	0.4983

CIE 13.3-1995 (CRI)	
R_a	82
R_g	0

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Integrating Sphere Test

Model No.	55735-135W-50K		Sample ID.	6288623
Operate time (Min.)	90	Stabilization time (Min.)	45	

Test Method

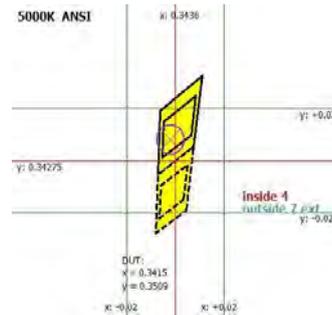
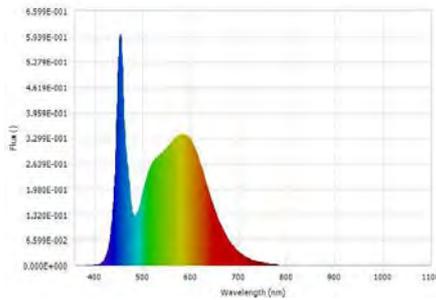
1.The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2.Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 1 °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	119.92	60	1.0707	127.52	0.9932	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
5136	82	-2.0	0.0011	21379.8	167.66	N/A



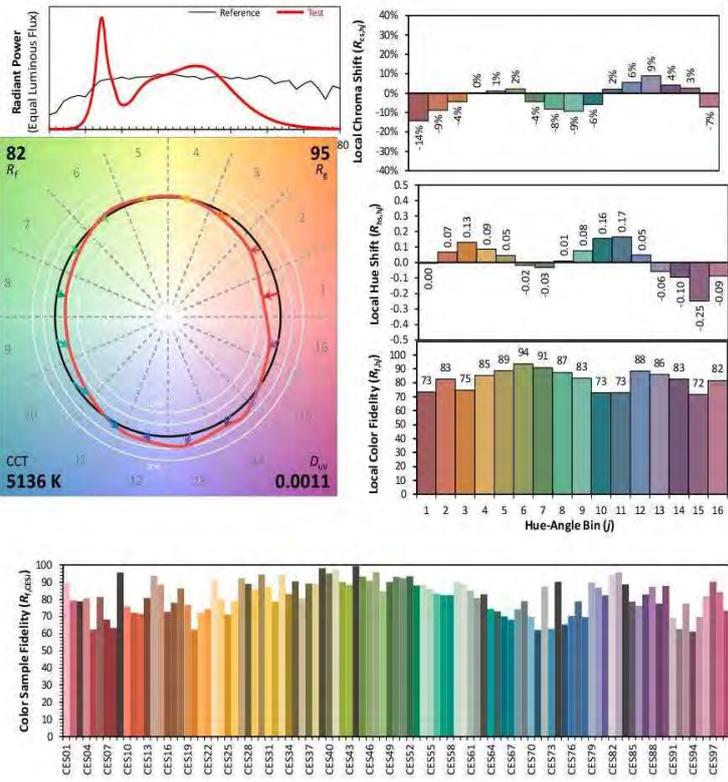
Luminous Flux (lm)	21379.8	Chrom x	0.3415
Chrom y	0.3509	Chrom u	0.2093
Chrom v	0.3225	Duv	0.0011
Chrom u'	0.2093	Chrom v'	0.4838
CCT (K)	5136	Luminous Efficacy (lm/W)	167.66
Ra	82	R1	80.0
R2	88.0	R3	93.0
R4	81.0	R5	80.0
R6	82.0	R7	85.0
R8	64.0	R9	-2.0
R10	71.0	R11	79.0
R12	59.0	R13	82.0
R14	96.0	R15	74.0
Rf	82	Rg	95
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: 7/26/2023 Model: 55735-135W-50K



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

x	0.3415	CIE 13.3-1995 (CRI)
y	0.3509	
u'	0.2093	
v'	0.4838	

CIE 13.3-1995
(CRI)

R_a 82

R_9 -2

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

Integrating Sphere Test

Model No.	55735-115W-35K	Sample ID.	6288623
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

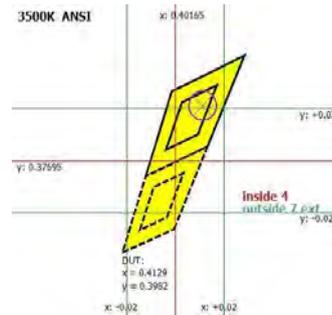
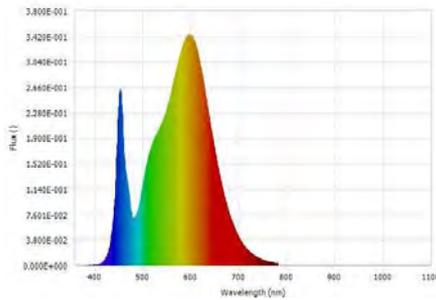
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 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	119.99	60	0.9271	110.85	0.9965	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3399	80	-9.0	0.0016	18480.1	166.71	N/A



