



## Design Lights Consortium Test Report

### Reference Standards

UL1598-2008

ANSI C82.77-10-2014

IES LM-79-2008

### Prepared For

## Beyond LED Technology

1939 Parker Court, Stone Mountain, GA 30087

### Test Laboratory:

UL-CCIC Company Limited

### Test Laboratory Address:

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

### Catalog Number

BLT-10B-22/30/25/20/YDM/CCT(A3+B7)

### Project Number

4790851213

### Report Number

4790851213\_3

### Test Date

2023-05-21~2023-05-29

### Issue Date

2023-06-06

### Revision Date

N/A

### Prepared By

*Elaine Zhao*

Zhao, Elaine

### Approved By

*Elvis Wu*

Wu, Elvis

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

This report shall not be reproduced, except in full, without written approval of Underwriters Laboratories.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government. The laboratory is not responsible for the information which provided by customer, its authenticity can affect the validity of the result in the test report.

## 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	≥2000	-10%	2667.27
Minimum Luminaire Efficacy (lm/W)-Luminaires	IES LM-79-2008	≥110	-3%	125.17
Spacing Criteria (0-180°)	IES LM-79-2008	1.0-2.0	±0.1	1.28
Spacing Criteria (90-270°)	IES LM-79-2008	1.0-2.0	±0.1	1.26
Zonal Lumen Requirement 1(0°-60°)	IES LM-79-2008	≥75%	-3%	77.50%
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3378
Allowable CCT (4000K)	IES LM-79-2008/ANSI C78.377-2015	3985±275	N/A	4049
Allowable CCT (5000K)	IES LM-79-2008/ANSI C78.377-2015	5029±283	N/A	4840
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3374
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3370
Minimum CRI	IES LM-79-2008/CIE 13.3-1995	≥80	-1	83
Minimum R9	IES LM-79-2008	≥0	-1	6.0
Minimum Rg	IES LM-79-2008	≥89	-1	95
Minimum Rf	IES LM-79-2008	≥70	-1	83
Rcs,h1	IES LM-79-2008	-12%-23%	-1%	-12%
Unified Glare Rating (UGR)	IES LM-79-2008	≤22	N/A	21.7
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	0.9068
Total Harmonic Distortion (A%)	ANSI C82.77-10-2014	≤20%	5%	16.96%
In-Situ Temperature Measurement Test for LED 1 (°C)	UL1598-2008	≤105	N/A	35.1
In-Situ Temperature Measurement Test for Driver 1 (°C)	UL1598-2008	≤90	N/A	48.3
Max Chromaticity Shift (1000-6000h)	N/A	≤0.004	0.0004	0.0016
Minimum Luminaire Warranty (Years)	N/A	≥5	N/A	≥5

### Test List

Sample Received Date: 2023-05-15

Test Item	Test Date	Model Number	Tests Conducted By
Integrating Sphere Test	2023-05-22	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 30W	Yang, Gavin X
Integrating Sphere Test	2023-05-22	ETLDI10B-22/DC/30/25/20/YDM/ CCT 840(A3+B7) 30W	Yang, Gavin X
Integrating Sphere Test	2023-05-22	ETLDI10B-22/DC/30/25/20/YDM/ CCT 850(A3+B7) 30W	Yang, Gavin X
Integrating Sphere Test	2023-05-22	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 25W	Yang, Gavin X
Integrating Sphere Test	2023-05-22	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 20W	Yang, Gavin X
Goniophotometer Test	2023-05-21	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 30W	Yang, Gavin X
Goniophotometer Test	2023-05-21	ETLDI10B-22/DC/30/25/20/YDM/ CCT 850(A3+B7) 30W	Yang, Gavin X
THD and PF Test	2023-05-21	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 30W	Yang, Gavin X
THD and PF Test	2023-05-21	ETLDI10B-22/DC/30/25/20/YDM/ CCT 840(A3+B7) 30W	Yang, Gavin X
THD and PF Test	2023-05-21	ETLDI10B-22/DC/30/25/20/YDM/ CCT 850(A3+B7) 30W	Yang, Gavin X
THD and PF Test	2023-05-21	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 25W	Yang, Gavin X
THD and PF Test	2023-05-21	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 20W	Yang, Gavin X
In-Situ Temperature Measurement Test	2023-05-29	ETLDI10B-22/DC/30/25/20/YDM/ CCT 835(A3+B7) 30W	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:** 2x2 Luminaires for Ambient Lighting of Interior Commercial Spaces

**Model Number:** BLT-10B-22/30/25/20/YDM/CCT(A3+B7)

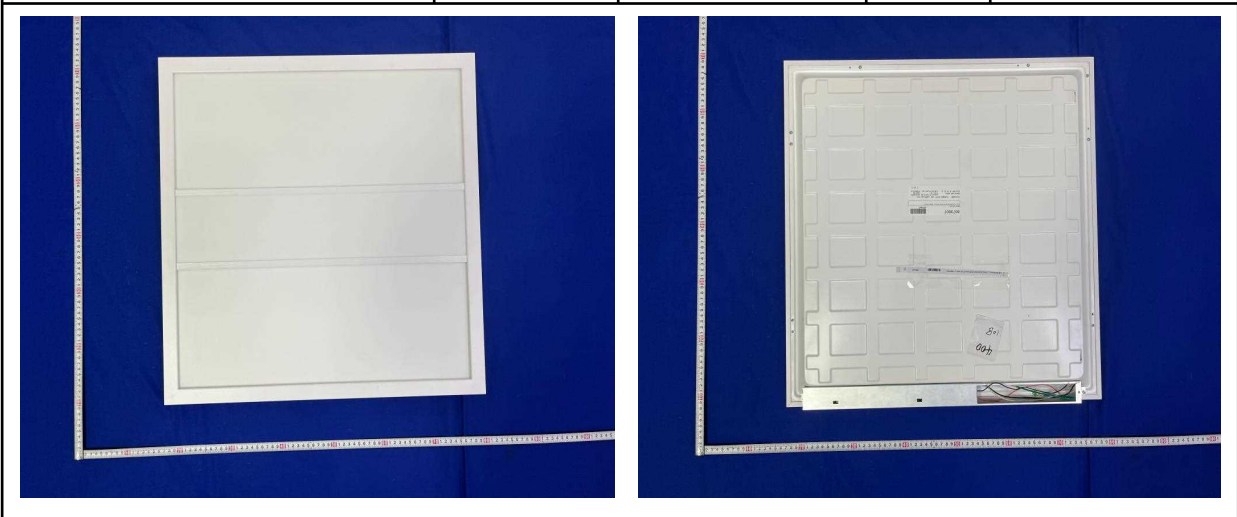
**Electrical Parameter:** 120-277V, 50/60Hz

