TEST REPORT OF IES LM-79-08

Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

Client.....	:	ROYALUX EXPORTS
Address.....	:	SDF BLOCK M-13, M-14, M-15 & M-16,NOIDA SPECIAL ECONOMIC ZONE,NOIDA DADRI ROAD, PHASE-II,NOIDA, DSTT. GAUTAM BUDH NAGAR, UP-201305
Test Model.....	:	202Y0240W30L70DY,202Y0240W57L70DY
Product Description	:	High Bay Luminaires for Commercial and Industrial Buildings
Brand Name.....	:	Rlux ikio
Testing Laboratory....	:	Guangdong Meide Testing Technology Co., Ltd.
Address.....	:	1st floor, B Area, Jinbaisheng Industrial Park, Headquarters 2 Road,SongshanLake Hi-tech Industrial Development Zone,Dongguan City,Guangdong Pr., China.
Report No.....	:	CA1905127L 01009
Test Date.....	:	2019-06-10 to 2019-06-14
Report Date.....	:	2019-06-17

Compiled by:

Luke Lei

Luke Lei/ Project Engineer

Approved by:

Jessie

Jessie Li/ Technical Manager

Guangdong Meide Testing Technology Co., Ltd. Meide * CERTIFICATE *

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1.Product Information

Model Number.....:	202Y0240W30L70DY,202Y0240W57L70DY
Manufacturer.....:	ROYALUX EXPORTS
Product Type.....:	High Bay Luminaires for Commercial and Industrial Buildings
Rated Voltage/Frequency.....:	100-277V AC 50/60Hz
Rated Power.....:	240W
Declared CCT.....:	3000K,5700K
LED Manufacturer.....:	CREE Venture LED Company Limited
LED Model No.....:	JK3030AWT-00-0000-000B0HH422E

2.Standards Used

- IES LM-79-08:Approved Method:Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI C82.77-2002: Harmonic Emission Limits – Related Power Quality Requirements for Lighting Equipment

3.Test equipment list

Test Equipment	Serial No	Model No	Range Used	Calibration date	Calibration due date
Full-field Speed Goniophotometer	MD-E028	GO-R5000	1600mm,3000W/10A	2018/10/19	2019/10/18
Digital Power Meter	MD-E001	PF2010	0-600V,0-20A,0-4KW	2018/10/08	2019/10/07
AC Testing Power Source	MD-E002	DPS1060	0-300Vac,0-20A.0-5 KW	2018/10/08	2019/10/07
Total Spectral Radiant Flux Standard Lamp	MD-E007	D908S	7.295A,2856K,11227 lm,94.35V	2018/10/19	2019/10/18
Integrating Sphere System	MD-E029	2M	--	2018/10/10	2019/10/09
High Accuracy Array Spectroradio Meter	MD-E011	HAAS-3000	380-780nm	2018/10/10	2019/10/09
Digital Power Meter	MD-E008	PF310	0-600Vac,0-20A	2018/10/08	2019/10/07
AC Testing Power Source	MD-E010	DPS1010	0-300Vac,0-10A,0-10 00W	2018/10/08	2019/10/07
Standard Lamp	MD-E012	D204	3.9424A,20.75V,285 6K,1332.3lm	2019/02/21	2020/02/20

Statement of Traceability: Guangdong Meide Testing Technology Co., Ltd.attested that all calibration has been performed using suitable standards traceable to national primary standards and International System of Unit(SI).

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4.Test Method

Requirements of Ambient Condition

Product was tested with no seasoning. All stabilization and measurements were made in compliance with IES LM-79-08. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at 25°C±1°C during measurement.

Goniophotometer System

The sample was tested according to the IES LM-79-2008.

Photometric paramters were measured using a type C goniophotometer and software. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1° vertical intervals and 22.5°horizontal intervals.

Integrating Sphere System

The sample was tested according to the IES LM-79-2008.

The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

THD and PF Test

The sample was tested according to the ANSI C82.77-2002.

The sample was operated at rated voltage and was stabilized before measurement.The total harmonic distortion were calculated from the digital power meter.

