

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

230301038GZU-007

ISSUE DATE

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REVISION DATE

None

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Report No.: 230301038GZU-007

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. MDBA18427X

(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 MDBA18427X. The sample was received, in undamaged condition. The sample designation was S230301038-007.
<u>DATES OF TESTS:</u>	13 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:	MDBA18427X
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For MDBA18427X

Criteria	Result
Total Lumen Output	674.2 lm
Total Power	18.9 W
Luminaire Efficacy	35.7 lm/W
S/MH(C0/180)	1.14
S/MH(C90/270)	0.88
Correlated Color Temperature (CCT)	2603 K
Color Rendering Index (CRI)	93
R9	63
Chromaticity Coordinate (x)	0.4658
Chromaticity Coordinate (y)	0.4085
Chromaticity Coordinate (u')	0.2673
Chromaticity Coordinate (v')	0.5274

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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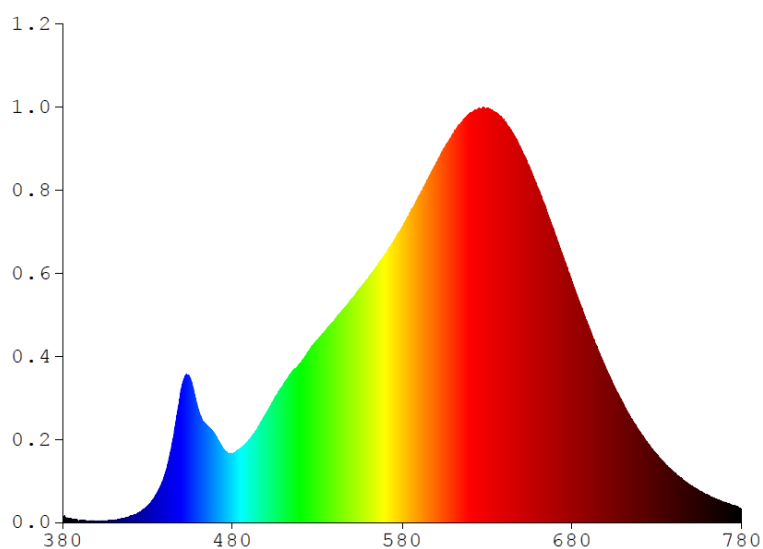
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For MDBA18427X

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0583	480	0.5861	580	2.5096	680	2.0414	780	0.1140
385	0.0323	485	0.6291	585	2.6406	685	1.8440		
390	0.0157	490	0.7010	590	2.7730	690	1.6619		
395	0.0143	495	0.8079	595	2.9107	695	1.4730		
400	0.0124	500	0.9298	600	3.0493	700	1.3050		
405	0.0137	505	1.0592	605	3.1805	705	1.1505		
410	0.0190	510	1.1695	610	3.2988	710	1.0098		
415	0.0323	515	1.2766	615	3.3955	715	0.8801		
420	0.0542	520	1.3539	620	3.4709	720	0.7670		
425	0.0848	525	1.4571	625	3.5163	725	0.6637		
430	0.1412	530	1.5490	630	3.5127	730	0.5727		
435	0.2351	535	1.6316	635	3.4759	735	0.4945		
440	0.3979	540	1.7148	640	3.4150	740	0.4259		
445	0.7076	545	1.8013	645	3.3045	745	0.3663		
450	1.1373	550	1.8959	650	3.1728	750	0.3128		
455	1.2252	555	1.9857	655	3.0123	755	0.2674		
460	0.9526	560	2.0729	660	2.8341	760	0.2304		
465	0.8257	565	2.1694	665	2.6465	765	0.1976		
470	0.7383	570	2.2779	670	2.4451	770	0.1706		
475	0.6203	575	2.3882	675	2.2067	775	0.1441		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDBA18427X

