

VC BRANDS LLC

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

210408233GZU-002

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REVISION DATE

None

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Report No.: 210408233GZU-002

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700FMKOSA18*-LED930

RENDERED TO

VC BRANDS LLC

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: QGZ210406068.

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:

IESNA 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 700FMKOSA18*-LED930. The samples were received by Intertek on April 08, 2021, in undamaged condition, and one sample was tested as received. The sample designation was S210408233-002.

DATES OF TESTS: 14 April 2021 to 26 April 2021

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:	700FMKOSA18*-LED930 (Remark: "*" denote other colors for the characters that change.)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700FMKOSA18*-LED930

Criteria	Result
Total Lumen Output	898.8 lm
Total Power	21.06 W
Luminaire Efficacy	42.69 lm/W
S/MH(C0/180)	1.23
S/MH(C90/270)	1.19
Correlated Color Temperature (CCT)	3011 K
Color Rendering Index (CRI)	96
R9	79
Chromaticity Coordinate (x)	0.4333
Chromaticity Coordinate (y)	0.3979
Chromaticity Coordinate (u')	0.2509
Chromaticity Coordinate (v')	0.5184

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

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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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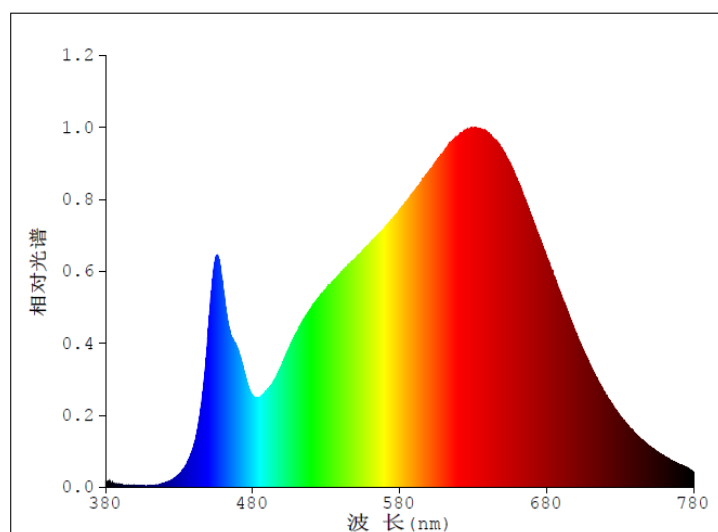
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700FMKOSA18*-LED930

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.08	480	1.30	580	3.93	680	3.27	780	0.21
385	0.06	485	1.28	585	4.06	685	3.00		
390	0.04	490	1.38	590	4.19	690	2.72		
395	0.02	495	1.53	595	4.34	695	2.46		
400	0.02	500	1.74	600	4.47	700	2.19		
405	0.02	505	1.98	605	4.62	705	1.95		
410	0.02	510	2.19	610	4.76	710	1.72		
415	0.03	515	2.39	615	4.88	715	1.51		
420	0.06	520	2.55	620	4.98	720	1.33		
425	0.11	525	2.68	625	5.05	725	1.16		
430	0.18	530	2.81	630	5.08	730	1.01		
435	0.32	535	2.93	635	5.08	735	0.89		
440	0.60	540	3.04	640	5.02	740	0.77		
445	1.15	545	3.15	645	4.93	745	0.67		
450	2.28	550	3.24	650	4.79	750	0.59		
455	3.27	555	3.36	655	4.59	755	0.51		
460	2.81	560	3.46	660	4.37	760	0.44		
465	2.17	565	3.57	665	4.10	765	0.38		
470	1.95	570	3.68	670	3.83	770	0.33		
475	1.59	575	3.80	675	3.55	775	0.28		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMKOSA18*-LED930

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

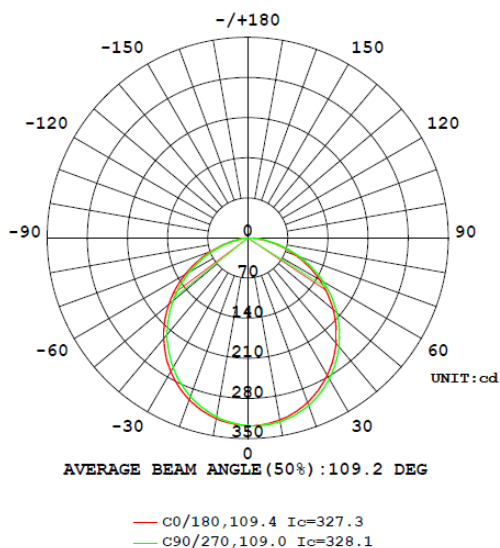
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700FMKOSA18*-LED930								
S2104082 33-002	base-up	3011	96	79	0.4333	0.3979	0.2509	0.5184

