

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220401100GZU-009

ISSUE DATE

09 April 2022

REVISION DATE

None

NUMBER OF PAGES

13

DOCUMENT CONTROL NUMBER

Report format for LM-79:2008_F
© 2021 INTERTEK



Report No.: 220401100GZU-009

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700FMWYT16x-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 700FMWYT16x-LED930. The sample was received, in undamaged condition. The sample designation was S220401100-009.

DATES OF TESTS: 08 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

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

TEST REPORT

SUMMARY

Model Number:	700FMWYT16x-LED930 (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700FMWYT16x-LED930

Criteria	Result
Total Lumen Output	854.4 lm
Total Power	20.3 W
Luminaire Efficacy	42.07 lm/W
S/MH(C0/180)	1.31
S/MH(C90/270)	1.28
Correlated Color Temperature (CCT)	2753 K
Color Rendering Index (CRI)	92
R9	62
Chromaticity Coordinate (x)	0.4559
Chromaticity Coordinate (y)	0.4101
Chromaticity Coordinate (u')	0.2601
Chromaticity Coordinate (v')	0.5266

Remark:

Measurement uncertainty for applicable tests has been established.

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

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

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

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

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

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

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

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

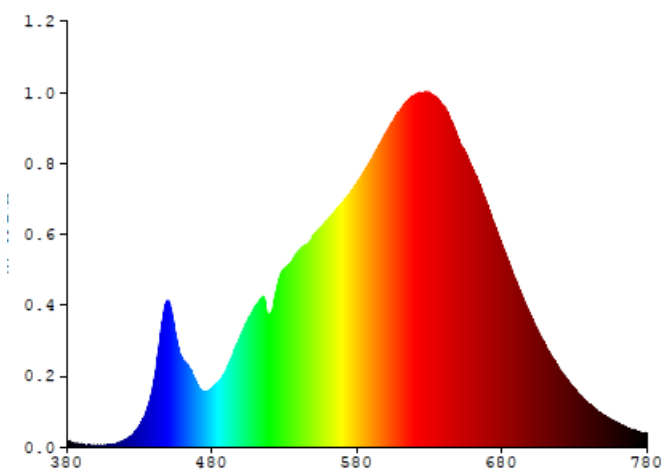
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700FMWYT16x-LED930

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.0668	480	0.7407	580	3.3369	680	2.5551	780	0.1717
385	0.0404	485	0.8310	585	3.4783	685	2.3202		
390	0.0320	490	0.9765	590	3.6392	690	2.0863		
395	0.0256	495	1.1975	595	3.8153	695	1.8632		
400	0.0173	500	1.4147	600	3.9811	700	1.6525		
405	0.0185	505	1.6130	605	4.1189	705	1.4624		
410	0.0246	510	1.7787	610	4.2625	710	1.2827		
415	0.0459	515	1.8973	615	4.3777	715	1.1252		
420	0.0872	520	1.6846	620	4.4547	720	0.9765		
425	0.1497	525	2.0244	625	4.4786	725	0.8556		
430	0.2653	530	2.2566	630	4.4638	730	0.7350		
435	0.4614	535	2.3437	635	4.4155	735	0.6374		
440	0.8285	540	2.4787	640	4.3031	740	0.5469		
445	1.4819	545	2.5556	645	4.1279	745	0.4713		
450	1.8375	550	2.6768	650	3.8955	750	0.4046		
455	1.4092	555	2.7796	655	3.7174	755	0.3492		
460	1.1013	560	2.8802	660	3.5047	760	0.2988		
465	0.9778	565	2.9790	665	3.3003	765	0.2563		
470	0.7814	570	3.0872	670	3.0586	770	0.2207		
475	0.6902	575	3.2063	675	2.7510	775	0.1867		



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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMWYT16x-LED930