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

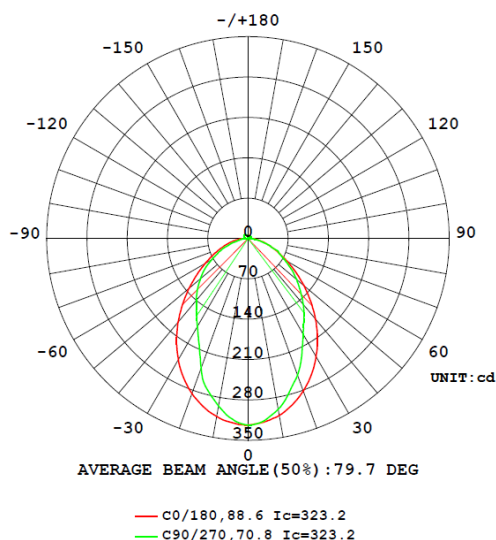
Photometric Measurements at 25°C – Integrating Sphere Method

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')
MDBA18427X								
S2303010 38-007	--	2603	93	63	0.4658	0.4085	0.2673	0.5274

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)
MDBA18427X							
S2303010 38-007	--	120.2	158.4	18.9	0.992	674.2	35.7

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDBA18427X

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	323.2	323.2	323.2	323.2	323.2
5	319.4	319.2	318.4	317.4	317.3
10	311.4	309.6	305.1	301.6	300.7
15	298.2	293.8	285.9	278.9	276.3
20	281.3	273.6	261.7	253.1	251.7
25	260.8	250.6	236.1	226.1	221.9
30	236.9	224.5	209.7	194.5	191.5
35	210.7	196.2	179.4	170.0	169.8
40	182.7	167.6	153.4	149.5	149.4
45	154.4	140.1	130.6	129.2	129.1
50	126.7	114.8	110.2	109.9	110.4
55	100.9	92.4	92.0	91.1	91.3
60	78.1	73.7	74.1	72.8	73.4
65	59.3	58.3	59.3	58.6	59.5
70	44.0	46.2	47.7	44.3	42.9
75	31.2	35.4	33.7	31.1	29.3
80	20.2	24.8	23.5	20.3	18.0
85	11.2	17.6	15.1	11.8	8.9
90	4.4	12.7	9.5	6.4	3.5
95	3.8	12.1	8.4	5.2	3.6
100	0.4	11.5	8.2	5.3	4.8
105	0.4	10.6	8.9	5.9	5.5
110	0.3	8.9	9.7	6.7	6.0
115	0.3	8.5	9.6	7.4	6.6
120	0.4	8.1	8.8	7.4	6.7
125	0.4	7.3	8.5	6.9	6.2
130	0.4	6.8	8.2	7.0	6.0
135	0.5	6.2	7.9	7.3	6.6
140	0.5	5.4	7.2	6.8	6.5
145	0.5	4.5	6.2	6.2	6.0
150	0.5	3.7	5.6	5.6	5.6
155	0.5	2.9	4.9	5.3	5.4
160	0.5	2.2	3.9	4.7	4.9
165	0.5	1.5	2.9	3.7	3.9
170	0.5	0.9	1.9	2.5	2.7
175	0.4	0.6	0.8	1.2	1.4
180	0.4	0.4	0.4	0.5	0.4

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDBA18427X

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
MDBA18427X		
0-30	218.7	32.4
0-40	333.0	49.4
0-60	523.7	77.7
0-90	635.0	94.2
60-90	111.3	16.5
0-180	674.2	100.0

Beam Angle

Total Beam Angle (°)