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)
700FMKOSA18*-LED930							
S2104082 33-002	base-up	120.1	178.8	21.06	0.980	898.8	42.69

Intensity (Candlepower) Summary at 25°C - Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMKOSA18*-LED930

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	327.1	327.0	327.0	326.9	327.2
5	326.2	326.8	327.5	327.4	327.7
10	322.1	323.6	324.6	325.0	325.2
15	315.1	317.2	319.0	319.4	319.4
20	305.0	307.8	310.2	310.7	310.7
25	292.3	295.7	298.4	299.2	298.7
30	276.8	280.9	283.8	284.9	284.1
35	259.2	263.9	267.0	268.2	267.0
40	239.5	244.6	247.9	249.0	247.5
45	217.9	223.5	226.7	227.9	226.1
50	194.6	200.5	203.8	204.7	202.9
55	169.8	175.9	179.3	180.1	178.0
60	143.9	150.0	153.6	154.2	151.8
65	117.0	123.2	126.7	127.1	124.4
70	89.8	95.9	99.3	99.4	96.6
75	62.8	68.7	71.9	71.9	68.9
80	37.8	42.9	45.7	45.6	42.7
85	16.6	20.5	22.7	22.5	20.1
90	4.5	5.8	6.8	6.7	5.1
95	2.7	2.8	2.8	2.8	2.8
100	1.9	2.2	2.2	2.3	2.2
105	1.3	1.6	1.7	1.7	1.7
110	0.9	1.1	1.2	1.3	1.2
115	0.5	0.7	0.8	0.8	0.8
120	0.2	0.3	0.4	0.5	0.5
125	0.1	0.1	0.2	0.2	0.2
130	0.1	0.1	0.1	0.1	0.1
135	0.1	0.1	0.1	0.1	0.1
140	0.1	0.1	0.1	0.1	0.1
145	0.2	0.2	0.2	0.2	0.2
150	0.2	0.2	0.2	0.2	0.2
155	0.2	0.2	0.2	0.2	0.2
160	0.2	0.2	0.2	0.2	0.2
165	0.2	0.2	0.2	0.2	0.2
170	0.2	0.2	0.2	0.2	0.2
175	0.2	0.2	0.2	0.2	0.2
180	0.2	0.2	0.2	0.2	0.2

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMKOSA18*-LED930

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700FMKOSA18*-LED930		
0-30	252.3	28.07
0-40	411.3	45.77
0-60	718.4	79.93
0-90	894.4	99.50
60-90	176	10.57
0-180	898.8	100

Beam Angle

Total Beam Angle(°)