**LED Package:** BXEN-xxE-13H-9RC

**Dimming Information:** Continuous dimming capability

**Products Scaled Value**

Model Number	CCT	Luminous Flux	Power	Luminous Efficacy
ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7)	3500K	3750	30	125
ETLDI10B-22/DC/30/25/20/YDM/CCT 840(A3+B7)	4000K	4050	30	135
ETLDI10B-22/DC/30/25/20/YDM/CCT 850(A3+B7)	5000K	3810	30	127
ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7)	3500K	3225	25	129
ETLDI10B-22/DC/30/25/20/YDM/CCT 840(A3+B7)	4000K	3475	25	139
ETLDI10B-22/DC/30/25/20/YDM/CCT 850(A3+B7)	5000K	3275	25	131
ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7)	3500K	2260	20	133
ETLDI10B-22/DC/30/25/20/YDM/CCT 840(A3+B7)	4000K	2830	20	143
ETLDI10B-22/DC/30/25/20/YDM/CCT 850(A3+B7)	5000K	2700	20	135



### Integrating Sphere Test

<b>Model No.</b>	BLT-10B-22/30/25/20/YDM/CCT(A3+B7)	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	45

#### Test Method

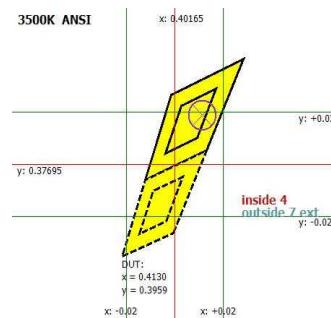
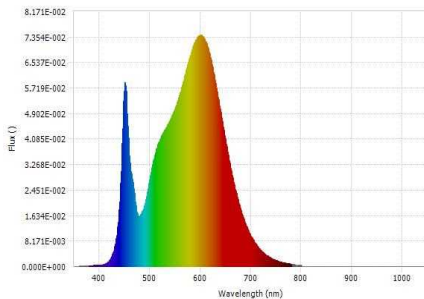
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.  
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 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
24.6	119.93	60	0.2562	30.445	0.9907	Horizontal

#### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3378	83	6.0	0.0006	3862.37	126.86	N/A



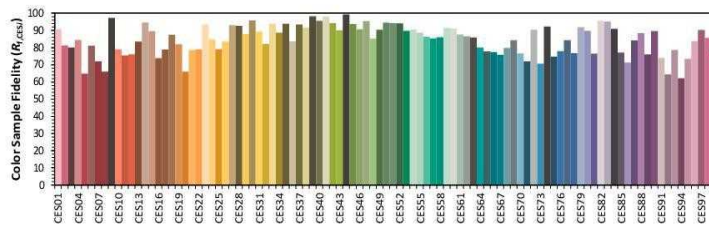
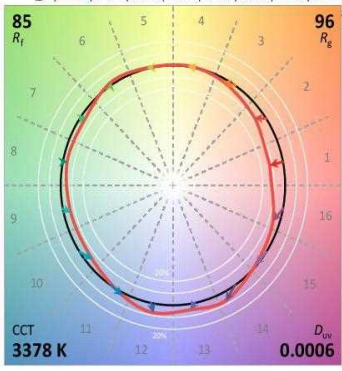
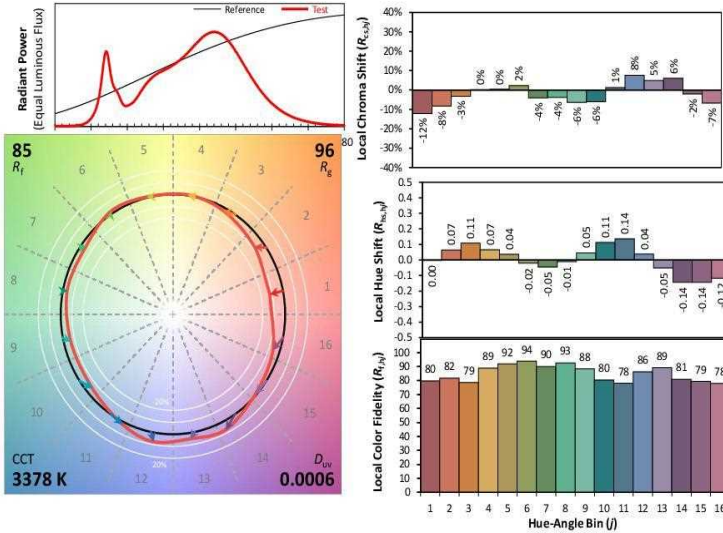
Luminous Flux (lm)	3862.37	Chrom x	0.4130
Chrom y	0.3959	Chrom u	0.2386
Chrom v	0.3430	Duv	0.0006
Chrom u'	0.2386	Chrom v'	0.5145
CCT (K)	3378	Luminous Efficacy (lm/W)	126.86
Ra	83	R1	81.0
R2	90.0	R3	97.0
R4	81.0	R5	81.0
R6	87.0	R7	84.0
R8	61.0	R9	6.0
R10	77.0	R11	81.0
R12	66.0	R13	83.0
R14	98.0	R15	74.0
Rf	85	Rg	96
Rcs,h1	-12%		

# Integrating Sphere Test (Cont'd)

## TM-30 Report

### ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-13H-9RC      Manufacturer: Jiangu Ever-tie Lighting Inc  
 Date: 5/22/2023      Model: ETLD110B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 30W



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

x	0.4130	CIE 13.3-1995 (CRI)
y	0.3959	
$u'$	0.2386	
$v'$	0.5145	

$R_a$  83  
 $R_g$  6

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

## Integrating Sphere Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 840(A3+B7) 30W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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  $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ . The reference standard lamp is rated current 2.679A omni-directional Incandescent lamp and was calibrated by National Institute of Metrology P.R.China.