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5.Integrating Sphere Test Results

5.1 Test Data

Test Ambient Temperature	25.1℃	Test orientation	Downward
Operate time(Min.)	90	stabilization time(Min.)	60

Photometric and Electrical Measurement Result

Model Number	Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
202Y0240W30L70DY	120.0	60	1.968	234.9	0.9945
202Y0240W57L70DY	120.0	60	1.975	235.9	0.9956

Model Number	Luminous Flux(lm)	Efficacy (lm/W)	CCT (K)	Ra	R9
202Y0240W30L70DY	33551	142.83	2991	72.4	0
202Y0240W57L70DY	34725	147.2	5462	73.8	0

Model Number	duv	x	y	u'	v'
202Y0240W30L70DY	0.000878	0.4389	0.4070	0.2506	0.5228
202Y0240W57L70DY	0.00308	0.3334	0.3478	0.2050	0.4810

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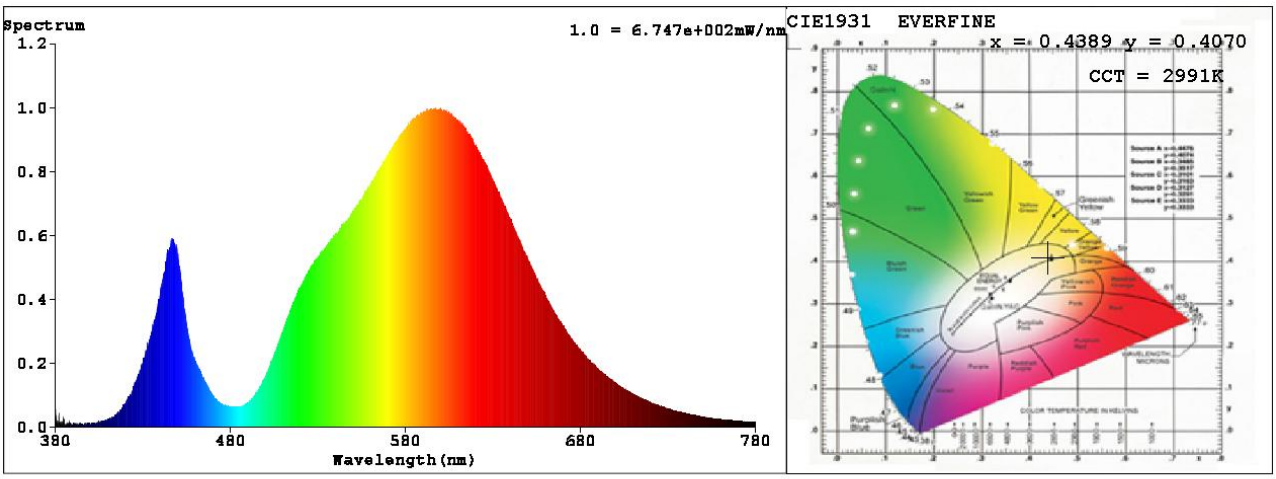
5.2 Spectrum

202Y0240W30L70DY



Colorimetric Parameters

Chromaticity Coordinate: x = 0.4389 y = 0.4070 / u' = 0.2506 v' = 0.5228 (duv=8.78e-04)

