



Photometric Test Report

Relevant Standards

- IES LM-79-2008
- ANSI C82.77:2014

Prepared For

RAB LIGHTING INC

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Prepared By

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Approved By

Kevin Jia

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1.0 Test Summary

DLC Technical Requirements v5.1

Linear Replacement Lamps - 4' T8 Replacement Lamps ("Plug and Play") (UL Type B)			
Requirement Category	Test Method	Requirements	Test value
Integrating Sphere system			
Lamp Output for bare lamp (lm)	IES LM-79-2008	1600	2279
Minimum Lamp Efficacy (lm/W)	IES LM-79-2008	120	122.9
Allowable CCTs* (K)	IES LM-79-2008	7 step	2725±145
		4 step	2725±83
CRI	IES LM-79-2008 CIE 13.3-1995	≥80	83
R9	IES LM-79-2008 CIE 13.3-1995	≥0	8
Rf	ANSI/IES TM-30-18	≥70	86
Rg	ANSI/IES TM-30-18	≥89	96
Rcs,h1	ANSI/IES TM-30-18	-12%≤Rcs,h1≤23%	-11%
Power Factor	ANSI C82.77:2014	≥0.9	0.975
Total Harmonic Distortion (A%)	ANSI C82.77:2014	≤20%	22.70%
Goniophotometer system			
Lamp Output (lm)	IES LM-79-2008	1600	2389
Minimum Luminaire Efficacy (lm/W)	IES LM-79-2008	120	128.7
Beam Angle	IES LM-79-2008	≥140°	181.5

2.0 Test List

Test Item	Test	Test Date	Model Number	Sample No.
1	Integrating Sphere Test	2019/7/16	LCBT8-18-48P-8SS-SD-BYP	A1
2	Goniophotometer Test	2019/7/16	LCBT8-18-48P-8SS-SD-BYP	A1
3	THD and PF Test	2019/7/16	LCBT8-18-48P-8SS-SD-BYP	A1

Remark(If any)

1、 This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.

2、 The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

3.0 Production Description

Luminaire Description: LCBT8-18-48P-8SS-SD-BYP

Electrical Specification: 120-277V, 50/60Hz, 18W

Photos of Luminaire Characteristics



4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 2700K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

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 sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.01	60	0.158	18.5	0.975
276.98	60	0.070	18.2	0.939

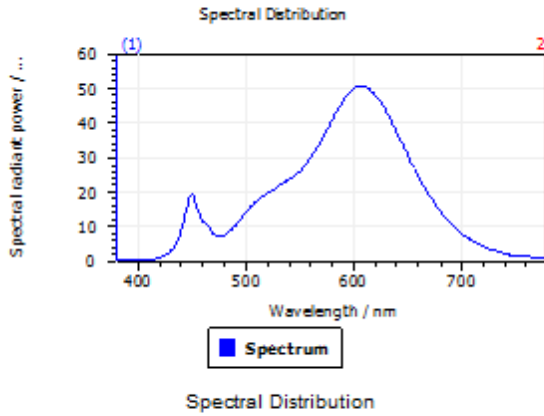
Test Result

CCT (K)	CRI	R9	Duv
2690	83	8	0.00033

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
86	96	-11%	2279	122.9

4.1 Integrating Sphere Test - 2700K

Results

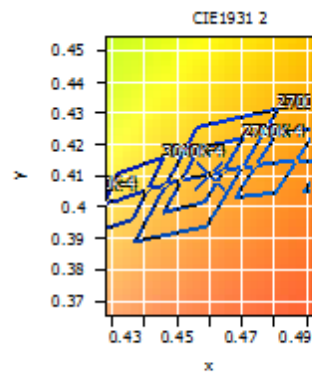


Spectral values

DominantWavelength	584.37 nm
Purity	0.611
PeakWavelength	606.98 nm
Radiant Power	7.039 W
Width50%:	
Luminous Flux	2.279 klm

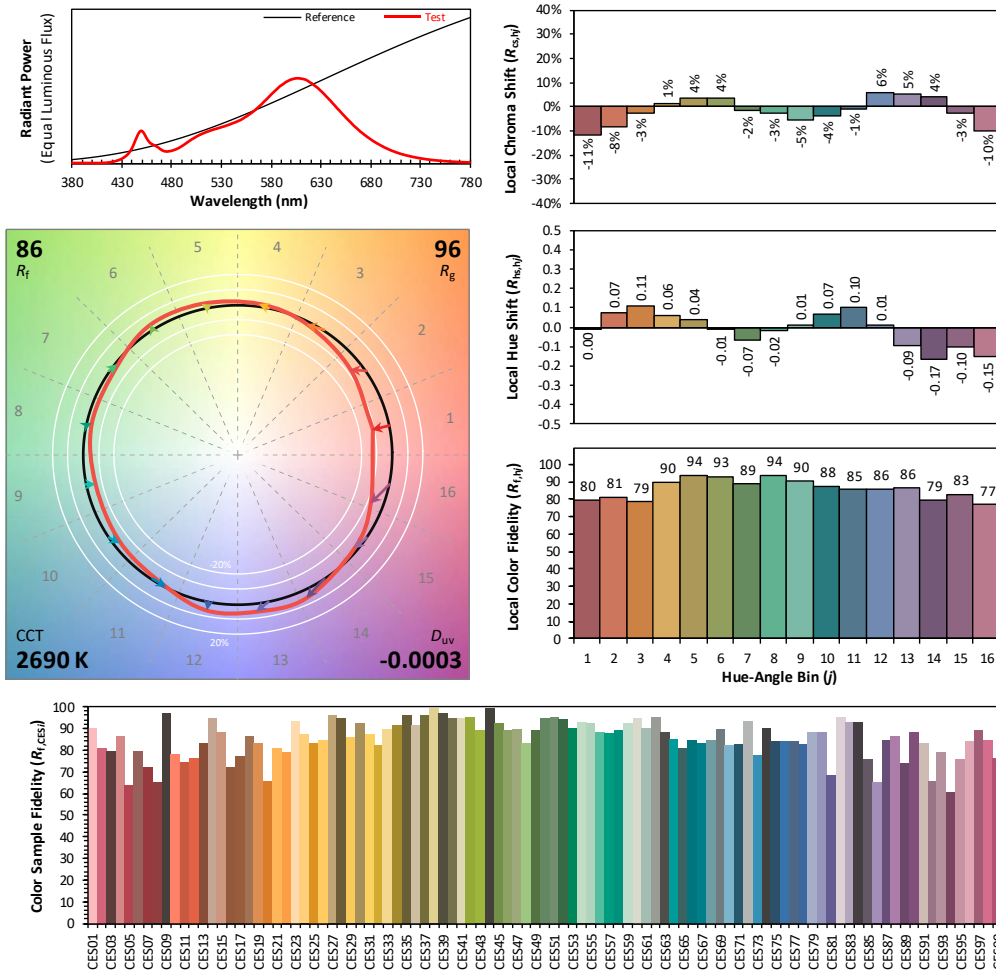
Color Coordinates

Correlated Color Temperature	2690 K		
x:	0.4601	u:	0.2630
y:	0.4098	v:	0.3514
		v':	0.5271
CRI01	81.7	CRI09	7.7
CRI02	92.1	CRI10	83.0
CRI03	95.3	CRI11	82.3
CRI04	81.7	CRI12	78.6
CRI05	82.5	CRI13	84.2
CRI06	92.0	CRI14	98.1
CRI07	81.4	CRI15	73.5
CRI08	57.4	CRI16	70.6
ResultsCRI	83.0		



