



## DesignLights 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-24/46/40/35/YDM/CCT(A3+B7)

### Project Number

4790851213

### Report Number

4790851213\_4

### Test Date

2023-05-31~2023-06-02

### Issue Date

2023-06-06

### Revision Date

N/A

### Prepared By

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Zhao, Elaine

### Approved By

*Elvis Wu*

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	≥3000	-10%	4491.95
Minimum Luminaire Efficacy (lm/W)-Luminaires	IES LM-79-2008	≥110	-3%	122.44
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	1.28
Zonal Lumen Requirement 1(0°-60°)	IES LM-79-2008	≥75%	-3%	77.30%
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3399
Allowable CCT (4000K)	IES LM-79-2008/ANSI C78.377-2015	3985±275	N/A	4079
Allowable CCT (5000K)	IES LM-79-2008/ANSI C78.377-2015	5029±283	N/A	4912
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3398
Allowable CCT (3500K)	IES LM-79-2008/ANSI C78.377-2015	3465±245	N/A	3397
Minimum CRI	IES LM-79-2008/CIE 13.3-1995	≥80	-1	83
Minimum R9	IES LM-79-2008	≥0	-1	8.0
Minimum Rg	IES LM-79-2008	≥89	-1	96
Minimum Rf	IES LM-79-2008	≥70	-1	84
Rcs,h1	IES LM-79-2008	-12%-23%	-1%	-12%
Unified Glare Rating (UGR)	IES LM-79-2008	≤22	N/A	20.8
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	0.9283
Total Harmonic Distortion (A%)	ANSI C82.77-10-2014	≤20%	5%	15.31%
In-Situ Temperature Measurement Test for LED 1 (°C)	UL1598-2008	≤105	N/A	36.8
In-Situ Temperature Measurement Test for Driver 1 (°C)	UL1598-2008	≤90	N/A	67.4
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: 2023-05-28

Test Item	Test Date	Model Number	Tests Conducted By
Integrating Sphere Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 46W	Yang, Gavin X
Integrating Sphere Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 840(A3+B7) 46W	Yang, Gavin X
Integrating Sphere Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 850(A3+B7) 46W	Yang, Gavin X
Integrating Sphere Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 40W	Yang, Gavin X
Integrating Sphere Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 35W	Yang, Gavin X
Goniophotometer Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 46W	Yang, Gavin X
Goniophotometer Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 850(A3+B7) 46W	Yang, Gavin X
THD and PF Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 46W	Yang, Gavin X
THD and PF Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 840(A3+B7) 46W	Yang, Gavin X
THD and PF Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 850(A3+B7) 46W	Yang, Gavin X
THD and PF Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 40W	Yang, Gavin X
THD and PF Test	2023-05-31	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 35W	Yang, Gavin X
In-Situ Temperature Measurement Test	2023-06-02	ETLDI10B-24/DF/46/40/35/YDM/ CCT 835(A3+B7) 46W	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:** 2x4 Luminaires for Ambient Lighting of Interior Commercial Spaces

**Model Number:** BLT-10B-24/46/40/35/YDM/CCT(A3+B7)

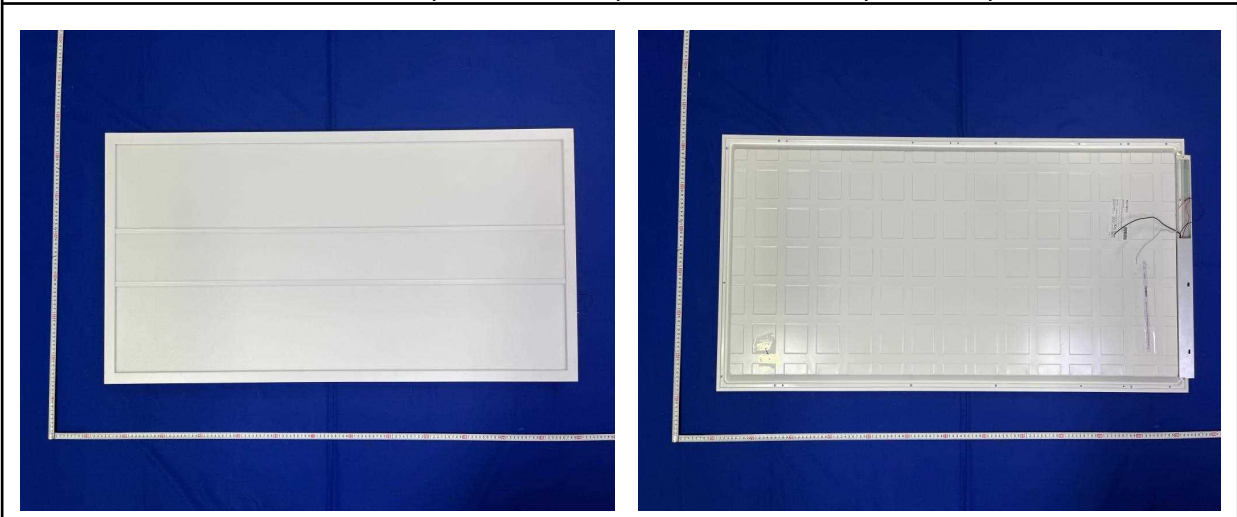
**Electrical Parameter:** 120-277V, 50/60Hz

