

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230301038GZU-009

ISSUE DATE

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REVISION DATE

None

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Report No.: 230301038GZU-009

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. MDWS18327X

(Remark: "X" denote other appearance colors for the characters that change)

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

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<u>TEST:</u>	Electrical and Photometric as required to the IES LM-79 test standard.
<u>STATEMENT OF LIMITATION:</u>	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.
<u>AUTHORIZATION:</u>	The testing performed was authorized by signed quote number: QGZ230224053.
<u>STANDARDS USED:</u>	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
<u>DESCRIPTION OF SAMPLE:</u>	The client submitted one sample of model MDWS18327X. The sample was received, in undamaged condition. The sample designation was S230301038-009.
<u>DATES OF TESTS:</u>	10 March 2023
<u>ISSUED BY:</u>	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
<u>TEST LOCATION:</u>	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:	MDWS18327X
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For MDWS18327X

Criteria	Result
Total Lumen Output	737.1 lm
Total Power	11.6 W
Luminaire Efficacy	63.8 lm/W
S/MH(C0/180)	1.16
S/MH(C90/270)	0.98
Correlated Color Temperature (CCT)	2654 K
Color Rendering Index (CRI)	92
R9	61
Chromaticity Coordinate (x)	0.4606
Chromaticity Coordinate (y)	0.4061
Chromaticity Coordinate (u')	0.2650
Chromaticity Coordinate (v')	0.5257

Remark:

Measurement uncertainty for applicable tests has been established.

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TEST REPORT

EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Goniophotometer System	Go-R5000	SA063-16
KONICA MINOLTA - Illuminance meter	CX-2B_WL	SA063-16-01
Standard Lamp	D215S	SA063-16-06
Digital Power Meter	PLM3000	SA063-16-09
AC power source for Goniophotometer	PCR-1000WH	SA063-16-10
Temperature Meter	RC-HT601A	SA047-62

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 EVERFINE - Digital Power Meter., model PLM3000.

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

Standard lamp used for Goniophotometer method:

Model: D215S

Current: 4.809A DC

Standard lamp used for integrating sphere:

Model: 110V/100W

Current: 0.8851A

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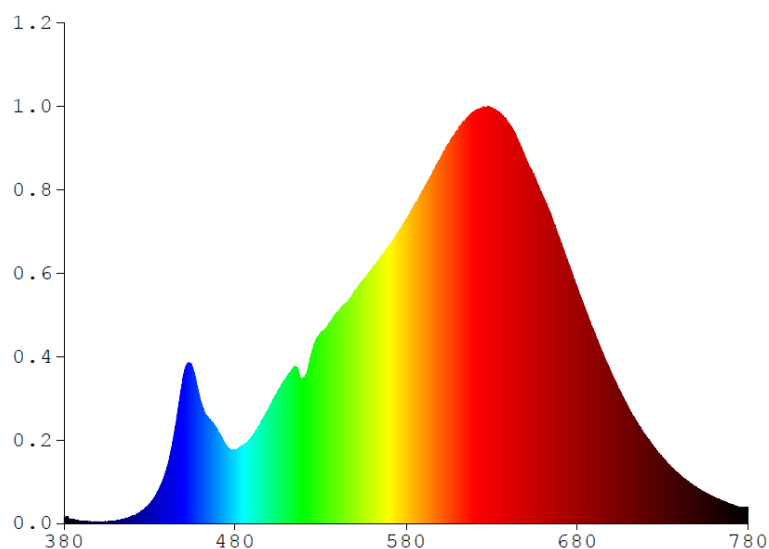
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For MDWS18327X

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0798	480	0.7511	580	3.0966	680	2.4022	780	0.1610
385	0.0322	485	0.8014	585	3.2549	685	2.1685		
390	0.0241	490	0.8879	590	3.3999	690	1.9469		
395	0.0171	495	1.0296	595	3.5588	695	1.7293		
400	0.0159	500	1.1883	600	3.7265	700	1.5288		
405	0.0187	505	1.3507	605	3.8719	705	1.3474		
410	0.0256	510	1.4871	610	4.0069	710	1.1758		
415	0.0412	515	1.5989	615	4.1222	715	1.0287		
420	0.0761	520	1.4879	620	4.1963	720	0.8932		
425	0.1226	525	1.7601	625	4.2503	725	0.7706		
430	0.2007	530	1.9396	630	4.2417	730	0.6695		
435	0.3306	535	2.0415	635	4.1835	735	0.5733		
440	0.5587	540	2.1546	640	4.0813	740	0.4913		
445	0.9826	545	2.2489	645	3.9235	745	0.4228		
450	1.5226	550	2.3751	650	3.7184	750	0.3617		
455	1.5881	555	2.4860	655	3.5364	755	0.3104		
460	1.2309	560	2.5894	660	3.3304	760	0.2659		
465	1.0619	565	2.7181	665	3.1228	765	0.2277		
470	0.9361	570	2.8261	670	2.8813	770	0.1944		
475	0.7922	575	2.9616	675	2.5884	775	0.1672		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDWS18327X