PlanckDistance 3.3E-004

4.1 Integrating Sphere Test - 2700K



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

x **0.4601**
 y **0.4098**
 u' **0.2630**
 v' **0.5271**

CIE 13.3-1995 (CRI)	
R_a	83
R_g	7

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 3000K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric 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 voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.01	60	0.158	18.5	0.975
277.01	60	0.068	18.0	0.957

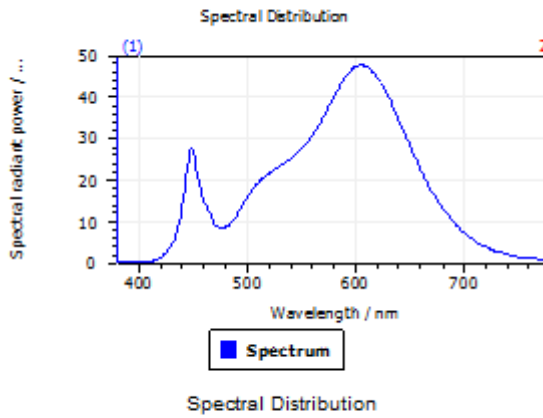
Test Result

CCT (K)	CRI	R9	Duv
2963	84	12	0.0025

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
86	98	-10%	2289	123.9

4.1 Integrating Sphere Test - 3000K

Results

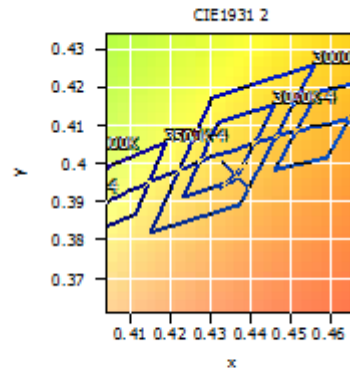


Spectral values

DominantWavelength	583.91 nm
Purity	0.501
PeakWavelength	605.35 nm
Radiant Power	7.102 W
Width50%:	
Luminous Flux	2.289 klm

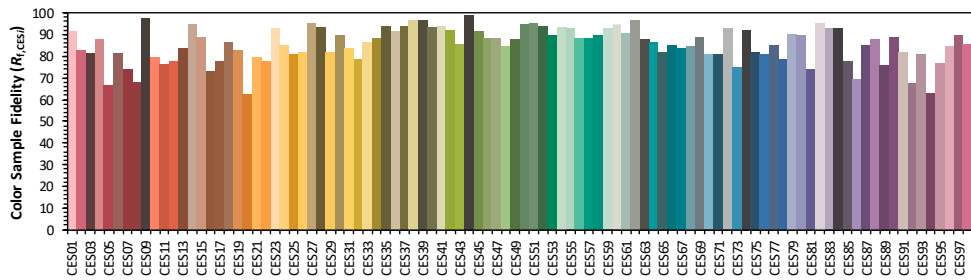
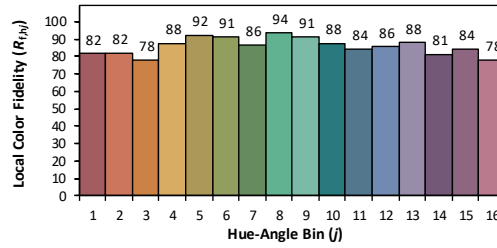
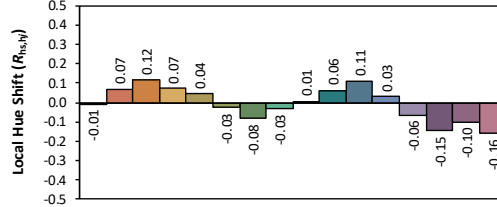
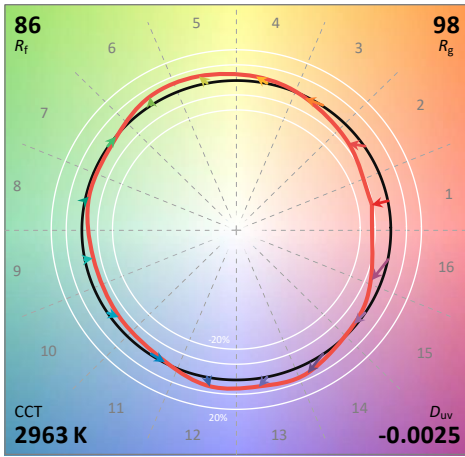
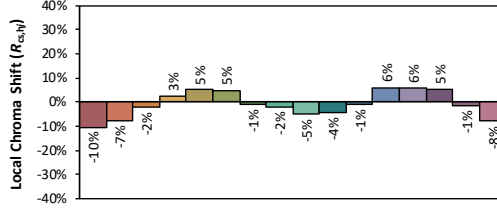
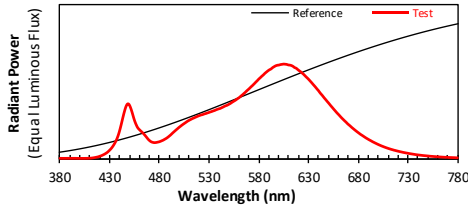
Color Coordinates

Correlated Color Temperatu	2963 K		
x:	0.4359	u:	0.2528
y:	0.3975	v:	0.3457
CRI01	83.4	CRI09	12.4
CRI02	92.7	CRI10	83.9
CRI03	95.5	CRI11	84.0
CRI04	83.1	CRI12	79.3
CRI05	84.2	CRI13	85.8
CRI06	91.9	CRI14	98.3
CRI07	82.2	CRI15	75.7
CRI08	60.3	CRI16	73.2
ResultsCRI	84.2		



PlanckDistance 2.5E-003

4.1 Integrating Sphere Test - 3000K



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

x 0.4359
 y 0.3975
 u' 0.2528
 v' 0.5186

CIE 13.3-1995 (CRI)	
R_a	84
R_g	13

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 3500K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

