

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220401100GZU-010

ISSUE DATE

11 April 2022

REVISION DATE

None

NUMBER OF PAGES

13

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Report No.: 220401100GZU-010

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700TDWYT16x-LED930

RENDERED TO

Visual Comfort and Company

Contact Name: Tess Gallagher

7400 LINDER AVE. SKOKIE, IL, 60077

Email: Tgallagher@visualcomfortco.com

Phone No.: 8474104774

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 700TDWYT16x-LED930. The sample was received, in undamaged condition. The sample designation was S220401100-010.

DATES OF TESTS: 11 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:	700TDWYT16x-LED930 (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700TDWYT16x-LED930

Criteria	Result
Total Lumen Output	906.2 lm
Total Power	19.9 W
Luminaire Efficacy	45.60 lm/W
S/MH(C0/180)	1.26
S/MH(C90/270)	1.31
Correlated Color Temperature (CCT)	2781 K
Color Rendering Index (CRI)	92
R9	55
Chromaticity Coordinate (x)	0.4499
Chromaticity Coordinate (y)	0.4026
Chromaticity Coordinate (u')	0.2596
Chromaticity Coordinate (v')	0.5227

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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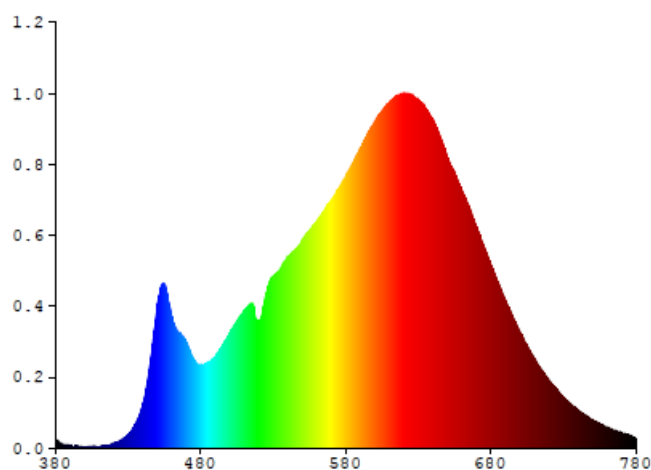
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700TDWYT16x-LED930

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0790	480	1.1542	580	3.7852	680	2.5438	780	0.1276
385	0.0460	485	1.1954	585	3.9650	685	2.2934		
390	0.0300	490	1.2742	590	4.1679	690	2.0510		
395	0.0219	495	1.4204	595	4.3830	695	1.8261		
400	0.0206	500	1.5979	600	4.5511	700	1.6084		
405	0.0195	505	1.7664	605	4.6905	705	1.4144		
410	0.0198	510	1.9104	610	4.8152	710	1.2411		
415	0.0332	515	2.0106	615	4.8963	715	1.0809		
420	0.0629	520	1.7750	620	4.9353	720	0.9391		
425	0.1038	525	2.1401	625	4.9114	725	0.8140		
430	0.1857	530	2.3887	630	4.8307	730	0.7063		
435	0.3262	535	2.4953	635	4.7296	735	0.6100		
440	0.6029	540	2.6485	640	4.5588	740	0.5262		
445	1.1477	545	2.7516	645	4.3258	745	0.4535		
450	1.9617	550	2.8928	650	4.0416	750	0.3861		
455	2.2684	555	3.0282	655	3.8270	755	0.3317		
460	1.8252	560	3.1600	660	3.5837	760	0.2842		
465	1.6023	565	3.3004	665	3.3527	765	0.2441		
470	1.4667	570	3.4490	670	3.0758	770	0.2097		
475	1.2388	575	3.6132	675	2.7531	775	0.1817		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDWYT16x-LED930

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

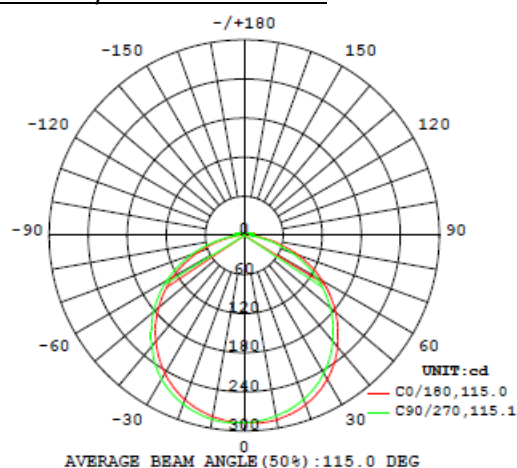
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700TDWYT16x-LED930								
S2204011 00-010	--	2781	92	55	0.4499	0.4026	0.2596	0.5227