CCT= 2991K Prcp WL: Ld=582.6nm Purity=53.9%

Peak WL: Lp=597nm FWHM: =126.2nm Ratio:R=21.5% G=77.1% B=1.3%

Render Index: Ra = 72.4 TM30:Rf=70 Rg=96

R1 =70	R2 =80	R3 =89	R4 =71	R5 =68	R6 =72	R7 =80	
R8 =50	R9 =0	R10=54	R11=66	R12=45	R13=71	R14=93	R15=63

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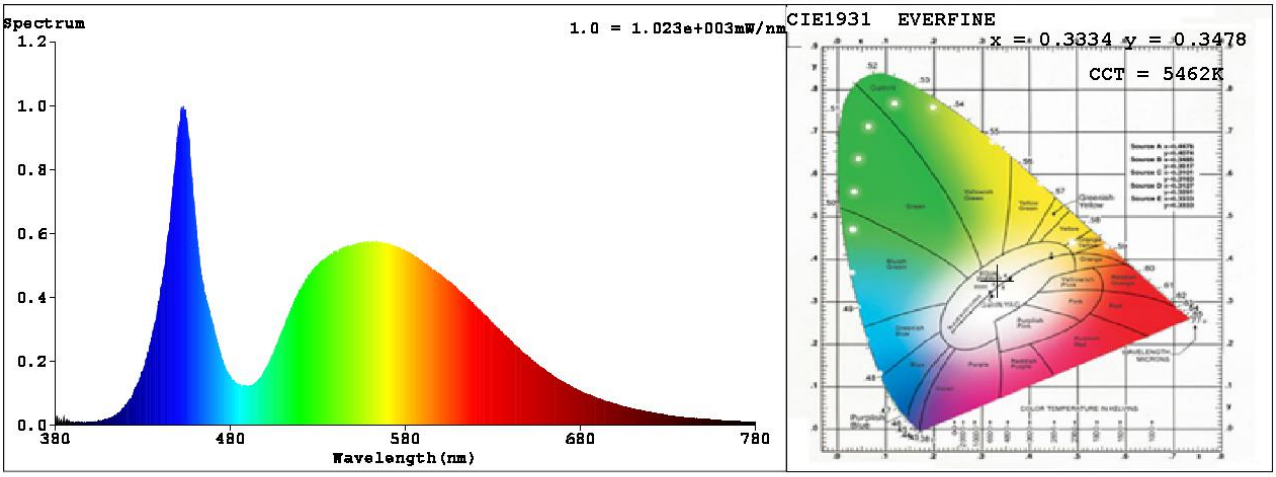
202Y0240W57L70DY



Colorimetric Parameters

Chromaticity Coordinate: x = 0.3334 y = 0.3478 / u' = 0.2050 v' = 0.4810 (duv=3.08e-03)

CCT= 5462K Prcp WL: Ld=554.7nm Purity=4.4%

Peak WL: Lp=453nm FWHM: =20.5nm Ratio:R=13.7% G=82.6% B=3.6%

Render Index: Ra = 73.8 TM30:Rf=73 Rg=93

R1 =71	R2 =79	R3 =82	R4 =73	R5 =71	R6 =69	R7 =84	
R8 =61	R9 =0	R10=47	R11=68	R12=41	R13=72	R14=89	R15=68

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6. Goniophotometer Test results

6.1 Test Data

Test Ambient Temperature	25.1℃	Test orientation	Downward
Operate time(Min.)	120	stabilization time(Min.)	90