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 sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.99	60	0.157	18.4	0.975
277.00	60	0.069	18.0	0.944

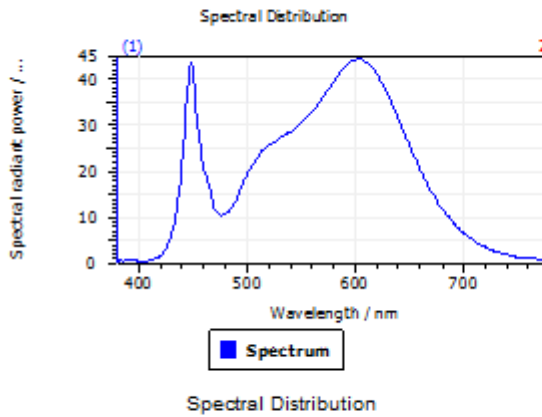
Test Result

CCT (K)	CRI	R9	Duv
3511	87	23	0.0041

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
86	99	-10%	2357	128.1

4.1 Integrating Sphere Test - 3500K

Results

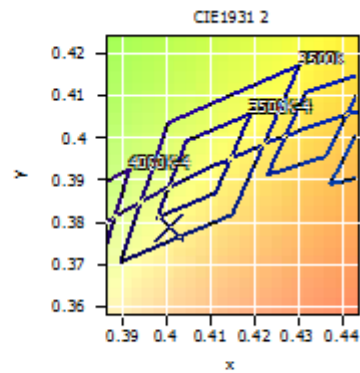


Spectral values

DominantWavelength	582.86 nm
Purity	0.340
PeakWavelength	602.71 nm
Radiant Power	7.389 W
Width50%:	
Luminous Flux	2.357 klm

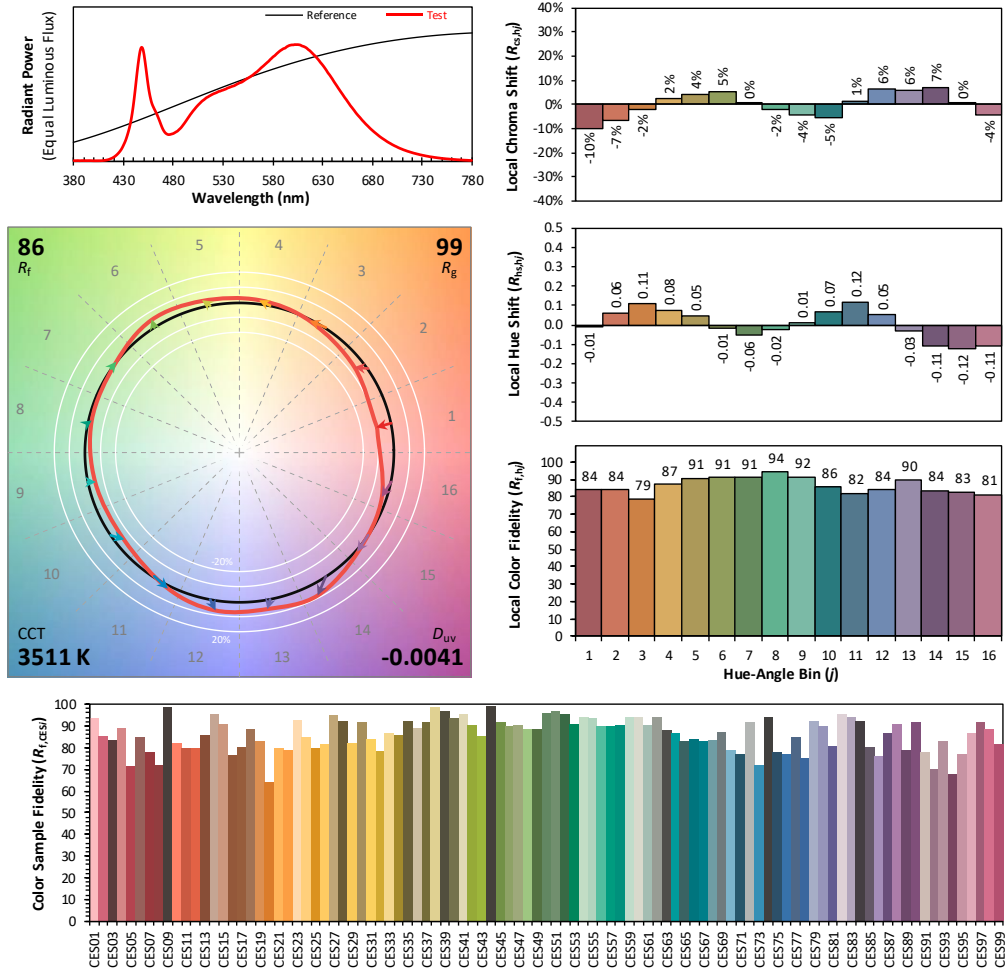
Color Coordinates

Correlated Color Temperature	3511 K		
x:	0.4005	u:	0.2374
		u':	0.2374
y:	0.3790	v:	0.3371
		v':	0.5056
CRI01	86.2	CRI09	23.4
CRI02	92.7	CRI10	82.9
CRI03	96.1	CRI11	87.0
CRI04	86.1	CRI12	75.7
CRI05	86.8	CRI13	88.0
CRI06	90.5	CRI14	98.3
CRI07	85.6	CRI15	80.4
CRI08	67.8	CRI16	78.4
ResultsCRI	86.5		



PlanckDistance 4.1E-003

4.1 Integrating Sphere Test - 3500K



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

x **0.4005**
 y **0.3790**
 u' **0.2374**
 v' **0.5056**

CIE 13.3-1995 (CRI)	
R_a	87
R_g	24

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 4000K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric 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 voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.98	60	0.158	18.4	0.975
277.05	60	0.067	17.9	0.957

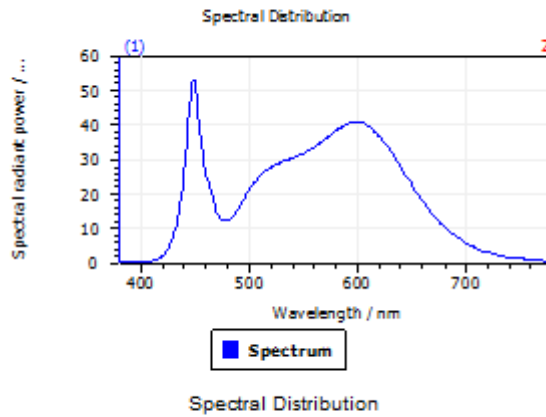
Test Result

CCT (K)	CRI	R9	Duv
4070	87	29	0.004

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
86	99	-9%	2359	127.9

4.1 Integrating Sphere Test - 4000K

Results

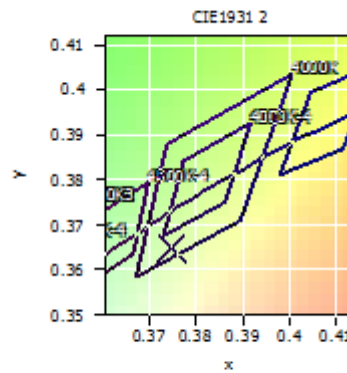


Spectral values

DominantWavelength	581.50 nm
Purity	0.220
PeakWavelength	448.36 nm
Radiant Power	7.469 W
Width50%:	
Luminous Flux	2.359 klm