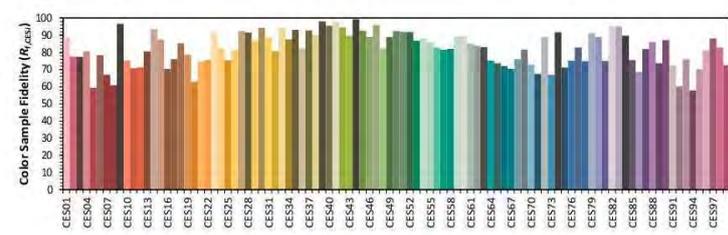
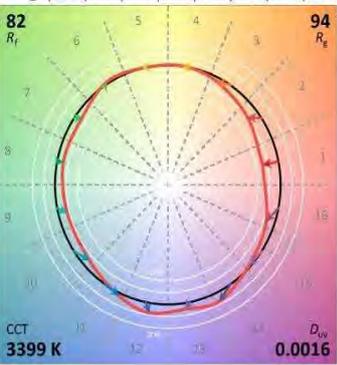
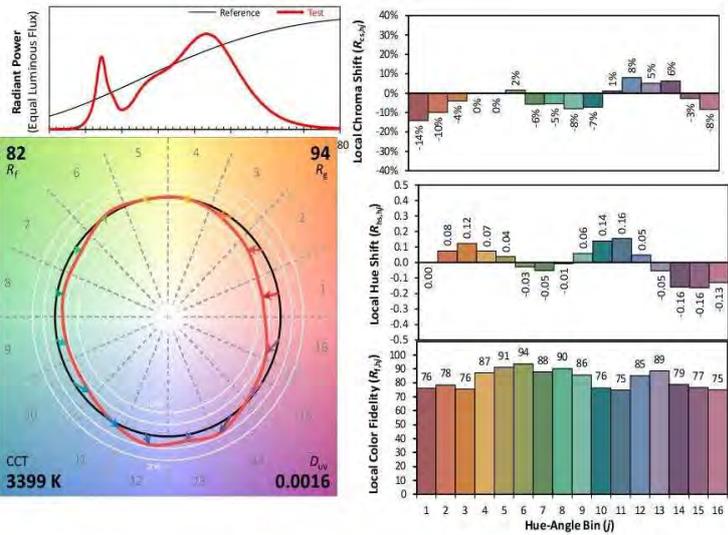
Luminous Flux (lm)	18480.1	Chrom x	0.4129
Chrom y	0.3982	Chrom u	0.2376
Chrom v	0.3436	Duv	0.0016
Chrom u'	0.2376	Chrom v'	0.5155
CCT (K)	3399	Luminous Efficacy (lm/W)	166.71
Ra	80	R1	77.0
R2	88.0	R3	96.0
R4	77.0	R5	77.0
R6	84.0	R7	82.0
R8	55.0	R9	-9.0
R10	72.0	R11	75.0
R12	60.0	R13	80.0
R14	98.0	R15	69.0
Rf	82	Rg	94
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: 55735-115W-35K



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

x	0.4129	CIE 13.3-1995 (CRI)
y	0.3982	
u'	0.2376	
v'	0.5155	

R_a 80
 R_9 -9

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Integrating Sphere Test

Model No.	55735-100W-35K	Sample ID.	6288623
Operate time (Min.)	90	Stabilization time (Min.)	45

Test Method

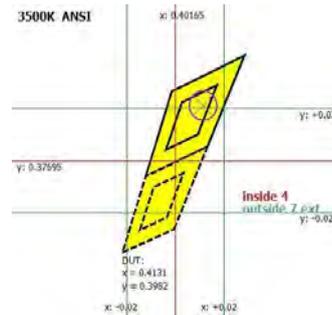
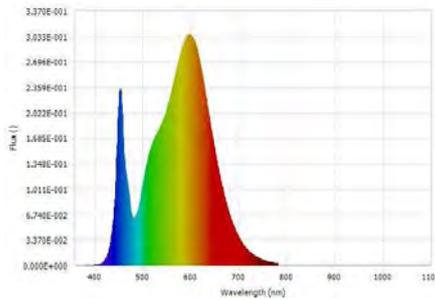
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 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	120.06	60	0.8047	96.22	0.9959	Horizontal

Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3396	80	-9.0	0.0016	16377.7	170.21	N/A



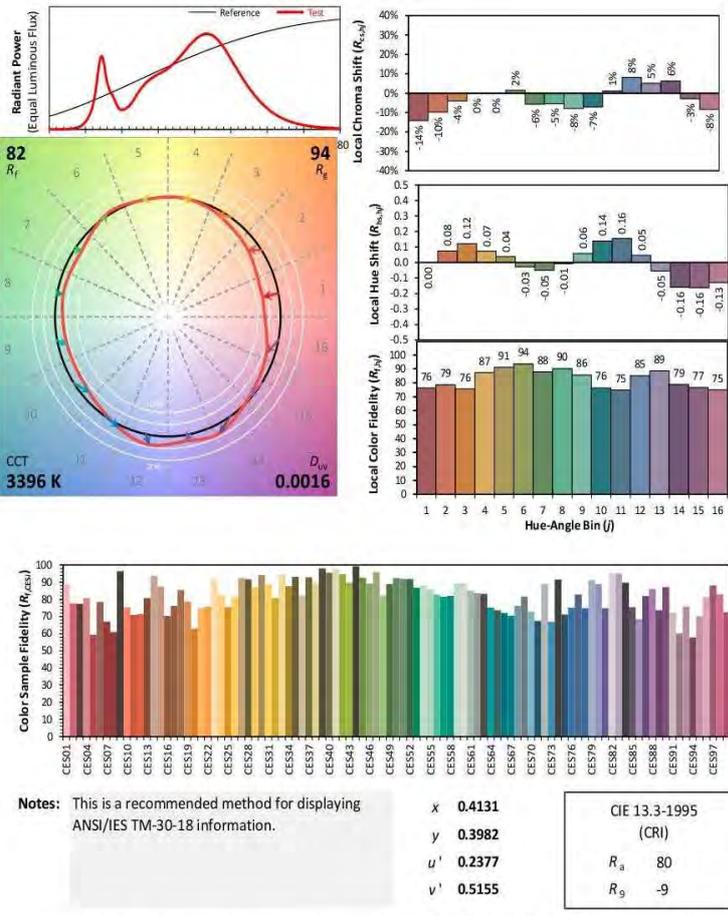
Luminous Flux (lm)	16377.7	Chrom x	0.4131
Chrom y	0.3982	Chrom u	0.2377
Chrom v	0.3437	Duv	0.0016
Chrom u'	0.2377	Chrom v'	0.5155
CCT (K)	3396	Luminous Efficacy (lm/W)	170.21
Ra	80	R1	77.0
R2	88.0	R3	96.0
R4	77.0	R5	77.0
R6	84.0	R7	82.0
R8	55.0	R9	-9.0
R10	73.0	R11	75.0
R12	60.0	R13	80.0
R14	98.0	R15	69.0
Rf	82	Rg	94
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: 55735-100W-35K



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

Goniophotometer Test

Model No.	55735-135W-35K	Sample ID.	6288623
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
24.6	120.02	60	1.0725	128.358	0.9971	4.05%	Horizontal

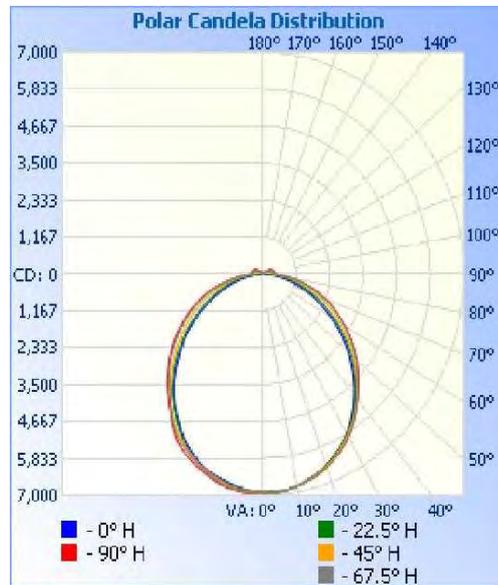
Test Results

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	
21180.8	73.30%	N/A	117.0	106.7	165.01