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

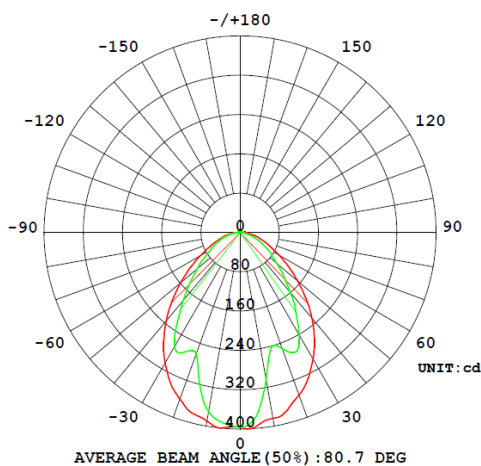
Photometric Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Base Orientation	Correlated Color Temperatur e (K)	CRI	R9	CIE 31'	CIE 31'	CIE 76'	CIE 76'
					Chromaticit	Chromaticit	Chromaticit	Chromaticit
					y	y	y	y
					Coordinate	Coordinate	Coordinate	Coordinate
					(x)	(y)	(u')	(v')
MDWS18327X								
S2303010 38-009	--	2654	92	61	0.4606	0.4061	0.2650	0.5257

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	Lumen
						Luminous Flux (Lumens)	Efficacy (Lumens Per Watt)
MDWS18327X							
S2303010 38-009	--	120.1	97.0	11.6	0.991	737.1	63.8

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDWS18327X

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	396.1	396.1	396.1	396.1	396.1
5	395.0	383.9	383.8	384.4	375.2
10	384.0	378.1	340.6	315.7	304.1
15	373.4	345.6	289.5	248.0	244.1
20	351.8	310.0	236.5	239.7	251.6
25	328.0	263.8	220.6	257.1	268.6
30	297.3	222.7	221.4	243.7	240.8
35	264.5	188.0	211.1	204.8	198.9
40	228.1	161.2	183.6	168.9	159.7
45	190.4	138.6	151.9	133.1	126.3
50	153.3	116.8	122.1	100.8	97.0
55	119.4	95.9	87.6	78.2	78.2
60	91.2	74.8	66.1	62.7	60.7
65	68.4	56.6	50.6	46.9	44.7
70	50.9	41.7	37.0	33.6	31.6
75	36.8	29.1	25.2	21.8	19.7
80	24.9	19.9	15.7	12.7	10.4
85	13.8	10.4	7.6	5.9	3.6
90	8.1	5.5	4.2	2.9	1.1
95	8.1	9.7	4.4	2.2	1.6
100	0.2	11.4	4.9	2.4	1.8
105	0.5	11.2	5.0	2.8	2.1
110	0.6	9.9	5.8	3.0	2.4
115	0.7	7.1	6.5	3.5	2.8
120	0.6	6.2	7.1	4.1	3.3
125	0.6	5.5	5.9	4.9	3.9
130	0.5	4.9	5.2	4.9	4.5
135	0.5	4.3	5.2	4.0	3.8
140	0.5	3.4	4.7	4.2	3.9
145	0.5	2.4	4.1	4.0	3.9
150	0.5	1.7	3.3	3.6	3.7
155	0.5	1.1	2.5	3.1	3.3
160	0.5	0.7	1.6	2.3	2.6
165	0.5	0.5	1.0	1.4	1.6
170	0.5	0.5	0.5	0.7	0.8
175	0.5	0.5	0.5	0.5	0.5
180	0.4	0.4	0.4	0.4	0.4

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDWS18327X

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
MDWS18327X		
0-30	254.3	34.5
0-40	394.3	53.5
0-60	604.7	82.0
0-90	706.0	95.8
60-90	101.3	13.8
0-180	737.1	100.0

Beam Angle

Total Beam Angle (°)