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

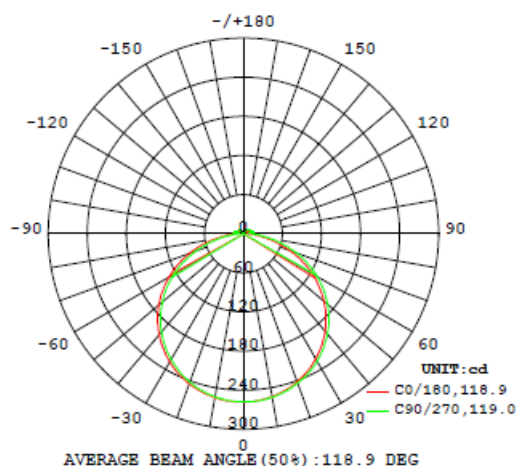
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700FMWYT16x-LED930								
S2204011 00-009	--	2753	92	62	0.4559	0.4101	0.2601	0.5266

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)
700FMWYT16x-LED930							
S2204011 00-009	--	120.0	172.8	20.3	0.979	854.4	42.07

Intensity (Candlepower) Summary at 25°C - Candelas



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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMWYT16x-LED930

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	258.2	258.3	258.1	258.1	258.0
5	256.7	256.9	256.9	257.1	257.2
10	253.6	253.8	253.9	254.2	254.5
15	248.3	248.7	249.1	249.6	250.1
20	241.5	242.0	242.4	243.2	243.8
25	232.5	233.2	234.0	234.9	235.7
30	221.9	222.8	223.7	224.9	226.1
35	209.3	210.4	211.6	213.0	214.4
40	195.1	196.2	197.7	199.4	200.8
45	179.1	180.2	182.1	183.9	185.6
50	161.4	162.8	164.7	167.0	168.8
55	142.1	143.7	146.0	148.4	150.4
60	121.4	123.2	125.7	128.2	130.6
65	99.4	101.3	103.9	106.7	109.3
70	76.3	78.3	81.1	84.1	86.8
75	52.8	55.0	57.7	60.8	63.6
80	31.3	33.1	35.5	38.3	41.0
85	16.4	17.4	18.8	20.5	22.3
90	7.6	7.6	7.6	8.3	10.5
95	14.7	14.4	13.6	12.1	10.1
100	14.6	15.4	15.5	15.5	15.5
105	12.5	13.9	14.3	14.6	14.7
110	11.1	12.1	12.6	12.9	13.1
115	9.9	10.4	11.2	11.4	11.6
120	9.0	9.2	10.0	10.2	10.4
125	8.1	8.3	9.0	9.2	9.4
130	7.3	7.4	8.0	8.2	8.5
135	6.5	6.5	7.1	7.3	7.5
140	5.6	5.7	6.1	6.4	6.5
145	4.7	4.8	5.1	5.3	5.5
150	3.8	3.8	4.0	4.2	4.4
155	2.8	2.8	3.0	3.1	3.1
160	1.9	1.9	2.0	2.0	2.0
165	1.1	1.1	1.1	1.1	1.1
170	0.6	0.6	0.5	0.5	0.5
175	0.4	0.4	0.4	0.4	0.4
180	0.4	0.4	0.4	0.4	0.4

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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMWYT16x-LED930

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700FMWYT16x-LED930		
0-30	203.0	23.8
0-40	335.9	39.3
0-60	608.4	71.2
0-90	797.9	93.4
60-90	189.5	22.2
0-180	854.4	100

Beam Angle

Total Beam Angle (°)

