

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220401100GZU-008

ISSUE DATE

09 April 2022

REVISION DATE

None

NUMBER OF PAGES

13

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Report No.: 220401100GZU-008

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700TDEBL223x-LED927

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

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TEST: Electrical and Photometric as required to the IES LM-79 test standard.

STATEMENT OF LIMITATION: The 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.

AUTHORIZATION: The testing performed was authorized by signed quote number: QGZ220329042.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IES LM-79: 2008 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI C78.377:2017 Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one sample of model 700TDEBL223x-LED927. The sample was received, in undamaged condition. The sample designation was S220401100-008.

DATES OF TESTS: 09 April 2022

ISSUED BY: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

TEST LOCATION: Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China

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TEST REPORT

SUMMARY

Model Number:	700TDEBL223x-LED927 (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700TDEBL223x-LED927

Criteria	Result
Total Lumen Output	1294.8 lm
Total Power	22.2 W
Luminaire Efficacy	58.30 lm/W
S/MH(C0/180)	7.21
S/MH(C90/270)	1.63
Correlated Color Temperature (CCT)	2680 K
Color Rendering Index (CRI)	93
R9	73
Chromaticity Coordinate (x)	0.4608
Chromaticity Coordinate (y)	0.4096
Chromaticity Coordinate (u')	0.2635
Chromaticity Coordinate (v')	0.5271

Remark:

Measurement uncertainty for applicable tests has been established.

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TEST REPORT

EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Temperature Meter	RS210	SA047-126
Sensing - DC Power Supply	IT6122	SA063-12-09
Sensing- AC power source for Integrating Sphere System	APW-105N	SA063-12-05
Everfine - AC power source for Goniophotometer System	DPS1060	SA063-16-03
Two meter integrating sphere unit	Sensing – 2M	SA063-12-01
YOKOGAWA – Digital Power Meter	WT-210	SA011-122
Everfine – Goniophotometer	Go-R5000	SA063-16
KONICA MINOLTA - Illuminance meter	CX-2B_WL	SA063-16-01
Standard lamp	S82134	SA063-12-13
Standard lamp	S1320039	SA063-12-24
Standard lamp	D908S	SA063-16-05
Standard lamp	D215S	SA063-16-06

GENERAL REMARK

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When determining for test conclusion, measurement uncertainty of tests has been considered.

Throughout this report a ☐ comma ☒ point is used as the decimal separator.

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TEST REPORT

TEST METHOD

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IES LM-79

Light Distribution and Output Measurements

Light Distribution and total light output (luminous flux) were measured using a Go-R5000 Type-C Rotating Mirror Goniophotometer. Temperature 25°C and relative humidity of 60% was measured at a position in the testing laboratory.

The lamp rotates only around the fixed vertical axle in the prescribed burning position. The lamp and mirror permit the measurement of luminous intensity at the direction of any horizontal or vertical angle without tilting the lamp. The lamp was allowed to stabilize before measurements were made.

Chromaticity Measurements

Chromaticity was measured using a 2 meters integrating sphere spectral lamp measurement system, 4 π geometry, with an interior coating reflectance no less than 95 %. Temperature was measured at a position inside the sphere shielded from direct light. Relative humidity of 65% was measured at a position in the testing laboratory.

Spectral radiant flux measurements were made using spectroradiometer attached to the detector port of the integrating sphere. Each lamp was allowed to stabilise before measurements were made. The calibration of the integrating sphere spectroradiometer system is by the reference/standard lamps which are traceable to National Institute of Metrology P.R. CHINA. Lamp efficacy (lumens per watt) for each lamp model was then computed based on the luminous flux result. Electrical measurements including voltage, power and power factor were measured using YOKOGAWA - Digital Power Meter., model WT210.

Correction factor (self-absorption) has been considered when doing measurement.

Standard lamp used for Goniophotometer method:

Model: D908S

Current: 7.255A

Standard lamp used for integrating sphere:

Model: S82134

Current: 1.830

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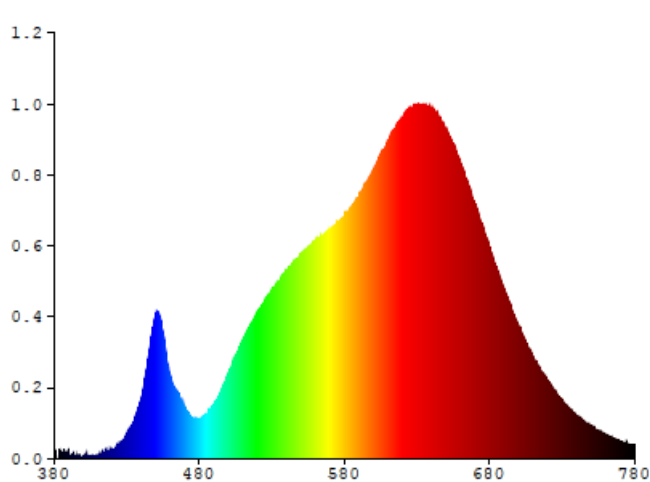
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700TDEBL223x-LED927