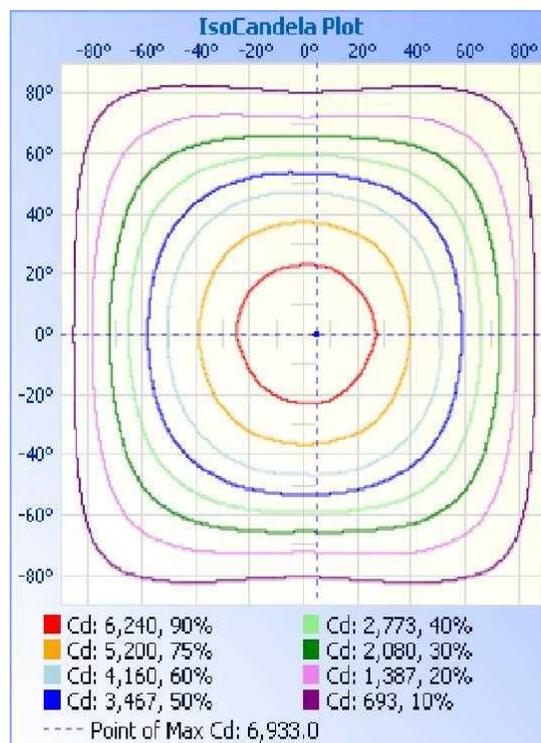
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
24.8	27.4	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	5382.1	25.40%
0-40	8804.5	41.60%
0-60	15487.5	73.10%
60-90	4807.5	22.70%
70-100	2630.8	12.40%
90-120	730.8	3.50%
0-90	20295.0	95.80%
90-180	885.8	4.20%
0-180	21180.8	100.00%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	164.8	0.80%	90-95	169.7	0.80%
5-10	489.6	2.30%	95-100	144.9	0.70%
10-15	797.1	3.80%	100-105	132.0	0.60%
15-20	1078.8	5.10%	105-110	116.2	0.50%
20-25	1324.7	6.30%	110-115	95.4	0.50%
25-30	1527.0	7.20%	115-120	72.6	0.30%
30-35	1671.9	7.90%	120-125	51.5	0.20%
35-40	1750.4	8.30%	125-130	34.3	0.20%
40-45	1770.4	8.40%	130-135	21.5	0.10%
45-50	1737.9	8.20%	135-140	13.0	0.10%
50-55	1654.8	7.80%	140-145	8.4	0.00%
55-60	1519.9	7.20%	145-150	6.1	0.00%
60-65	1345.1	6.40%	150-155	5.3	0.00%
65-70	1146.3	5.40%	155-160	4.7	0.00%
70-75	924.2	4.40%	160-165	4.1	0.00%
75-80	687.3	3.20%	165-170	3.3	0.00%
80-85	448.6	2.10%	170-175	2.1	0.00%
85-90	256.0	1.20%	175-180	0.7	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	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911	6911
1	6913	6926	6919	6914	6910	6889	6887	6907	6903	6915	6910	6907	6906	6891	6891	6909	6903
2	6914	6928	6918	6909	6900	6877	6872	6894	6891	6903	6902	6906	6911	6895	6891	6913	6908
3	6915	6929	6914	6898	6891	6864	6857	6880	6878	6894	6899	6909	6920	6901	6892	6912	6910
4	6911	6921	6905	6895	6888	6852	6838	6864	6864	6884	6895	6911	6927	6908	6894	6905	6906
5	6903	6913	6895	6894	6892	6848	6819	6841	6847	6869	6890	6913	6933	6911	6895	6897	6897
6	6891	6896	6890	6891	6889	6846	6804	6814	6822	6851	6882	6906	6927	6912	6896	6886	6883
7	6876	6878	6882	6886	6876	6836	6791	6787	6800	6830	6865	6889	6914	6905	6890	6874	6868
8	6856	6854	6869	6865	6856	6819	6777	6760	6772	6809	6838	6867	6899	6893	6876	6861	6850
9	6838	6828	6850	6843	6834	6796	6760	6732	6745	6786	6811	6847	6885	6883	6865	6846	6830
10	6812	6802	6817	6816	6812	6768	6729	6704	6717	6761	6785	6830	6871	6870	6848	6828	6806
11	6781	6777	6783	6792	6786	6741	6695	6674	6686	6732	6757	6806	6849	6856	6828	6805	6772
12	6746	6749	6750	6759	6756	6710	6657	6648	6659	6707	6726	6778	6823	6834	6804	6778	6736
13	6706	6720	6718	6730	6723	6672	6622	6623	6629	6678	6687	6740	6789	6801	6769	6744	6700
14	6671	6690	6686	6701	6698	6636	6590	6597	6602	6650	6646	6698	6755	6762	6732	6711	6665
15	6636	6653	6651	6677	6680	6605	6562	6571	6573	6619	6608	6659	6721	6723	6694	6678	6628
16	6598	6611	6611	6654	6655	6575	6526	6545	6543	6588	6572	6621	6680	6682	6653	6639	6592
