

Visual Comfort and Company

TEST REPORT

SCOPE OF WORK

LM-79 testing report

REPORT NUMBER

220401100GZU-023

ISSUE DATE

09 April 2022

REVISION DATE

None

NUMBER OF PAGES

13

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Report No.: 220401100GZU-023

TEST REPORT

TEST OF ONE LED LUMINAIRE

MODEL NO. 700TDHNE18X-LED930

RENDERED TO

Visual Comfort and Company

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: 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 700TDHNE18X-LED930. The sample was received, in undamaged condition. The sample designation was S220401100-023.

DATES OF TESTS: 09 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:	700TDHNE18X-LED930 (Remark: "XX" denote other appearance colors for the characters that change)
Description:	LED Luminaries
Brand Name:	--

Test Condition: 120V, 60Hz For 700TDHNE18X-LED930

Criteria	Result
Total Lumen Output	4648.1 lm
Total Power	57.0 W
Luminaire Efficacy	81.52 lm/W
S/MH(C0/180)	1.40
S/MH(C90/270)	1.44
Correlated Color Temperature (CCT)	2945 K
Color Rendering Index (CRI)	95
R9	74
Chromaticity Coordinate (x)	0.4382
Chromaticity Coordinate (y)	0.4000
Chromaticity Coordinate (u')	0.2532
Chromaticity Coordinate (v')	0.5200

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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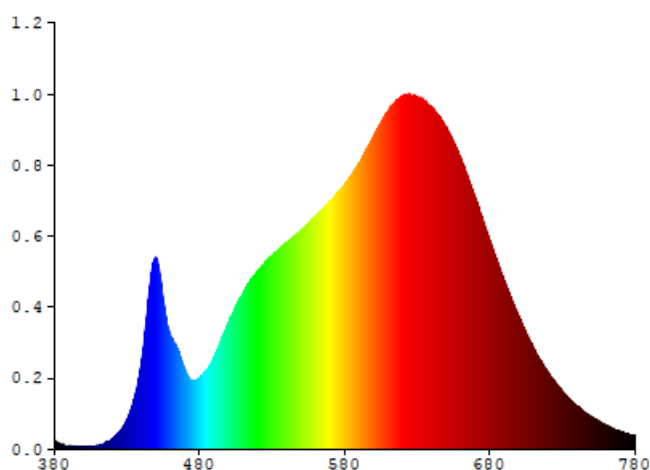
TEST REPORT

RESULTS OF TESTS

Test Condition: 120V, 60Hz For 700TDHNE18X-LED930

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
380	0.1428	480	1.4966	580	5.5932	680	4.4171	780	0.2840
385	0.1033	485	1.6706	585	5.8037	685	3.9868		
390	0.0522	490	1.9508	590	6.0538	690	3.5643		
395	0.0508	495	2.3072	595	6.3464	695	3.1742		
400	0.0403	500	2.6839	600	6.6387	700	2.8049		
405	0.0500	505	3.0233	605	6.9092	705	2.4604		
410	0.0718	510	3.3000	610	7.1543	710	2.1435		
415	0.1279	515	3.5588	615	7.3561	715	1.8679		
420	0.2168	520	3.7683	620	7.4741	720	1.6268		
425	0.3617	525	3.9473	625	7.4906	725	1.4163		
430	0.6213	530	4.0951	630	7.4445	730	1.2268		
435	1.0554	535	4.2329	635	7.3675	735	1.0526		
440	1.8596	540	4.3566	640	7.2227	740	0.9096		
445	3.2467	545	4.5010	645	7.0555	745	0.7855		
450	4.0353	550	4.6351	650	6.8145	750	0.6802		
455	3.1364	555	4.7771	655	6.5125	755	0.5786		
460	2.3849	560	4.9334	660	6.1648	760	0.5024		
465	2.0941	565	5.0837	665	5.7658	765	0.4307		
470	1.6670	570	5.2447	670	5.3167	770	0.3691		
475	1.4360	575	5.4191	675	4.7756	775	0.3189		



