

# 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-H120W-HS**

<b>Report Type:</b>	Electrical and Photometric tests including: Luminous Flux, Power Factor, Chromaticity, Luminous Intensity Distribution
<b>Test Engineer:</b>	Hexy He <i>Hexy He</i>
<b>Report Number:</b>	R2DG200115802-10-M1
<b>Test Date:</b>	2020-03-18 to 2020-04-01
<b>Report Date:</b>	2020-09-17
<b>Reviewed By:</b>	Bill Xiong / EE Engineer
<b>Revised Note:</b>	The previous report R2DG200115802-10 is replaced by this report on 2020-09-17
<b>Prepared By:</b>	Bay Area Compliance Laboratories Corp. (Dongguan). No.69,Pulongcun ,Puxinhu Industrial Area, Tangxia , Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588
<b>Accreditation:</b>	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-H120W-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: GD122D951-VF21

### #Rated Values:

Rated Voltage/Frequency: AC 100V-240V 50/60HZ  
Rated Power: 120W  
Nominal CCT: 5000K  
Nominal Lumen Output: 22800 lm

## 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.

$4\pi$  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 ( $\gamma$ ) 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 ( $\gamma$ ) 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  $R_i$ ,  $R_g$  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**

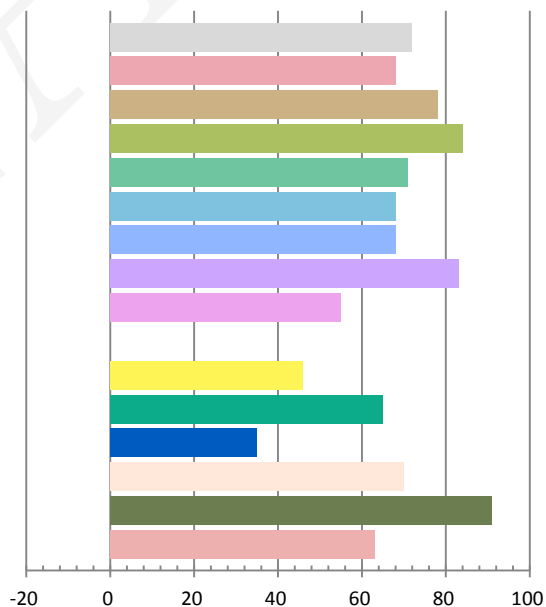
### Photometric and Electrical Measurement Result