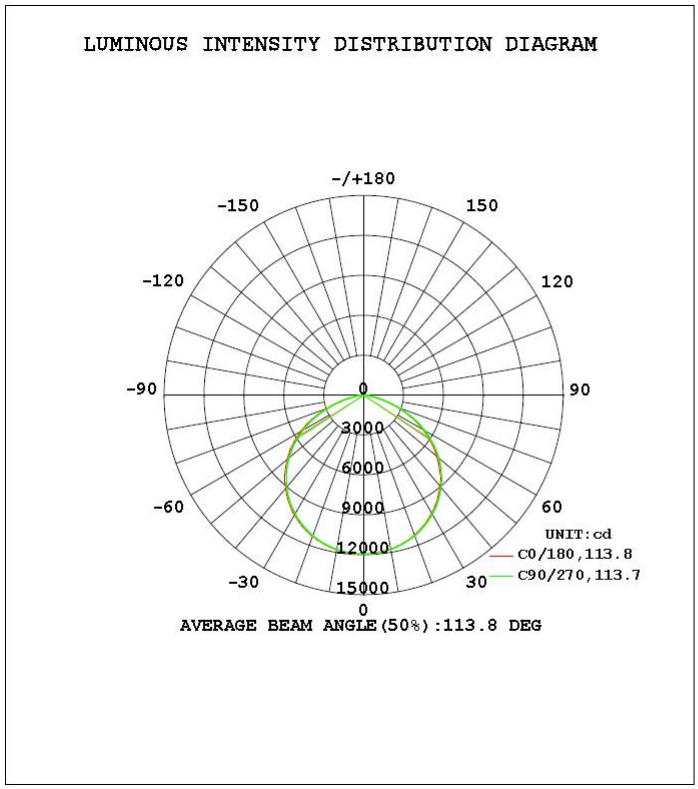
Electrical Measurement

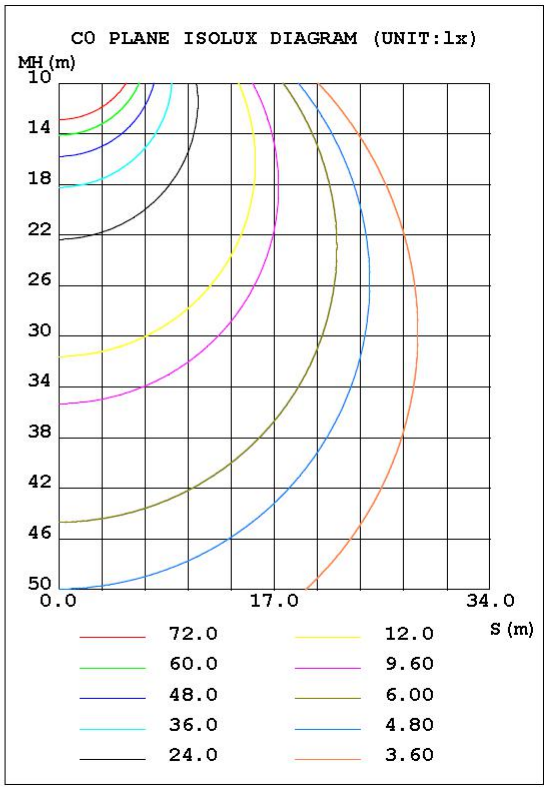
Model Number	Input Voltage (V)	Frequency (Hz)	Input Current(A)	Power Factor	Power(W)
202Y0240W30L70DY	120.0	60	1.969	0.9951	235.1

Photometric Measurement

Model Number	Luminous Flux (lm)	Efficacy (lm/W)	ZL (20-50°)	Spacing Criteria (C0/180°)	Spacing Criteria (C90/270°)
202Y0240W30L70DY	33599.5	142.92	51.8%	1.29	1.28

6.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)





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6.3 Zonal Flux Diagram

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	1174	1175	1177	1178	1179	1178	1176	1175	0- 10	1131	1131	3.37,3.37
20	1119	1120	1124	1127	1129	1127	1123	1120	10- 20	3261	4392	13.1,13.1
30	1025	1028	1033	1038	1040	1037	1032	1027	20- 30	4991	9383	27.9,27.9
40	892.8	897.0	904.6	910.6	913.7	910.5	902.3	896.1	30- 40	6084	15467	46,46
50	720.6	725.9	737.7	744.8	749.3	744.7	734.2	726.7	40- 50	6354	21821	64.9,64.9
60	514.0	520.0	530.1	538.1	544.4	538.9	526.9	518.1	50- 60	5680	27501	81.8,81.8
70	270.1	275.4	283.3	292.3	296.8	290.9	281.6	274.3	60- 70	4040	31541	93.9,93.9
80	61.08	64.21	69.01	73.56	78.25	75.21	69.37	65.24	70- 80	1793	33334	99.2,99.2
90	0.1368	0.1441	0.6525	0.8233	0.3175	0.2803	0.2423	0.2447	80- 90	231.6	33566	99.9,99.9
100	0.2090	0.2065	0.2009	0.1981	0.3787	0.3852	0.3902	0.3964	90-100	2.727	33568	99.9,99.9
110	0.3045	0.2987	0.2921	0.2864	0.4488	0.4503	0.4410	0.4561	100-110	3.590	33572	99.9,99.9
120	0.4249	0.4113	0.4548	0.4143	0.4350	0.4399	0.4647	0.4424	110-120	3.974	33576	99.9,99.9
130	0.5682	0.5832	0.6381	0.5790	0.5618	0.5564	0.5982	0.5708	120-130	4.501	33580	99.9,99.9
140	0.7032	0.7300	0.7515	0.7152	0.8399	0.8368	0.8431	0.8782	130-140	5.334	33586	100,100
150	0.7153	0.7343	0.7396	0.7396	1.073	1.085	1.069	1.101	140-150	5.392	33591	100,100
160	0.7667	0.8635	0.8541	0.8510	1.155	1.195	1.220	1.238	150-160	4.500	33596	100,100
170	0.8765	0.9206	0.9445	0.9629	1.126	1.101	1.159	1.197	160-170	2.906	33599	100,100
180	1.014	1.011	1.062	1.088	1.025	0.9826	1.035	1.081	170-180	0.9923	33599	100,100
DEG	LUMINOUS INTENSITY:*10cd									UNIT:lm		