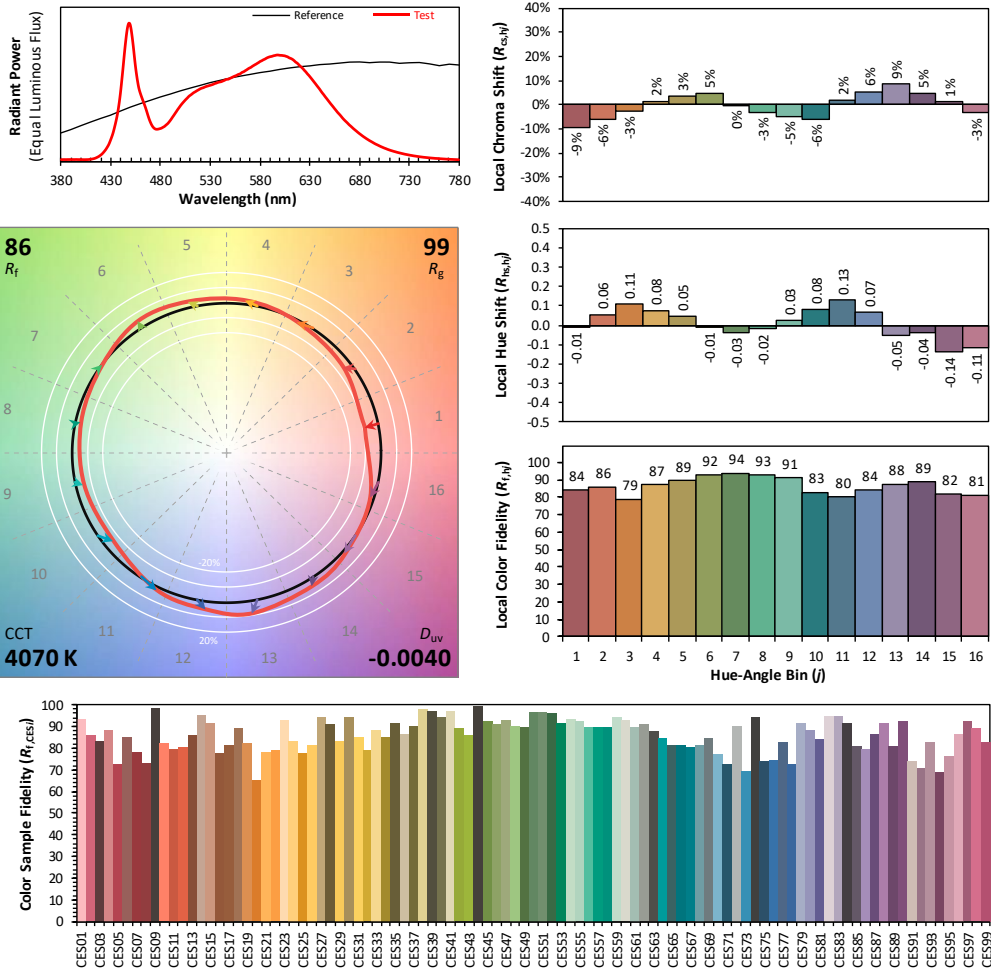
Color Coordinates

Correlated Color Temperature	4070 K		
x:	0.3748	u:	0.2262
		u':	0.2262
y:	0.3648	v:	0.3303
		v':	0.4954
CRI01	87.0	CRI09	28.7
CRI02	91.7	CRI10	79.9
CRI03	94.5	CRI11	88.5
CRI04	88.1	CRI12	70.3
CRI05	87.6	CRI13	88.2
CRI06	88.1	CRI14	96.9
CRI07	87.8	CRI15	82.5
CRI08	72.4	CRI16	80.5
ResultsCRI	87.1		



PlankDistance 4.0E-003

4.1 Integrating Sphere Test - 4000K



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

x **0.3748**
 y **0.3648**
 u' **0.2262**
 v' **0.4954**

CIE 13.3-1995 (CRI)	
R_a	87
R_g	27

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 4500K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

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 sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.99	60	0.157	18.3	0.974
277.03	60	0.068	17.9	0.944

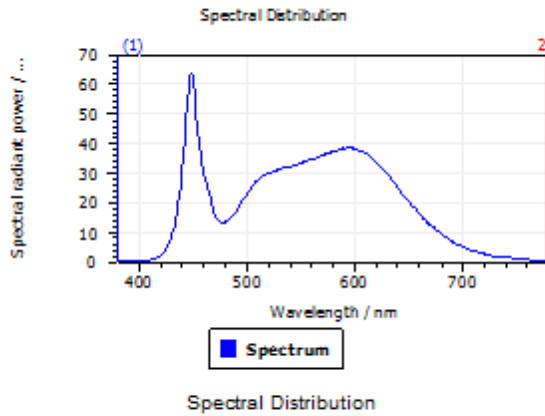
Test Result

CCT (K)	CRI	R9	Duv
4646	86	26	0.0023

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
85	99	-10%	2380	130.1

4.1 Integrating Sphere Test - 4500K

Results

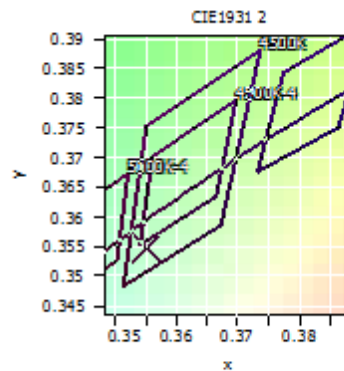


Spectral values

DominantWavelength	578.25 nm
Purity	0.130
PeakWavelength	448.22 nm
Radiant Power	7.579 W
Width50%:	
Luminous Flux	2.38 lm