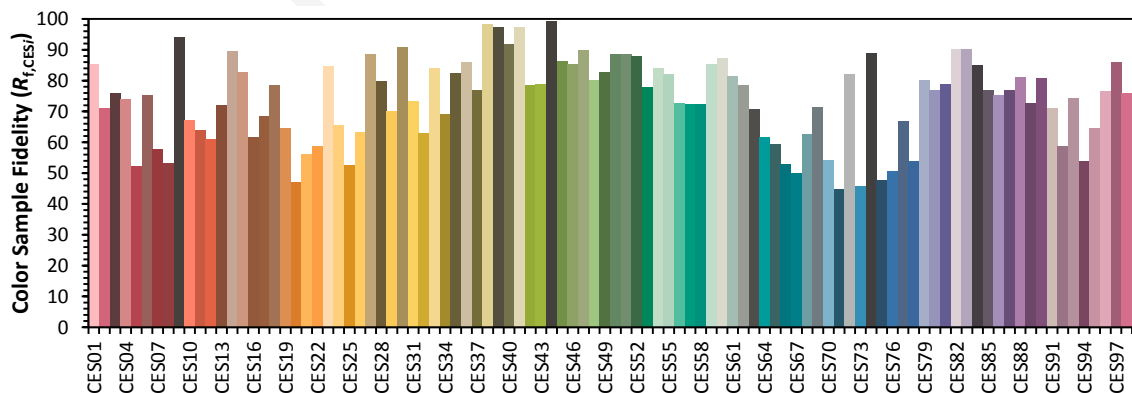
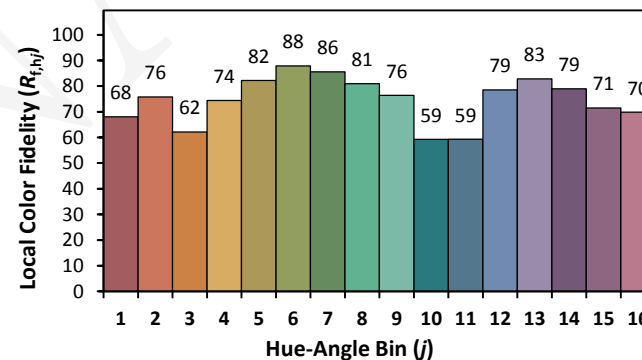
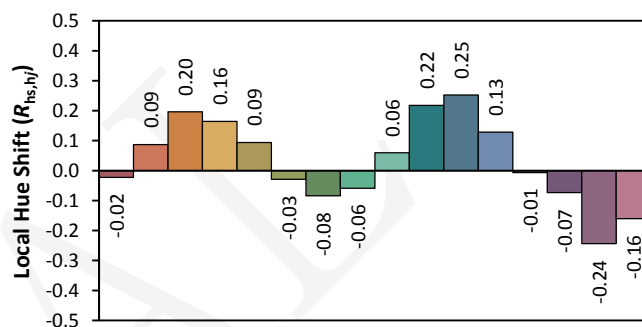
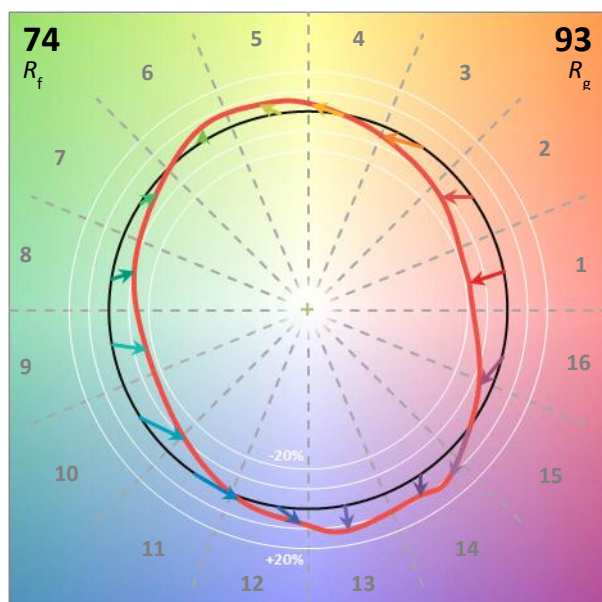
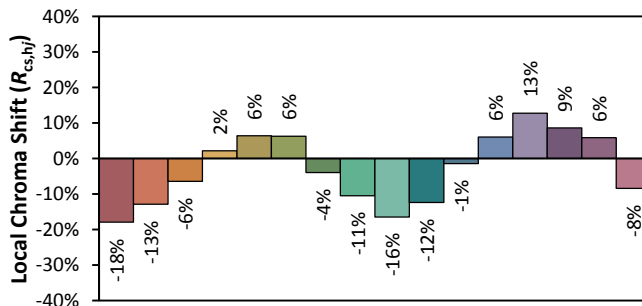
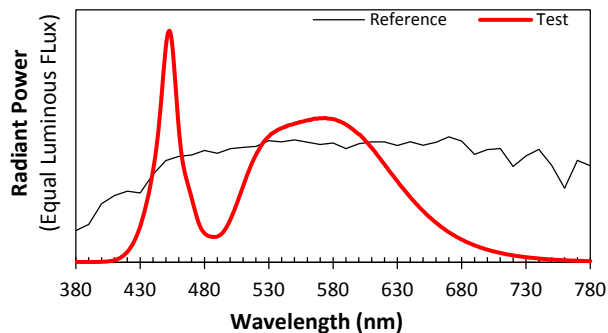
Voltage (V)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Luminous Flux(lm)	Efficacy (lm/W)
240.0	50	0.5208	119.2	0.954	21471	180.07

Radiant Flux (W)	CCT (K)	Duv	x	y	u'	v'
62.181	4898	0.00504	0.3492	0.3651	0.2090	0.4917