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0131	480	0.0325	580	0.1966	680	0.1700	780	0.0114
385	0.0029	485	0.0355	585	0.2040	685	0.1536		
390	0.0067	490	0.0438	590	0.2119	690	0.1375		
395	0.0000	495	0.0555	595	0.2239	695	0.1222		
400	0.0012	500	0.0695	600	0.2346	700	0.1069		
405	0.0008	505	0.0834	605	0.2455	705	0.0942		
410	0.0024	510	0.0967	610	0.2567	710	0.0821		
415	0.0036	515	0.1077	615	0.2677	715	0.0723		
420	0.0068	520	0.1190	620	0.2762	720	0.0634		
425	0.0124	525	0.1278	625	0.2842	725	0.0543		
430	0.0189	530	0.1374	630	0.2865	730	0.0470		
435	0.0306	535	0.1437	635	0.2865	735	0.0402		
440	0.0486	540	0.1521	640	0.2847	740	0.0345		
445	0.0825	545	0.1592	645	0.2768	745	0.0296		
450	0.1169	550	0.1661	650	0.2665	750	0.0265		
455	0.1009	555	0.1711	655	0.2541	755	0.0222		
460	0.0668	560	0.1759	660	0.2396	760	0.0188		
465	0.0523	565	0.1807	665	0.2231	765	0.0164		
470	0.0412	570	0.1850	670	0.2060	770	0.0134		
475	0.0324	575	0.1912	675	0.1854	775	0.0114		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDEBL223x-LED927

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

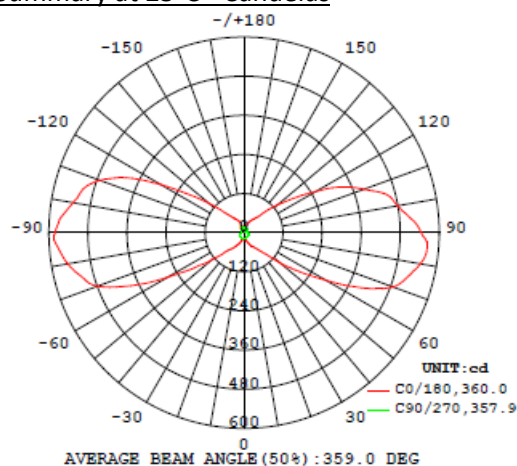
Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit y	Chromaticit y	Chromaticit y	Chromaticit y
					Coordinate (x)	Coordinate (y)	Coordinate (u')	Coordinate (v')
700TDEBL223x-LED927								
S2204011 00-008	--	2680	93	73	0.4608	0.4096	0.2635	0.5271

Photometric and Electrical Measurements at 25°C – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
700TDEBL223x-LED927							
S2204011 00-008	--	120.0	188.4	22.2	0.982	1294.8	58.30

Intensity (Candlepower) Summary at 25°C - Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDEBL223x-LED927

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	15.7	15.7	15.7	15.7	15.7
5	16.1	16.0	15.8	15.8	15.9
10	18.6	17.9	16.9	16.1	16.2
15	23.4	22.0	19.1	16.5	16.3
20	31.0	27.5	22.6	17.3	16.4
25	40.0	34.8	26.3	18.4	16.7
30	47.7	43.6	31.5	19.6	16.9
35	55.7	50.3	36.3	21.0	16.7
40	68.7	58.4	43.4	22.2	16.5
45	91.7	69.5	48.6	23.6	16.7
50	143.3	87.4	53.9	25.3	17.2
55	208.7	121.2	60.2	27.2	18.2
60	293.9	164.4	64.9	28.8	18.4
65	399.7	217.5	68.7	29.8	18.0
70	486.6	281.9	72.6	30.8	17.7
75	520.9	348.5	78.2	31.3	16.7
80	550.2	388.3	84.5	31.1	14.9
85	563.6	410.4	88.3	30.5	12.0
90	544.3	405.7	87.8	29.8	9.6
95	514.1	325.9	81.4	28.3	9.2
100	478.9	215.6	66.5	25.8	9.2
105	453.2	184.1	50.3	22.5	9.3
110	391.1	179.4	40.7	19.5	9.3
115	333.6	179.9	37.6	17.1	9.3
120	254.4	158.4	38.1	16.0	9.4
125	184.8	123.8	39.5	16.1	9.8
130	134.0	98.0	41.6	16.7	10.6
135	92.8	66.9	41.4	18.3	12.4
140	62.9	56.1	39.5	19.1	14.6
145	53.3	49.7	35.0	19.3	16.6
150	45.6	41.6	30.8	18.9	17.5
155	36.3	32.6	25.5	18.3	18.0
160	22.7	26.5	21.4	17.8	17.4
165	16.7	17.9	18.6	17.7	17.6
170	12.4	12.2	17.2	17.9	17.5
175	10.5	10.3	12.5	11.4	12.8
180	16.4	16.3	16.2	13.2	3.4

