

IES LM-79-19

MEASUREMENT AND TEST REPORT

For

Shenzhen Ulledlighting Photoelectricity Co., ltd.

A1702, Yonghuayuan Business Building, No. 6 Baotian 2nd Road, Baoan District, Shenzhen, China

#Test Model: UL-H150W-HS

Report Type:	Electrical and Photometric tests including: Luminous Flux, Power Factor, Chromaticity, Luminous Intensity Distribution
Test Engineer:	Hexy He <i>Hexy He</i>
Report Number:	R2DG200115803-10-M1
Test Date:	2020-03-18 to 2020-04-01
Report Date:	2020-09-17
Reviewed By:	Bill Xiong / EE Engineer
Revised Note:	The previous report R2DG200115803-10 is replaced by this report on 2020-09-17
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588
Accreditation:	The IAS Accreditation Number TL-460.

1. Product Description

General Information:

One test sample was in good condition and received on 2020-01-15, and used for testing.

#Model Tested: UL-H150W-HS
#Manufacturer: Shenzhen Ulledlighting Photoelectricity Co., Ltd.
#Brand Name: ULLEDLIGHTING
#Product Designation: LED High Bay Light
Burning Time Before Test: 0hour(For New Products)
#Driver Brand: ULLEDLIGHTING
#Driver Model: GD152D122-VF21

#Rated Values:

Rated Voltage/Frequency: AC 100V-240V 50/60HZ
Rated Power: 150W
Nominal CCT: 5000K
Nominal Lumen Output: 28500lm

2. Standards Used

- ANSI/IES LM-79-19: Approved method :Optical and Electrical Measurements of Solid-State Lighting Products
- ANSI C82.77-10-2014: Harmonic Emission Limits – Related Power Quality Requirements for Lighting
- IES TM-30-18: IES Method for Evaluating Light Source Color Rendition (This method is not in IAS accreditation scope)

3. Description of Test Equipment

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
1.5m temperature integrating sphere	SENSING	SPR-600	S09008	2019-10-24	2020-10-23
High-precision rapid spectral analysis system	EVERFINE	HAAS-2000	M112048CA1361125	2019-10-24	2020-10-23
Digital power meter	YOKOGAWA	WT310	13398	2019-07-12	2020-07-11
Programmable Precision DC Power Supply	ITECH	IT6154	0061 0417 6471 0010 19	2020-03-08	2021-03-07
thermometer	SENSING	NA	NA	2020-03-13	2021-03-12
Standard Light Source	EVERFINE	D204	N/A	2019-07-19	2020-07-18
Precision frequency power supply	ALL Power	APW-105N	970613	2020-03-10	2021-03-09
AC POWER SUPPLY	EVERFINE	VPS1030 PWM	1012017	2020-03-13	2021-03-12
Digital CC&CV DC Power Supply	EVERFINE	WY12010	1009009	2020-03-13	2021-03-12
Digital power meter	YOKOGAWA	WT-210	91j926132	2020-03-13	2021-03-12

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
full-field speed goniophotometer	EVERFINE	GO-R5000	YG108492N10120001	2020-03-13	2021-03-12
Wireless Remote Sensor	N/A	433MHz	N/A	2020-03-13	2021-03-12
Standard Light Source	EVERFINE	D908	1012003	2019-11-27	2020-11-26

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

4. Test Method

Product was tested with no seasoning. All stabilization and measurements were made in compliance with ANSI/IES LM-79-19. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at $25^{\circ}\text{C} \pm 1.2^{\circ}\text{C}$ during measurement. And relative humidity is maintained between 10% and 65%. The air flow around the SSL product is less than 0.2m/s.

Integrating Sphere System

The system includes AC power source, digital power meter, DC power supply, Spectroradiometer, and integrating sphere. The integrating sphere system is calibrated by standard spectrum light source before measurement.

4π geometry was used during measurement. The product was operated in its intended orientation in application and was recorded in this report.

The uncertainty of the light output (luminous flux) measurements is $U=2.1\%$ ($K=2$), at the 95% confidence level. The uncertainty of the correlated color temperature measurements is $U=22\text{K}$ ($K=2$), at the 95% confidence level. The uncertainty of the CRI is $U=2.1(K=2)$, at the 95% confidence level.

The uncertainty of power meter AC current $U=0.39\%$ of rdg, AC Voltage $U=0.25\%$ of rdg, Power $U=0.42\%$ ($K=2$), at the 95% confidence level.

Goniophotometer System

The goniophotometer system is calibrated by standard light source before measurement.

Type C goniophotometer was used for measuring total luminous flux, luminous intensity distribution, and color spatial uniformity. The product was operated in its intended orientation in application and was recorded in this report. For luminous intensity distribution, The vertical angle (γ) test intervals were set no more than 2.5 degree, The horizontal angle (C plane) test intervals were set no more than 22.5 degree. For color spatial uniformity, The vertical angle (γ) test intervals were set no more than 90 degree, The horizontal angle (C plane) test intervals were set no more than 10 degree.

The uncertainty of the luminous intensity is $U=2.00\%$ ($K=2$), at the 95% confidence level.

Fidelity Index and Gamut Index Calculation

The R_f , R_g was calculated according to IES TM-30-18 by using calculation tools. The calculation was based on the measured SPD from 380nm to 780nm with 1nm intervals. All the colors in this report is for reference only.

5. Test Result

[Integrating Sphere System]

Total operating time for integrating sphere test: **1.0 hour**

Test orientation: **Downward**

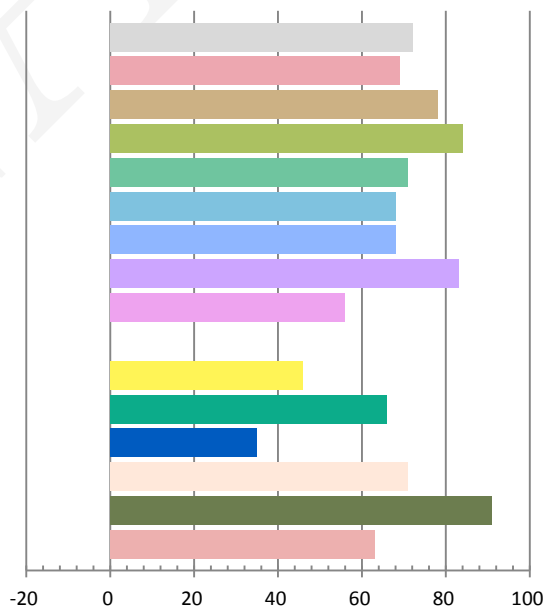
Photometric and Electrical Measurement Result