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDHNE18X-LED930

Total operation burning time: 60 minutes

Stabilization time: 45 minutes

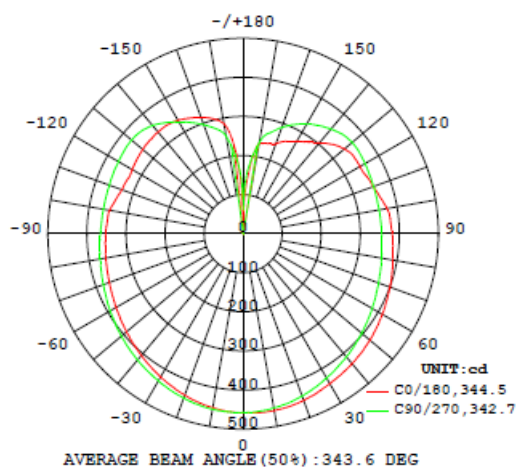
Photometric Measurements at 25°C – Integrating Sphere Method

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')
700TDHNE18X-LED930								
S2204011 00-023	--	2945	95	74	0.4382	0.4000	0.2532	0.5200

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)
700TDHNE18X-LED930							
S2204011 00-023	--	120.0	476.6	57.0	0.997	4648.1	81.52

Intensity (Candlepower) Summary at 25°C – Candelas



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDHNE18X-LED930

Intensity (Candlepower) Summary at 25°C - Candelas

V \ H(°)	0	22.5	45	67.5	90
0	458.3	458.2	457.5	457.6	457.1
5	459.6	459.0	457.9	456.9	455.8
10	458.9	457.9	456.3	454.6	452.6
15	457.0	455.4	452.8	450.4	447.7
20	453.3	451.8	448.6	445.1	441.7
25	448.6	446.6	443.0	438.5	434.0
30	442.9	441.0	436.8	431.5	426.3
35	438.2	435.0	430.3	424.5	418.5
40	433.2	429.1	423.4	417.3	411.0
45	428.8	423.2	416.7	409.8	403.6
50	423.1	416.2	409.0	402.1	395.8
55	417.3	409.6	401.8	395.3	388.4
60	411.4	403.3	395.1	388.7	381.3
65	405.3	396.9	389.3	382.3	374.3
70	399.7	391.0	384.2	376.8	368.7
75	394.3	385.5	379.4	371.8	363.8
80	389.3	381.4	375.3	367.6	359.8
85	385.1	378.3	372.0	364.4	356.7
90	381.2	375.6	369.5	362.0	354.6
95	378.5	373.9	367.8	360.5	353.6
100	373.8	372.8	366.9	360.2	353.2
105	363.1	372.4	366.9	360.2	353.7
110	354.3	371.4	367.7	361.3	355.2
115	348.6	359.2	368.9	363.0	357.2
120	345.0	351.7	370.3	365.8	360.2
125	345.4	347.0	365.7	368.7	363.3
130	338.1	340.4	357.5	366.3	364.0
135	323.4	328.8	345.9	358.7	359.4
140	303.8	312.9	331.1	346.9	349.6
145	286.6	294.3	313.5	331.6	338.0
150	273.5	273.8	292.0	312.9	324.3
155	261.4	257.1	271.5	294.0	308.5
160	245.2	243.0	251.4	272.3	289.4
165	239.4	236.5	236.5	251.3	268.1
170	233.1	228.3	223.4	224.4	235.9
175	155.4	149.9	146.9	161.5	174.8
180	23.8	39.8	36.7	54.4	62.1

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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDHNE18X-LED930

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
700TDHNE18X-LED930		
0-30	373.7	8.0
0-40	640.1	13.8
0-60	1313.3	28.3
0-90	2487.3	53.5
60-90	1174.0	25.2
0-180	4648.1	100

Beam Angle

Total Beam Angle (°)