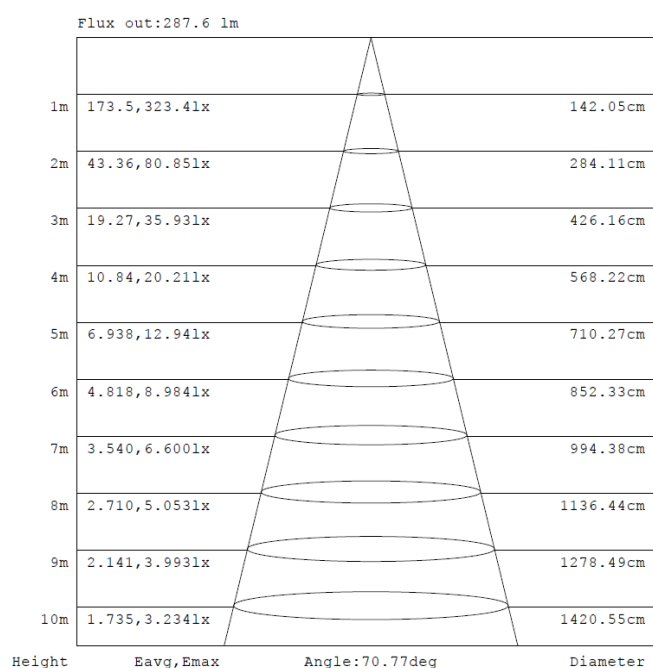
79.7

Illumination Plots

Model No.: MDBA18427X

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

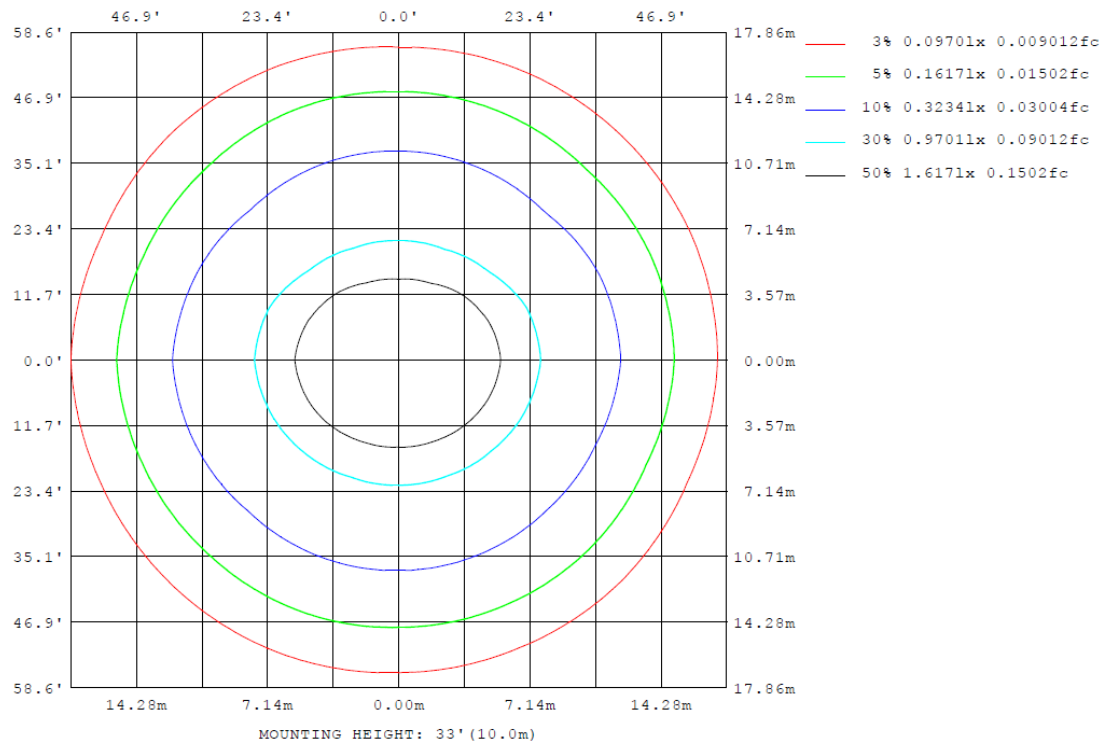
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDBA18427X