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDEBL223x-LED927

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700TDEBL223x-LED927		
0-30	19.7	1.5
0-40	42.7	3.3
0-60	155.8	12.0
0-90	712.3	55.0
60-90	556.5	43.0
0-180	1294.8	100

Beam Angle

Total Beam Angle (°)

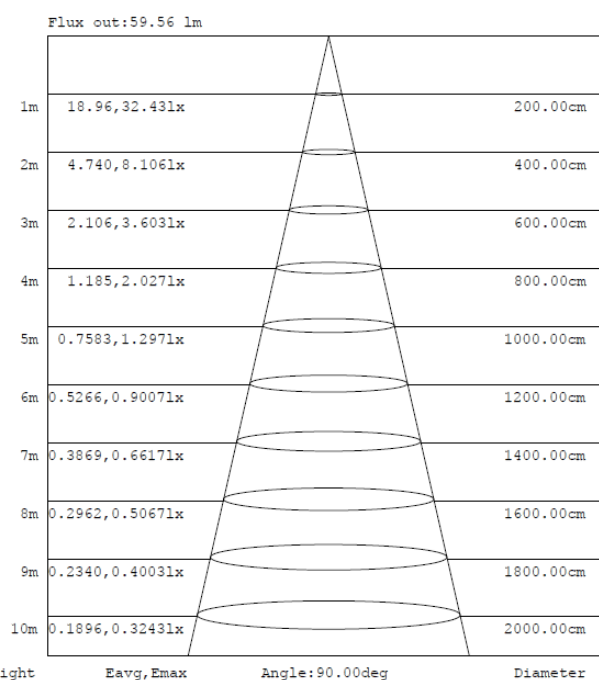
359.0

Illumination Plots

Model No.: 700TDEBL223x-LED927

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

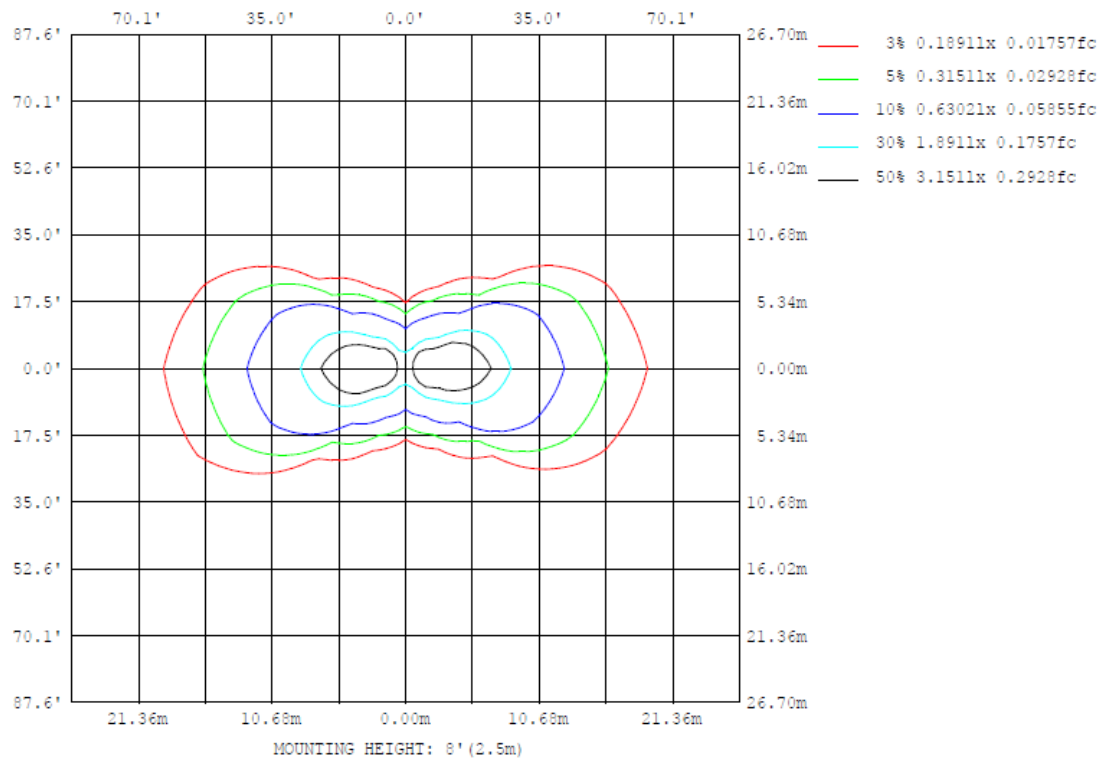
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDEBL223x-LED927