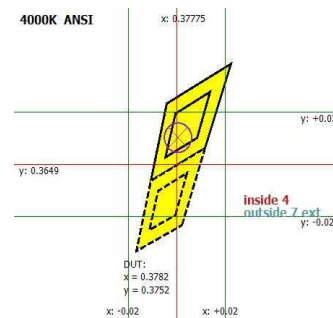
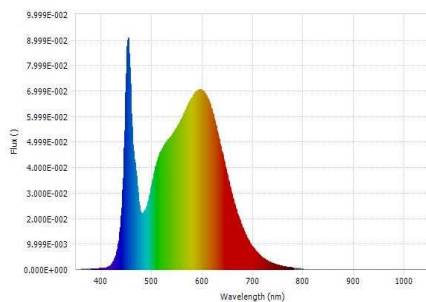
3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using  $4\pi$  geometry. The self-absorption 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 ( $^{\circ}\text{C}$ )	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
24.6	119.95	60	0.2471	29.35	0.9903	Horizontal

### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
4049	84	12.0	-0.0001	4039.03	137.62	N/A



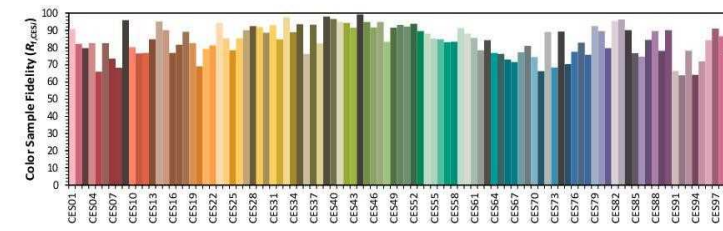
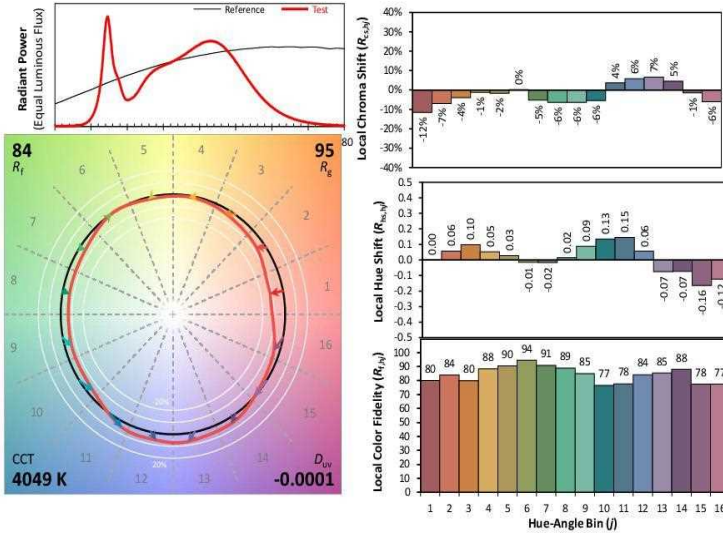
Luminous Flux (lm)	4039.03	Chrom x	0.3782
Chrom y	0.3752	Chrom u	0.2243
Chrom v	0.3337	Duv	-0.0001
Chrom u'	0.2243	Chrom v'	0.5006
CCT (K)	4049	Luminous Efficacy (lm/W)	137.62
Ra	84	R1	83.0
R2	91.0	R3	96.0
R4	82.0	R5	83.0
R6	87.0	R7	86.0
R8	66.0	R9	12.0
R10	78.0	R11	82.0
R12	61.0	R13	85.0
R14	98.0	R15	77.0
Rf	84	Rg	95
Rcs,h1	-12%		

# Integrating Sphere Test (Cont'd)

## TM-30 Report

### ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-13H-9RC      Manufacturer: Jianguo Ever-tie Lighting Inc  
 Date: 5/22/2023      Model: ETLD110B-22/DC/30/25/20/YDM/CCT 840(A3+B7) 30W



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

x	0.3782
y	0.3752
u'	0.2243
v'	0.5006

CIE 13.3-1995 (CRI)	
$R_a$	84
$R_g$	12

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



### Integrating Sphere Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 850(A3+B7) 30W		<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	45	

#### Test Method

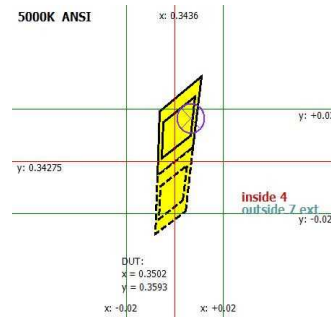
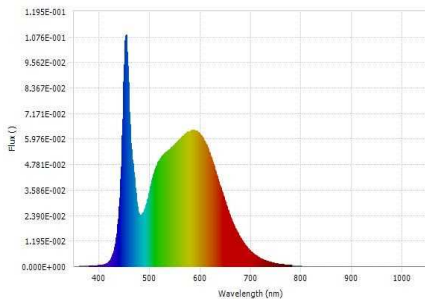
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.  
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 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
24.6	119.93	60	0.2550	30.295	0.9903	Horizontal

#### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
4840	83	8.0	0.0018	3934.15	129.86	N/A



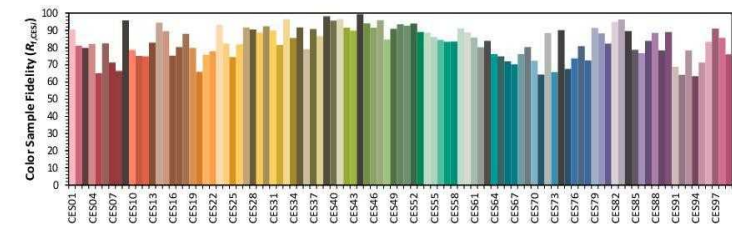
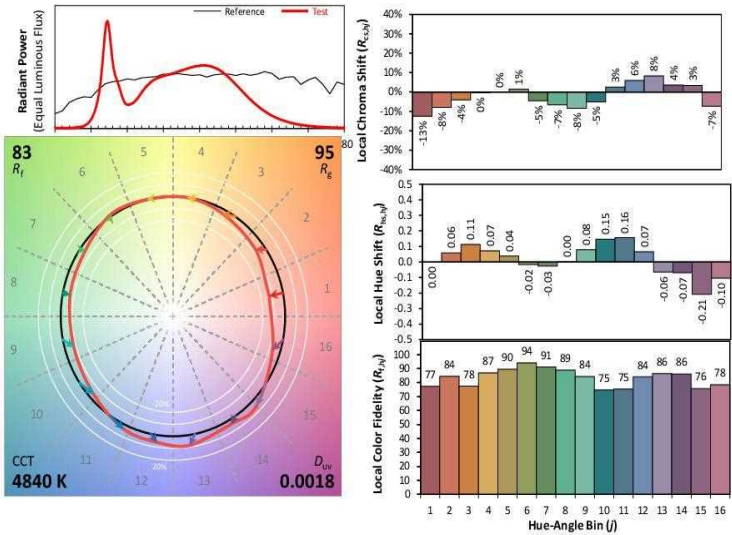
Luminous Flux (lm)	3934.15	Chrom x	0.3502
Chrom y	0.3593	Chrom u	0.2119
Chrom v	0.3261	Duv	0.0018
Chrom u'	0.2119	Chrom v'	0.4891
CCT (K)	4840	Luminous Efficacy (lm/W)	129.86
Ra	83	R1	81.0
R2	89.0	R3	94.0
R4	81.0	R5	81.0
R6	84.0	R7	87.0
R8	67.0	R9	8.0
R10	74.0	R11	80.0
R12	55.0	R13	84.0
R14	97.0	R15	75.0
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-13H-9RC      Manufacturer: Jianguo Ever-tie Lighting Inc  
 Date: 5/22/2023      Model: ETLD110B-22/DC/30/25/20/YDM/CCT 850(A3+B7) 30W



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

x	0.3502
y	0.3593
u'	0.2119
v'	0.4891

CIE 13.3-1995 (CRI)	
$R_a$	83
$R_g$	8

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

## Integrating Sphere Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 25W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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.