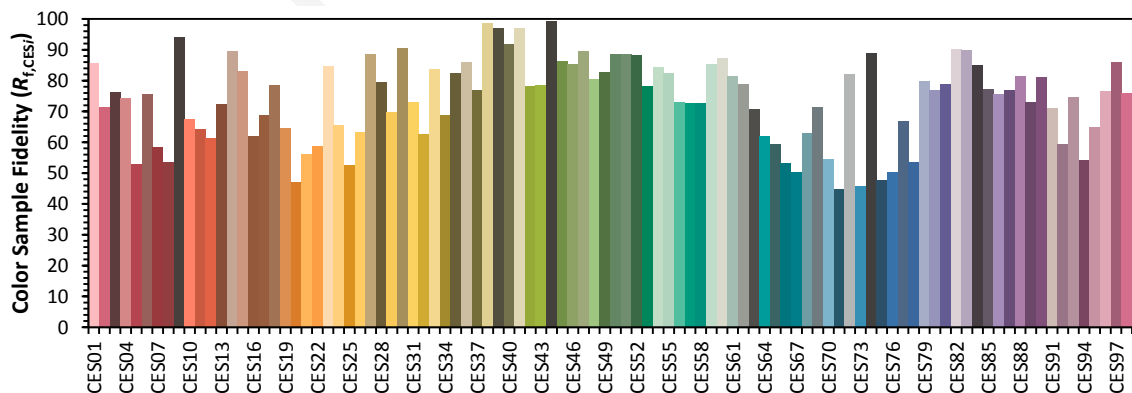
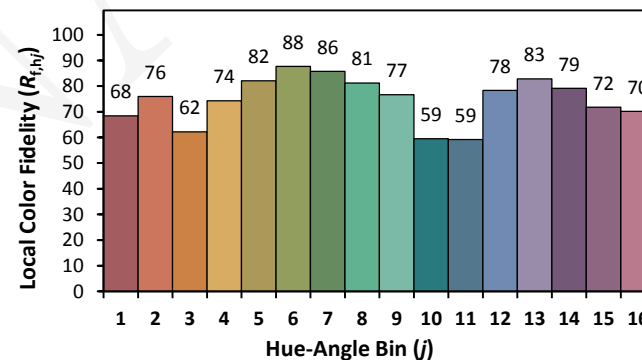
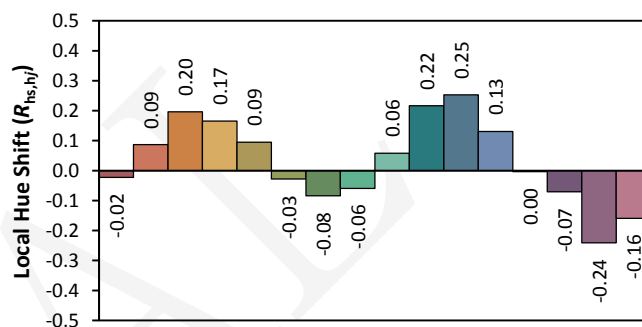
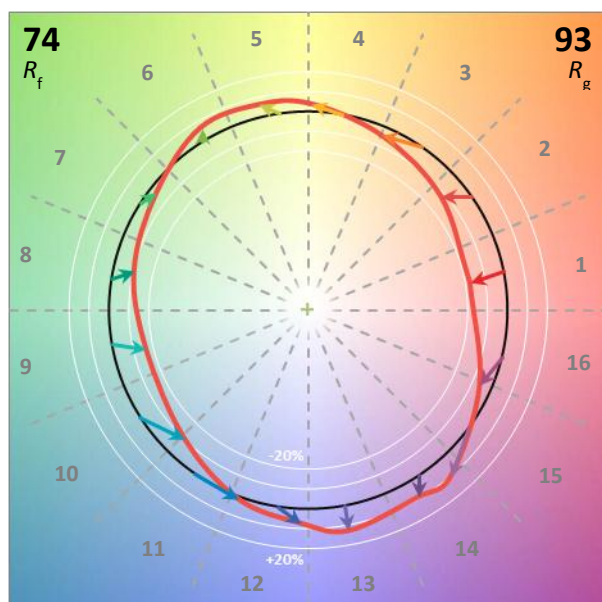
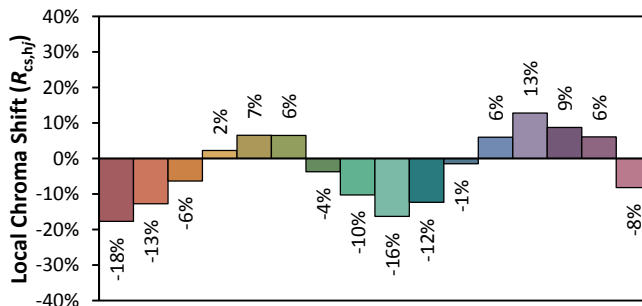
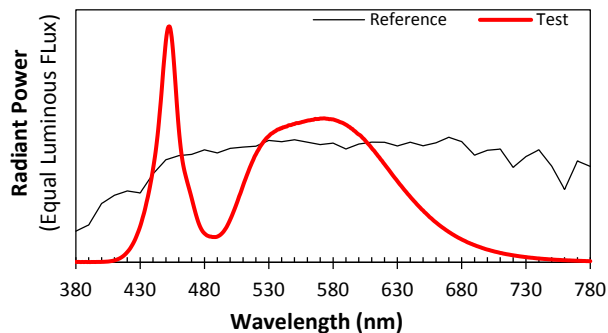
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
240.0	50	0.6212	144.1	0.9665	26096	181.1

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
75.817	4922	0.00473	0.3484	0.3638	0.2089	0.4910