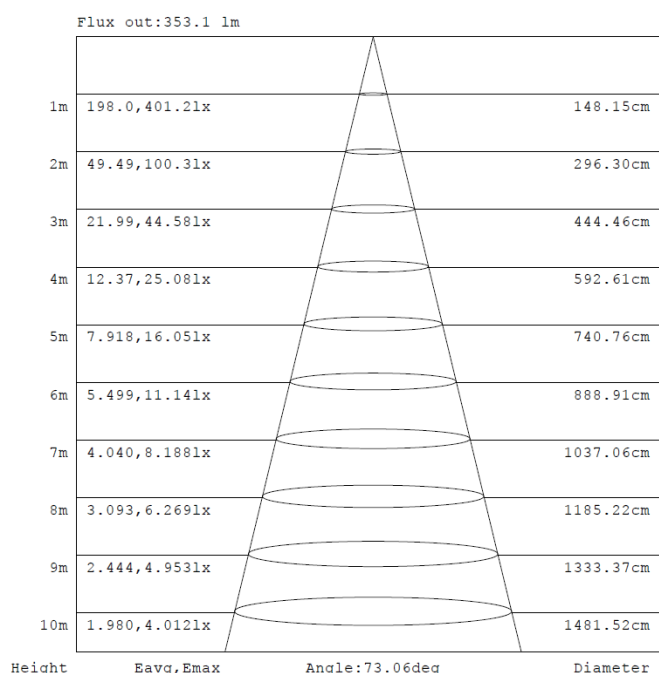
80.7

Illumination Plots

Model No.: MDWS18327X

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

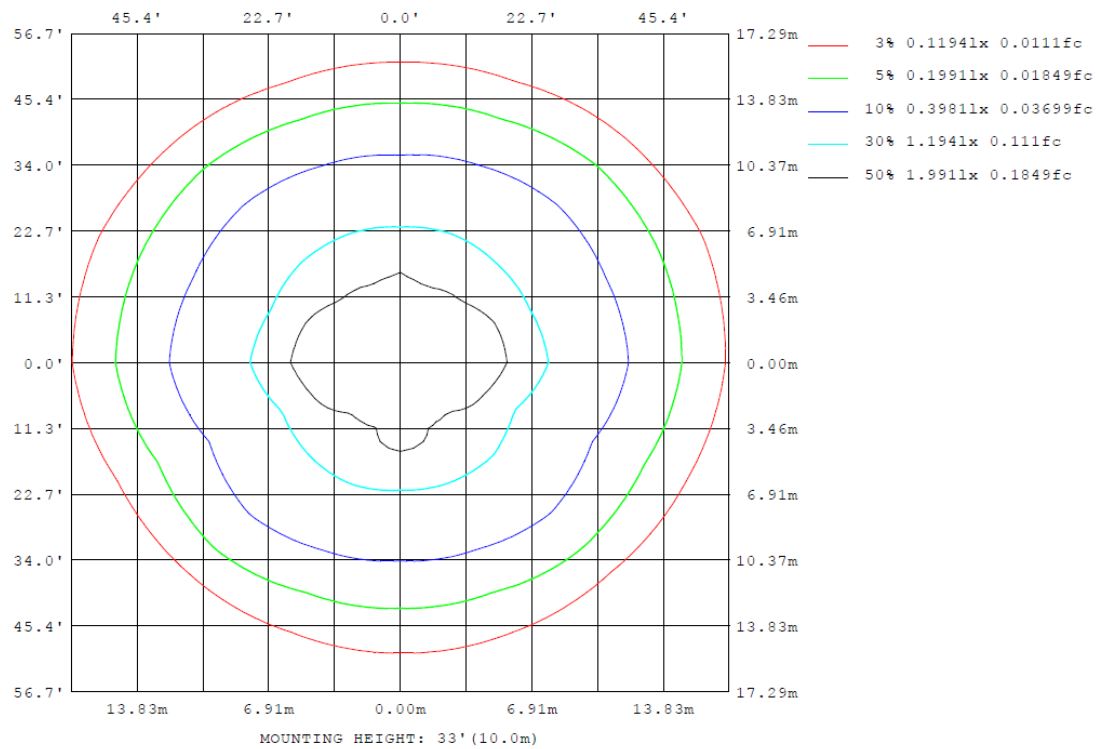
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDWS18327X