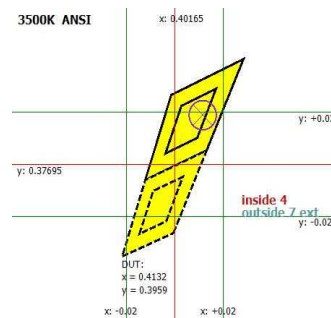
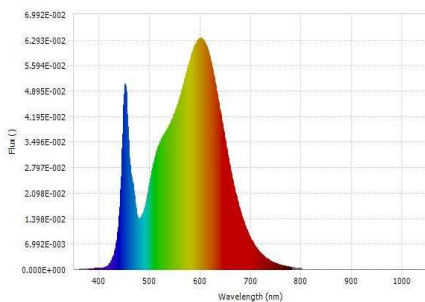
3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption 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
24.6	119.97	60	0.2125	25.259	0.9908	Horizontal

### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3374	83	7.0	0.0006	3301.94	130.72	N/A



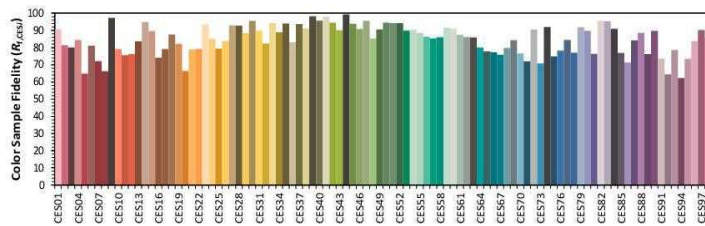
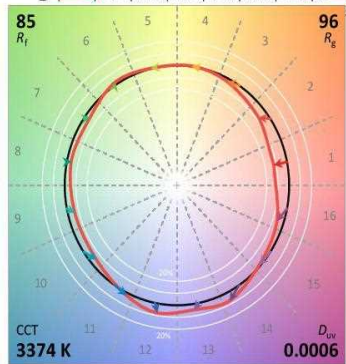
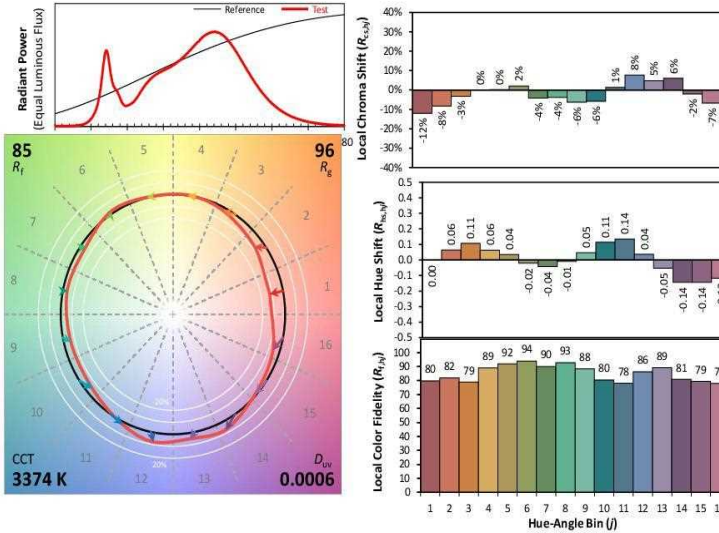
Luminous Flux (lm)	3301.94	Chrom x	0.4132
Chrom y	0.3959	Chrom u	0.2387
Chrom v	0.3431	Duv	0.0006
Chrom u'	0.2387	Chrom v'	0.5146
CCT (K)	3374	Luminous Efficacy (lm/W)	130.72
Ra	83	R1	81.0
R2	90.0	R3	97.0
R4	81.0	R5	81.0
R6	87.0	R7	84.0
R8	61.0	R9	7.0
R10	77.0	R11	81.0
R12	66.0	R13	83.0
R14	99.0	R15	74.0
Rf	85	Rg	96
Rcs,h1	-12%		

# Integrating Sphere Test (Cont'd)

## TM-30 Report

### ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-13H-9RC      Manufacturer: Jianguo Ever-tie Lighting Inc  
 Date: 5/22/2023      Model: ETLD110B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 25W



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

x	0.4132	CIE 13.3-1995 (CRI)	
y	0.3959		
u'	0.2387		
v'	0.5146		
		$R_a$	83
		$R_g$	7

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

## Integrating Sphere Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 20W		<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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.

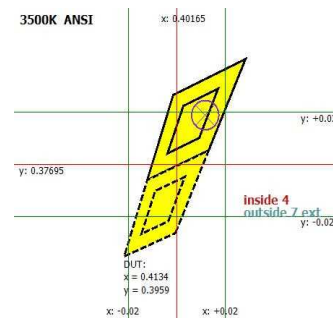
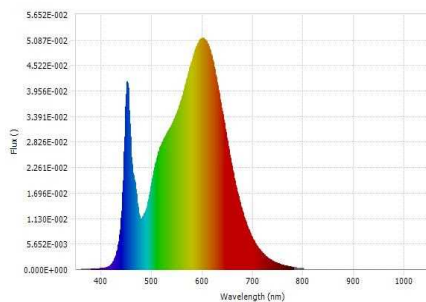
3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption 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
24.6	119.98	60	0.1672	19.776	0.9860	Horizontal

### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3370	83	7.0	0.0006	2667.27	134.87	N/A