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)
700TDWYT16x-LED930							
S2204011 00-010	--	120.0	169.2	19.9	0.978	906.2	45.60

Intensity (Candlepower) Summary at 25°C - Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDWYT16x-LED930

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	287.9	287.6	287.6	287.7	287.5
5	288.7	287.6	286.7	285.8	285.2
10	286.9	285.3	284.2	282.6	281.1
15	282.7	280.7	279.2	277.4	275.3
20	276.1	273.9	272.1	269.7	267.4
25	266.8	264.7	262.4	259.7	257.2
30	255.1	252.8	250.2	247.1	244.3
35	240.5	238.2	235.5	232.3	229.1
40	223.0	221.0	218.4	215.3	211.9
45	203.7	201.8	199.4	196.5	193.1
50	183.3	181.5	179.0	176.0	172.7
55	161.5	159.6	157.1	154.1	150.8
60	138.2	136.4	133.8	130.7	127.5
65	113.5	111.8	109.3	106.0	102.9
70	88.0	86.3	83.7	80.5	77.5
75	61.9	60.6	58.1	55.2	52.4
80	37.9	36.6	34.5	32.2	29.9
85	19.6	18.9	17.8	16.5	15.4
90	9.2	9.2	9.2	9.9	9.3
95	12.5	13.4	14.2	14.5	14.6
100	15.3	15.4	15.3	15.0	14.6
105	14.1	14.0	13.8	13.5	13.1
110	12.3	12.4	12.2	11.9	11.6
115	9.9	11.0	10.9	10.7	10.4
120	8.8	9.8	9.8	9.6	9.4
125	7.8	8.8	8.8	8.6	8.5
130	6.8	7.7	7.8	7.7	7.6
135	5.8	6.6	6.7	6.7	6.7
140	4.7	5.4	5.6	5.7	5.8
145	3.5	4.2	4.5	4.7	4.8
150	2.4	3.1	3.5	3.7	3.8
155	1.5	2.0	2.4	2.7	2.8
160	0.7	1.2	1.5	1.8	1.9
165	0.5	0.6	0.9	1.1	1.2
170	0.4	0.4	0.5	0.6	0.6
175	0.4	0.4	0.4	0.4	0.4
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 700TDWYT16x-LED930

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700TDWYT16x-LED930		
0-30	226.7	25.0
0-40	373.3	41.2
0-60	665.1	73.4
0-90	852.1	94.0
60-90	187.0	20.6
0-180	906.2	100

Beam Angle

Total Beam Angle (°)