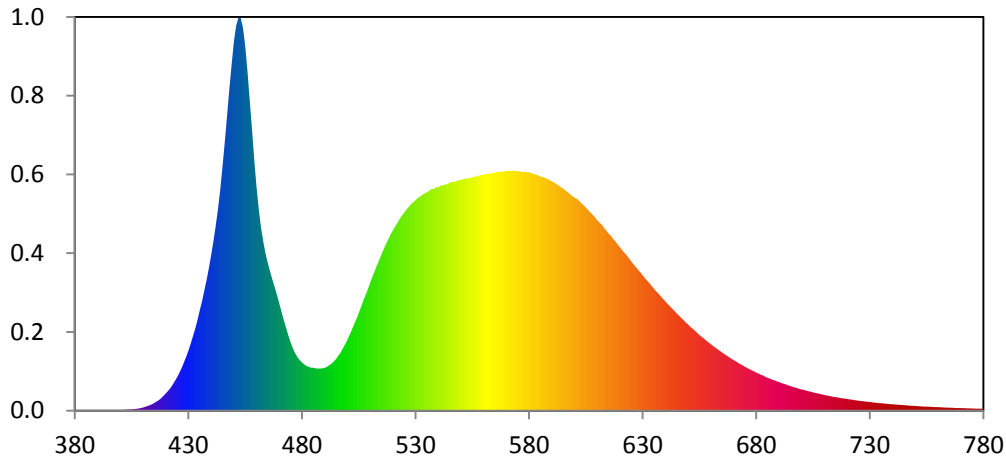
Color Rendering Index

Ra			
72.2			
R1	R2	R3	R4
69	78	84	71
R5	R6	R7	R8
68	68	83	56
R9	R10	R11	R12
0	46	66	35
R13	R14	R15	
71	91	63	





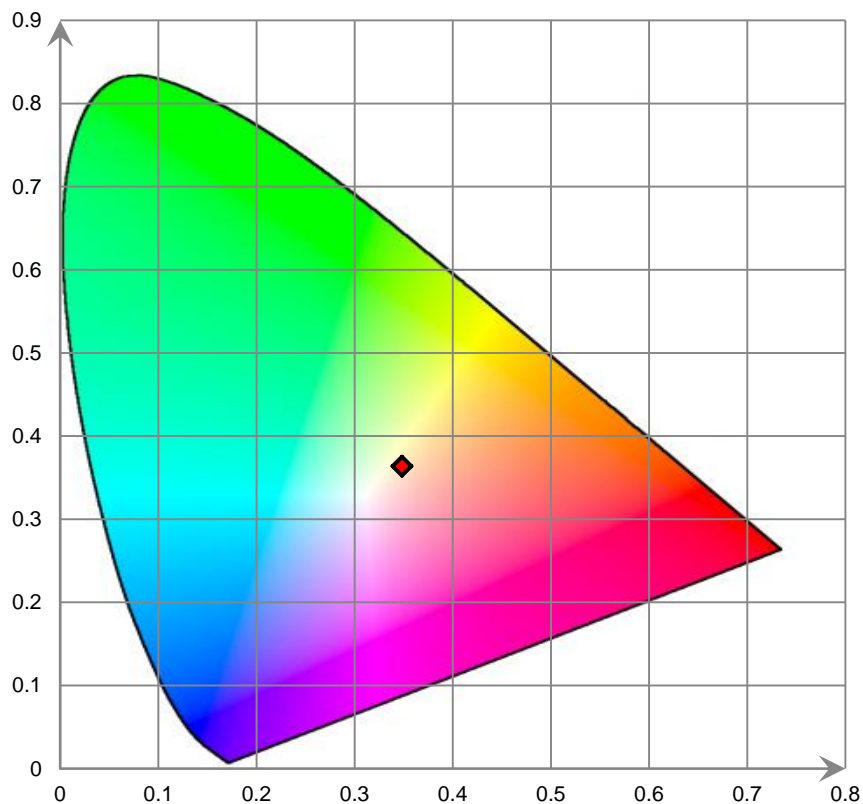
Relative Spectral Power Distribution



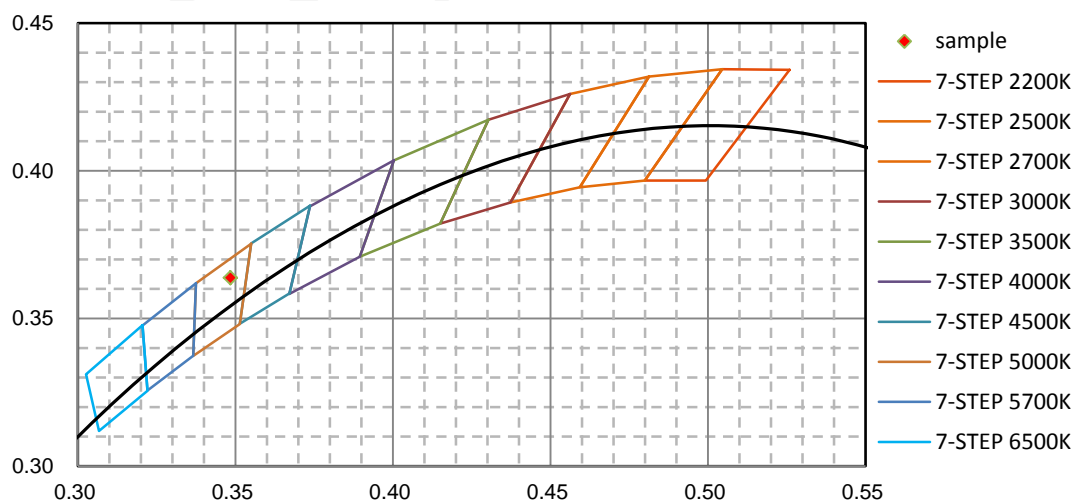
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	1.347E+00	421	3.576E+01	462	3.321E+02	503	1.573E+02	544	4.111E+02
381	1.084E+00	422	4.085E+01	463	3.052E+02	504	1.673E+02	545	4.139E+02
382	1.259E+00	423	4.693E+01	464	2.841E+02	505	1.777E+02	546	4.152E+02
383	1.021E+00	424	5.354E+01	465	2.675E+02	506	1.884E+02	547	4.153E+02
384	8.166E-01	425	6.073E+01	466	2.523E+02	507	1.999E+02	548	4.166E+02
385	1.252E+00	426	6.861E+01	467	2.377E+02	508	2.097E+02	549	4.183E+02
386	8.752E-01	427	7.771E+01	468	2.236E+02	509	2.209E+02	550	4.187E+02
387	1.043E+00	428	8.758E+01	469	2.095E+02	510	2.323E+02	551	4.209E+02
388	1.227E+00	429	9.771E+01	470	1.949E+02	511	2.433E+02	552	4.215E+02
389	8.288E-01	430	1.089E+02	471	1.796E+02	512	2.535E+02	553	4.215E+02
390	1.128E+00	431	1.215E+02	472	1.646E+02	513	2.640E+02	554	4.225E+02
391	7.090E-01	432	1.357E+02	473	1.498E+02	514	2.738E+02	555	4.235E+02
392	1.098E+00	433	1.492E+02	474	1.364E+02	515	2.841E+02	556	4.249E+02
393	1.072E+00	434	1.649E+02	475	1.240E+02	516	2.935E+02	557	4.256E+02
394	1.127E+00	435	1.823E+02	476	1.135E+02	517	3.026E+02	558	4.268E+02
395	9.494E-01	436	1.985E+02	477	1.045E+02	518	3.110E+02	559	4.278E+02
396	1.218E+00	437	2.174E+02	478	9.737E+01	519	3.203E+02	560	4.289E+02
397	1.229E+00	438	2.378E+02	479	9.171E+01	520	3.271E+02	561	4.297E+02
398	1.308E+00	439	2.589E+02	480	8.763E+01	521	3.349E+02	562	4.299E+02
399	1.203E+00	440	2.824E+02	481	8.424E+01	522	3.409E+02	563	4.309E+02
400	1.460E+00	441	3.070E+02	482	8.124E+01	523	3.483E+02	564	4.314E+02
401	1.528E+00	442	3.343E+02	483	7.979E+01	524	3.542E+02	565	4.319E+02
402	1.720E+00	443	3.661E+02	484	7.815E+01	525	3.597E+02	566	4.342E+02
403	1.970E+00	444	4.012E+02	485	7.796E+01	526	3.652E+02	567	4.336E+02
404	2.191E+00	445	4.430E+02	486	7.680E+01	527	3.700E+02	568	4.338E+02
405	2.421E+00	446	4.863E+02	487	7.665E+01	528	3.748E+02	569	4.340E+02
406	2.903E+00	447	5.338E+02	488	7.656E+01	529	3.787E+02	570	4.353E+02
407	3.533E+00	448	5.847E+02	489	7.675E+01	530	3.821E+02	571	4.353E+02
408	4.151E+00	449	6.278E+02	490	7.794E+01	531	3.861E+02	572	4.354E+02
409	4.957E+00	450	6.694E+02	491	7.987E+01	532	3.895E+02	573	4.358E+02
410	5.851E+00	451	6.985E+02	492	8.227E+01	533	3.916E+02	574	4.353E+02
411	7.226E+00	452	7.130E+02	493	8.544E+01	534	3.946E+02	575	4.345E+02
412	8.507E+00	453	7.129E+02	494	8.940E+01	535	3.968E+02	576	4.344E+02
413	1.016E+01	454	6.953E+02	495	9.394E+01	536	3.994E+02	577	4.332E+02
414	1.184E+01	455	6.624E+02	496	9.972E+01	537	4.022E+02	578	4.335E+02
415	1.413E+01	456	6.168E+02	497	1.055E+02	538	4.026E+02	579	4.328E+02
416	1.667E+01	457	5.645E+02	498	1.128E+02	539	4.056E+02	580	4.326E+02
417	1.954E+01	458	5.090E+02	499	1.208E+02	540	4.056E+02	581	4.313E+02
418	2.289E+01	459	4.537E+02	500	1.293E+02	541	4.086E+02	582	4.300E+02
419	2.684E+01	460	4.055E+02	501	1.380E+02	542	4.090E+02	583	4.286E+02
420	3.119E+01	461	3.653E+02	502	1.475E+02	543	4.107E+02	584	4.273E+02