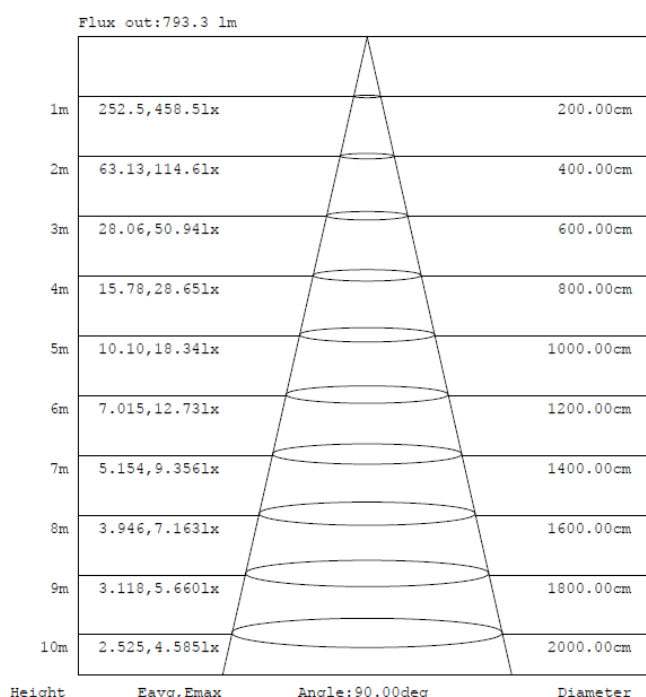
343.6

Illumination Plots

Model No.: 700TDHNE18X-LED930

Mount Height: 2.5 m

Illuminance - Cone of Light



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TEST REPORT

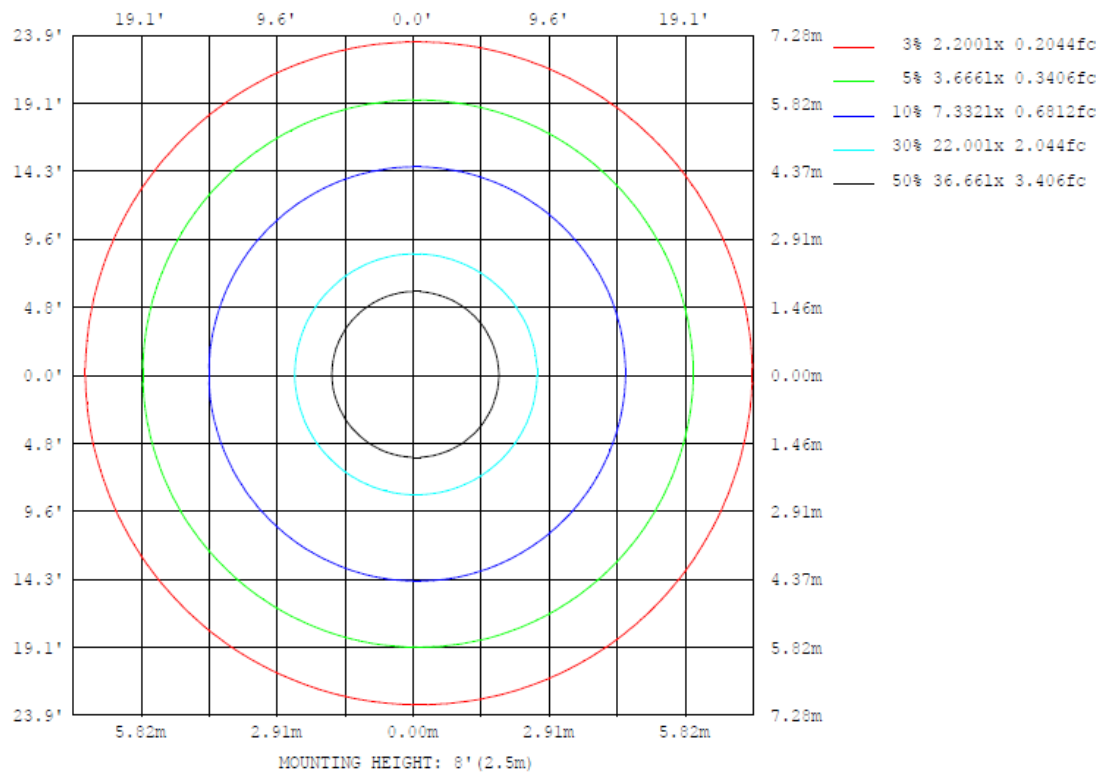
RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDHNE18X-LED930