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

**Dimming Information:** Continuous dimming capability

**Products Scaled Value**

Model Number	CCT	Luminous Flux	Power	Luminous Efficacy
ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7)	3500K	5750	46	125
ETLDI10B-24/DF/46/40/35/YDM/CCT 840(A3+B7)	4000K	6210	46	135
ETLDI10B-24/DF/46/40/35/YDM/CCT 850(A3+B7)	5000K	5842	46	127
ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7)	3500K	5160	40	129
ETLDI10B-24/DF/46/40/35/YDM/CCT 840(A3+B7)	4000K	5560	40	139
ETLDI10B-24/DF/46/40/35/YDM/CCT 850(A3+B7)	5000K	5240	40	131
ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7)	3500K	4655	35	133
ETLDI10B-24/DF/46/40/35/YDM/CCT 840(A3+B7)	4000K	5005	35	143
ETLDI10B-24/DF/46/40/35/YDM/CCT 850(A3+B7)	5000K	4725	35	135



### Integrating Sphere Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 46W	<b>Sample ID.</b>	6117524
<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.

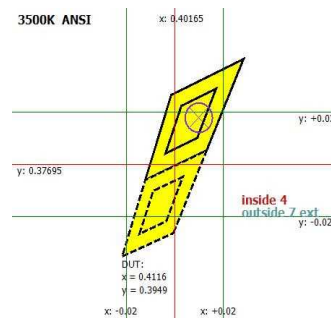
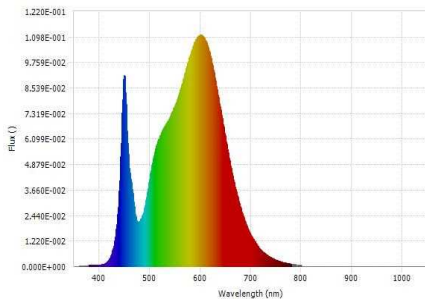
3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption 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
25.4	120.03	60	0.4178	49.22	0.9816	Horizontal

#### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3399	83	8.0	0.0005	6063.43	123.18	N/A



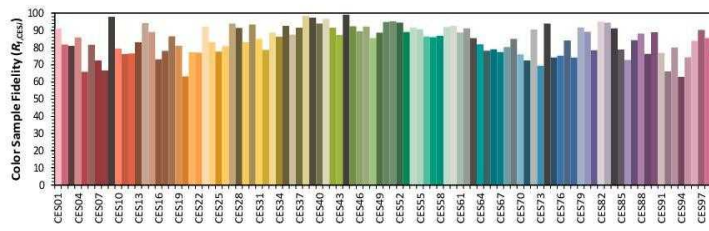
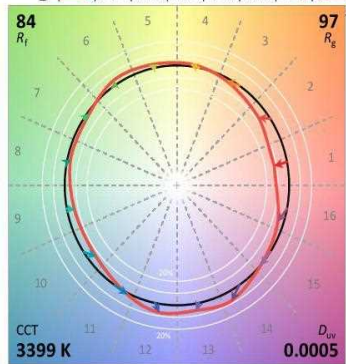
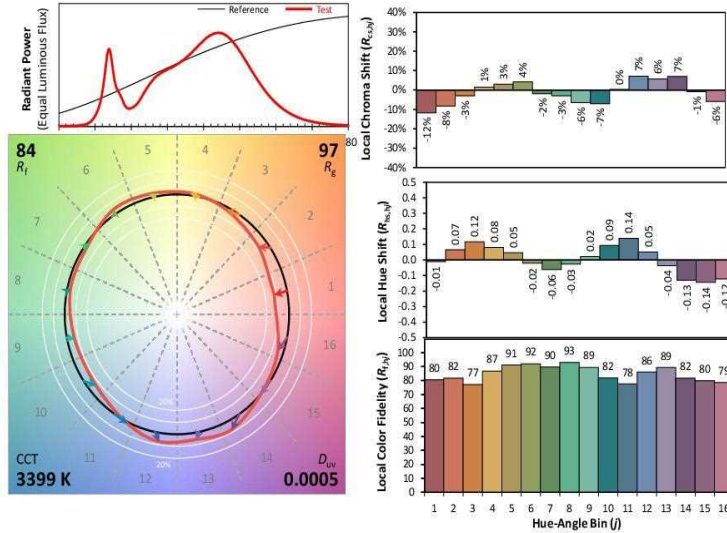
Luminous Flux (lm)	6063.43	Chrom x	0.4116
Chrom y	0.3949	Chrom u	0.2381
Chrom v	0.3426	Duv	0.0005
Chrom u'	0.2381	Chrom v'	0.5139
CCT (K)	3399	Luminous Efficacy (lm/W)	123.18
Ra	83	R1	81.0
R2	89.0	R3	96.0
R4	82.0	R5	81.0
R6	86.0	R7	85.0
R8	62.0	R9	8.0
R10	75.0	R11	82.0
R12	66.0	R13	83.0
R14	98.0	R15	74.0
Rf	84	Rg	97
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: 5/31/2023      Model: ETLD110B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 46W



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

x	0.4116	CIE 13.3-1995 (CRI) $R_a$ 83 $R_g$ 8
y	0.3949	
$u'$	0.2381	
$v'$	0.5139	

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-24/DF/46/40/35/YDM/CCT 840(A3+B7) 46W	<b>Sample ID.</b>	6117524
<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.