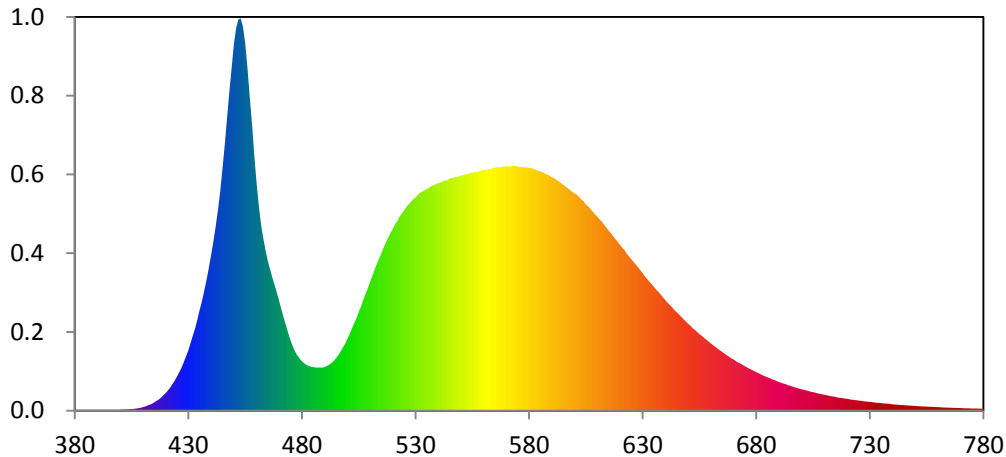
### Color Rendering Index

<b>Ra</b>			
<b>71.9</b>			
<b>R1</b>	<b>R2</b>	<b>R3</b>	<b>R4</b>
68	78	84	71
<b>R5</b>	<b>R6</b>	<b>R7</b>	<b>R8</b>
68	68	83	55
<b>R9</b>	<b>R10</b>	<b>R11</b>	<b>R12</b>
0	46	65	35
<b>R13</b>	<b>R14</b>	<b>R15</b>	
70	91	63	





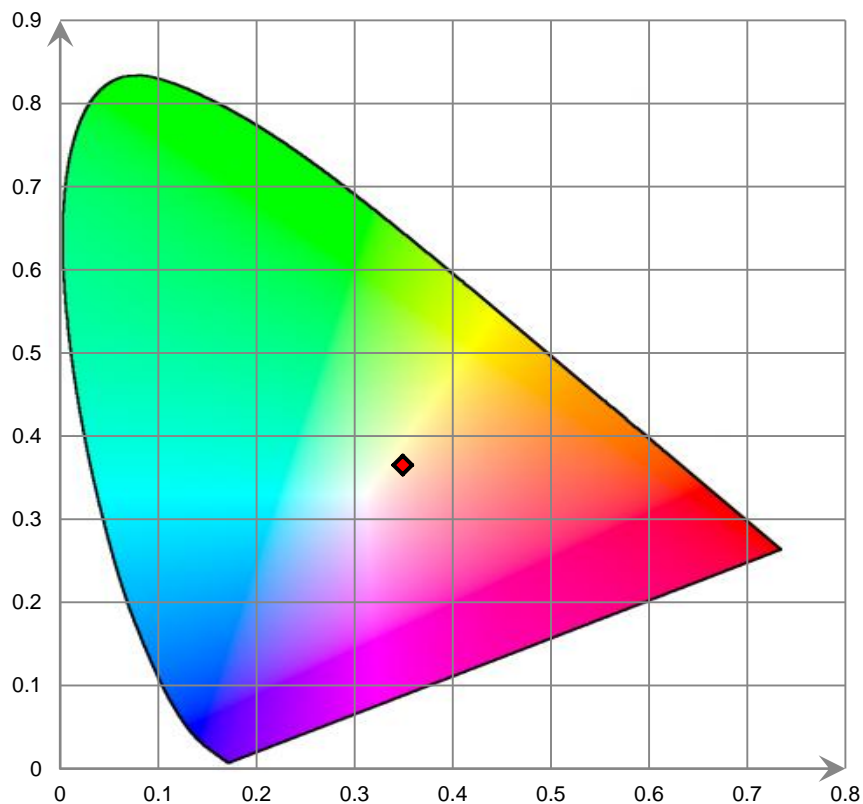
### Relative Spectral Power Distribution