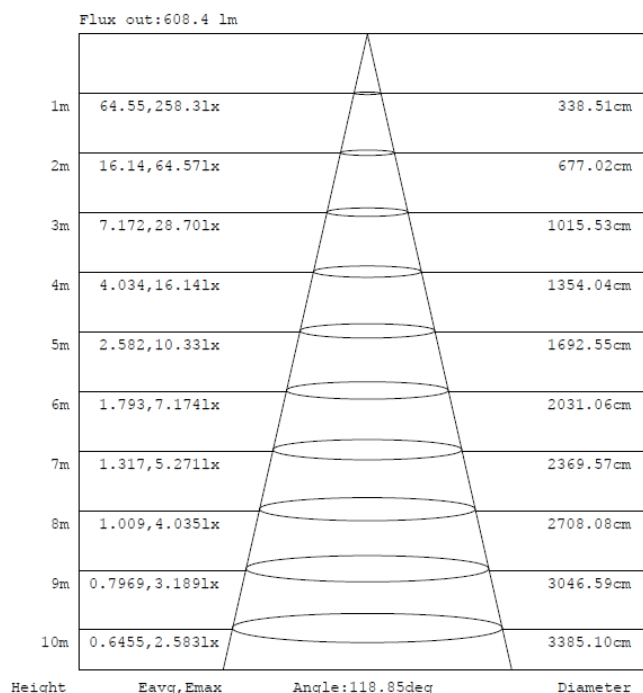
118.9

Illumination Plots

Model No.: 700FMWYT16x-LED930

Mount Height: 2.5 m

Illuminance - Cone of Light



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

TEST REPORT

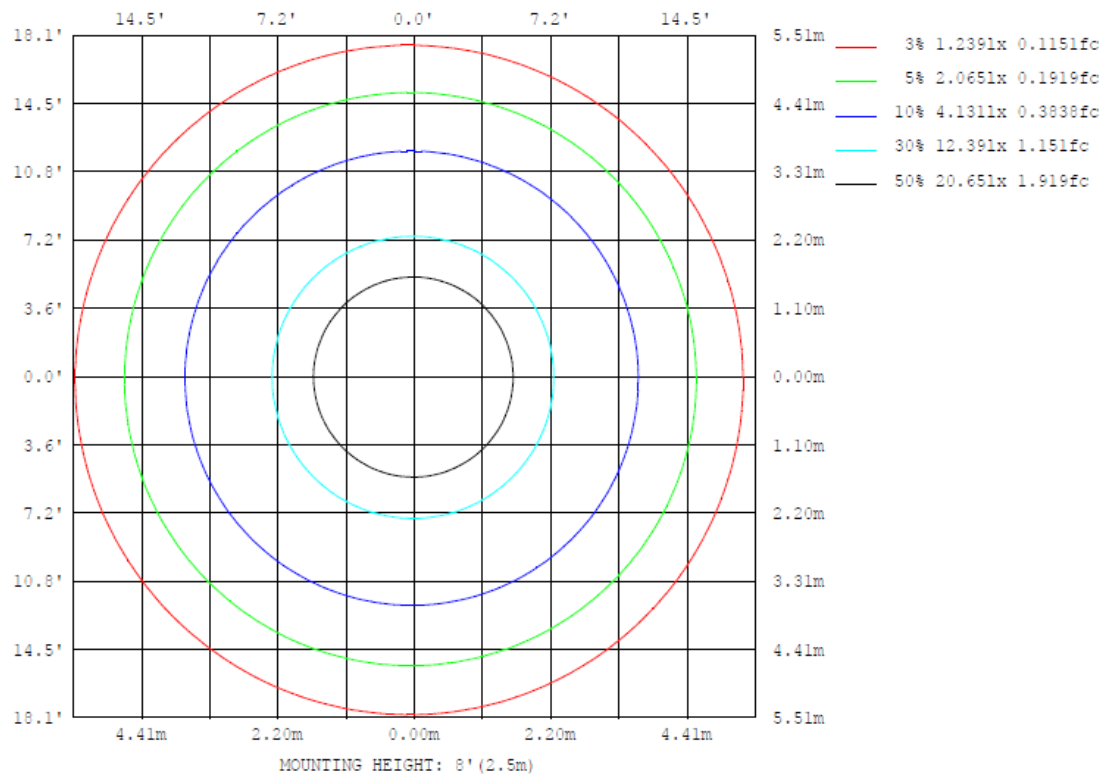
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMWYT16x-LED930