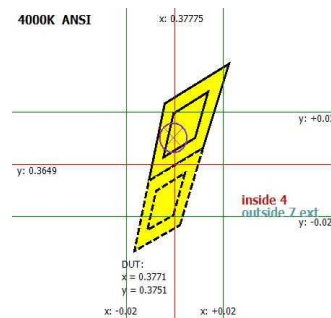
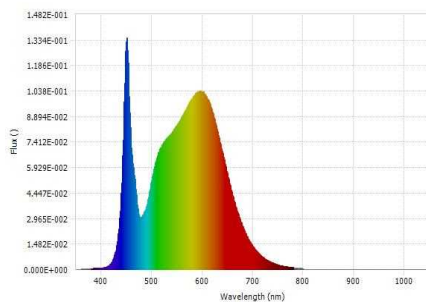
3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using 4π geometry. The self-absorption 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
25.4	120.05	60	0.3990	47.075	0.9829	Horizontal

### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
4079	84	15.0	0.0002	6264.46	133.07	N/A



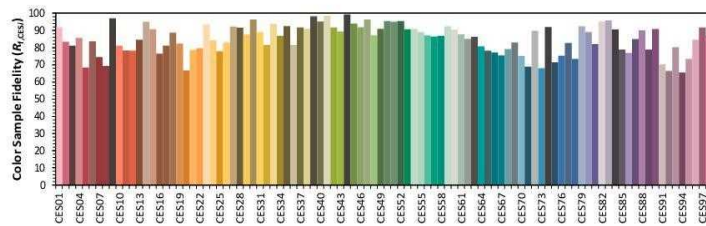
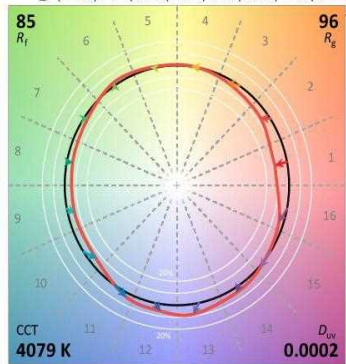
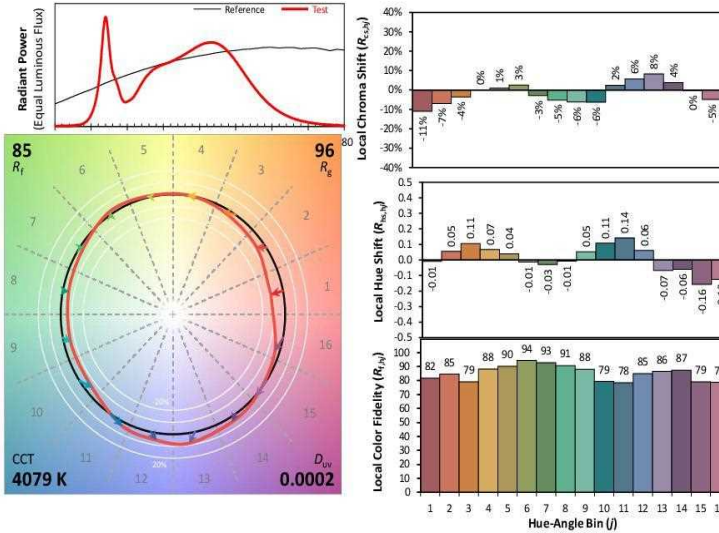
Luminous Flux (lm)	6264.46	Chrom x	0.3771
Chrom y	0.3751	Chrom u	0.2236
Chrom v	0.3336	Duv	0.0002
Chrom u'	0.2236	Chrom v'	0.5004
CCT (K)	4079	Luminous Efficacy (lm/W)	133.07
Ra	84	R1	83.0
R2	90.0	R3	95.0
R4	84.0	R5	83.0
R6	86.0	R7	87.0
R8	68.0	R9	15.0
R10	76.0	R11	84.0
R12	63.0	R13	85.0
R14	97.0	R15	77.0
Rf	85	Rg	96
Rcs,h1	-11%		

# Integrating Sphere Test (Cont'd)

## TM-30 Report

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

Source: BXEN-xxE-13H-9RC      Manufacturer: Jiangsu Ever-tie Lighting Inc  
 Date: 5/31/2023      Model: ETLD110B-24/DF/46/40/35/YDM/CCT 840(A3+B7) 46W



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

x	0.3771	CIE 13.3-1995 (CRI) $R_a$ 84 $R_g$ 15
y	0.3751	
$u'$	0.2236	
$v'$	0.5004	

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### Integrating Sphere Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 850(A3+B7) 46W		<b>Sample ID.</b>	6117524
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	45	