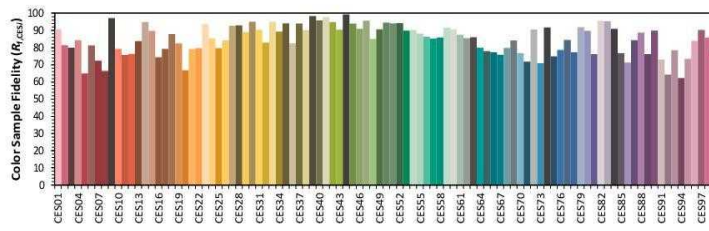
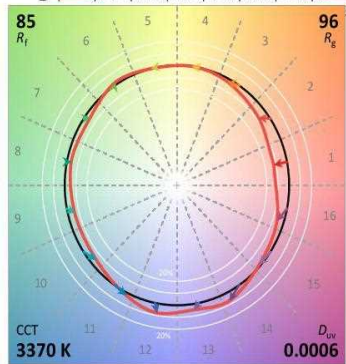
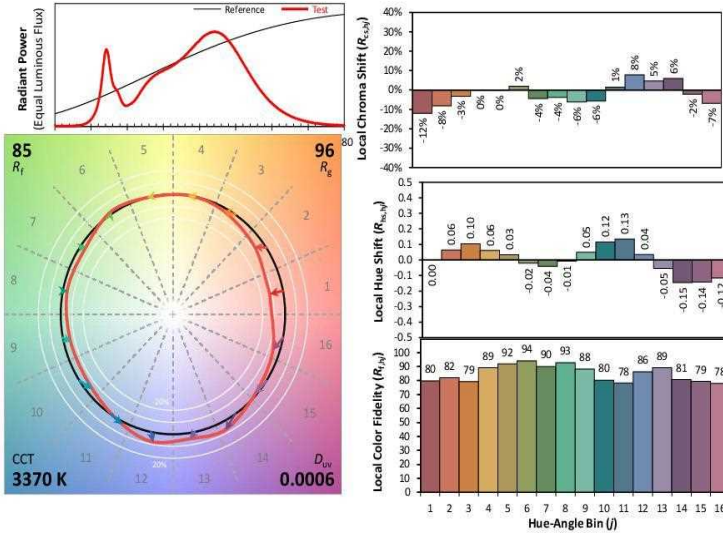
Luminous Flux (lm)	2667.27	Chrom x	0.4134
Chrom y	0.3959	Chrom u	0.2388
Chrom v	0.3431	Duv	0.0006
Chrom u'	0.2388	Chrom v'	0.5146
CCT (K)	3370	Luminous Efficacy (lm/W)	134.87
Ra	83	R1	81.0
R2	90.0	R3	97.0
R4	82.0	R5	82.0
R6	88.0	R7	84.0
R8	61.0	R9	7.0
R10	78.0	R11	81.0
R12	66.0	R13	84.0
R14	99.0	R15	74.0
Rf	85	Rg	96
Rcs,h1	-12%		

# Integrating Sphere Test (Cont'd)

## TM-30 Report

### ANSI/IES TM-30-18 Color Rendition Report

Source: BXEN-xxE-13H-9RC      Manufacturer: Jianguo Ever-tie Lighting Inc  
 Date: 5/22/2023      Model: ETLD110B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 20W



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

x	0.4134	CIE 13.3-1995 (CRI)
y	0.3959	
$u'$	0.2388	
$v'$	0.5146	

$R_a = 83$   
 $R_g = 7$

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

## Goniophotometer Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 30W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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
24.2	120.11	60	0.2549	30.52	0.9968	4.25%	Horizontal

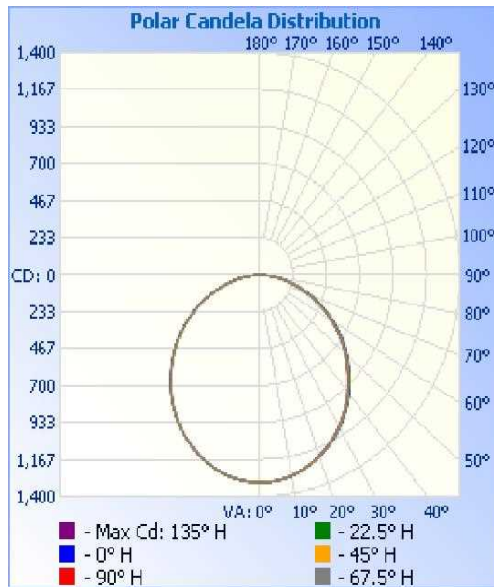
### Test Results

Luminous Flux (lm)	Zonal Lumen Requirement 1	Zonal Lumen Requirement 2	Beam Angle (50%)		Luminous Efficacy (lm/W)
	0°-60°	N/A	Horizontal Spread	Vertical Spread	
3820.1	77.80%	N/A	113.5	114.7	125.17

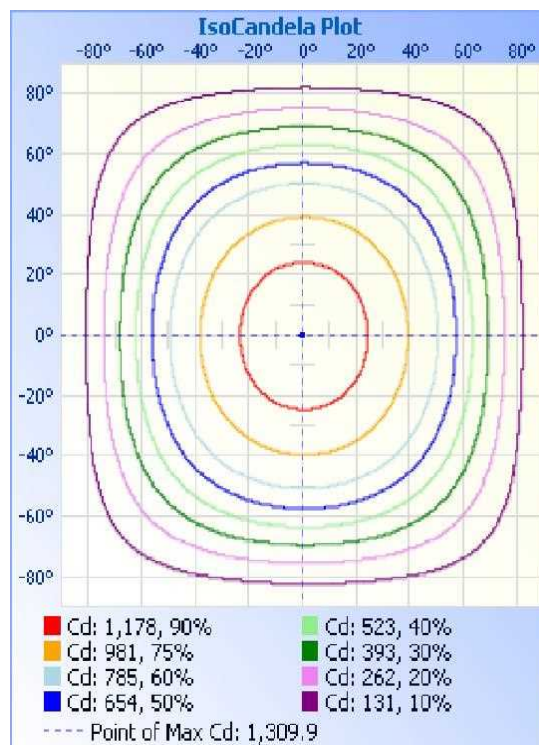
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
21.7	21.3	1.28	1.26

**Goniophotometer Test (Cont'd)**  
Polar Candela Distribution



IsoCandela Plot





**Goniophotometer Test (Cont'd)**  
**Zonal Lumen Summary**

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1018.0	26.60%
0-40	1670.5	43.70%
0-60	2969.0	77.70%
60-90	840.4	22.00%
70-100	364.6	9.50%
90-120	3.4	0.10%
0-90	3809.4	99.70%
90-180	10.7	0.30%
0-180	3820.1	100.00%