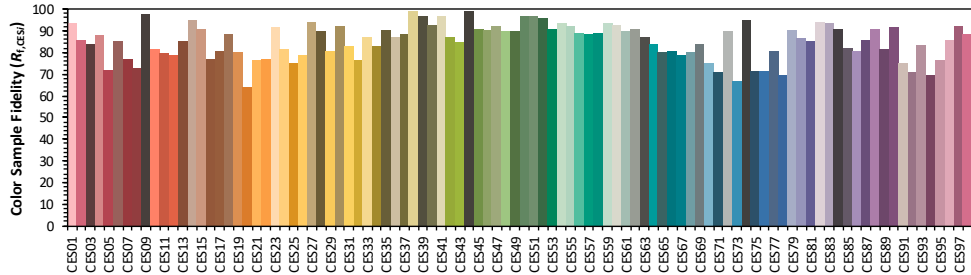
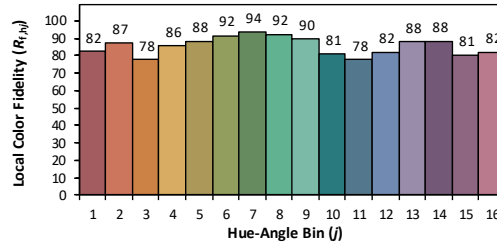
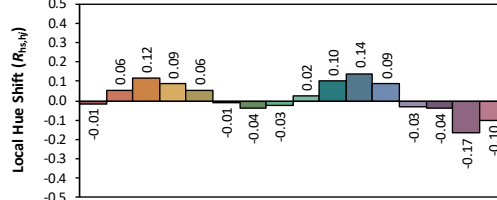
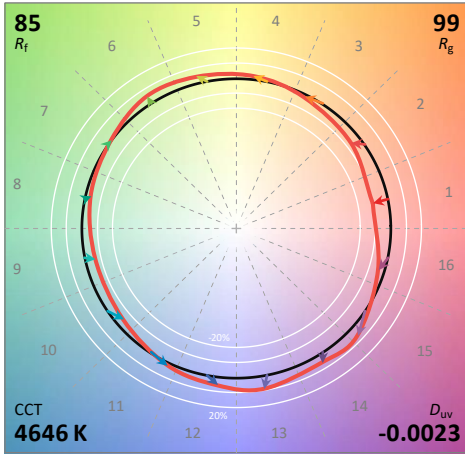
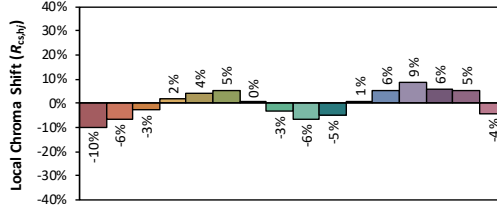
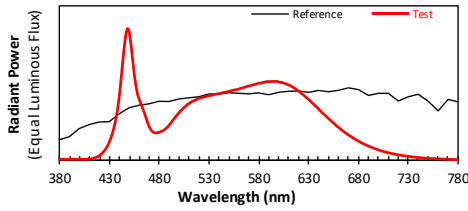
Color Coordinates

Correlated Color Temperature	4646 K		
x:	0.3551	u:	0.2169
y:	0.3548	v:	0.3251
CRI01	85.8	CRI09	25.5
CRI02	90.7	CRI10	77.4
CRI03	93.5	CRI11	86.7
CRI04	86.6	CRI12	66.3
CRI05	86.0	CRI13	87.2
CRI06	86.2	CRI14	96.5
CRI07	88.2	CRI15	81.1
CRI08	72.5	CRI16	79.0
ResultsCRI	86.2		



PlanckDistance 2.3E-003

4.1 Integrating Sphere Test - 4500K



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

x 0.3551
 y 0.3548
 u' 0.2169
 v' 0.4877

CIE 13.3-1995 (CRI)	
R_a	86
R_g	27

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 5000K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

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 sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.97	60	0.157	18.4	0.975
277.01	60	0.067	17.8	0.956

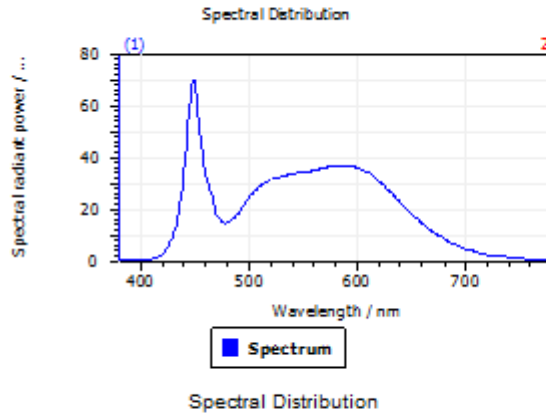
Test Result

CCT (K)	CRI	R9	Duv
5181	86	24	0.0008

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
85	99	-10%	2380	129.5

4.1 Integrating Sphere Test - 5000K

Results

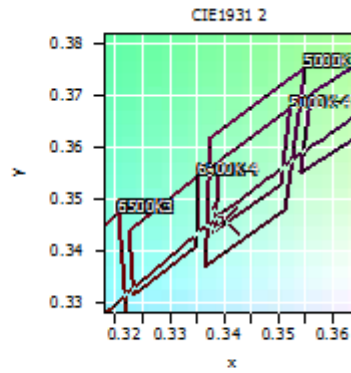


Spectral values

DominantWavelength	570.79 nm
Purity	0.059
PeakWavelength	448.48 nm
Radiant Power	7.64 W
Width50%:	
Luminous Flux	2.38 klm