#### Test Method

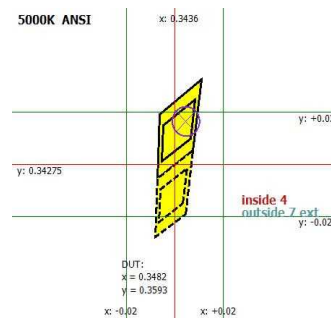
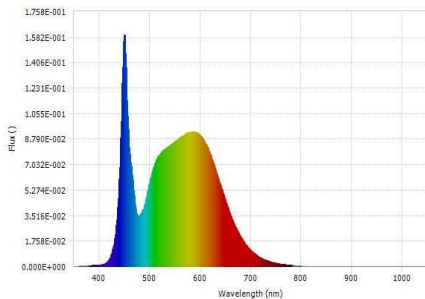
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.  
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 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
25.4	120.03	60	0.4143	48.817	0.9822	Horizontal

#### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
4912	84	12.0	0.0026	6104.09	125.04	N/A



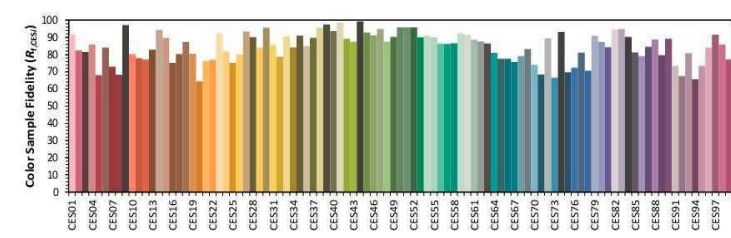
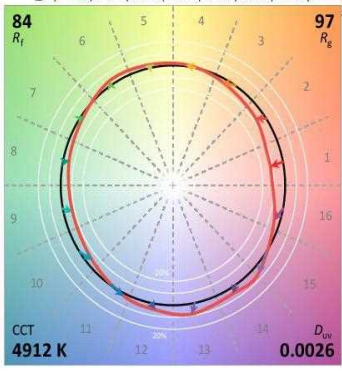
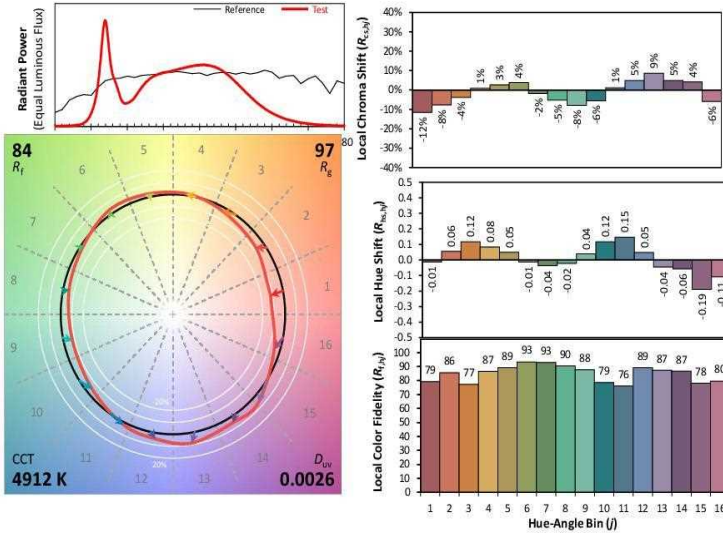
Luminous Flux (lm)	6104.09	Chrom x	0.3482
Chrom y	0.3593	Chrom u	0.2105
Chrom v	0.3259	Duv	0.0026
Chrom u'	0.2105	Chrom v'	0.4889
CCT (K)	4912	Luminous Efficacy (lm/W)	125.04
Ra	84	R1	82.0
R2	88.0	R3	93.0
R4	84.0	R5	82.0
R6	83.0	R7	88.0
R8	69.0	R9	12.0
R10	72.0	R11	83.0
R12	59.0	R13	83.0
R14	96.0	R15	76.0
Rf	84	Rg	97
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: Jiangsu Ever-tie Lighting Inc  
 Date: 5/31/2023      Model: ETLD110B-24/DF/46/40/35/YDM/CCT 850(A3+B7) 46W



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

x	0.3482	CIE 13.3-1995 (CRI)
y	0.3593	
$u'$	0.2105	
$v'$	0.4888	

$R_a$ : 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-24/DF/46/40/35/YDM/CCT 835(A3+B7) 40W	<b>Sample ID.</b>	6117524
<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.

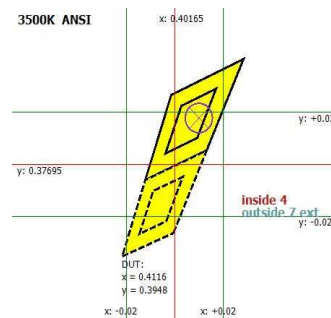
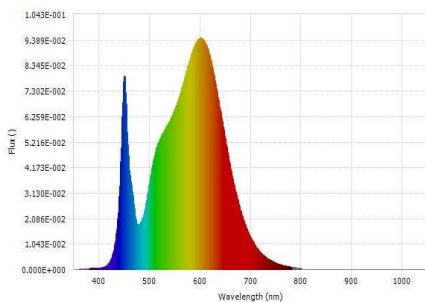
3. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. Coating reflectance of the integrating sphere was 90% to 98%. Photometric measurement conditions was using  $4\pi$  geometry. The self-absorption 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
25.4	120.07	60	0.3392	40.475	0.9938	Horizontal

### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3398	83	8.0	0.0004	5181.65	128.02	N/A



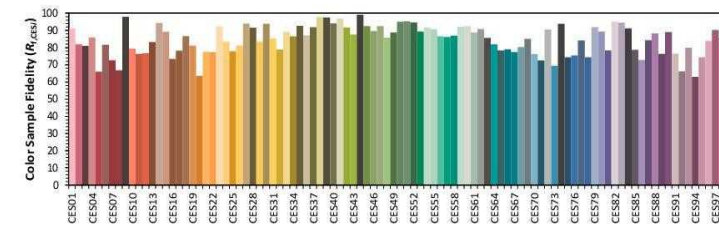
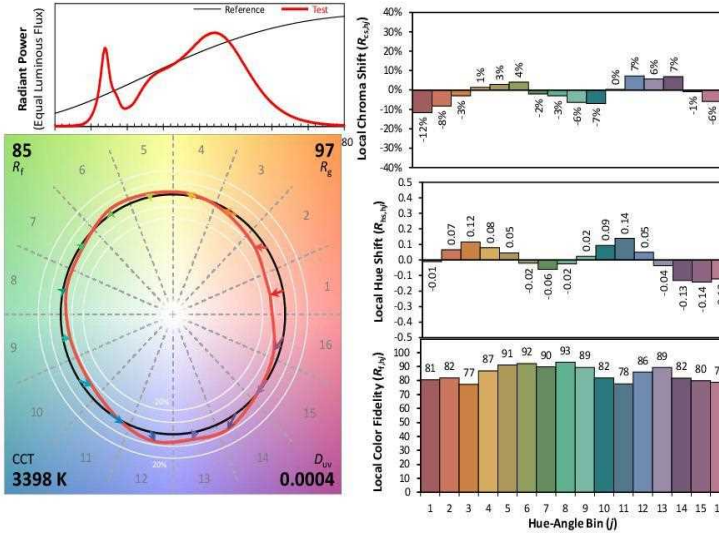
Luminous Flux (lm)	5181.65	Chrom x	0.4116
Chrom y	0.3948	Chrom u	0.2381
Chrom v	0.3426	Duv	0.0004
Chrom u'	0.2381	Chrom v'	0.5139
CCT (K)	3398	Luminous Efficacy (lm/W)	128.02
Ra	83	R1	81.0
R2	89.0	R3	96.0
R4	82.0	R5	81.0
R6	86.0	R7	85.0
R8	62.0	R9	8.0
R10	75.0	R11	82.0
R12	66.0	R13	83.0
R14	98.0	R15	74.0
Rf	85	Rg	97
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: 5/31/2023      Model: ETLD110B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 40W



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

x	0.4116
y	0.3948
u'	0.2381
v'	0.5139

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-24/DF/46/40/35/YDM/CCT 835(A3+B7) 35W		<b>Sample ID.</b>	6117524
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	45	

#### Test Method

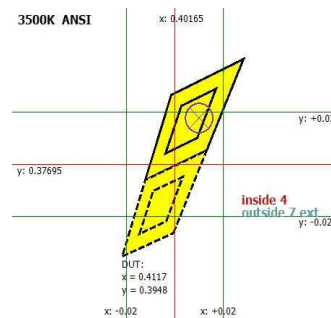
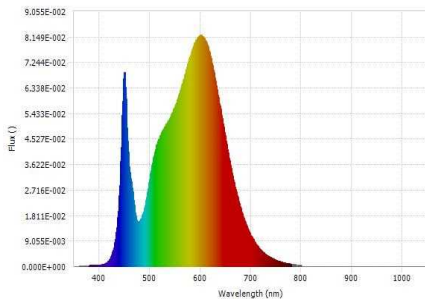
1. The sample was tested according to the IES LM-79-2008, and the product is assume to be brand new without seasoning.  
 2. Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25 °C ± 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
25.4	120.09	60	0.2860	34.111	0.9932	Horizontal

#### Test Results

CCT (K)	CRI (Ra)	R9	Duv	Flux (lm)	Luminous Efficacy (lm/W)	Efficacy(lm/ft)
3397	83	9.0	0.0004	4491.95	131.69	N/A