**Lumens Per Zone**

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	31.2	0.80%	90-95	0.8	0.00%
5-10	92.7	2.40%	95-100	0.6	0.00%
10-15	151.0	4.00%	100-105	0.5	0.00%
15-20	204.0	5.30%	105-110	0.5	0.00%
20-25	250.3	6.60%	110-115	0.5	0.00%
25-30	288.8	7.60%	115-120	0.5	0.00%
30-35	317.3	8.30%	120-125	0.5	0.00%
35-40	335.2	8.80%	125-130	0.6	0.00%
40-45	341.4	8.90%	130-135	0.7	0.00%
45-50	337.1	8.80%	135-140	0.7	0.00%
50-55	323.1	8.50%	140-145	0.8	0.00%
55-60	296.9	7.80%	145-150	0.8	0.00%
60-65	260.6	6.80%	150-155	0.8	0.00%
65-70	216.6	5.70%	155-160	0.7	0.00%
70-75	166.0	4.30%	160-165	0.7	0.00%
75-80	114.5	3.00%	165-170	0.6	0.00%
80-85	64.3	1.70%	170-175	0.4	0.00%
85-90	18.4	0.50%	175-180	0.1	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	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308	1308
1	1309	1308	1309	1308	1308	1308	1310	1307	1306	1307	1307	1310	1306	1308	1309	1306	1308
2	1306	1307	1306	1308	1309	1307	1308	1309	1306	1306	1309	1308	1307	1308	1306	1307	1305
3	1307	1306	1308	1307	1306	1305	1308	1307	1308	1307	1308	1305	1307	1306	1307	1307	1306
4	1306	1306	1307	1306	1306	1304	1305	1306	1304	1306	1306	1304	1306	1306	1307	1307	1305
5	1304	1303	1302	1304	1301	1304	1304	1304	1304	1302	1304	1304	1302	1303	1304	1304	1304
6	1300	1302	1301	1302	1302	1300	1302	1300	1302	1300	1302	1301	1302	1303	1302	1301	1302
7	1299	1298	1300	1298	1298	1295	1298	1298	1297	1299	1298	1299	1298	1300	1299	1298	1297
8	1296	1295	1296	1294	1295	1295	1293	1296	1297	1296	1295	1296	1294	1295	1295	1295	1297
9	1292	1291	1293	1292	1290	1291	1291	1292	1293	1291	1294	1293	1292	1293	1292	1291	1293
10	1289	1287	1287	1286	1287	1283	1285	1289	1287	1288	1290	1288	1289	1287	1289	1288	1287
11	1285	1284	1281	1279	1282	1279	1280	1281	1282	1283	1282	1282	1285	1283	1283	1283	1284
12	1278	1278	1276	1275	1275	1272	1274	1276	1276	1277	1277	1277	1279	1277	1280	1278	1279
13	1270	1271	1270	1270	1269	1270	1267	1271	1270	1271	1271	1270	1272	1271	1273	1274	1271
14	1266	1265	1265	1263	1262	1263	1262	1265	1264	1266	1265	1264	1266	1265	1266	1267	1265
15	1260	1259	1260	1255	1254	1256	1256	1258	1259	1260	1260	1259	1258	1259	1260	1259	1259
16	1252	1251	1249	1249	1250	1248	1250	1252	1252	1250	1252	1252	1252	1252	1251	1253	1254
17	1245	1243	1244	1240	1242	1242	1242	1243	1245	1244	1242	1243	1243	1244	1245	1246	1246
18	1239	1234	1236	1232	1231	1233	1235	1235	1236	1236	1235	1235	1236	1236	1236	1239	1240
19	1230	1227	1226	1222	1222	1224	1225	1225	1227	1228	1226	1228	1226	1228	1227	1228	1230
20	1220	1219	1218	1215	1214	1214	1216	1215	1219	1217	1217	1218	1219	1218	1220	1220	1222
25	1174	1173	1169	1168	1166	1166	1168	1170	1172	1171	1170	1169	1168	1172	1172	1174	1174
30	1118	1114	1112	1107	1106	1105	1108	1109	1112	1114	1113	1112	1113	1114	1116	1118	1117
35	1051	1046	1042	1038	1036	1036	1041	1044	1047	1046	1043	1044	1043	1043	1045	1049	1048
40	974	967	964	959	956	957	962	964	967	969	967	966	965	967	970	974	974
45	888	884	879	872	870	870	873	878	882	881	879	879	880	881	883	888	888
50	800	795	790	784	782	781	785	790	794	793	791	789	790	792	794	798	802
55	706	698	692	687	685	684	688	695	699	698	695	694	695	698	699	704	705
60	601	596	588	582	579	579	582	588	593	593	590	590	592	592	594	600	601
65	493	490	481	475	472	472	474	480	488	486	483	482	484	485	488	492	493
70	385	378	369	363	361	360	364	370	376	376	373	372	373	374	378	382	384
75	276	270	262	256	254	252	256	262	269	267	263	264	265	266	269	274	276
80	176	170	163	158	155	155	157	163	170	169	165	165	166	167	170	174	177
85	83	77	71	67	65	64	66	71	76	75	73	73	74	75	77	80	83
90	3	3	2	2	2	1	2	1	1	1	2	3	4	4	4	4	4
95	1	2	1	2	2	1	1	1	1	2	1	2	1	1	1	1	1
100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
105	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
110	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1
115	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
120	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
125	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
130	2	1	1	1	2	2	1	1	2	2	1	2	2	1	1	1	1
135	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
145	2	3	3	3	2	3	3	3	2	3	3	2	3	3	3	3	3
150	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
155	3	3	3	4	4	3	4	3	3	3	3	4	3	3	3	3	3
160	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
165	4	5	5	4	4	5	4	4	5	5	5	4	4	4	4	4	4
170	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5
175	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

## Goniophotometer Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 850(A3+B7) 30W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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
24.3	120.12	60	0.2532	30.32	0.9968	4.25%	Horizontal

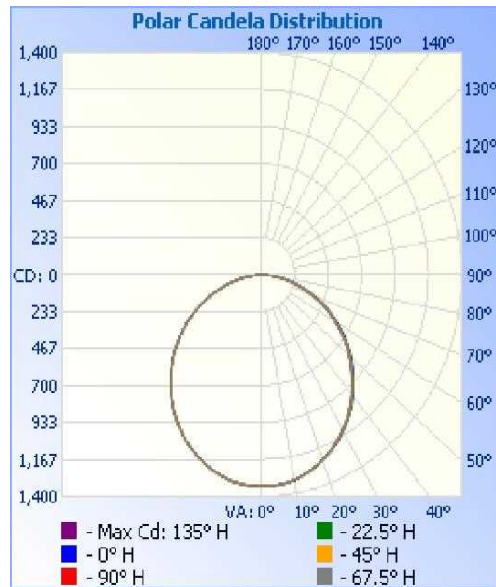
### Test Results

Luminous Flux (lm)	Zonal Lumen Requirement 1	Zonal Lumen Requirement 2	Beam Angle (50%)		Luminous Efficacy (lm/W)
	0°-60°	N/A	Horizontal Spread	Vertical Spread	
3906.4	77.50%	N/A	113.6	114.7	128.84