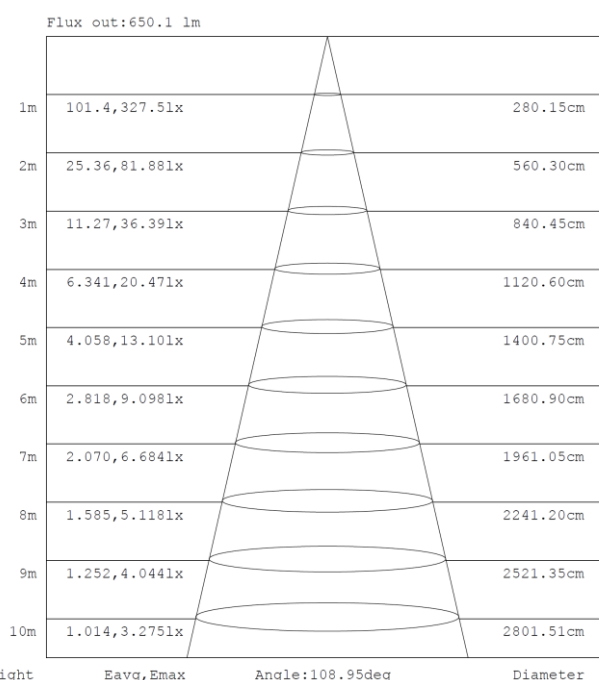
109.2

Illumination Plots

Model No.: 700FMKOSA18*-LED930

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

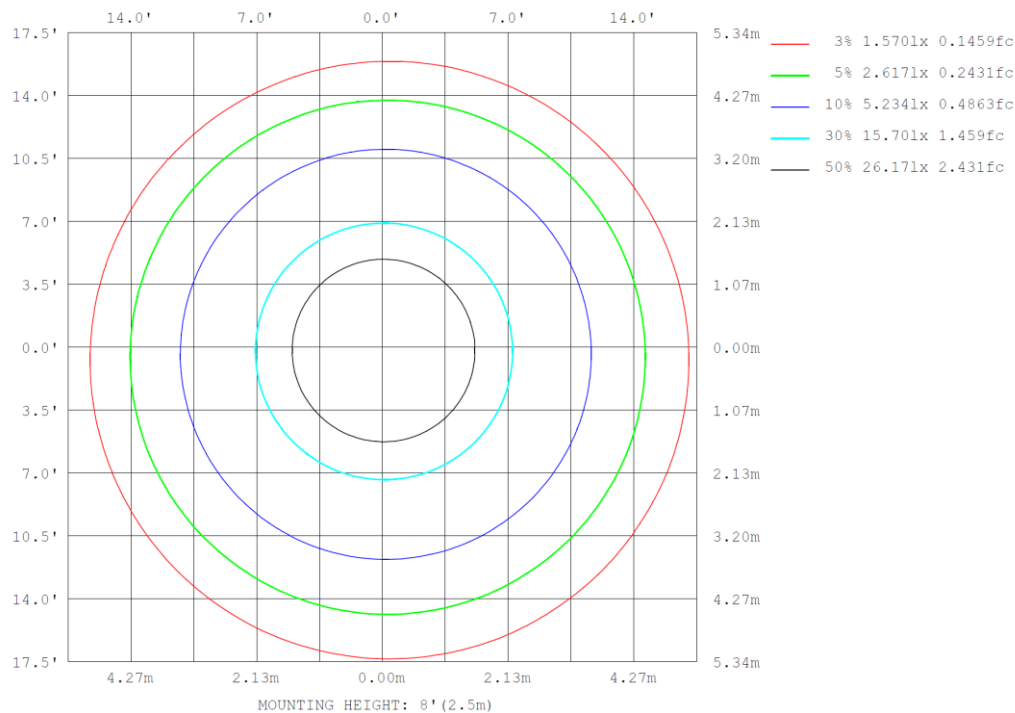
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMKOSA18*-LED930

Model No.: 700FMKOSA18*-LED930

Mount Height: 2.5 m

Isoillumination Plot



TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700FMKOSA18*-LED930

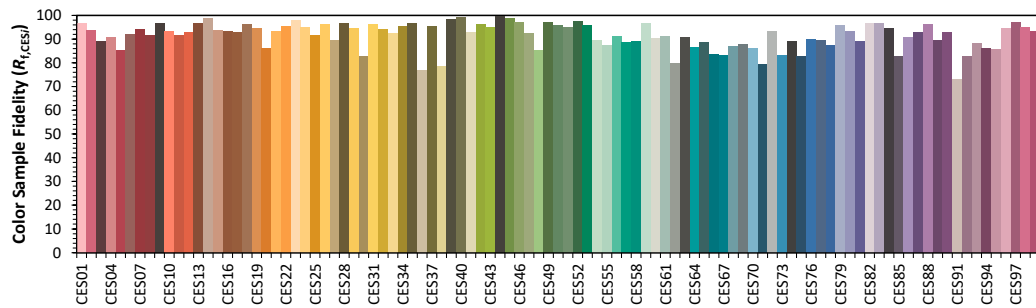
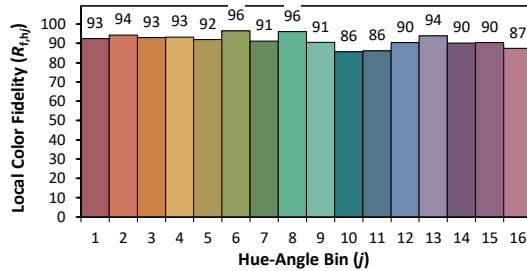
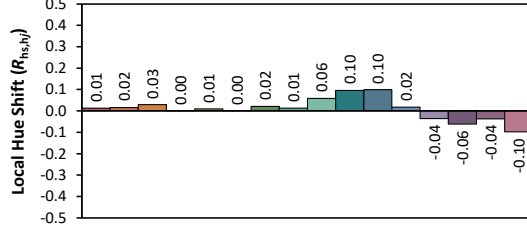
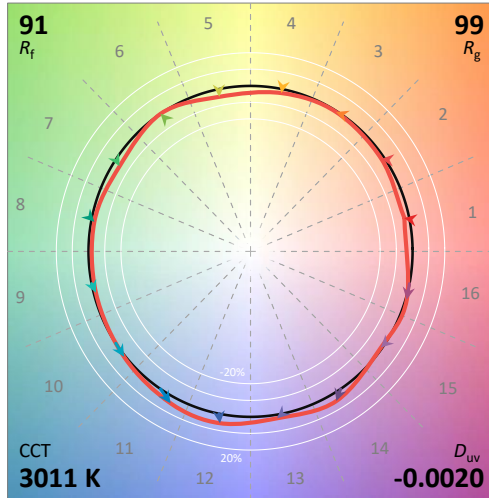
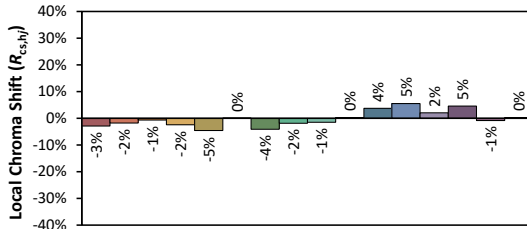
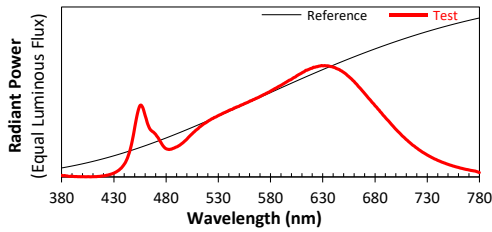
ANSI/IES TM-30-18 Color Rendition Report