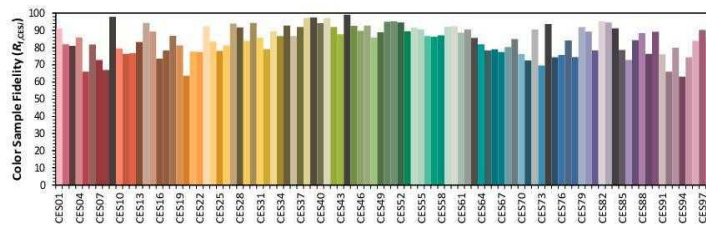
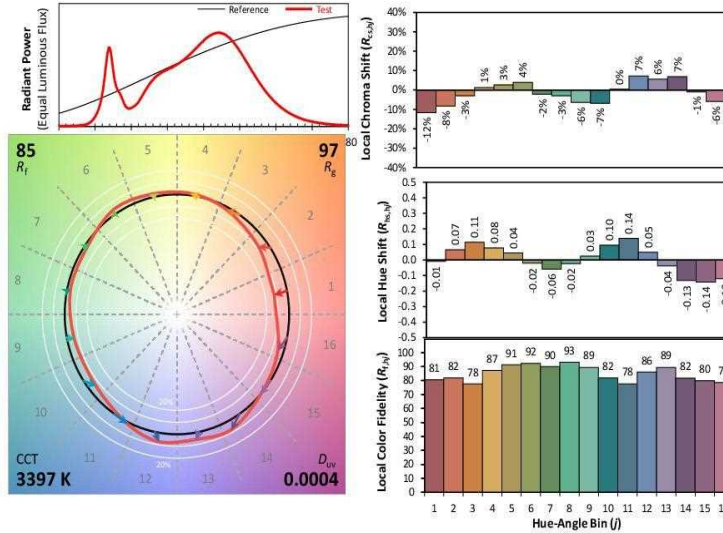
Luminous Flux (lm)	4491.95	Chrom x	0.4117
Chrom y	0.3948	Chrom u	0.2382
Chrom v	0.3426	Duv	0.0004
Chrom u'	0.2382	Chrom v'	0.5139
CCT (K)	3397	Luminous Efficacy (lm/W)	131.69
Ra	83	R1	81.0
R2	89.0	R3	96.0
R4	82.0	R5	82.0
R6	86.0	R7	85.0
R8	62.0	R9	9.0
R10	76.0	R11	82.0
R12	66.0	R13	83.0
R14	98.0	R15	74.0
Rf	85	Rg	97
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: 5/31/2023      Model: ETLD110B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 35W



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

x	0.4117
y	0.3948
u'	0.2382
v'	0.5139

CIE 13.3-1995 (CRI)	
$R_a$	83
$R_g$	9

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-24/DF/46/40/35/YDM/CCT 835(A3+B7) 46W	<b>Sample ID.</b>	6117524
<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
24.9	120.11	60	0.4103	49.11	0.9967	5.36%	Horizontal

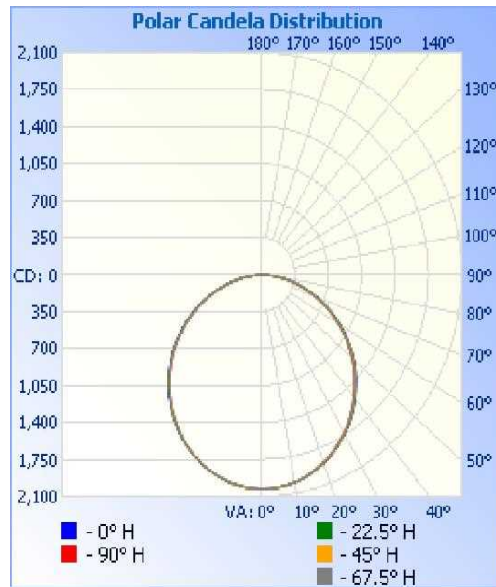
### Test Results

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	
6012.9	77.30%	N/A	114.5	116.0	122.44

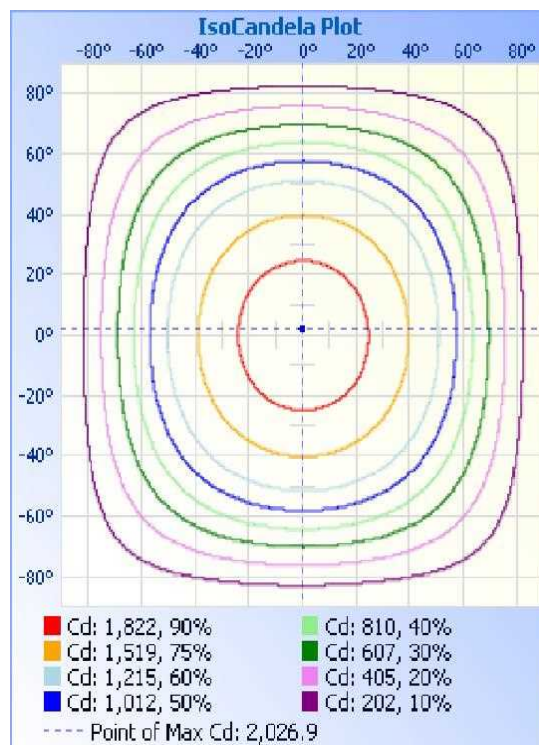
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
20.8	20.5	1.28	1.28

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



IsoCandela Plot





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

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1579.4	26.30%
0-40	2596.9	43.20%
0-60	4639.1	77.20%
60-90	1356.0	22.60%
70-100	602.1	10.00%
90-120	7.2	0.10%
0-90	5995.1	99.70%
90-180	17.8	0.30%
0-180	6012.9	100.00%