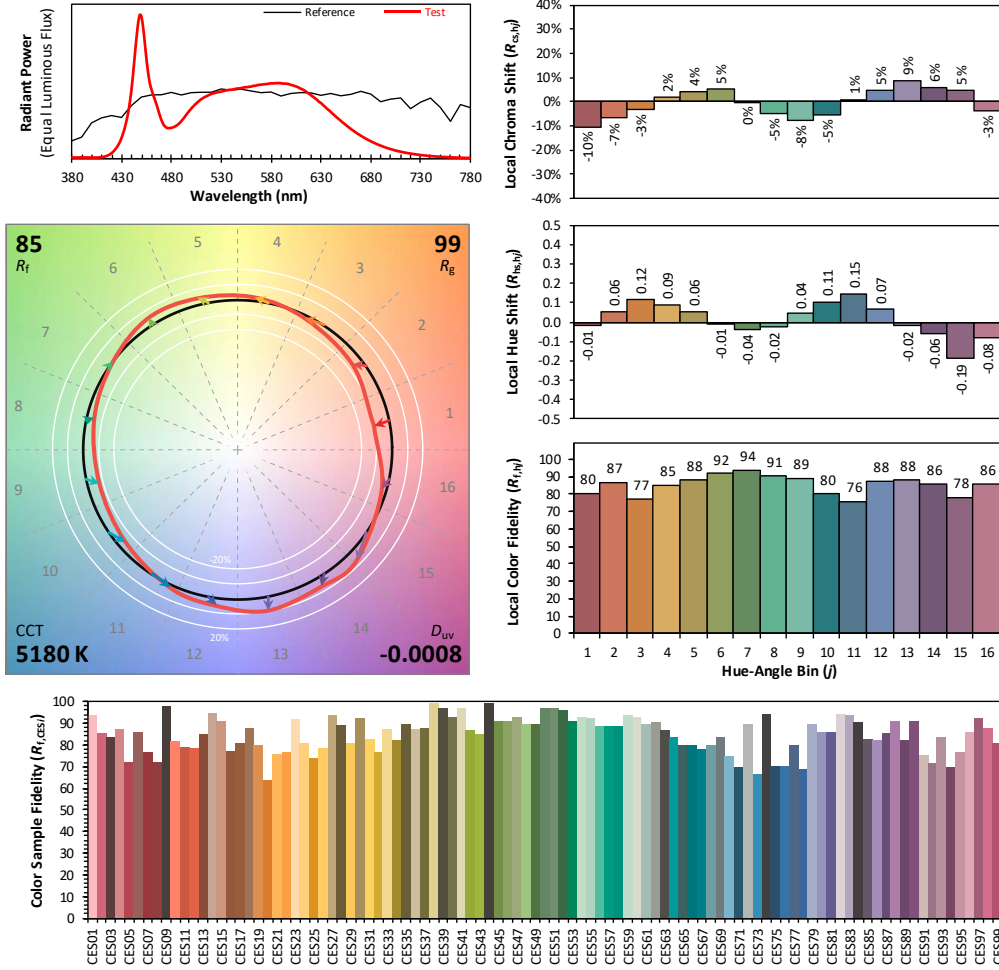
Color Coordinates

Correlated Color Temperature	5181 K		
x:	0.3401	u:	0.2102
y:	0.3460	v:	0.3208
CRI01	85.8	CRI09	24.2
CRI02	89.4	CRI10	74.3
CRI03	91.4	CRI11	87.7
CRI04	87.1	CRI12	67.1
CRI05	86.2	CRI13	86.6
CRI06	84.6	CRI14	95.3
CRI07	88.2	CRI15	81.4
CRI08	73.7	CRI16	80.5
ResultsCRI	85.8		



PlanckDistance 8.0E-004

4.1 Integrating Sphere Test - 5000K



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

x	0.3401
y	0.3460
u'	0.2102
v'	0.4812

CIE 13.3-1995 (CRI)	
R_a	86
R_9	23

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 5700K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

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 sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.98	60	0.157	18.4	0.975
277.00	60	0.069	18.0	0.944

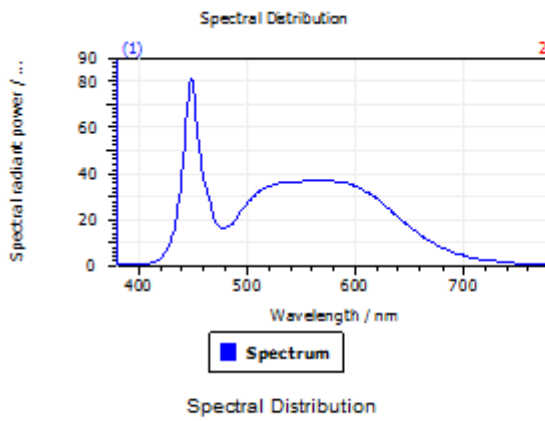
Test Result

CCT (K)	CRI	R9	Duv
5871	84	19	0.0021

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
84	98	-11%	2453	133.3

4.1 Integrating Sphere Test - 5700K

Results

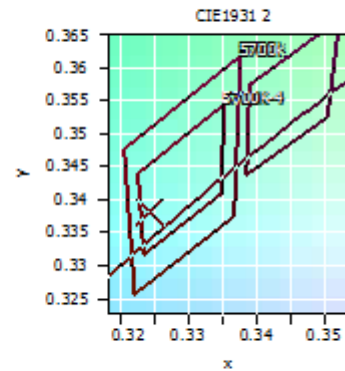


Spectral values

DominantWavelength	498.65 nm
Purity	0.028
PeakWavelength	448.35 nm
Radiant Power	7.91 W
Width50%:	
Luminous Flux	2.453 klm