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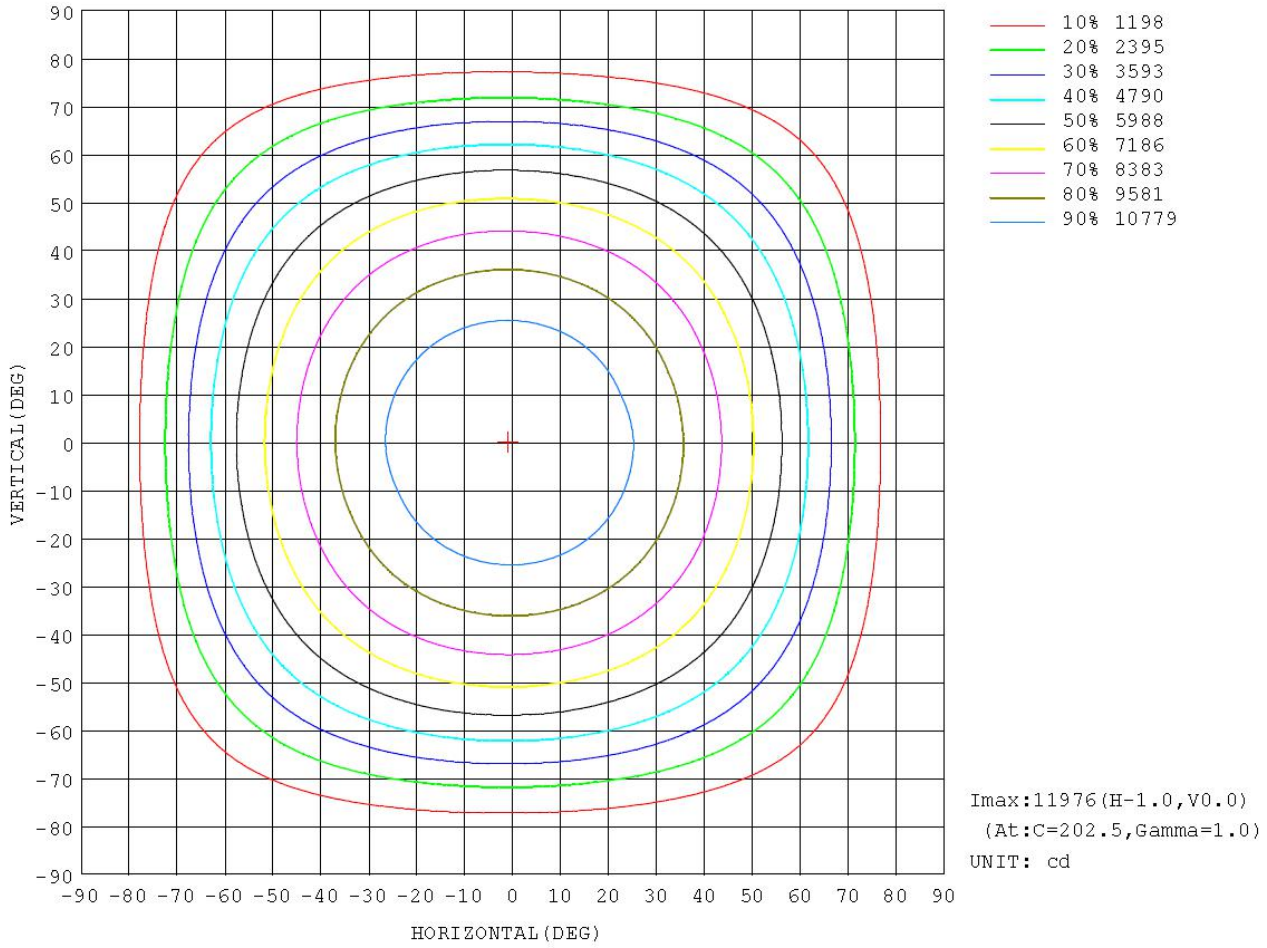
6.4 Isocandela Diagram



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6.5 Luminous Distribution Intensity Data