**Lumens Per Zone**

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	48.3	0.80%	90-95	2.8	0.00%
5-10	143.3	2.40%	95-100	1.1	0.00%
10-15	233.7	3.90%	100-105	0.9	0.00%
15-20	316.3	5.30%	105-110	0.8	0.00%
20-25	388.9	6.50%	110-115	0.8	0.00%
25-30	448.8	7.50%	115-120	0.8	0.00%
30-35	494.4	8.20%	120-125	0.8	0.00%
35-40	523.1	8.70%	125-130	0.9	0.00%
40-45	534.6	8.90%	130-135	1.0	0.00%
45-50	530.3	8.80%	135-140	1.1	0.00%
50-55	508.9	8.50%	140-145	1.1	0.00%
55-60	468.4	7.80%	145-150	1.1	0.00%
60-65	413.0	6.90%	150-155	1.1	0.00%
65-70	344.9	5.70%	155-160	1.0	0.00%
70-75	267.2	4.40%	160-165	0.9	0.00%
75-80	187.2	3.10%	165-170	0.8	0.00%
80-85	107.7	1.80%	170-175	0.5	0.00%
85-90	36.1	0.60%	175-180	0.2	0.00%



## Goniophotometer Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 850(A3+B7) 46W	<b>Sample ID.</b>	6117524
<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
25.1	120.06	60	0.4078	48.80	0.9967	5.36%	Horizontal

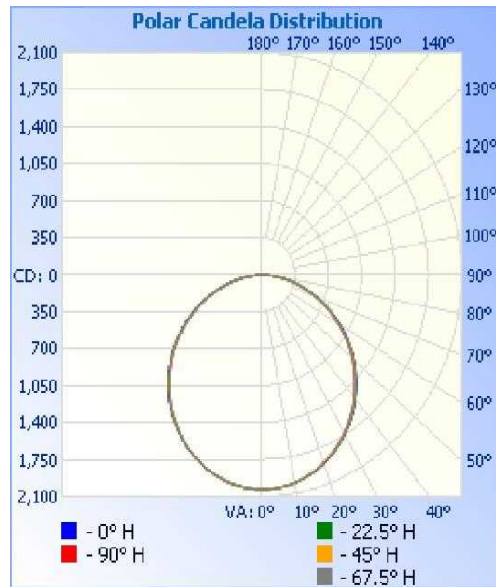
### Test Results

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	
6025.4	77.30%	N/A	114.4	115.8	123.47

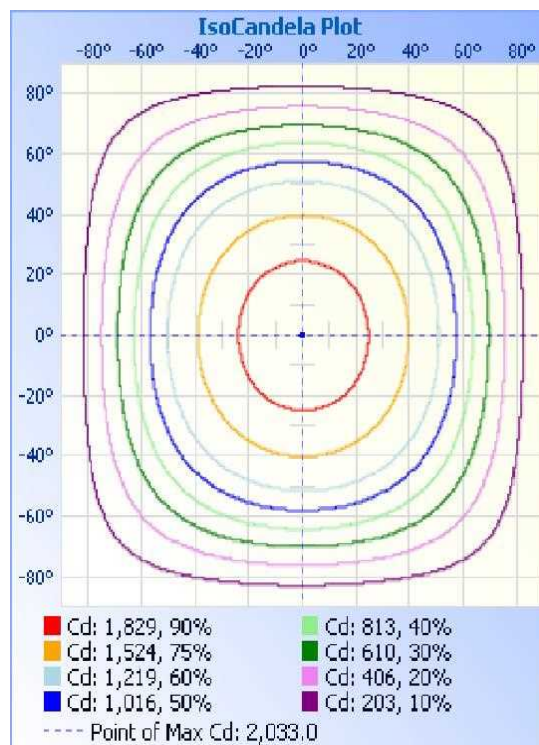
Backlight	Uplight	Glare
N/A	N/A	N/A

UGR		Spacing Criteria (0-180°)	Spacing Criteria (90°-270°)
Crosswise	Endwise		
20.7	20.5	1.28	1.28

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



IsoCandela Plot



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

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1583.8	26.30%
0-40	2603.9	43.20%
0-60	4650.2	77.20%
60-90	1357.6	22.50%
70-100	601.8	10.00%
90-120	7.0	0.10%
0-90	6007.8	99.70%
90-180	17.7	0.30%
0-180	6025.4	100.00%

**Lumens Per Zone**

Lumens Per Zone					
Zone	Lumens	%Total	Zone	Lumens	%Total
0-5	48.4	0.80%	90-95	2.7	0.00%
5-10	143.7	2.40%	95-100	1.1	0.00%
10-15	234.3	3.90%	100-105	0.9	0.00%
15-20	317.3	5.30%	105-110	0.8	0.00%
20-25	389.8	6.50%	110-115	0.8	0.00%
25-30	450.1	7.50%	115-120	0.7	0.00%
30-35	495.3	8.20%	120-125	0.8	0.00%
35-40	524.8	8.70%	125-130	0.9	0.00%
40-45	535.6	8.90%	130-135	1.0	0.00%
45-50	531.1	8.80%	135-140	1.1	0.00%
50-55	510.4	8.50%	140-145	1.1	0.00%
55-60	469.1	7.80%	145-150	1.1	0.00%
60-65	413.5	6.90%	150-155	1.1	0.00%
65-70	346.1	5.70%	155-160	1.0	0.00%
70-75	267.4	4.40%	160-165	0.9	0.00%
75-80	187.2	3.10%	165-170	0.8	0.00%
80-85	107.7	1.80%	170-175	0.5	0.00%
85-90	35.7	0.60%	175-180	0.2	0.00%