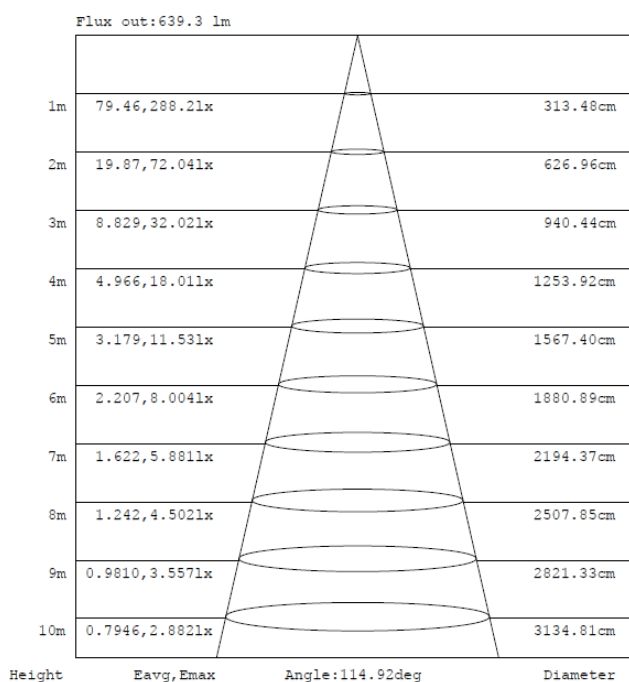
115.0

Illumination Plots

Model No.: 700TDWYT16x-LED930

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

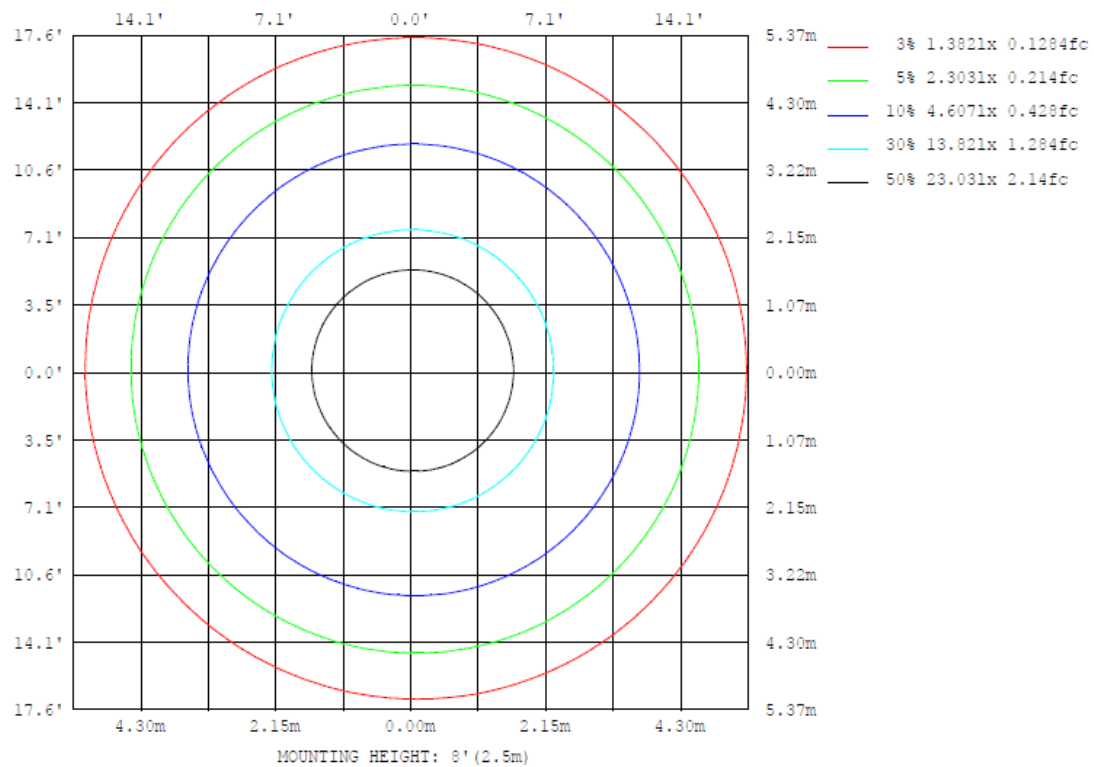
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDWYT16x-LED930

Model No.: 700TDWYT16x-LED930

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDWYT16x-LED930

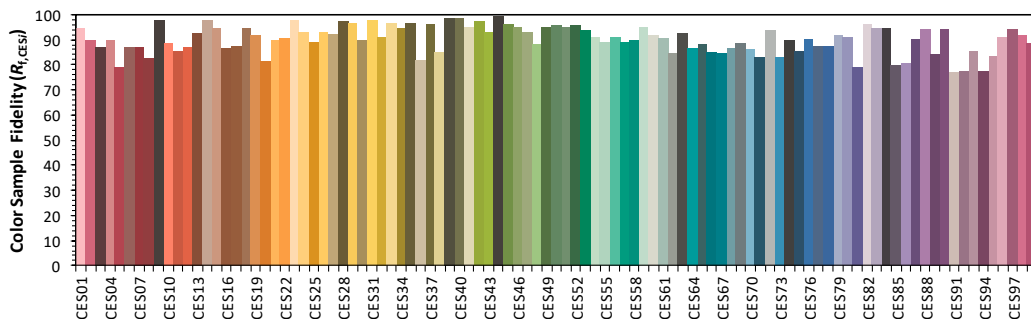
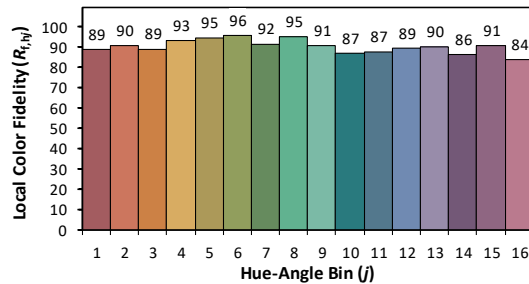
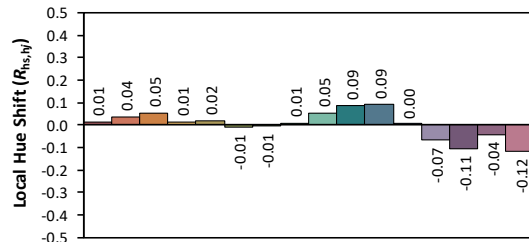
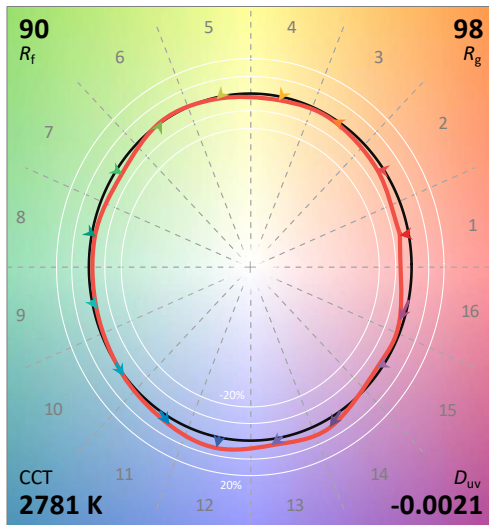
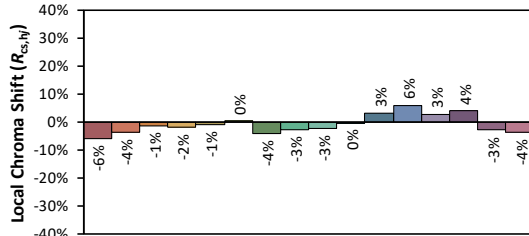
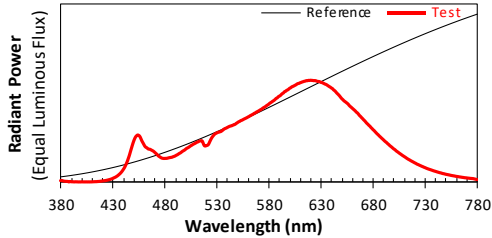
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/4/11