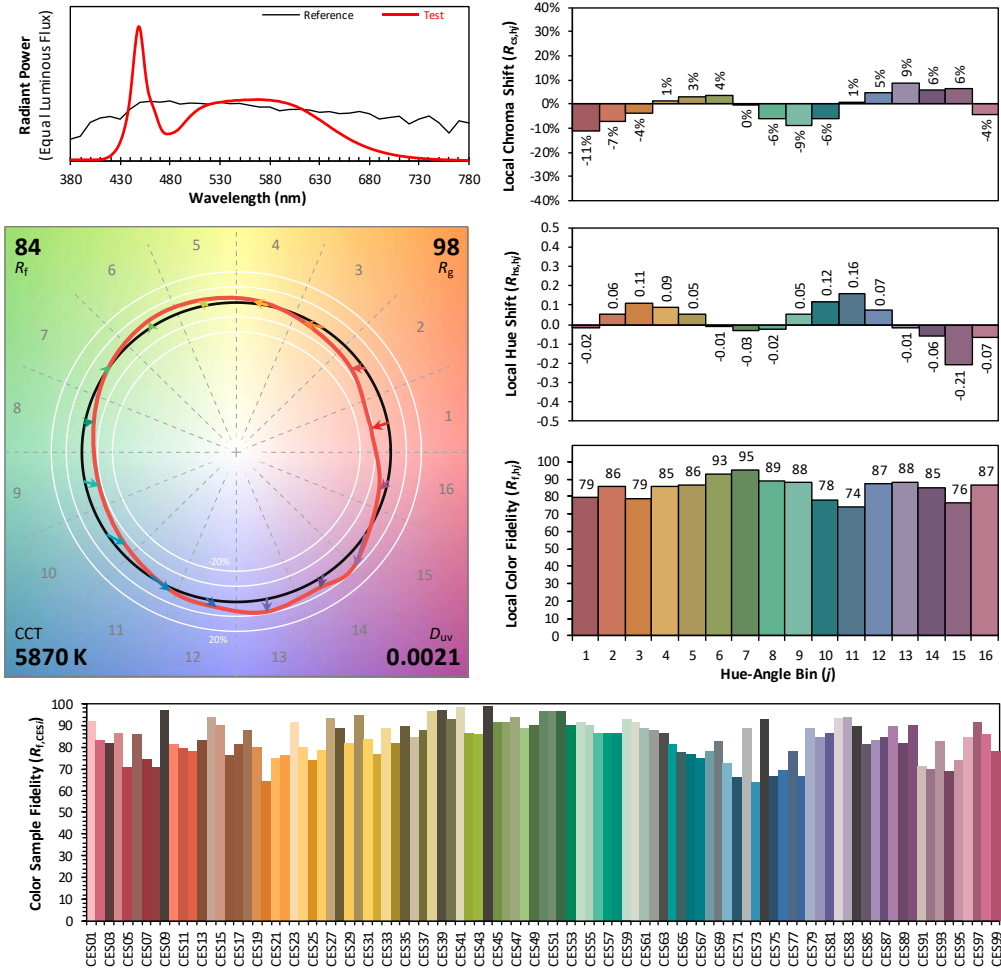
Color Coordinates

Correlated Color Temperatu	5871 K		
x:	0.3244	u:	0.2025
		u':	0.2025
y:	0.3380	v:	0.3165
		v':	0.4748
CRI01	83.7	CRI09	18.5
CRI02	87.4	CRI10	69.8
CRI03	89.7	CRI11	86.1
CRI04	85.9	CRI12	62.4
CRI05	84.3	CRI13	84.5
CRI06	82.2	CRI14	94.5
CRI07	88.4	CRI15	79.0
CRI08	73.5	CRI16	78.1
ResultsCRI	84.4		



PlanckDistance 2.1E-003

4.1 Integrating Sphere Test - 5700K



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

x **0.3244**
 y **0.3380**
 u' **0.2025**
 v' **0.4748**

CIE 13.3-1995 (CRI)	
R_a	84
R_g	18

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.1 Integrating Sphere Test - 6500K

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	56.0

Test Method

The samples were tested according to the IES LM-79-2008.

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 sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere.

The voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ±0.2 percent under load.

The sample was measured using 4π geometry and 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.

Test Result

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
119.99	60	0.159	18.6	0.975
277.02	60	0.070	18.2	0.942

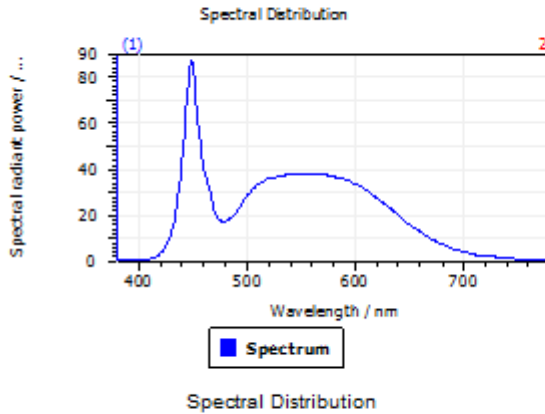
Test Result

CCT (K)	CRI	R9	Duv
6310	83	12	0.0036

Rf	Rg	IES Rcs,h1	Light Output (lm)	Efficacy (lm/W)
84	97	-12%	2494	134.4

4.1 Integrating Sphere Test - 6500K

Results

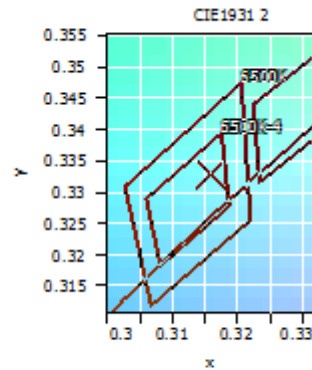


Spectral values

DominantWavelength	491.46 nm
Purity	0.059
PeakWavelength	448.45 nm
Radiant Power	8.085 W
Width50%:	
Luminous Flux	2.494 klm

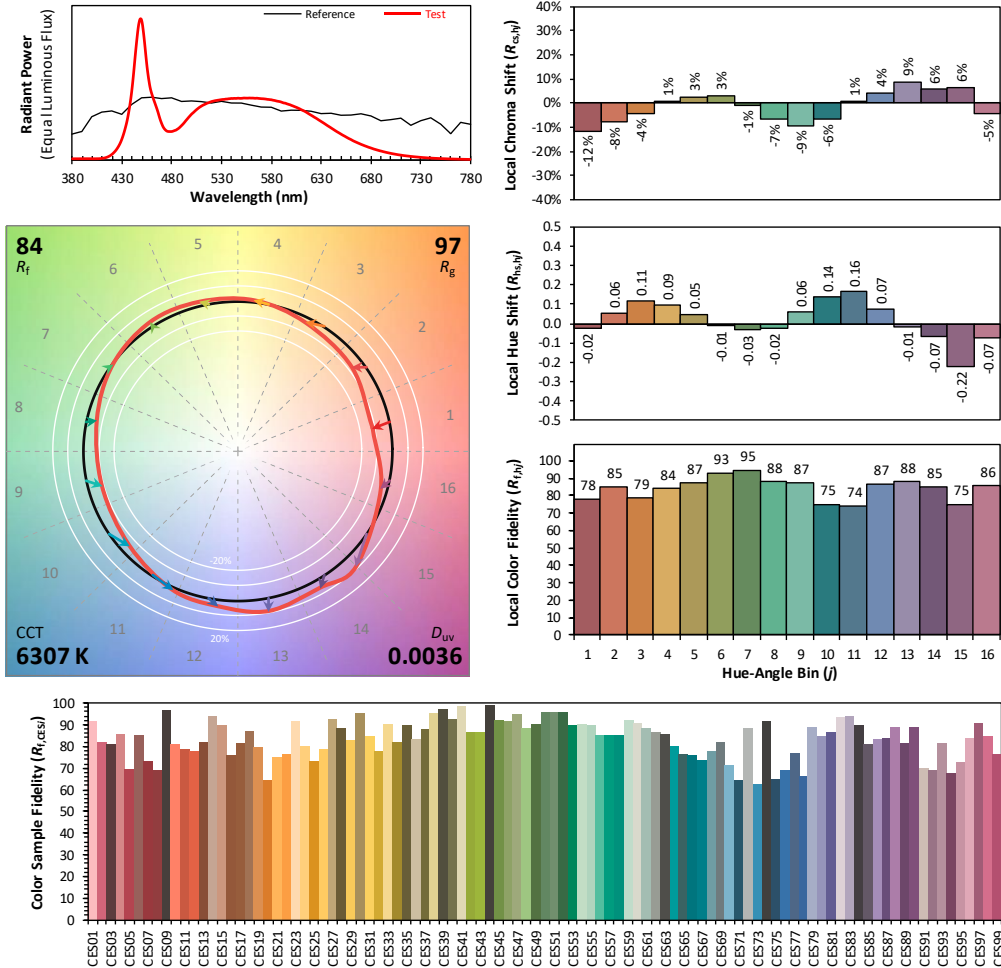
Color Coordinates

Correlated Color Temperatu	6310 K		
x:	0.3159	u:	0.1986
y:	0.3330	v:	0.3139
CRI01	81.7	CRI09	11.5
CRI02	86.4	CRI10	67.9
CRI03	89.5	CRI11	83.7
CRI04	83.9	CRI12	60.9
CRI05	82.7	CRI13	82.8
CRI06	81.5	CRI14	94.5
CRI07	88.1	CRI15	76.6
CRI08	71.7	CRI16	75.8
ResultsCRI	83.2		



PlanckDistance 3.6E-003

4.1 Integrating Sphere Test - 6500K



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

x **0.3159**
 y **0.3330**
 u' **0.1986**
 v' **0.4709**

CIE 13.3-1995 (CRI)	
R_a	83
R_9	13

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.0

4.0 LM-79 Measurement and Test Results

4.2 Goniophotometer Test

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Operate time (Min.)	90	Stabilization time (Min.)	45
Temperature (°C)	25.3	Humidity (%RH)	54.0

Test Method

The samples were tested according to the IES LM-79-2008.