Table--1 UNIT: ×10cd

C(DEG) / γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	1194	1194	1194	1194	1194	1194	1194	1194	1194	1194	1194	1194	1194	1194	1194	1194
5	1188	1188	1189	1189	1189	1190	1190	1191	1191	1191	1190	1190	1189	1189	1188	1188
10	1174	1174	1175	1176	1177	1177	1178	1179	1179	1179	1178	1177	1176	1176	1175	1174
15	1151	1152	1153	1153	1155	1156	1157	1158	1159	1158	1157	1156	1154	1153	1152	1151
20	1119	1119	1120	1122	1124	1125	1127	1128	1129	1128	1127	1125	1123	1121	1120	1119
25	1077	1078	1079	1081	1083	1085	1087	1089	1089	1088	1087	1085	1082	1080	1078	1077
30	1025	1026	1028	1031	1033	1035	1038	1039	1040	1039	1037	1035	1032	1029	1027	1025
35	964	965	967	971	974	977	979	981	982	981	979	975	972	968	966	964
40	893	894	897	901	905	908	911	913	914	913	910	907	902	899	896	894
45	812	813	817	821	826	830	833	835	837	835	833	828	823	819	816	814
50	721	723	726	731	738	742	745	747	749	748	745	740	734	730	727	724
55	621	623	627	632	638	643	647	650	652	651	647	641	635	630	627	624
60	514	516	520	524	530	535	538	541	544	544	539	533	527	522	518	516
65	395	396	403	406	413	418	422	424	428	426	422	415	410	406	402	400
70	270	272	275	279	283	287	292	293	297	294	291	287	282	277	274	272
75	154	156	159	163	167	171	174	176	180	178	176	171	166	163	160	159
80	61.1	62.1	64.2	66.7	69.0	71.5	73.6	74.3	78.2	77.0	75.2	72.5	69.4	66.7	65.2	64.4
85	11.6	11.8	10.7	11.7	12.8	13.8	14.6	15.0	16.6	16.0	15.2	14.3	13.3	12.6	11.9	11.6
90	0.14	0.13	0.14	0.56	0.65	0.77	0.82	0.84	0.32	0.30	0.28	0.25	0.24	0.24	0.24	0.24
95	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.31	0.31	0.31	0.32	0.32	0.32	0.33	0.33
100	0.21	0.21	0.21	0.20	0.20	0.20	0.20	0.20	0.38	0.38	0.39	0.39	0.39	0.39	0.40	0.40
105	0.25	0.25	0.25	0.24	0.24	0.24	0.24	0.24	0.43	0.44	0.44	0.44	0.44	0.44	0.45	0.45
110	0.30	0.31	0.30	0.29	0.29	0.29	0.29	0.29	0.45	0.45	0.45	0.44	0.44	0.44	0.46	0.47
115	0.36	0.36	0.35	0.35	0.36	0.35	0.34	0.35	0.44	0.45	0.44	0.44	0.44	0.44	0.44	0.46
120	0.42	0.43	0.41	0.43	0.45	0.43	0.41	0.41	0.43	0.44	0.44	0.45	0.46	0.45	0.44	0.45
125	0.49	0.50	0.50	0.53	0.55	0.52	0.50	0.50	0.47	0.48	0.48	0.50	0.51	0.50	0.49	0.48
130	0.57	0.58	0.58	0.63	0.64	0.62	0.58	0.60	0.56	0.57	0.56	0.59	0.60	0.59	0.57	0.57
135	0.66	0.66	0.67	0.71	0.72	0.70	0.65	0.67	0.71	0.69	0.69	0.71	0.72	0.72	0.72	0.71
140	0.70	0.71	0.73	0.74	0.75	0.74	0.72	0.70	0.84	0.82	0.84	0.83	0.84	0.85	0.88	0.87
145	0.76	0.77	0.75	0.74	0.76	0.76	0.74	0.75	0.99	0.97	0.98	0.95	0.96	0.98	1.00	1.02
150	0.72	0.73	0.73	0.74	0.74	0.78	0.74	0.73	1.07	1.09	1.08	1.09	1.07	1.09	1.10	1.11
155	0.74	0.77	0.79	0.80	0.79	0.83	0.78	0.77	1.15	1.17	1.17	1.22	1.16	1.14	1.20	1.18
160	0.77	0.83	0.86	0.84	0.85	0.87	0.85	0.82	1.15	1.17	1.20	1.24	1.22	1.21	1.24	1.22
165	0.81	0.88	0.90	0.87	0.88	0.92	0.91	0.85	1.14	1.13	1.14	1.18	1.19	1.18	1.18	1.21
170	0.88	0.89	0.92	0.92	0.94	0.97	0.96	0.89	1.13	1.12	1.10	1.12	1.16	1.18	1.20	1.20
175	0.93	0.96	0.99	1.02	1.05	1.06	1.05	0.99	1.05	1.05	1.07	1.12	1.14	1.16	1.17	1.16
180	1.01	0.98	1.01	1.03	1.06	1.08	1.09	1.04	1.02	1.02	0.98	1.02	1.04	1.06	1.08	1.08