17	6562	6569	6570	6628	6619	6542	6487	6512	6509	6553	6535	6579	6642	6641	6608	6600	6557
18	6527	6521	6525	6591	6570	6500	6442	6470	6468	6516	6501	6541	6609	6597	6565	6562	6518
19	6487	6474	6488	6550	6524	6452	6402	6422	6426	6475	6464	6503	6571	6556	6525	6519	6477
20	6438	6426	6449	6504	6482	6398	6361	6367	6375	6429	6422	6463	6534	6515	6476	6471	6430
25	6161	6165	6201	6259	6252	6156	6139	6085	6074	6132	6162	6210	6315	6280	6206	6192	6156
30	5835	5843	5888	5952	5956	5868	5826	5740	5711	5770	5863	5942	6024	6025	5923	5864	5825
35	5418	5462	5530	5564	5560	5489	5448	5319	5288	5335	5486	5522	5566	5589	5555	5452	5416
40	4959	5002	5100	5108	5135	5055	4994	4879	4835	4884	5016	5047	5129	5107	5122	4985	4950
45	4442	4524	4607	4669	4701	4606	4476	4368	4305	4398	4515	4637	4732	4682	4608	4482	4430
50	3900	4034	4126	4251	4271	4161	3973	3848	3760	3866	4022	4208	4273	4230	4090	3961	3899
55	3334	3467	3617	3767	3804	3702	3488	3318	3204	3321	3516	3729	3811	3772	3599	3407	3331
60	2741	2894	3098	3278	3302	3203	2974	2758	2616	2755	3022	3245	3325	3288	3098	2848	2733
65	2172	2347	2603	2793	2814	2717	2484	2219	2065	2217	2525	2757	2834	2797	2584	2306	2173
70	1648	1827	2094	2303	2327	2240	1992	1717	1551	1727	2038	2258	2340	2302	2089	1789	1647
75	1152	1346	1623	1794	1815	1723	1516	1241	1082	1264	1569	1764	1826	1798	1602	1307	1150
80	731	903	1145	1274	1265	1218	1057	822	675	841	1085	1221	1260	1257	1126	876	733
85	380	522	702	773	767	740	644	465	336	478	656	732	751	761	688	505	379
90	174	288	415	453	442	432	377	252	152	265	388	433	437	448	408	278	173
95	137	216	324	366	360	352	302	192	127	202	309	354	361	364	320	206	137
100	118	173	286	347	354	336	268	156	110	163	279	344	361	350	281	164	118
105	98	136	254	340	363	329	238	123	94	128	248	340	371	341	249	127	98
110	81	101	215	312	345	301	200	92	79	96	210	311	350	311	208	94	82
115	65	70	171	266	300	257	158	65	62	66	165	263	302	263	163	66	65
120	50	47	122	213	244	204	116	44	47	44	117	208	243	206	119	46	50
125	38	35	78	159	186	152	78	33	37	32	74	153	184	153	78	34	38
130	30	27	47	110	133	106	48	26	28	25	44	104	128	104	47	26	30
135	23	22	28	70	88	68	30	22	23	20	27	66	84	65	28	22	24
140	20	19	20	41	54	42	20	19	19	18	18	39	50	39	20	19	20
145	18	18	20	26	34	27	20	18	19	17	20	24	30	25	20	18	19
150	18	19	20	22	23	22	21	20	19	19	20	22	22	21	20	19	18
155	20	20	22	23	24	22	23	21	20	21	21	22	22	22	21	21	20
160	23	23	23	24	25	25	24	23	23	23	23	23	24	24	23	22	23
165	26	26	27	27	27	27	26	26	27	26	26	26	26	26	27	27	27
170	30	30	30	29	29	29	30	30	30	28	29	30	28	29	30	29	30
175	29	30	30	30	30	29	30	29	30	30	30	28	30	29	30	30	29
180	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