### THD and PF Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 46W	<b>Sample ID.</b>	6117524
<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
24.9	120.11	60	0.4103	49.11	0.9967	5.36%	Horizontal
24.9	277.02	60	0.1837	48.80	0.9584	11.68%	Horizontal

### THD and PF Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 840(A3+B7) 46W	<b>Sample ID.</b>	6117524
<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
24.9	120.06	60	0.3945	47.21	0.9966	5.59%	Horizontal
24.9	277.10	60	0.1772	46.92	0.9557	11.79%	Horizontal



### THD and PF Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 850(A3+B7) 46W	<b>Sample ID.</b>	6117524
<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
24.9	120.06	60	0.4078	48.80	0.9967	5.36%	Horizontal
24.9	277.11	60	0.1828	48.52	0.9580	11.62%	Horizontal

### THD and PF Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 40W	<b>Sample ID.</b>	6117524
<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
24.9	120.08	60	0.3363	40.20	0.9959	5.99%	Horizontal
24.9	277.04	60	0.1562	40.85	0.9442	13.30%	Horizontal

### THD and PF Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 35W	<b>Sample ID.</b>	6117524
<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
24.9	120.10	60	0.2829	33.80	0.9947	6.34%	Horizontal
24.9	277.14	60	0.1360	34.99	0.9283	15.31%	Horizontal

## In-Situ Temperature Measurement Test

<b>Model No.</b>	ETLDI10B-24/DF/46/40/35/YDM/CCT 835(A3+B7) 46W	<b>Sample ID.</b>	6117524
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### Test Method

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

### In-Situ Temperature Measurement Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD	Orientation
23.7	120.11	60	0.4103	49.11	0.9967	5.36%	Horizontal

### Test Results (LEDs)

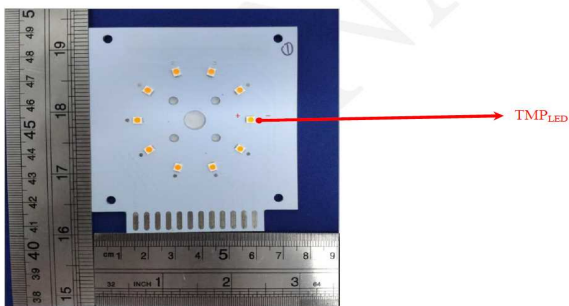
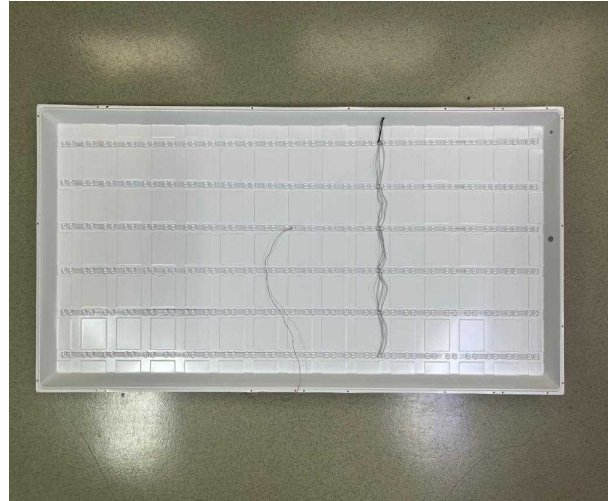
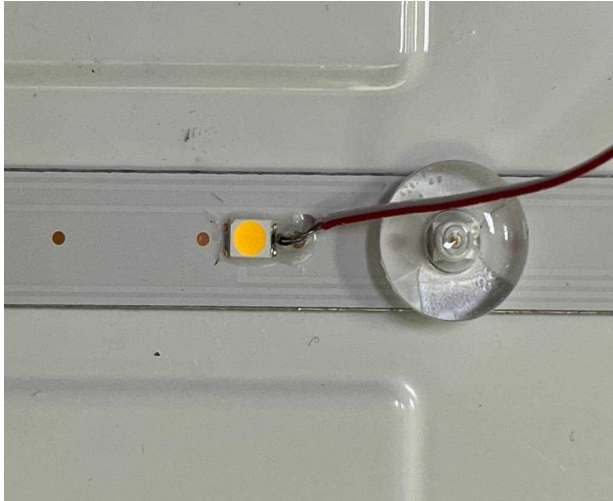
Thermocouple Location	Declared Light Source Current (mA)	Temperature for Light Source (°C)		Max Chromaticity Shift (1000-6000h)	LED Model Number	LM-80 Limit Current (mA)	LM-80 Limit Temp (°C)
		Test Result	Test Result (Correct to 25 °C)				
Ambient TEMP	N/A	23.7	25.0				
TMP of Location 1	50	35.5	36.8	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	23.7	25.0		
TMP of Location 1	66.1	67.4	SIF 50-I1250 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





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