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	4.253E+02	626	2.657E+02	667	1.001E+02	708	3.055E+01	749	9.040E+00
586	4.239E+02	627	2.606E+02	668	9.722E+01	709	2.953E+01	750	8.669E+00
587	4.227E+02	628	2.556E+02	669	9.472E+01	710	2.847E+01	751	8.396E+00
588	4.209E+02	629	2.510E+02	670	9.190E+01	711	2.793E+01	752	8.095E+00
589	4.187E+02	630	2.458E+02	671	8.963E+01	712	2.690E+01	753	7.873E+00
590	4.165E+02	631	2.407E+02	672	8.698E+01	713	2.610E+01	754	7.607E+00
591	4.143E+02	632	2.357E+02	673	8.455E+01	714	2.532E+01	755	7.473E+00
592	4.112E+02	633	2.313E+02	674	8.230E+01	715	2.456E+01	756	7.300E+00
593	4.092E+02	634	2.263E+02	675	7.979E+01	716	2.400E+01	757	7.136E+00
594	4.055E+02	635	2.213E+02	676	7.769E+01	717	2.330E+01	758	6.713E+00
595	4.037E+02	636	2.167E+02	677	7.540E+01	718	2.259E+01	759	6.567E+00
596	3.994E+02	637	2.123E+02	678	7.336E+01	719	2.193E+01	760	6.408E+00
597	3.970E+02	638	2.073E+02	679	7.141E+01	720	2.135E+01	761	6.276E+00
598	3.933E+02	639	2.031E+02	680	6.932E+01	721	2.063E+01	762	6.087E+00
599	3.897E+02	640	1.984E+02	681	6.736E+01	722	2.014E+01	763	5.851E+00
600	3.869E+02	641	1.938E+02	682	6.560E+01	723	1.940E+01	764	5.858E+00
601	3.847E+02	642	1.896E+02	683	6.373E+01	724	1.893E+01	765	5.585E+00
602	3.810E+02	643	1.852E+02	684	6.161E+01	725	1.826E+01	766	5.361E+00
603	3.766E+02	644	1.811E+02	685	5.979E+01	726	1.780E+01	767	5.237E+00
604	3.732E+02	645	1.765E+02	686	5.839E+01	727	1.724E+01	768	5.008E+00
605	3.687E+02	646	1.724E+02	687	5.653E+01	728	1.682E+01	769	4.947E+00
606	3.641E+02	647	1.684E+02	688	5.517E+01	729	1.622E+01	770	4.763E+00
607	3.597E+02	648	1.643E+02	689	5.342E+01	730	1.588E+01	771	4.679E+00
608	3.556E+02	649	1.600E+02	690	5.208E+01	731	1.524E+01	772	4.507E+00
609	3.510E+02	650	1.569E+02	691	5.047E+01	732	1.475E+01	773	4.437E+00
610	3.459E+02	651	1.523E+02	692	4.895E+01	733	1.442E+01	774	4.199E+00
611	3.412E+02	652	1.491E+02	693	4.773E+01	734	1.389E+01	775	4.151E+00
612	3.373E+02	653	1.451E+02	694	4.625E+01	735	1.372E+01	776	4.047E+00
613	3.318E+02	654	1.415E+02	695	4.504E+01	736	1.317E+01	777	3.755E+00
614	3.271E+02	655	1.373E+02	696	4.342E+01	737	1.276E+01	778	3.779E+00
615	3.218E+02	656	1.343E+02	697	4.228E+01	738	1.238E+01	779	3.554E+00
616	3.175E+02	657	1.308E+02	698	4.082E+01	739	1.185E+01	780	3.541E+00
617	3.117E+02	658	1.271E+02	699	3.960E+01	740	1.178E+01		
618	3.074E+02	659	1.238E+02	700	3.854E+01	741	1.127E+01		
619	3.017E+02	660	1.209E+02	701	3.763E+01	742	1.090E+01		
620	2.969E+02	661	1.176E+02	702	3.651E+01	743	1.063E+01		
621	2.917E+02	662	1.144E+02	703	3.531E+01	744	1.029E+01		
622	2.866E+02	663	1.114E+02	704	3.441E+01	745	1.008E+01		
623	2.817E+02	664	1.085E+02	705	3.325E+01	746	9.769E+00		
624	2.764E+02	665	1.056E+02	706	3.224E+01	747	9.460E+00		
625	2.711E+02	666	1.029E+02	707	3.142E+01	748	9.079E+00		

CIE 1931 x y Chromaticity Diagram



7-Step Chromaticity Quadrangles



[Goniophotometer System]