Model No.: MDBA18427X

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For MDBA18427X

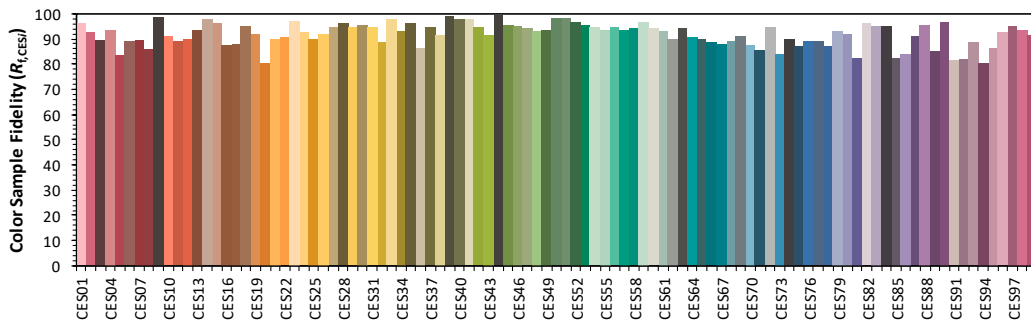
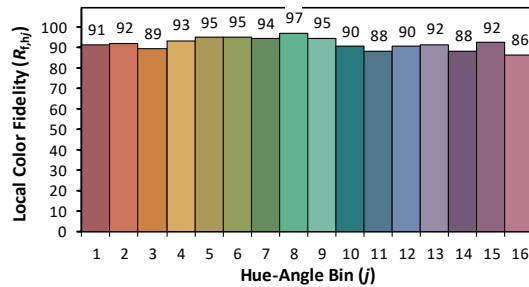
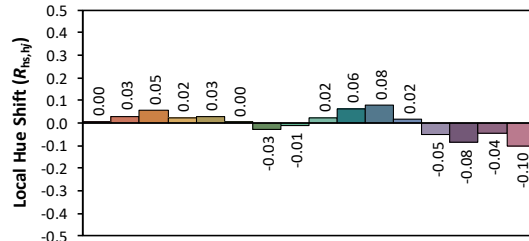
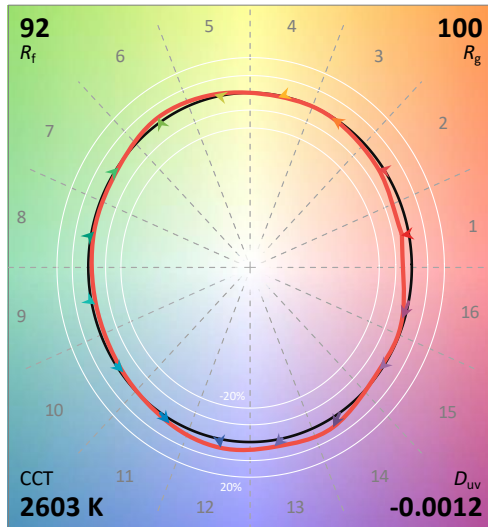
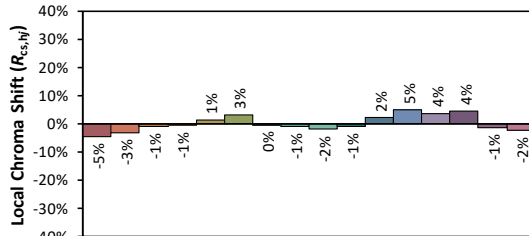
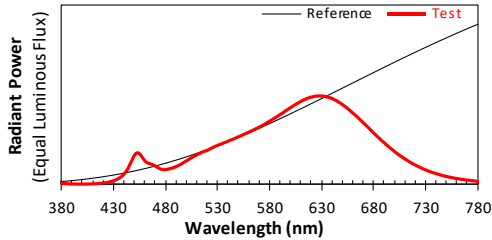
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2023/3/13