Model No.: 700TDHNE18X-LED930

Mount Height: 2.5 m

Isoillumination Plot



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TEST REPORT

RESULTS OF TESTS (cont'd)

Test Condition: 120V, 60Hz For 700TDHNE18X-LED930

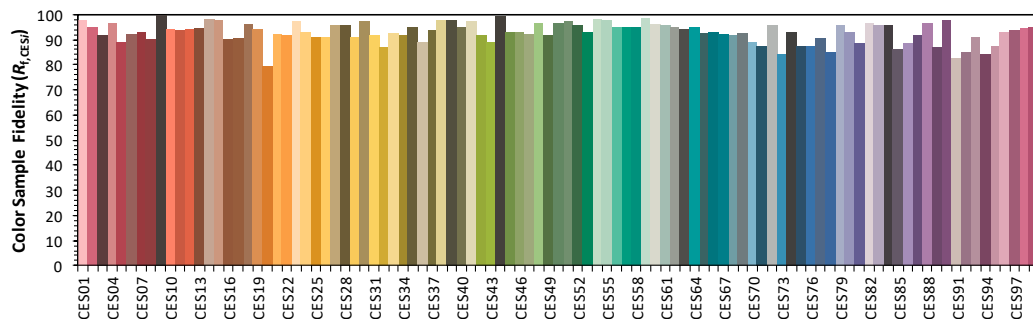
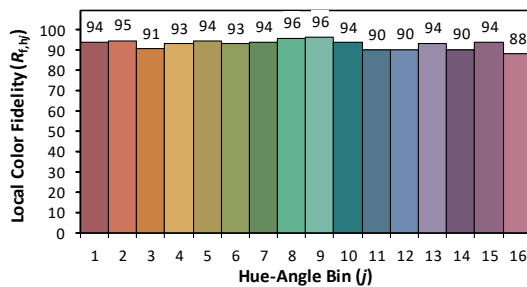
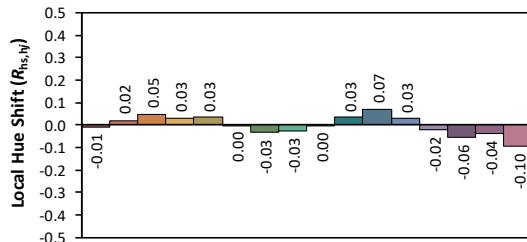
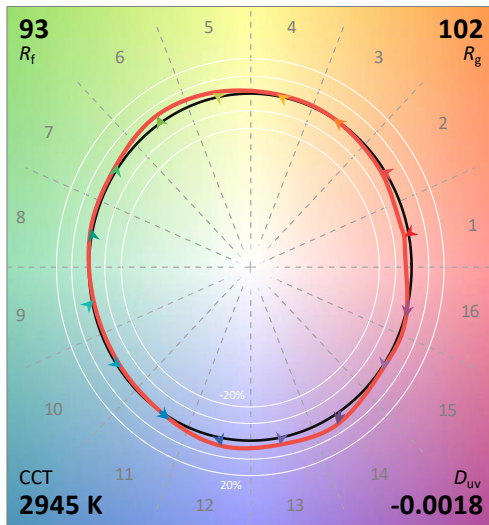
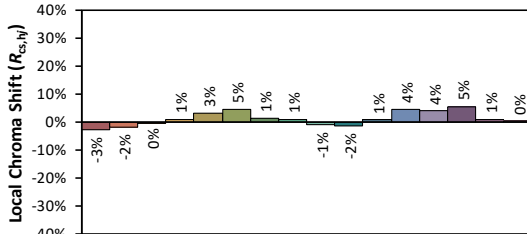
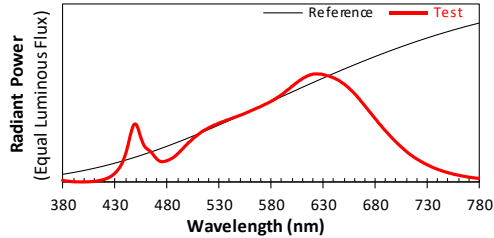
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Visual Comfort and Company