Model No.: 700FMWYT16x-LED930

Mount Height: 2.5 m

Isoillumination Plot



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

TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMWYT16x-LED930

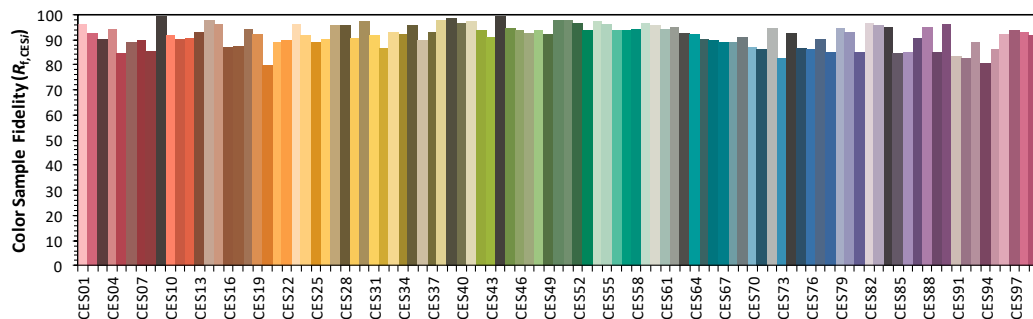
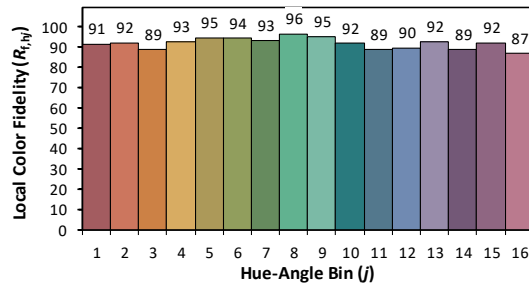
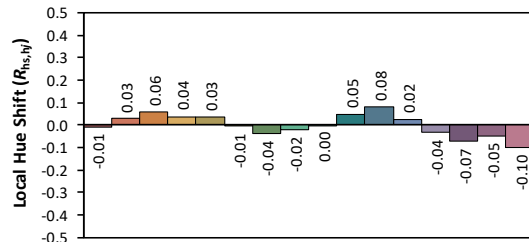
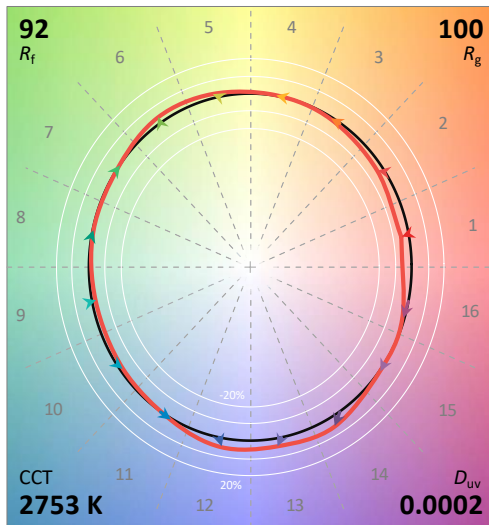
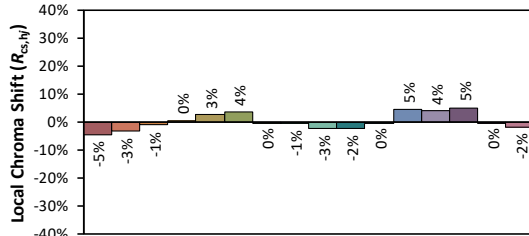
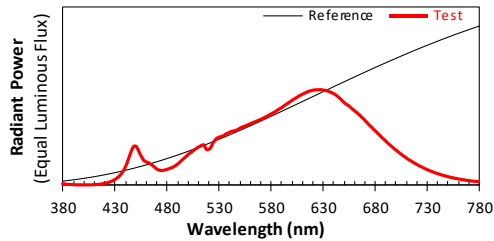
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/4/8