Total operating time for luminous intensity distribution: **2.0 hour**

Test orientation: **Downward**

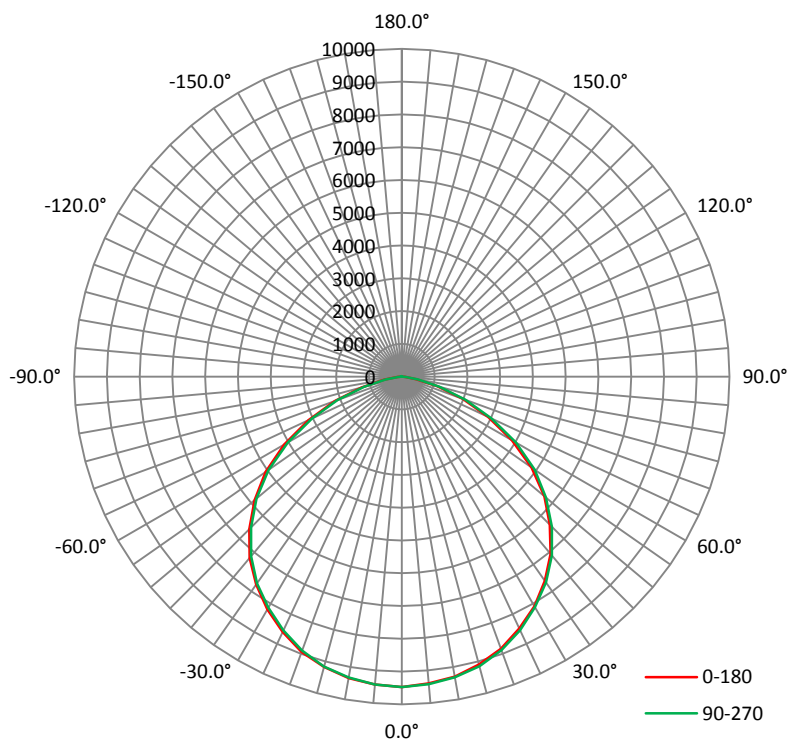
Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
240.1	50	0.6228	144.0	0.9630

Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	I_{max} (cd)	S/MH (C0/180)	S/MH (C90/270)
26106.7	181.31	9481	1.27	1.27

Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% I_{max}):	112.3	112.4	112.4	112.3	112.4
Field Angle (10% I_{max}):	152.9	153.2	153.1	153.0	153.1

Luminous Intensity (cd) Distribution Data

C Y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	9473	9473	9473	9473	9473	9473	9473	9473
1°	9467	9453	9478	9474	9461	9480	9481	9472
2°	9463	9457	9468	9466	9460	9466	9472	9459
3°	9455	9457	9458	9461	9457	9453	9455	9445
4°	9454	9450	9453	9455	9443	9437	9439	9429
5°	9433	9422	9436	9434	9434	9426	9418	9407
6°	9418	9413	9431	9414	9397	9391	9404	9398
7°	9395	9383	9407	9399	9385	9375	9388	9378
8°	9379	9372	9380	9379	9374	9361	9367	9354
9°	9351	9358	9359	9355	9349	9346	9341	9343
10°	9341	9334	9329	9329	9322	9315	9316	9297
11°	9321	9296	9313	9295	9296	9281	9288	9263
12°	9285	9265	9264	9268	9254	9249	9250	9245
13°	9250	9232	9241	9234	9225	9223	9218	9200
14°	9203	9204	9209	9205	9188	9188	9179	9152
15°	9171	9166	9170	9157	9159	9144	9139	9121
16°	9126	9125	9129	9114	9109	9086	9087	9071
17°	9083	9085	9083	9073	9055	9040	9031	9014
18°	9036	9033	9038	9016	9001	8991	8981	8959
19°	8984	8989	8976	8963	8942	8939	8927	8924
20°	8942	8926	8927	8913	8898	8879	8875	8845
21°	8878	8858	8866	8845	8827	8813	8810	8782
22°	8802	8803	8800	8777	8762	8749	8741	8718
23°	8741	8748	8745	8716	8697	8679	8673	8660
24°	8670	8669	8665	8660	8614	8608	8599	8569
25°	8598	8601	8596	8574	8548	8542	8529	8505
26°	8518	8520	8526	8495	8476	8451	8447	8426
27°	8444	8449	8448	8433	8401	8380	8365	8354
28°	8370	8368	8365	8344	8316	8305	8290	8271
29°	8286	8285	8289	8265	8234	8219	8199	8194
30°	8206	8202	8198	8179	8145	8127	8119	8094
31°	8112	8104	8112	8087	8066	8039	8033	8015
32°	8027	8024	8012	8002	7975	7953	7945	7925
33°	7923	7927	7928	7910	7885	7859	7840	7823
34°	7835	7829	7832	7829	7790	7769	7744	7729
35°	7745	7724	7730	7725	7700	7658	7644	7625
36°	7641	7628	7646	7620	7591	7549	7545	7516
37°	7542	7522	7531	7517	7487	7451	7441	7416
38°	7439	7427	7428	7411	7380	7347	7332	7301
39°	7323	7313	7310	7294	7265	7236	7219	7199
40°	7221	7200	7195	7184	7156	7115	7097	7079
41°	7102	7076	7083	7063	7031	6992	6980	6951
42°	6984	6960	6951	6947	6907	6862	6842	6823
43°	6857	6827	6834	6808	6772	6729	6704	6681
44°	6720	6697	6693	6686	6637	6593	6568	6550
45°	6583	6551	6555	6539	6503	6458	6424	6412
46°	6440	6419	6429	6402	6357	6309	6296	6281
47°	6299	6280	6286	6258	6221	6170	6150	6136
48°	6155	6143	6138	6116	6074	6029	6010	5992
49°	6008	5990	5993	5974	5926	5887	5858	5854

Luminous Intensity (cd) Distribution Data

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
50°	5866	5846	5846	5844	5787	5735	5706	5697
51°	5715	5690	5691	5676	5629	5587	5560	5541
52°	5552	5541	5541	5523	5478	5432	5401	5389
53°	5395	5388	5393	5368	5317	5269	5237	5218
54°	5243	5235	5222	5212	5148	5097	5063	5044
55°	5072	5055	5048	5022	4965	4922	4881	4858
56°	4889	4881	4873	4840	4783	4729	4698	4672
57°	4706	4699	4685	4642	4590	4545	4513	4481
58°	4518	4513	4499	4459	4399	4359	4323	4290
59°	4328	4323	4305	4261	4207	4165	4125	4100
60°	4136	4127	4111	4072	4015	3972	3935	3899
61°	3939	3926	3910	3874	3820	3778	3740	3701
62°	3741	3731	3715	3676	3622	3578	3531	3504
63°	3537	3529	3515	3473	3417	3378	3335	3298
64°	3336	3333	3315	3278	3221	3181	3146	3110
65°	3137	3131	3117	3081	3029	2987	2961	2923
66°	2942	2942	2929	2889	2844	2796	2771	2735
67°	2749	2750	2733	2698	2646	2603	2577	2537
68°	2553	2553	2538	2502	2454	2411	2384	2353
69°	2358	2359	2349	2309	2263	2223	2198	2169
70°	2174	2173	2164	2126	2086	2044	2011	1983
71°	1988	1987	1976	1938	1894	1856	1817	1796
72°	1803	1802	1788	1750	1709	1671	1633	1613
73°	1619	1623	1611	1571	1533	1494	1456	1433
74°	1438	1438	1430	1389	1354	1315	1287	1258
75°	1266	1266	1254	1215	1187	1148	1123	1093
76°	1100	1104	1097	1055	1030	989	971	938
77°	945	947	949	908	883	846	827	803
78°	801	803	804	765	743	707	694	668
79°	668	671	673	638	612	586	574	553
80°	549	557	550	518	509	487	474	457
81°	452	461	453	420	407	390	375	362
82°	356	364	357	323	305	292	275	266
83°	260	267	261	243	224	215	204	194
84°	191	194	186	175	166	157	146	137
85°	135	135	133	117	113	107	99	91
86°	89	88	87	79	78	76	70	63
87°	60	60	57	53	54	52	56	51
88°	48	48	46	42	43	40	42	39
89°	37	36	35	30	33	29	28	27
90°	25	24	24	24	23	22	21	20
91°	19	18	18	18	17	16	15	15
92°	14	12	13	13	12	11	11	10
93°	9	5	8	8	8	7	6	6
94°	3	3	6	6	6	4	4	4
95°	3	2	4	4	4	2	2	2
96°	2	2	2	2	2	2	2	2
97°	2	2	2	2	2	2	2	2
98°	2	2	2	2	2	2	2	2
99°	2	2	2	2	2	2	2	2