Photometric parameters were measured using a type C 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 voltage of an AC power supply (RMS voltage) or DC power supply (instantaneous voltage) applied to the device under test shall be regulated to within ± 0.2 percent under load.

The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 10° horizontal intervals.

Test Conditions

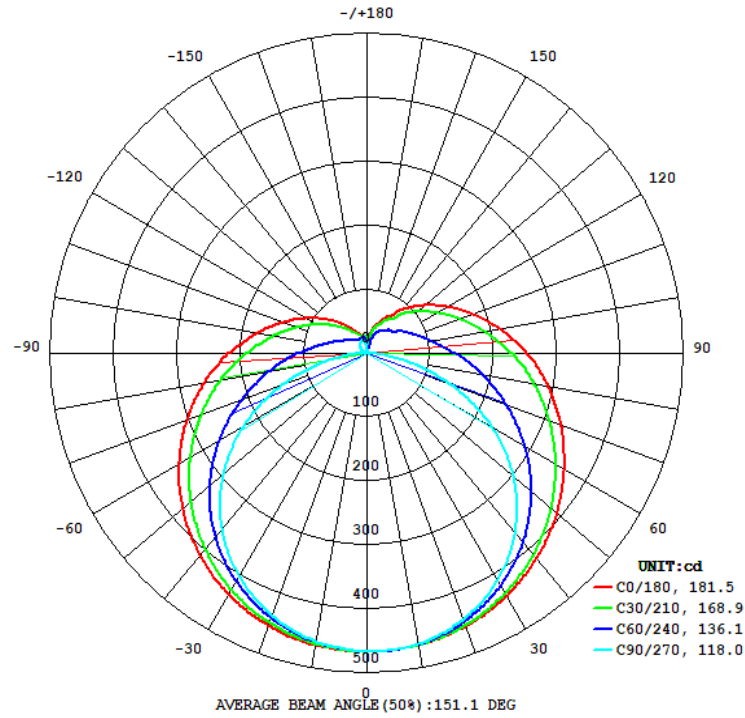
Condition	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
WROST CASE	120.04	60	0.159	18.6	0.973
NON-WROST CASE	277.01	60	0.070	18.3	0.938

Test Result

Flux (lm)	Field Angle(10%)		Beam Angle(50%)		Luminous Efficacy (lm/W)
	C0-180	C90-270	C0-180	C90-270	
2389	309.5	161.2	181.5	118.0	128.7

4.2 Goniophotometer Test

Light Distribution Curve



4.2 Goniophotometer Test

Zonal Lumen Summary

	Zonal (lm)	Total (lm)	Percent
0-10	44.30	0 - 10	44.30 1.85%
10-20	128.86	0 - 20	173.16 7.25%
20-30	201.51	0 - 30	374.67 15.68%
30-40	255.37	0 - 40	630.04 26.37%
40-50	285.56	0 - 50	915.60 38.32%
50-60	289.89	0 - 60	1205.49 50.45%
60-70	269.74	0 - 70	1475.23 61.74%
70-80	231.14	0 - 80	1706.37 71.41%
80-90	185.49	0 - 90	1891.86 79.18%
90-100	145.87	0 - 100	2037.73 85.28%
100-110	113.26	0 - 110	2150.99 90.02%
110-120	85.20	0 - 120	2236.19 93.59%
120-130	61.51	0 - 130	2297.70 96.16%
130-140	42.35	0 - 140	2340.05 97.94%
140-150	26.62	0 - 150	2366.67 99.05%
150-160	15.07	0 - 160	2381.74 99.68%
160-170	6.43	0 - 170	2388.17 99.95%
170-180	1.21	0 - 180	2389.38 100.00%

4.0 LM-79 Measurement and Test Results

4.3 THD and PF Test

Model No.	LCBT8-18-48P-8SS-SD-BYP	Sample ID.	A1
Temperature (°C)	25.3	Humidity (%RH)	56

Test Method
<p>The samples were tested according to the ANSI C82.77:2002.</p> <p>The total harmonic distortion shall be measured to the 40th order.</p> <p>The ambient temperature condition was maintained at 25° C ± 1° C. The sample measurements were made using a digital power meter and power supply. The sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated.</p>

Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Power Factor	THD
25.1	120.01	60	0.975	22.70%
25.1	276.98	60	0.939	18.60%

5.0 Equipment Information

Test Equipment			
Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
DLF107	Integrating Sphere System	2019/12/26	2020/12/25
DLF108	Auxiliary Lamp	2019/12/26	2020/12/25
DLF122	Measurement Standard Lamp Standard Lamp Type: 220 V, 0.4720 A, Tungsten, Omni-derectional	2019/12/26	2020/12/25
DLF116	AC Power Source	2019/12/26	2020/12/25
DLF113	Power Meter	2019/12/26	2020/12/25
DLF112	Temperature Recorder	2019/12/26	2020/12/25
DLF114	Temperature & Humidity Datalogger	2019/12/26	2020/12/25
DLF101	Goniophotometer	2019/12/26	2020/12/25
DLF125	Standard Lamp Standard Lamp Type: 76.58 V, 6.7875 A, Tungsten, Omni-derectional	2019/12/26	2020/12/25
DLF104	AC Power Source	2019/12/26	2020/12/25
DLF507	DC Power Source	2019/12/26	2020/12/25
DLF102	Power Meter	2019/12/26	2020/12/25
DLF111	Temperature & Humidity Datalogger	2019/12/26	2020/12/25
DLF119	Power Meter	2019/12/26	2020/12/25
DLF031	Temperature data logger	2019/12/26	2020/12/25
DLF022	Digital power meter	2019/12/26	2020/12/25
DLF003	Temperature & Humidity Datalogger	2019/12/26	2020/12/25

***** End of Test Report*****