Model: 700FMWYT16x-LED930



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

x 0.4559
 y 0.4101
 u' 0.2601
 v' 0.5266

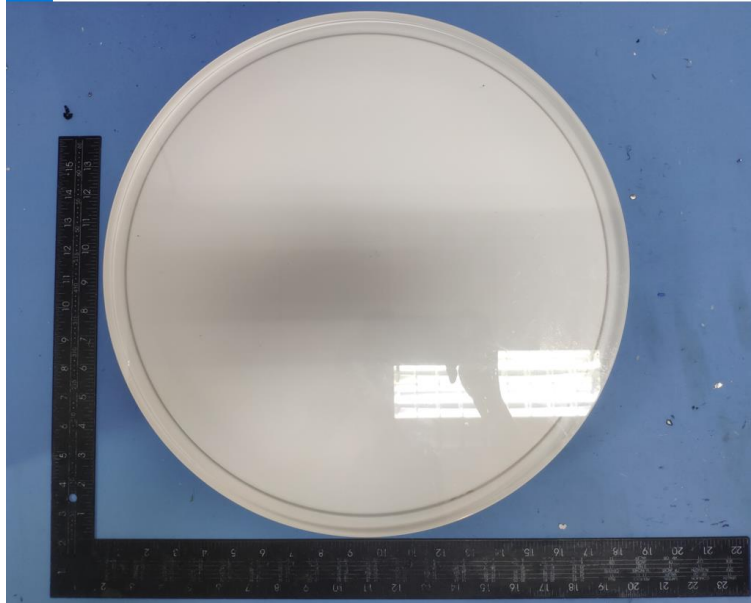
CIE 13.3-1995
(CRI)
 R_a 92
 R_g 62

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

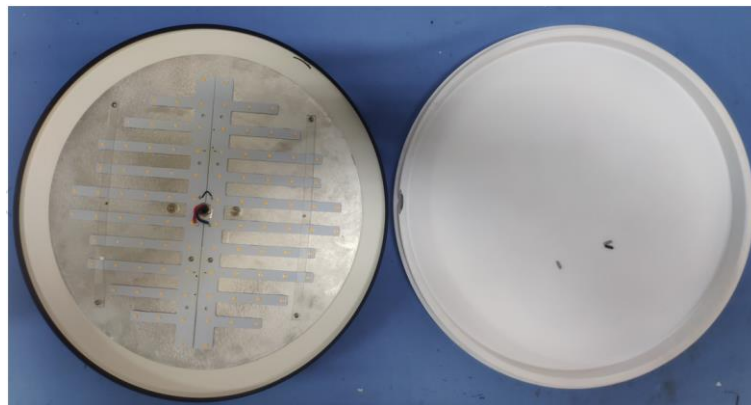
***** End of Page *****

TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700FMWYT16x-LED930



External view of 700FMWYT16x-LED930

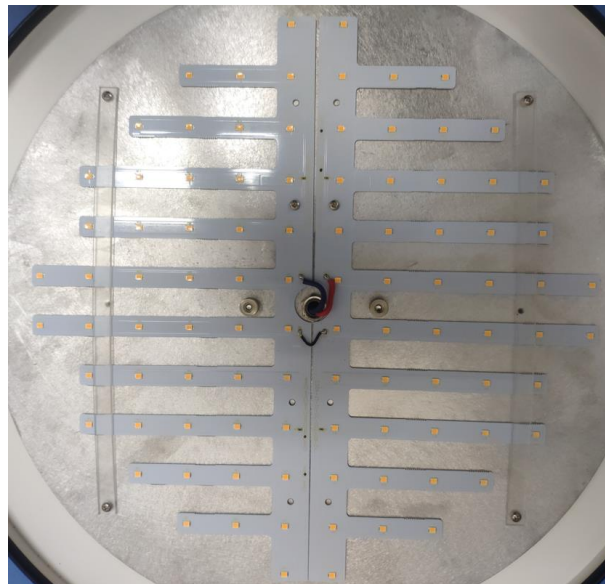
***** End of Page *****

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 *****