Goniophotometer Test

Model No.	55735-135W-50K	Sample ID.	6288623
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
24.6	120.03	60	1.0781	129.044	0.9972	3.81%	Horizontal

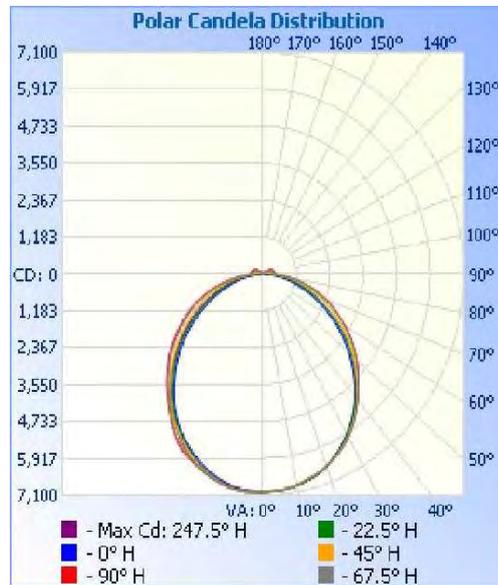
Test Results

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	
21588.0	73.10%	N/A	117.6	107.3	167.29

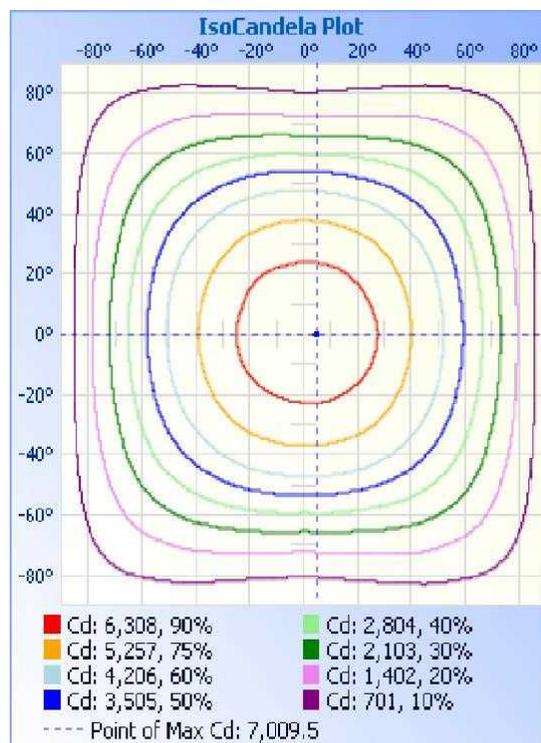
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
25.0	27.5	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	5465.8	25.30%
0-40	8952.0	41.50%
0-60	15771.7	73.10%
60-90	4909.8	22.70%
70-100	2687.2	12.40%
90-120	749.3	3.50%
0-90	20681.5	95.80%
90-180	906.6	4.20%
0-180	21588.0	100.00%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	166.7	0.80%	90-95	174.0	0.80%
5-10	496.1	2.30%	95-100	148.8	0.70%
10-15	809.0	3.70%	100-105	135.5	0.60%
15-20	1096.1	5.10%	105-110	119.2	0.60%
20-25	1346.1	6.20%	110-115	97.7	0.50%
25-30	1551.9	7.20%	115-120	74.2	0.30%
30-35	1700.9	7.90%	120-125	52.5	0.20%
35-40	1785.3	8.30%	125-130	34.8	0.20%
40-45	1804.5	8.40%	130-135	21.7	0.10%
45-50	1772.1	8.20%	135-140	13.1	0.10%
50-55	1690.8	7.80%	140-145	8.5	0.00%
55-60	1552.3	7.20%	145-150	6.2	0.00%
60-65	1373.5	6.40%	150-155	5.4	0.00%
65-70	1171.9	5.40%	155-160	4.8	0.00%
70-75	943.8	4.40%	160-165	4.1	0.00%
75-80	701.4	3.20%	165-170	3.4	0.00%
80-85	458.1	2.10%	170-175	2.1	0.00%
85-90	261.0	1.20%	175-180	0.7	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	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984	6984
1	6984	6989	6987	6984	6982	6966	6966	6986	6982	6998	6992	6984	6979	6961	6961	6976	6974
2	6979	6983	6978	6973	6973	6957	6957	6983	6983	7001	6996	6990	6986	6961	6954	6972	6970
3	6973	6978	6972	6964	6967	6950	6951	6981	6984	7002	6999	6996	6994	6965	6950	6966	6963
4	6964	6968	6958	6956	6963	6941	6939	6968	6978	6996	7002	7006	7004	6969	6947	6959	6956
5	6958	6953	6943	6952	6965	6940	6927	6954	6966	6986	7001	7010	7009	6977	6948	6949	6947
6	6948	6942	6934	6949	6964	6943	6920	6938	6952	6977	6996	7006	7006	6974	6949	6942	6936
7	6934	6929	6924	6939	6952	6936	6914	6921	6937	6966	6988	6996	6996	6967	6947	6935	6925
8	6918	6911	6912	6920	6931	6923	6907	6903	6914	6951	6974	6982	6985	6957	6939	6926	6909
9	6899	6892	6896	6893	6910	6903	6894	6880	6889	6932	6955	6963	6968	6944	6929	6913	6889
10	6882	6872	6868	6866	6887	6880	6871	6851	6858	6908	6930	6939	6947	6927	6910	6897	6870
11	6858	6848	6833	6839	6863	6858	6842	6822	6826	6880	6903	6913	6921	6908	6886	6877	6846
12	6836	6829	6804	6809	6830	6832	6807	6792	6795	6853	6875	6887	6891	6882	6863	6857	6822
13	6806	6810	6775	6774	6798	6801	6772	6760	6759	6822	6845	6859	6861	6852	6838	6834	6797
14	6780	6788	6749	6745	6778	6771	6739	6727	6723	6789	6812	6828	6832	6821	6811	6812	6772
15	6753	6761	6723	6721	6759	6743	6704	6692	6682	6750	6776	6799	6801	6789	6782	6785	6745