Luminous Intensity (cd) Distribution Data

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
100°	2	2	2	2	2	2	2	2
101°	2	2	2	2	2	2	2	2
102°	2	2	2	2	2	2	2	2
103°	2	2	2	2	2	2	2	2
104°	2	2	2	2	2	3	3	2
105°	2	2	2	3	3	3	3	3
106°	2	2	3	3	3	3	3	3
107°	3	3	3	3	3	3	3	3
108°	3	3	3	3	3	3	3	3
109°	3	3	3	3	3	3	3	3
110°	3	3	3	3	3	3	3	3
111°	3	3	3	3	3	3	3	3
112°	3	3	3	3	3	3	3	3
113°	3	3	3	3	3	3	3	3
114°	3	3	3	3	3	3	3	3
115°	3	3	3	3	3	3	3	3
116°	3	3	3	3	3	3	3	3
117°	3	3	3	3	3	3	3	3
118°	3	3	3	3	3	3	3	3
119°	3	3	3	3	3	3	3	3
120°	3	3	3	3	4	4	4	3
121°	4	3	4	4	4	4	4	4
122°	4	4	4	4	4	4	4	4
123°	4	4	4	4	4	4	4	4
124°	4	4	4	4	4	4	4	4
125°	4	4	4	4	4	4	4	4
126°	4	4	4	4	4	4	4	4
127°	4	4	4	5	5	5	5	5
128°	5	5	5	5	5	5	5	5
129°	5	5	5	5	5	5	5	5
130°	5	5	5	5	5	5	5	5
131°	5	5	5	6	6	6	6	5
132°	6	6	6	6	6	6	6	6
133°	6	6	6	6	6	6	6	6
134°	6	6	6	6	7	6	6	6
135°	6	6	6	7	7	7	7	6
136°	7	7	7	7	7	7	7	7
137°	7	7	7	7	7	7	7	7
138°	7	7	7	8	8	8	8	7
139°	7	8	8	8	8	8	8	8
140°	8	8	8	8	9	9	8	8
141°	8	8	9	9	9	9	9	8
142°	9	9	9	9	10	9	9	9
143°	9	9	10	10	10	10	10	9
144°	9	10	10	10	10	10	10	10
145°	10	10	11	11	11	11	10	10
146°	10	10	11	11	11	11	11	10
147°	10	11	11	12	12	12	11	11
148°	11	11	12	12	12	12	12	11
149°	11	12	12	12	12	12	12	11

Luminous Intensity (cd) Distribution Data

$\begin{matrix} C \\ \backslash \\ y \end{matrix}$	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
150°	11	12	12	13	13	13	12	12
151°	12	12	13	13	13	13	13	12
152°	12	13	13	13	13	13	13	12
153°	12	13	13	14	14	14	13	13
154°	13	13	13	14	14	14	13	13
155°	13	14	14	14	14	14	14	13
156°	13	14	14	14	14	14	14	13
157°	13	14	14	14	14	14	14	14
158°	14	14	14	14	15	15	14	14
159°	14	14	14	15	15	15	15	14
160°	14	14	14	15	14	15	15	14
161°	14	14	14	15	14	15	15	14
162°	14	14	14	15	14	15	15	14
163°	14	14	14	15	14	15	15	14
164°	14	14	14	14	14	15	14	14
165°	14	14	14	14	14	14	14	14
166°	14	14	14	14	14	14	14	14
167°	14	14	14	14	14	14	14	14
168°	13	13	13	13	14	14	14	13
169°	13	13	13	13	13	13	13	13
170°	13	13	13	13	13	13	13	13
171°	13	13	13	13	13	13	13	13
172°	13	13	13	13	12	13	13	13
173°	13	13	12	12	12	12	13	13
174°	13	13	12	12	12	12	12	12
175°	13	12	12	12	12	12	12	12
176°	12	12	12	11	11	12	12	12
177°	12	12	12	11	11	11	12	12
178°	12	11	11	11	11	11	11	11
179°	11	11	11	10	10	11	11	11
180°	11	11	10	10	10	10	11	11

Luminous Intensity (cd) Distribution Data (cont.)