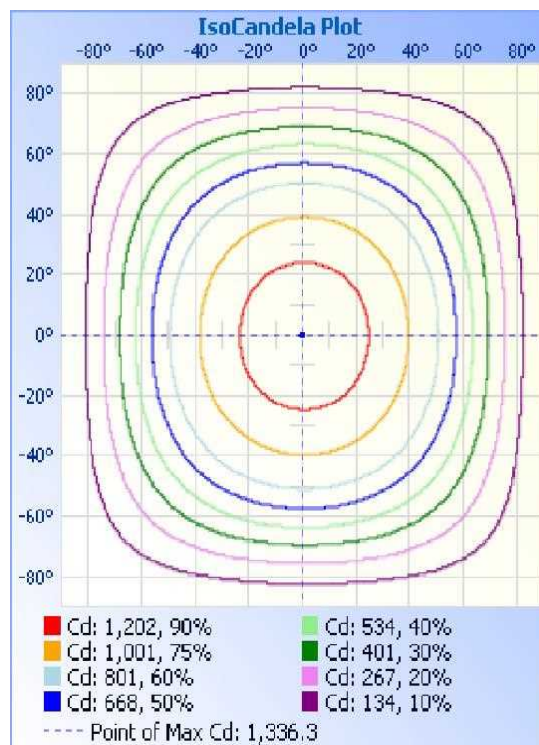
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
21.7	21.3	1.28	1.26

**Goniophotometer Test (Cont'd)**  
**Polar Candela Distribution**



**IsoCandela Plot**



**Goniophotometer Test (Cont'd)**  
Zonal Lumen Summary

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1039.3	26.60%
0-40	1705.8	43.70%
0-60	3032.9	77.60%
60-90	862.6	22.10%
70-100	375.3	9.60%
90-120	3.5	0.10%
0-90	3895.5	99.70%
90-180	10.9	0.30%
0-180	3906.4	100.00%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	31.9	0.80%	90-95	0.8	0.00%
5-10	94.6	2.40%	95-100	0.6	0.00%
10-15	154.1	3.90%	100-105	0.5	0.00%
15-20	208.3	5.30%	105-110	0.5	0.00%
20-25	255.6	6.50%	110-115	0.5	0.00%
25-30	294.9	7.50%	115-120	0.5	0.00%
30-35	324.0	8.30%	120-125	0.5	0.00%
35-40	342.5	8.80%	125-130	0.6	0.00%
40-45	348.6	8.90%	130-135	0.7	0.00%
45-50	344.8	8.80%	135-140	0.8	0.00%
50-55	330.4	8.50%	140-145	0.8	0.00%
55-60	303.3	7.80%	145-150	0.8	0.00%
60-65	267.0	6.80%	150-155	0.8	0.00%
65-70	221.8	5.70%	155-160	0.7	0.00%
70-75	170.0	4.40%	160-165	0.7	0.00%
75-80	118.1	3.00%	165-170	0.6	0.00%
80-85	66.3	1.70%	170-175	0.4	0.00%
85-90	19.4	0.50%	175-180	0.1	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	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335	1335
1	1333	1335	1335	1336	1334	1335	1336	1333	1334	1335	1336	1334	1336	1335	1336	1333	1335
2	1333	1333	1333	1335	1332	1335	1332	1331	1334	1334	1335	1335	1335	1333	1333	1333	1334
3	1333	1332	1332	1332	1333	1332	1335	1331	1334	1334	1334	1334	1334	1333	1333	1335	1333
4	1332	1332	1330	1331	1332	1331	1331	1332	1330	1330	1333	1334	1333	1334	1334	1334	1332
5	1330	1330	1332	1329	1328	1330	1329	1329	1329	1331	1329	1330	1333	1332	1331	1332	1330
6	1327	1329	1327	1327	1326	1327	1326	1326	1326	1327	1327	1329	1327	1329	1330	1328	1330
7	1325	1326	1324	1324	1324	1324	1325	1324	1324	1324	1326	1326	1326	1327	1326	1327	1326
8	1322	1324	1322	1321	1321	1320	1321	1323	1322	1320	1322	1322	1323	1324	1324	1324	1322
9	1319	1318	1318	1319	1316	1319	1318	1318	1319	1318	1319	1318	1321	1321	1321	1319	1321
10	1316	1316	1312	1314	1311	1313	1316	1314	1315	1315	1316	1314	1315	1316	1315	1315	1316
11	1310	1310	1307	1306	1308	1308	1310	1310	1310	1310	1310	1309	1311	1310	1310	1312	1310
12	1304	1303	1302	1301	1301	1301	1302	1302	1303	1304	1302	1303	1306	1305	1305	1306	1305
13	1298	1296	1296	1294	1295	1293	1294	1295	1296	1298	1297	1298	1298	1300	1301	1299	1300
14	1293	1290	1290	1287	1290	1286	1288	1289	1289	1289	1292	1291	1292	1293	1291	1292	1293
15	1287	1284	1284	1281	1282	1280	1284	1281	1283	1284	1286	1285	1285	1286	1286	1287	1286
16	1278	1277	1278	1274	1276	1273	1275	1276	1278	1276	1278	1278	1279	1279	1279	1280	1278
17	1272	1269	1269	1267	1267	1267	1266	1268	1271	1269	1269	1271	1269	1269	1271	1271	1271
18	1262	1262	1260	1257	1258	1258	1260	1260	1262	1261	1261	1263	1263	1262	1263	1262	1264
19	1255	1253	1251	1248	1248	1248	1250	1250	1252	1252	1252	1254	1254	1253	1255	1254	1254
20	1246	1243	1243	1239	1238	1240	1241	1241	1242	1243	1243	1244	1244	1244	1245	1248	1246
25	1200	1195	1193	1190	1191	1191	1191	1195	1195	1197	1195	1196	1196	1197	1198	1198	1200
30	1140	1137	1133	1131	1127	1128	1130	1133	1137	1136	1137	1134	1137	1137	1140	1141	1141
35	1072	1069	1065	1060	1060	1059	1061	1064	1069	1068	1069	1068	1068	1069	1069	1071	1072
40	993	988	984	982	978	978	982	984	988	988	988	986	988	990	990	993	992
45	906	902	896	891	888	891	891	897	902	899	898	900	900	902	905	905	907
50	818	813	805	801	799	798	802	806	813	812	810	809	812	812	815	818	820
55	720	713	707	703	701	702	703	707	713	712	711	711	712	712	715	717	720
60	615	608	600	594	592	592	595	602	607	606	603	603	606	607	610	614	616
65	508	501	492	487	484	484	486	492	500	498	495	495	498	498	502	506	507
70	393	387	378	372	370	370	372	378	385	384	382	380	383	383	386	390	393
75	284	277	269	263	261	260	262	269	275	274	272	271	273	275	277	283	284
80	182	176	169	164	161	160	162	169	175	173	170	170	172	172	174	179	182
85	86	80	73	70	68	66	68	72	78	77	75	75	77	78	80	82	86
90	5	3	2	2	2	2	2	2	2	2	3	4	5	5	5	5	5
95	1	1	1	2	1	2	2	1	1	2	2	1	1	1	1	1	1
100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
105	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
110	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
115	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1
120	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
125	1	1	2	1	1	1	1	1	2	1	1	2	1	2	1	2	2
130	2	1	2	2	1	2	1	2	1	1	2	2	1	2	2	2	2
135	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
145	2	3	2	3	2	2	2	2	2	2	2	3	2	2	2	3	3
150	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
155	3	4	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3
160	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
165	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5
170	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
175	5	5	5	6	5	5	5	6	5	5	5	6	6	5	5	5	5
180	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5