Date: 2022/4/9

Model: 700TDHNE18X-LED930



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

x 0.4382
 y 0.4000
 u' 0.2532
 v' 0.5200

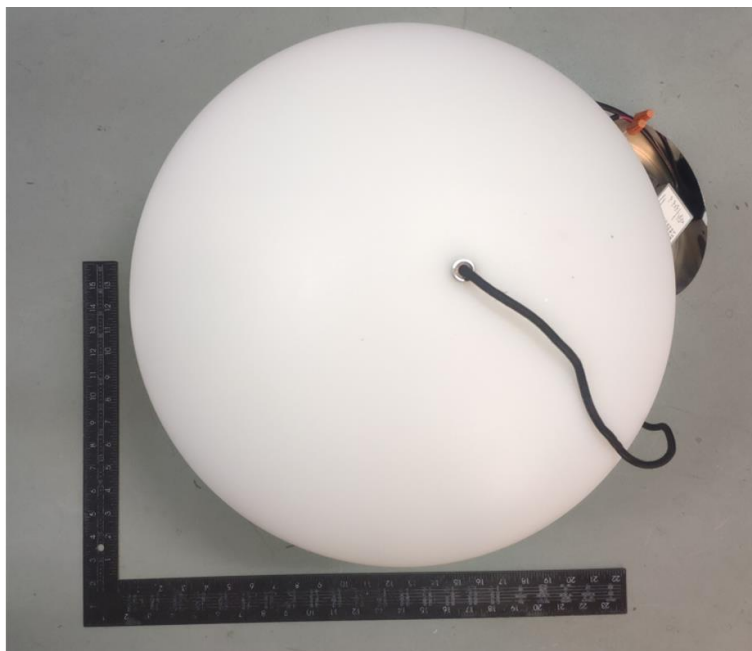
CIE 13.3-1995
(CRI)
 R_a 95
 R_g 74

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

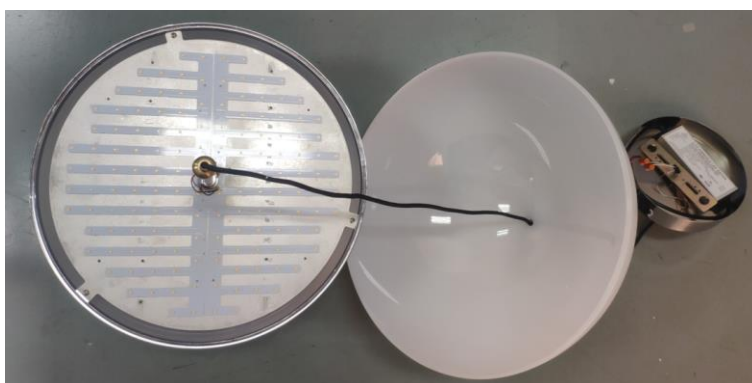
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TEST REPORT

PRODUCT PICTURE (not to scale)



External view of 700TDHNE18X-LED930



External view of 700TDHNE18X-LED930

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

TEST REPORT

PRODUCT PICTURE (not to scale)



View of LED Driver DA50W1400C2036-3001



View of LED

In Charge Of Tests:

Report Reviewed By

Done Ye

Done Ye
Engineer

Shelley Ying

Shelley Ying
Reviewer

Attachment: None

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