Model No.: MDWS18327X

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDWS18327X

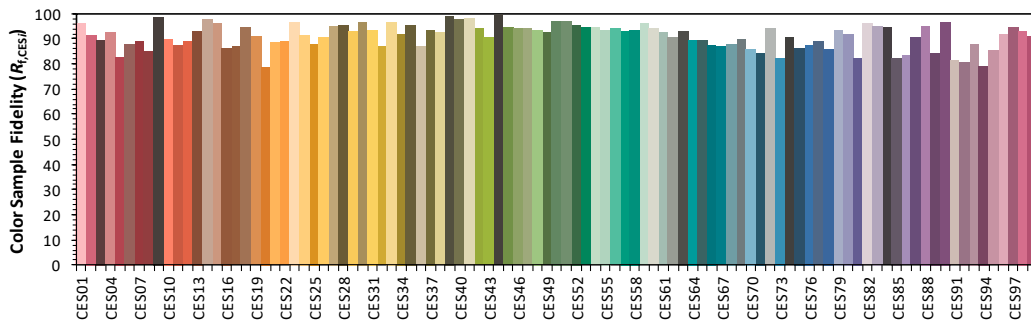
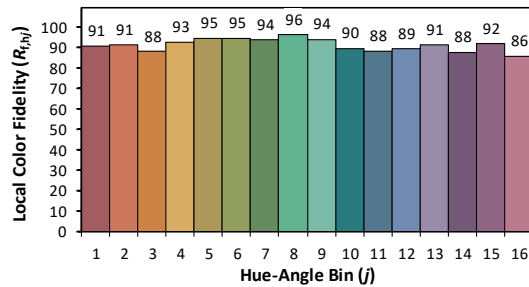
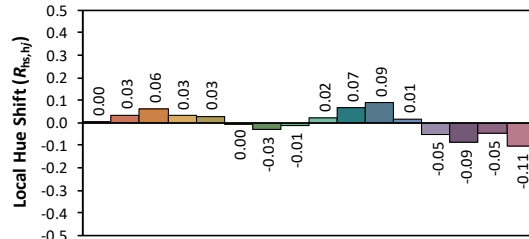
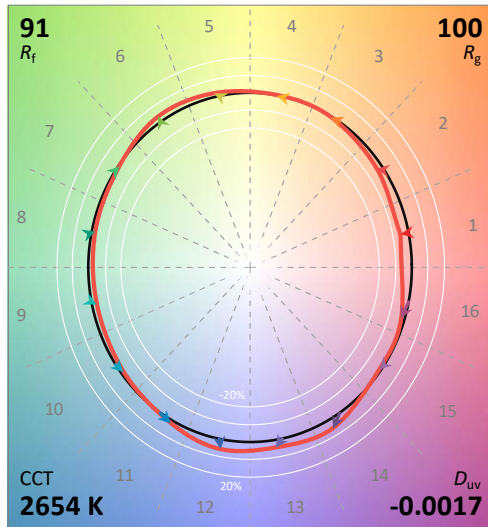
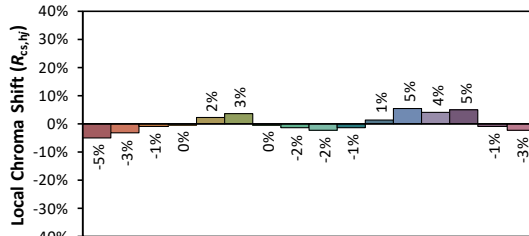
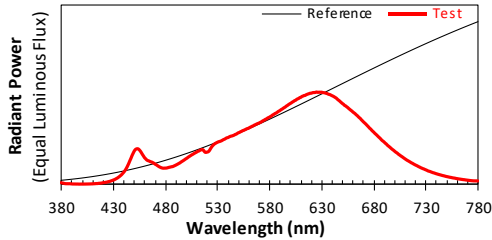
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/3/10

Model: MDWS18327X



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

x 0.4606
 y 0.4061
 u' 0.2650
 v' 0.5257

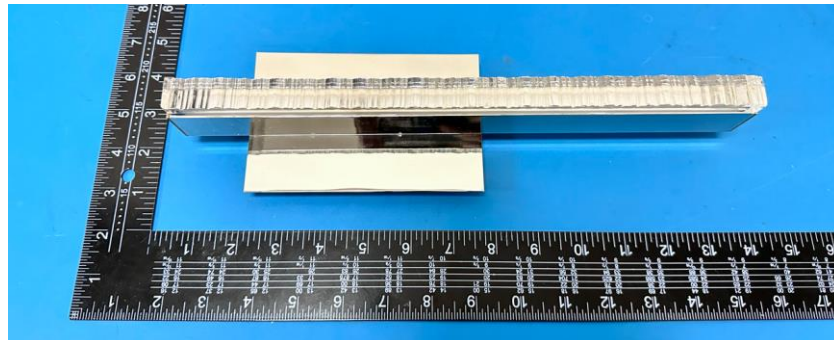
CIE 13.3-1995
(CRI)
 R_a 92
 R_g 61

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

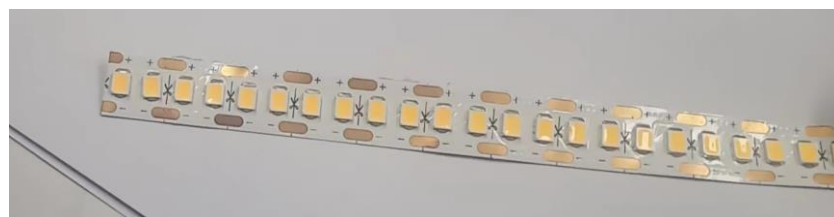
PRODUCT PICTURE (not to scale)



External view of MDWS18327X



View of LED Driver PVD11-C030V33-UNV3-HE-P



View of LED

In Charge Of Tests:

Done Ye

Done Ye
Engineer

Report Reviewed By

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

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