### THD and PF Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 30W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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
24.2	120.11	60	0.2549	30.52	0.9968	4.25%	Horizontal
6073807	277.03	60	0.1141	29.89	0.9456	15.86%	Horizontal

### THD and PF Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 840(A3+B7) 30W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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
24.2	120.12	60	0.2451	29.34	0.9967	4.26%	Horizontal
24.2	277.19	60	0.1102	28.81	0.9427	16.12%	Horizontal



### THD and PF Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 850(A3+B7) 30W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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
24.2	120.11	60	0.2532	30.32	0.9967	4.24%	Horizontal
24.2	277.02	60	0.1134	29.73	0.9452	15.91%	Horizontal

### THD and PF Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 25W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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
24.2	120.03	60	0.2109	25.20	0.9956	4.95%	Horizontal
24.2	277.09	60	0.0981	25.32	0.9311	16.14%	Horizontal

### THD and PF Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 20W	<b>Sample ID.</b>	6073807
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	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
24.2	120.03	60	0.1651	19.69	0.9932	5.82%	Horizontal
24.2	277.18	60	0.0815	20.48	0.9068	16.96%	Horizontal

## In-Situ Temperature Measurement Test

<b>Model No.</b>	ETLDI10B-22/DC/30/25/20/YDM/CCT 835(A3+B7) 30W	<b>Sample ID.</b>	6073807
------------------	---------------------------------------------------	-------------------	---------

### 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
24.2	120.11	60	0.2549	30.52	0.9968	4.25%	Horizontal

### Test Results (LEDs)

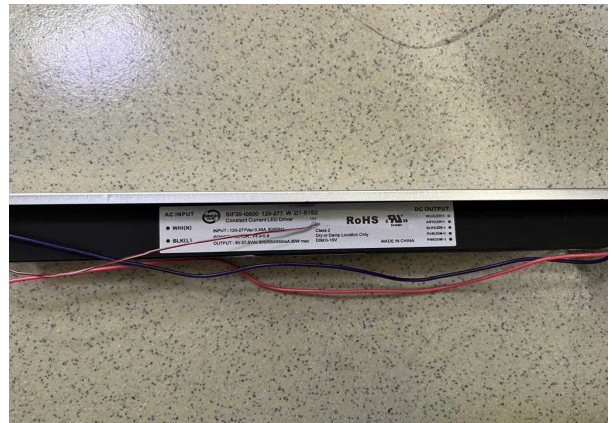
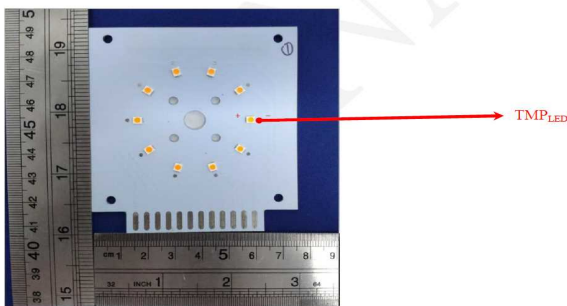
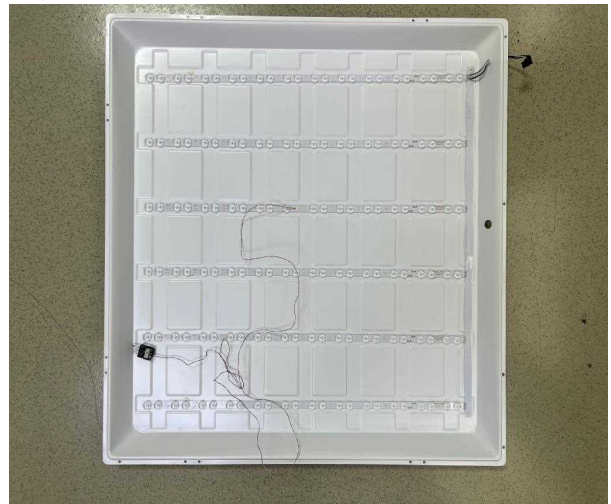
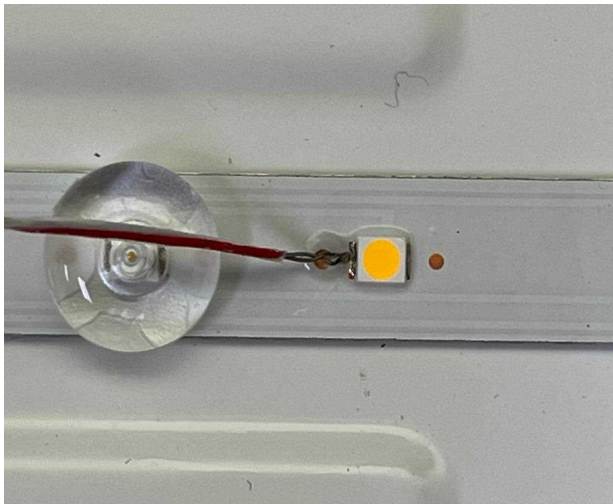
Thermocouple Location	Declared Light Source Current (mA)	Temperature for Light Source (°C)		Max Chromaticity Shift (1000-6000h)	LED Model Number	LM-80 Limit Current (mA)	LM-80 Limit Temp (°C)
		Test Result	Test Result (Correct to 25 °C)				
Ambient TEMP	N/A	24.2	25.0				
TMP of Location 1	35	34.3	35.1	0.0016	BXEN-xxE-13H-9RC	100	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	24.2	25.0		
TMP of Location 1	47.5	48.3	SIF 30-I0800 120-277 W D1-S1S2	90

### In-Situ Temperature Measurement Test (Cont'd)

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





\*\*\*\*\* END OF REPORT. THIS PAGE INTENTIONALLY LEFT BLANK \*\*\*\*\*