$\begin{matrix} C \\ \backslash \\ Y \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0°	9473	9473	9473	9473	9473	9473	9473	9473
1°	9456	9462	9469	9463	9452	9473	9473	9475
2°	9449	9447	9458	9465	9469	9470	9469	9466
3°	9436	9432	9441	9453	9450	9444	9457	9455
4°	9418	9419	9446	9429	9436	9436	9449	9444
5°	9399	9396	9414	9416	9423	9426	9442	9427
6°	9383	9381	9396	9415	9411	9406	9419	9415
7°	9368	9359	9381	9384	9391	9391	9394	9390
8°	9336	9332	9358	9363	9365	9375	9387	9382
9°	9318	9303	9327	9329	9345	9345	9369	9356
10°	9296	9281	9310	9316	9316	9316	9331	9328
11°	9264	9254	9273	9276	9284	9296	9299	9308
12°	9228	9217	9235	9249	9263	9263	9287	9277
13°	9187	9185	9197	9218	9224	9230	9238	9240
14°	9150	9146	9169	9166	9180	9180	9198	9210
15°	9094	9098	9120	9129	9150	9149	9159	9168
16°	9045	9050	9074	9098	9096	9116	9125	9123
17°	8997	9003	9022	9029	9051	9054	9063	9077
18°	8946	8944	8968	8982	8996	9017	9027	9032
19°	8890	8886	8916	8924	8937	8953	8987	8978
20°	8843	8835	8851	8865	8885	8897	8915	8918
21°	8764	8765	8796	8813	8826	8843	8862	8866
22°	8706	8702	8724	8741	8752	8771	8786	8796
23°	8632	8636	8657	8676	8684	8717	8723	8728
24°	8561	8554	8587	8599	8614	8630	8648	8653
25°	8483	8480	8502	8520	8540	8569	8582	8590
26°	8413	8400	8425	8454	8450	8476	8505	8509
27°	8330	8323	8341	8363	8373	8410	8425	8432
28°	8249	8246	8257	8273	8291	8322	8352	8357
29°	8163	8155	8175	8190	8202	8242	8262	8268
30°	8094	8073	8094	8106	8127	8155	8175	8186
31°	7996	7987	8003	8023	8033	8069	8079	8098
32°	7909	7897	7911	7925	7942	7969	7993	8002
33°	7808	7797	7811	7832	7848	7876	7889	7913
34°	7711	7697	7723	7724	7762	7775	7806	7825
35°	7610	7595	7612	7631	7666	7686	7705	7727
36°	7506	7499	7512	7535	7556	7577	7604	7615
37°	7401	7387	7401	7421	7450	7479	7498	7517
38°	7292	7274	7289	7313	7345	7366	7390	7411
39°	7183	7160	7182	7201	7239	7253	7284	7298
40°	7066	7037	7066	7083	7124	7126	7164	7186
41°	6936	6923	6942	6960	6998	7018	7053	7085
42°	6801	6784	6819	6832	6877	6891	6921	6949
43°	6664	6649	6671	6701	6740	6762	6789	6824
44°	6531	6517	6533	6564	6613	6617	6662	6695
45°	6389	6371	6392	6423	6477	6480	6524	6550
46°	6256	6229	6257	6290	6328	6342	6385	6410
47°	6114	6094	6114	6142	6180	6197	6238	6267
48°	5972	5940	5964	6000	6039	6056	6093	6127
49°	5823	5798	5822	5852	5897	5910	5954	5977

Luminous Intensity (cd) Distribution Data (cont.)

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
50°	5680	5652	5675	5700	5742	5766	5800	5831
51°	5522	5500	5527	5550	5594	5614	5648	5686
52°	5365	5343	5370	5393	5437	5464	5492	5527
53°	5197	5185	5215	5242	5282	5305	5331	5373
54°	5022	5014	5041	5074	5123	5151	5176	5210
55°	4836	4830	4861	4898	4954	4975	5012	5044
56°	4645	4649	4684	4721	4766	4800	4831	4863
57°	4461	4457	4488	4537	4587	4620	4652	4685
58°	4266	4269	4300	4353	4401	4436	4466	4501
59°	4074	4075	4110	4166	4211	4248	4277	4310
60°	3881	3883	3924	3972	4021	4054	4088	4119
61°	3684	3687	3723	3777	3824	3861	3891	3928
62°	3476	3489	3523	3574	3619	3661	3692	3719
63°	3284	3288	3323	3369	3413	3459	3482	3512
64°	3089	3096	3131	3168	3207	3252	3284	3312
65°	2901	2906	2939	2970	3014	3056	3088	3109
66°	2716	2719	2751	2782	2825	2862	2895	2912
67°	2524	2530	2552	2587	2631	2664	2704	2718
68°	2331	2340	2356	2388	2436	2464	2509	2526
69°	2155	2156	2170	2200	2243	2274	2319	2330
70°	1974	1976	1992	2020	2060	2087	2133	2148
71°	1784	1786	1807	1835	1871	1906	1946	1966
72°	1598	1602	1636	1658	1699	1723	1755	1776
73°	1419	1424	1461	1483	1527	1549	1570	1600
74°	1260	1266	1299	1304	1343	1371	1393	1420
75°	1101	1108	1136	1147	1188	1214	1236	1258
76°	943	950	973	991	1032	1057	1079	1096
77°	804	803	835	849	876	900	923	934
78°	669	664	695	712	743	760	780	792
79°	556	549	567	586	606	629	649	661
80°	448	447	455	474	495	514	536	549
81°	347	345	354	374	393	413	426	441
82°	260	262	267	284	299	317	333	342
83°	204	190	190	209	221	239	254	259
84°	148	142	144	162	171	185	197	202
85°	93	93	98	116	121	132	140	145
86°	64	63	69	71	72	79	85	89
87°	43	42	46	48	49	53	58	61
88°	33	33	35	36	36	38	41	42
89°	26	27	27	28	29	30	31	31
90°	19	19	20	21	23	24	24	24
91°	14	14	15	16	18	18	19	19
92°	10	10	10	11	12	13	13	14
93°	5	5	5	6	7	7	8	9
94°	2	1	2	2	3	3	4	4
95°	1	1	1	1	1	1	1	1
96°	1	1	1	1	1	1	1	1
97°	1	1	1	1	1	1	1	1
98°	1	1	1	1	1	1	1	1
99°	1	1	1	1	1	1	1	1

Luminous Intensity (cd) Distribution Data (cont.)

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
100°	1	1	1	1	1	1	1	1
101°	1	1	1	1	1	1	1	1
102°	1	1	1	1	1	1	1	1
103°	1	1	1	1	1	1	1	1
104°	1	1	1	1	1	1	1	1
105°	1	1	1	1	1	1	1	1
106°	1	1	1	1	1	1	1	1
107°	1	1	1	1	1	1	1	1
108°	2	2	2	2	1	2	1	1
109°	2	2	2	2	2	2	2	2
110°	2	2	2	2	2	2	2	2
111°	2	2	2	2	2	2	2	2
112°	2	2	2	2	2	2	2	2
113°	2	2	2	2	2	2	2	2
114°	2	2	2	2	2	2	2	2
115°	2	2	2	2	2	2	2	2
116°	2	2	2	2	2	2	2	2
117°	2	2	2	2	2	2	2	2
118°	2	2	2	2	2	2	2	2
119°	2	2	2	2	2	2	2	2
120°	2	2	2	2	2	2	2	2
121°	3	3	3	3	3	2	2	2
122°	3	3	3	3	3	3	2	2
123°	3	3	3	3	3	3	3	3
124°	3	3	3	3	3	3	3	3
125°	3	3	3	3	3	3	3	3
126°	3	3	3	3	3	3	3	3
127°	3	3	3	3	3	3	3	3
128°	3	3	3	3	3	3	3	3
129°	3	3	3	3	3	3	3	3
130°	4	3	3	3	3	3	3	3
131°	4	4	4	4	3	4	3	3
132°	4	4	4	4	4	4	3	4
133°	4	4	4	4	4	4	4	4
134°	4	4	4	4	4	4	4	4
135°	4	4	4	4	4	4	4	4
136°	4	4	4	4	4	4	4	4
137°	4	4	4	4	4	4	4	4
138°	4	4	4	4	4	4	4	4
139°	5	4	4	4	4	4	4	4
140°	5	4	5	5	4	4	4	4
141°	5	4	5	5	5	4	5	5
142°	5	5	5	5	5	5	5	5
143°	5	5	5	5	5	5	5	5
144°	5	5	5	5	5	5	5	5
145°	5	5	5	5	5	5	5	5
146°	5	5	5	5	5	5	5	5
147°	5	5	5	5	5	5	5	5
148°	5	5	5	6	5	5	5	5
149°	5	5	5	6	6	5	5	6

Luminous Intensity (cd) Distribution Data (cont.)