16	6727	6732	6694	6700	6734	6716	6661	6653	6638	6704	6739	6764	6762	6752	6746	6756	6720
17	6695	6696	6658	6676	6699	6686	6617	6609	6591	6656	6693	6726	6723	6713	6709	6724	6684
18	6658	6652	6621	6643	6653	6645	6566	6557	6543	6608	6650	6689	6684	6668	6669	6686	6644
19	6611	6606	6589	6598	6607	6597	6519	6503	6496	6557	6603	6647	6646	6624	6627	6644	6597
20	6565	6554	6554	6549	6563	6544	6475	6445	6440	6504	6555	6608	6608	6583	6584	6598	6550
25	6272	6283	6328	6315	6333	6302	6218	6137	6142	6197	6272	6381	6415	6374	6345	6319	6266
30	5934	5938	6005	6021	6042	6003	5880	5816	5812	5851	5930	6080	6115	6110	6040	5957	5918
35	5533	5555	5635	5650	5644	5601	5518	5429	5401	5462	5575	5658	5670	5701	5676	5564	5531
40	5073	5116	5184	5210	5217	5139	5082	4952	4903	4978	5121	5175	5234	5226	5226	5103	5064
45	4546	4623	4681	4769	4781	4678	4562	4437	4384	4468	4608	4738	4819	4775	4694	4586	4531
50	3990	4107	4198	4335	4338	4224	4047	3928	3836	3961	4122	4305	4372	4330	4189	4050	3987
55	3419	3563	3700	3850	3871	3760	3552	3370	3250	3378	3605	3825	3910	3871	3689	3498	3413
60	2816	2964	3152	3340	3358	3263	3029	2804	2661	2797	3081	3315	3401	3368	3168	2923	2808
65	2236	2392	2647	2831	2858	2765	2525	2258	2098	2268	2584	2830	2913	2877	2659	2366	2234
70	1689	1876	2141	2340	2358	2272	2021	1742	1573	1762	2088	2328	2407	2370	2148	1841	1689
75	1193	1380	1651	1814	1835	1751	1537	1258	1098	1287	1602	1809	1869	1846	1646	1347	1190
80	755	923	1160	1278	1272	1230	1070	830	685	858	1119	1267	1300	1300	1162	905	756
85	391	538	716	781	769	745	650	468	341	487	671	756	772	785	709	522	389
90	179	294	419	456	446	439	383	255	154	272	403	447	453	462	420	285	179
95	140	220	328	369	368	360	308	197	130	209	322	368	374	377	330	212	140
100	121	177	292	352	361	344	275	160	113	167	289	358	373	362	289	169	121
105	102	139	259	345	370	337	244	125	96	132	257	352	383	351	255	131	102
110	84	104	220	316	352	308	206	92	80	97	216	322	360	319	215	97	84
115	67	72	174	270	306	262	162	65	62	66	169	271	311	270	168	69	68
120	52	49	122	216	248	208	118	45	48	45	119	214	250	212	122	47	52
125	39	34	77	162	189	156	78	34	37	31	75	157	188	157	79	35	39
130	28	25	46	111	134	108	49	27	29	25	45	107	132	106	48	27	28
135	21	19	29	70	88	68	30	22	23	21	27	66	85	67	30	22	21
140	19	18	19	43	54	42	20	20	20	19	19	39	51	41	20	19	18
145	18	18	19	27	34	27	21	19	18	18	19	24	32	25	21	18	19
150	19	19	21	22	23	23	21	20	18	18	20	22	22	22	21	18	19
155	21	21	22	22	24	24	23	22	21	20	21	22	22	23	22	20	21
160	23	23	24	25	26	25	25	24	22	23	24	24	24	23	23	23	24
165	27	27	27	28	28	27	27	27	27	27	26	27	26	26	26	27	26
170	30	30	30	30	29	29	30	30	30	30	29	29	30	29	30	30	30
175	31	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
180	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