Model: MDBA18427X



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

x 0.4658
 y 0.4085
 u' 0.2673
 v' 0.5274

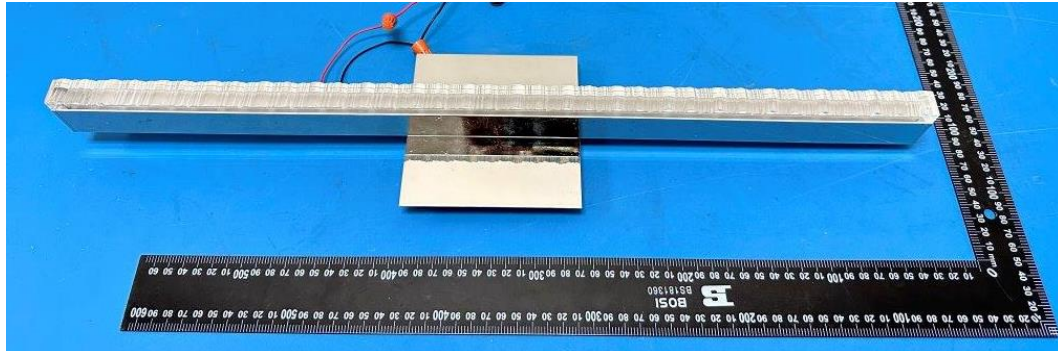
CIE 13.3-1995
(CRI)
 R_a 93
 R_g 63

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

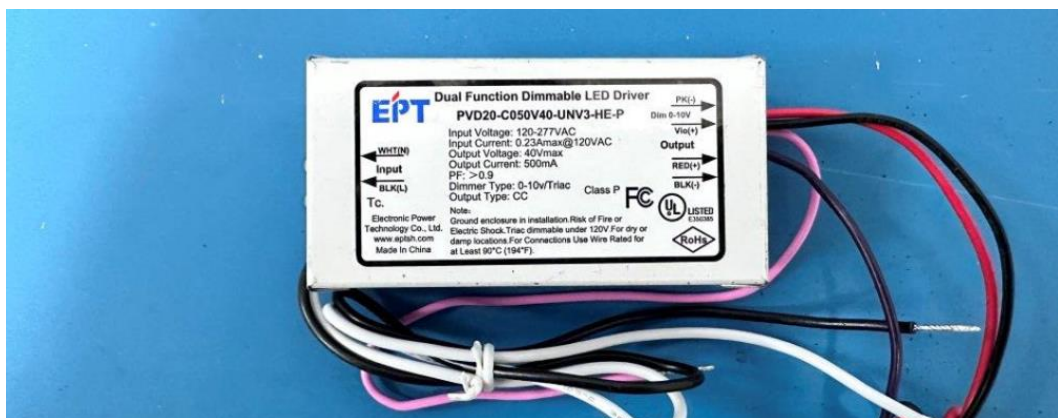
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TEST REPORT

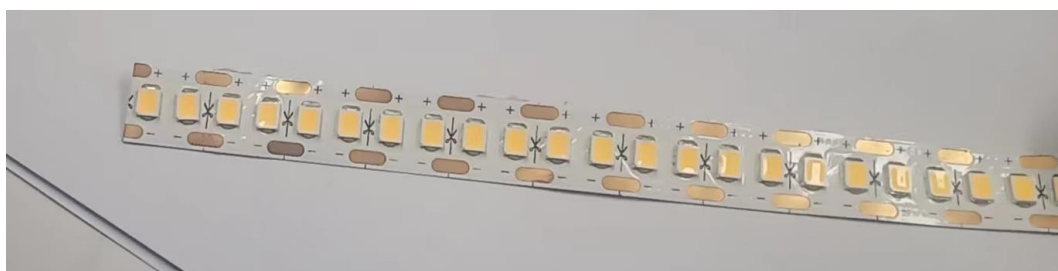
PRODUCT PICTURE (not to scale)



External view of MDBA18427X



View of LED Driver PVD20-C050V40-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 *****