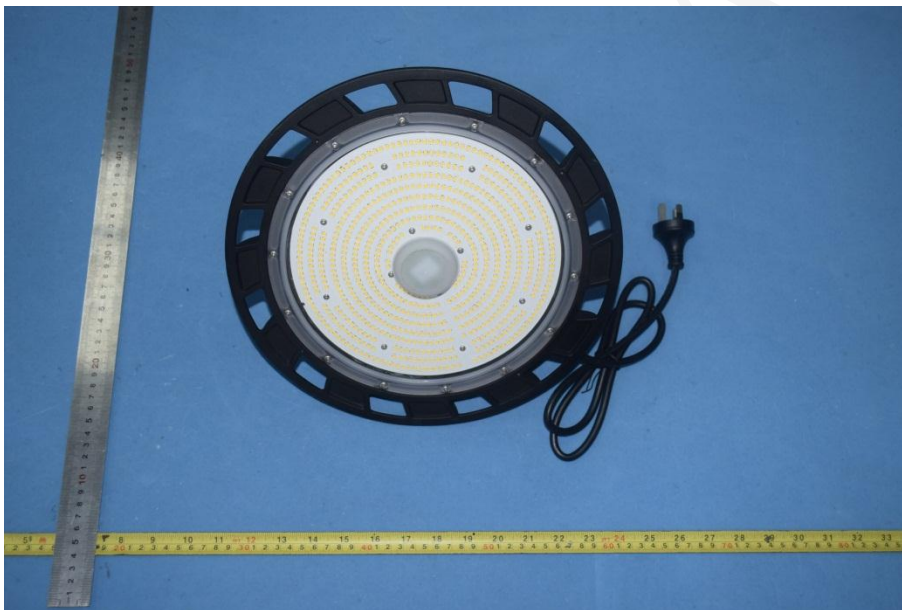
$\begin{matrix} C \\ \backslash \\ Y \end{matrix}$	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
150°	5	5	5	6	6	6	5	6
151°	5	5	6	6	6	6	5	6
152°	6	5	6	6	6	6	6	6
153°	6	6	6	6	6	6	6	6
154°	6	6	6	6	6	6	6	6
155°	6	6	6	6	6	6	6	7
156°	6	6	6	6	6	6	6	7
157°	6	6	7	6	6	6	6	7
158°	7	6	7	7	6	7	6	7
159°	7	7	7	7	7	7	6	7
160°	7	7	7	7	7	7	6	7
161°	7	7	7	7	7	7	7	7
162°	7	7	7	7	7	7	7	7
163°	7	7	7	7	7	7	7	8
164°	7	7	7	7	7	7	7	8
165°	8	7	7	7	7	7	7	8
166°	8	8	7	7	7	7	7	8
167°	8	8	8	8	7	7	7	8
168°	8	8	8	8	7	7	7	8
169°	8	8	8	8	8	7	8	8
170°	8	8	8	8	8	8	8	8
171°	8	8	8	8	8	8	8	8
172°	8	8	8	8	8	8	8	9
173°	9	9	8	8	8	8	8	9
174°	9	9	9	8	8	8	8	9
175°	9	9	9	9	9	8	9	10
176°	10	10	10	9	9	9	9	10
177°	10	10	10	9	9	9	9	10
178°	11	11	10	10	9	9	10	10
179°	11	11	10	10	10	10	10	11
180°	11	11	11	10	10	10	10	11

Zonal Lumen Density Measurement

Deg	Flux (lm)	%
0-5	225.8	0.87
5-10	670.3	2.56
10-15	1095.1	4.20
15-20	1486.0	5.69
20-25	1828.6	7.00
25-30	2111.7	8.09
30-35	2329.0	8.92
35-40	2470.7	9.47
40-45	2521.4	9.65
45-50	2472.7	9.48
50-55	2332.7	8.93
55-60	2072.8	7.94
60-65	1707.6	6.54
65-70	1286.4	4.93
70-75	844.3	3.23
75-80	437.5	1.68
80-85	153.3	0.59
85-90	29.4	0.11
90-95	5.6	0.02
95-100	0.8	0.00
100-105	0.9	0.01
105-110	1.1	0.00
110-115	1.2	0.01
115-120	1.3	0.00
120-125	1.5	0.01
125-130	1.7	0.00
130-135	1.9	0.01
135-140	2.1	0.01
140-145	2.3	0.01
145-150	2.4	0.01
150-155	2.4	0.01
155-160	2.2	0.00
160-165	1.8	0.01
165-170	1.3	0.01
170-175	0.7	0.00
175-180	0.3	0.00

Deg	Flux (lm)	%
0-5	225.8	0.87
0-10	896.1	3.43
0-15	1991.2	7.63
0-20	3477.2	13.32
0-25	5305.7	20.32
0-30	7417.4	28.41
0-35	9746.4	37.33
0-40	12217.1	46.80
0-45	14738.5	56.45
0-50	17211.2	65.93
0-55	19543.9	74.86
0-60	21616.7	82.80
0-65	23324.3	89.34
0-70	24610.7	94.27
0-75	25455.0	97.50
0-80	25892.5	99.18
0-85	26045.8	99.77
0-90	26075.3	99.88
0-95	26080.8	99.90
0-100	26081.7	99.90
0-105	26082.6	99.91
0-110	26083.7	99.91
0-115	26084.8	99.92
0-120	26086.2	99.92
0-125	26087.6	99.93
0-130	26089.3	99.93
0-135	26091.3	99.94
0-140	26093.4	99.95
0-145	26095.7	99.96
0-150	26098.2	99.97
0-155	26100.5	99.98
0-160	26102.7	99.98
0-165	26104.5	99.99
0-170	26105.7	100.00
0-175	26106.5	100.00
0-180	26106.7	100.00

6. Product Photo







ULLEDLIGHTING

LED High Bay Light

Model: UL-H150W-HS

Input Voltage: AC100~240V 50/60Hz

Driver Output: DC120V

Power Factor: >0.9

CCT: 5000K Cool White

Sensor: Motion+Daylight+Dimmable

CRI: Ra>70 120°

IP65



Made in China

7. Report Revision

Report Number	Report Date	Contents
R2DG200115803-10	2020-04-22	Original report.
R2DG200115803-10-M1	2020-09-17	Update the product label and add the remote control photo.

FINAL

Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.
5. This report cannot be reproduced except in full, without prior written approval of the Company.
6. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

*****END OF REPORT*****