Model: 700TDWYT16x-LED930



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

x 0.4499
 y 0.4026
 u' 0.2596
 v' 0.5227

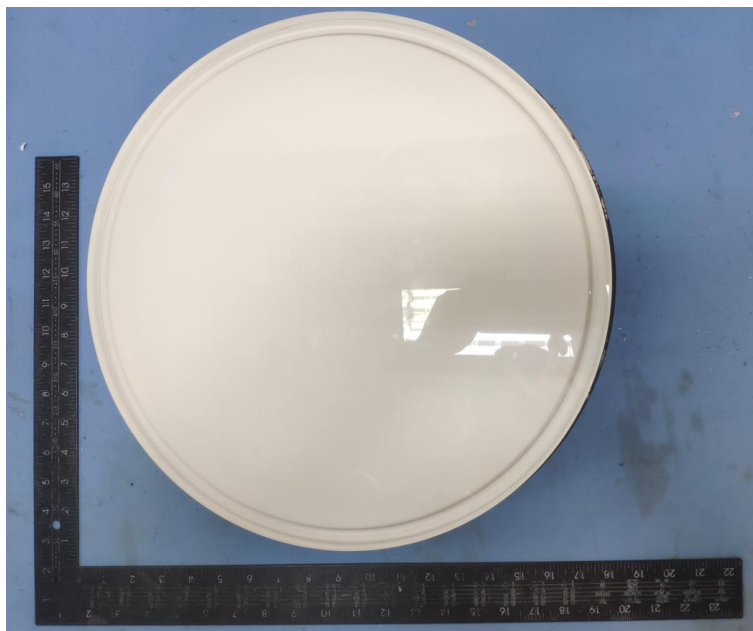
CIE 13.3-1995
(CRI)
 R_a 92
 R_g 55

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 700TDWYT16x-LED930



External view of 700TDWYT16x-LED930

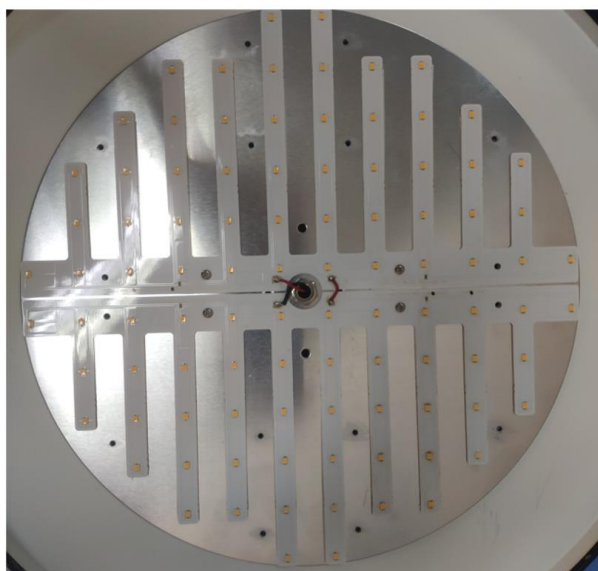
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TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver ISDU-D56-20W



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 *****