Model No.: 700TDEBL223x-LED927

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDEBL223x-LED927

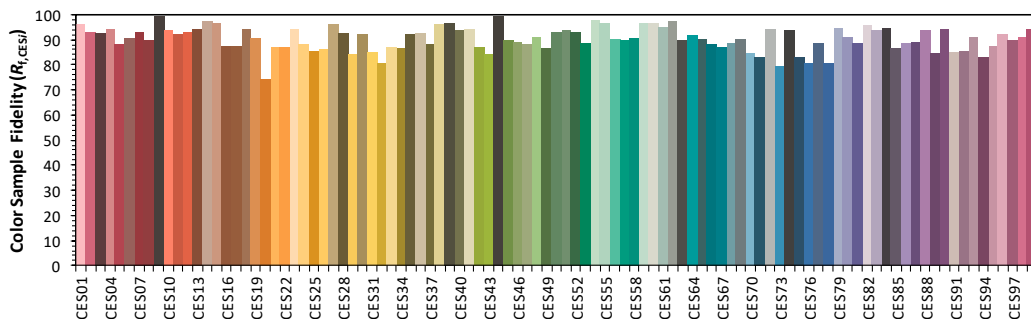
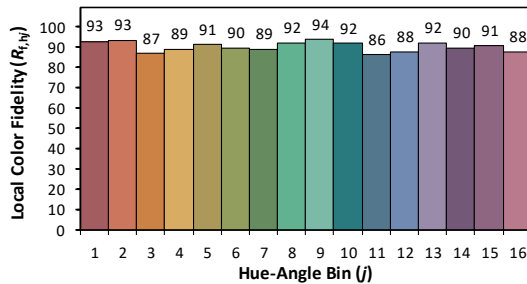
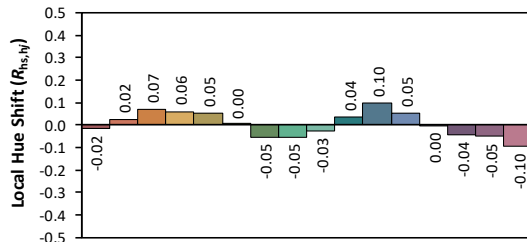
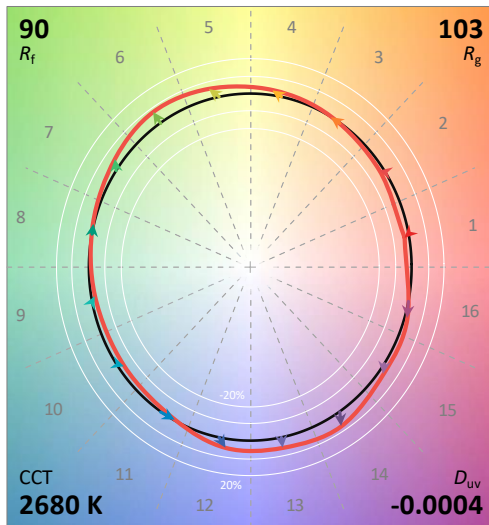
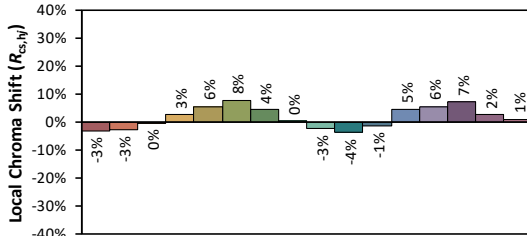
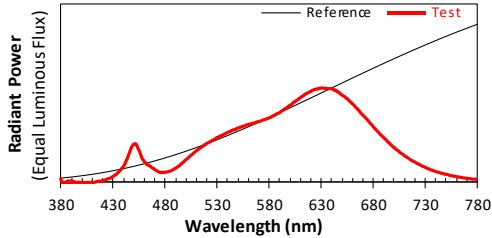
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/4/9

Model: 700TDEBL223x-LED927



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

x 0.4608
 y 0.4096
 u' 0.2635
 v' 0.5271

CIE 13.3-1995
(CRI)
 R_a 93
 R_g 73

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

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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700TDEBL223x-LED927



External view of 700TDEBL223x-LED927

***** End of Page *****

TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver DA25W600C2742BF1-3001



View of LED

In Charge Of Tests:

Report Reviewed By

Done Ye

Done Ye
Engineer

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

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