Source: Suer SPD

Manufacturer: /

Date: 2021/4/26

Model: 700FMKOSA18*-LED930



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

x 0.4333
 y 0.3979
 u' 0.2509
 v' 0.5184

CIE 13.3-1995
(CRI)
 R_a 96
 R_g 79

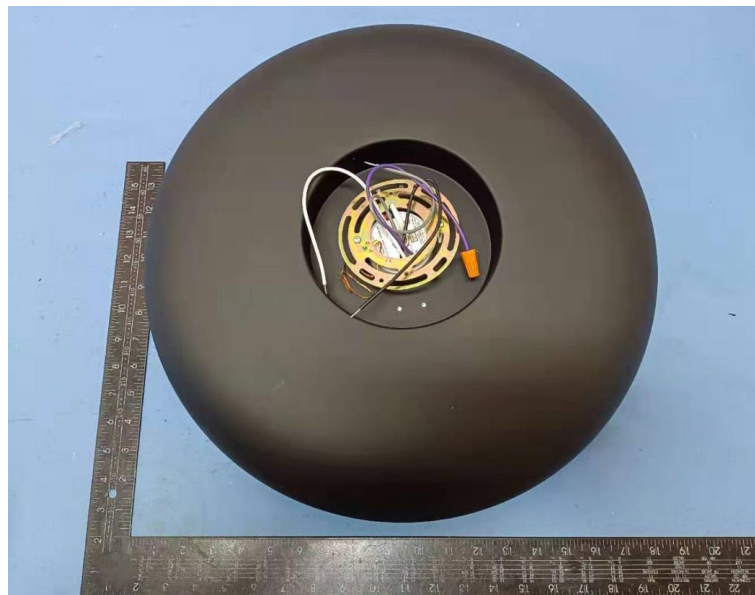
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700FMKOSA18*-LED930

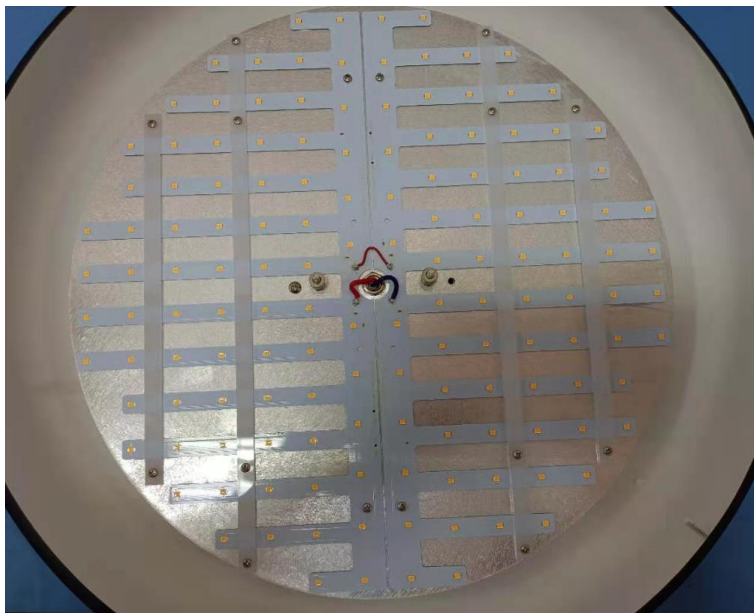


External view of 700FMKOSA18*-LED930

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TEST REPORT

PRODUCT PICTURE (not to scale)



Internal view of 700FMKOSA18*-LED930



View of LED Driver

In Charge Of Tests:

Duffe Zhong

Duffe Zhong
Engineer

Report Reviewed By

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

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