7.THD and PF Test

Test type	Voltage (V AC)	Frequency (Hz)	Current(A)	Power Factor	Power(W)	Current THD
Results	277.0	60	0.8767	0.9273	225.18	11.36%

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8. Photo of sample

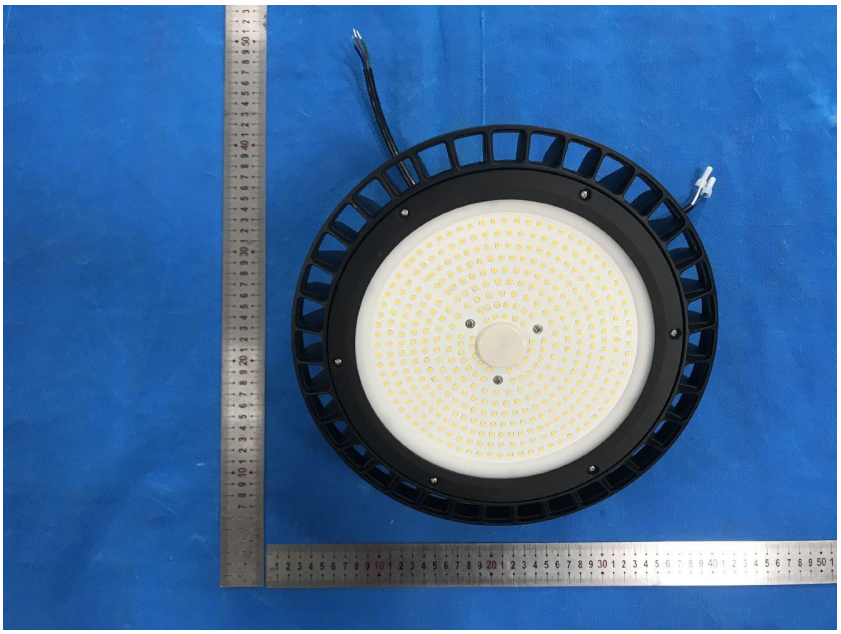

Figure 1

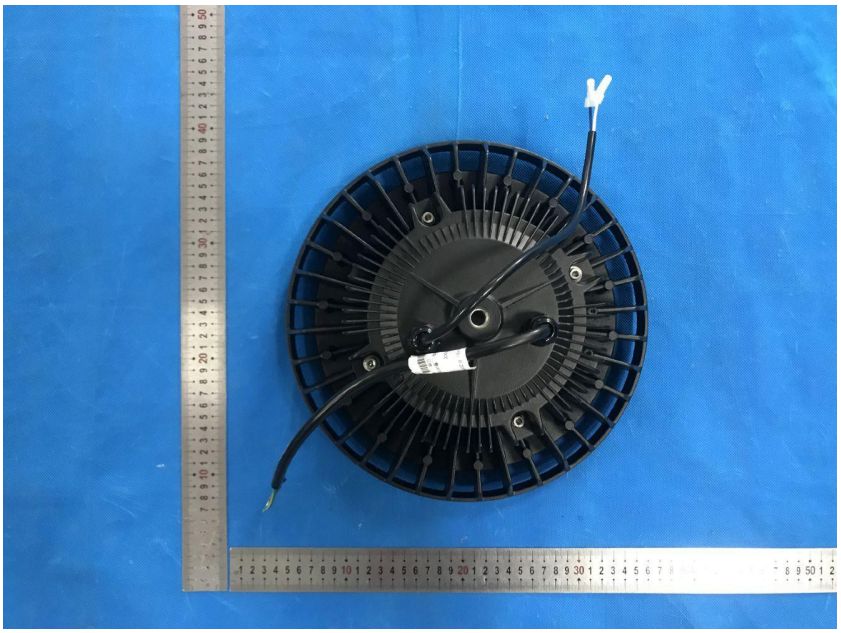

Figure 2

****** END OF THE TEST REPORT******

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