THD and PF Test

Model No.	55735-135W-35K	Sample ID.	6288623
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	120.02	60	1.0725	128.358	0.9971	4.05%	Horizontal
24.6	277.02	60	0.4716	128.07	0.9804	8.31%	Horizontal

THD and PF Test

Model No.	55735-135W-40K	Sample ID.	6288623
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	119.96	60	1.0344	123.83	0.998	4.35%	Horizontal
24.6	277.04	60	0.4570	123.99	0.9793	8.48%	Horizontal

THD and PF Test

Model No.	55735-135W-50K	Sample ID.	6288623
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	120.02	60	1.0781	129.044	0.9972	3.81%	Horizontal
24.6	277.02	60	0.4712	127.97	0.9803	8.22%	Horizontal

THD and PF Test

Model No.	55735-135W-35K	Sample ID.	6288623
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	119.93	60	0.9202	110.26	0.9985	4.48%	Horizontal
24.6	277.09	60	0.4075	110.02	0.9746	9.16%	Horizontal

THD and PF Test

Model No.	55735-100W-35K	Sample ID.	6288623
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	120.00	60	0.7988	95.72	0.9985	4.83%	Horizontal
24.6	277.09	60	0.3620	97.16	0.9688	10.04%	Horizontal

In-Situ Temperature Measurement Test

Model No.	55735-135W-35K	Sample ID.	6288623
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Test Method

1. In-Situ Temperature Measurement Test is conducted according to the UL 1598-2008, Section 14.
2. 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.
3. 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
24.9	120.02	60	1.0725	128.358	0.9971	4.05%	Horizontal

Test Results (LEDs)

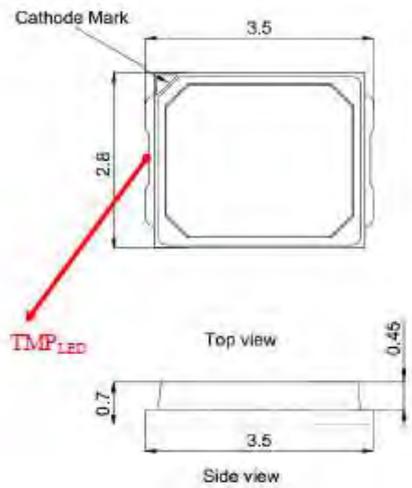
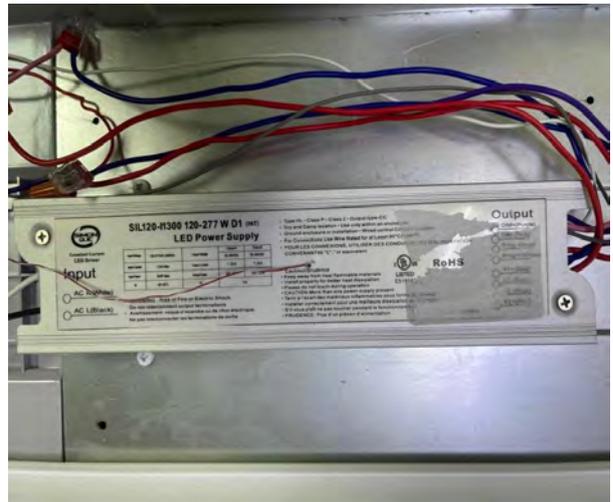
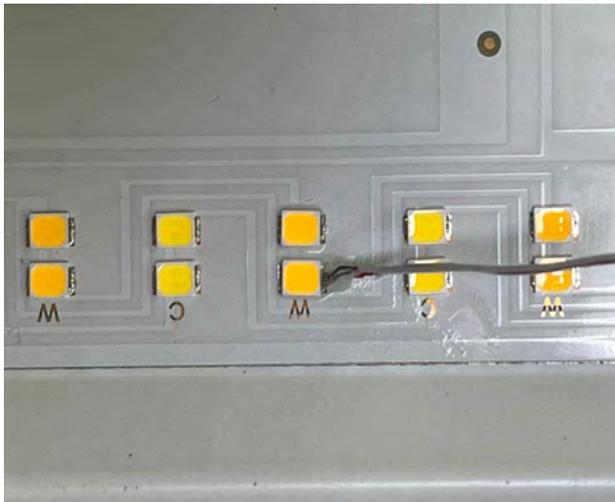
Thermocouple Location	Declared Light Source Current (mA)	Temperature for Light Source (°C)		Max Chromaticity Shift (1000-6000h)	LED Model Number	LM-80 Limit Current (mA)	LM-80 Limit Temp (°C)
		Test Result	Test Result (Correct to 25 °C)				
Ambient TEMP	N/A	24.9	25.0				
TMP of Location 1	65	60.8	60.9	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	24.9	25.0		
TMP of Location 1	57.4	57.5	SIL 120-I1300 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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