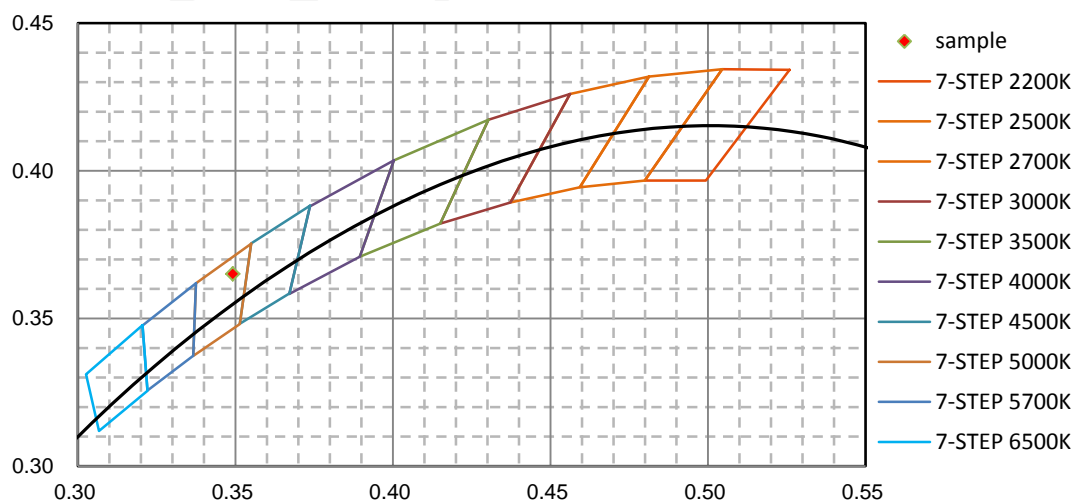
nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	8.034E-01	421	2.985E+01	462	2.735E+02	503	1.283E+02	544	3.382E+02
381	7.675E-01	422	3.416E+01	463	2.518E+02	504	1.365E+02	545	3.412E+02
382	1.039E+00	423	3.933E+01	464	2.341E+02	505	1.452E+02	546	3.418E+02
383	9.675E-01	424	4.425E+01	465	2.193E+02	506	1.534E+02	547	3.425E+02
384	7.122E-01	425	5.044E+01	466	2.072E+02	507	1.629E+02	548	3.432E+02
385	8.500E-01	426	5.660E+01	467	1.953E+02	508	1.712E+02	549	3.439E+02
386	9.064E-01	427	6.383E+01	468	1.837E+02	509	1.803E+02	550	3.455E+02
387	8.700E-01	428	7.187E+01	469	1.723E+02	510	1.893E+02	551	3.461E+02
388	1.162E+00	429	8.036E+01	470	1.605E+02	511	1.981E+02	552	3.472E+02
389	6.633E-01	430	8.894E+01	471	1.480E+02	512	2.072E+02	553	3.475E+02
390	8.826E-01	431	9.952E+01	472	1.363E+02	513	2.159E+02	554	3.494E+02
391	6.698E-01	432	1.112E+02	473	1.243E+02	514	2.242E+02	555	3.494E+02
392	9.152E-01	433	1.220E+02	474	1.132E+02	515	2.319E+02	556	3.505E+02
393	8.661E-01	434	1.349E+02	475	1.028E+02	516	2.402E+02	557	3.509E+02
394	8.588E-01	435	1.485E+02	476	9.420E+01	517	2.475E+02	558	3.518E+02
395	9.110E-01	436	1.612E+02	477	8.669E+01	518	2.545E+02	559	3.532E+02
396	1.054E+00	437	1.763E+02	478	8.080E+01	519	2.615E+02	560	3.539E+02
397	1.070E+00	438	1.931E+02	479	7.628E+01	520	2.673E+02	561	3.535E+02
398	1.105E+00	439	2.100E+02	480	7.243E+01	521	2.744E+02	562	3.552E+02
399	1.185E+00	440	2.288E+02	481	6.975E+01	522	2.783E+02	563	3.549E+02
400	1.272E+00	441	2.482E+02	482	6.734E+01	523	2.852E+02	564	3.563E+02
401	1.534E+00	442	2.699E+02	483	6.576E+01	524	2.902E+02	565	3.574E+02
402	1.567E+00	443	2.954E+02	484	6.462E+01	525	2.948E+02	566	3.581E+02
403	1.862E+00	444	3.224E+02	485	6.415E+01	526	2.997E+02	567	3.572E+02
404	2.049E+00	445	3.556E+02	486	6.350E+01	527	3.033E+02	568	3.580E+02
405	2.378E+00	446	3.900E+02	487	6.332E+01	528	3.070E+02	569	3.586E+02
406	2.750E+00	447	4.282E+02	488	6.331E+01	529	3.105E+02	570	3.592E+02
407	3.328E+00	448	4.687E+02	489	6.350E+01	530	3.134E+02	571	3.585E+02
408	3.820E+00	449	5.030E+02	490	6.423E+01	531	3.168E+02	572	3.588E+02
409	4.431E+00	450	5.376E+02	491	6.584E+01	532	3.201E+02	573	3.594E+02
410	5.423E+00	451	5.615E+02	492	6.772E+01	533	3.217E+02	574	3.594E+02
411	6.385E+00	452	5.743E+02	493	7.006E+01	534	3.238E+02	575	3.585E+02
412	7.614E+00	453	5.762E+02	494	7.327E+01	535	3.257E+02	576	3.581E+02
413	8.964E+00	454	5.640E+02	495	7.718E+01	536	3.276E+02	577	3.575E+02
414	1.032E+01	455	5.397E+02	496	8.172E+01	537	3.302E+02	578	3.576E+02
415	1.241E+01	456	5.038E+02	497	8.684E+01	538	3.311E+02	579	3.571E+02
416	1.452E+01	457	4.619E+02	498	9.255E+01	539	3.329E+02	580	3.567E+02
417	1.671E+01	458	4.197E+02	499	9.870E+01	540	3.342E+02	581	3.562E+02
418	1.957E+01	459	3.741E+02	500	1.058E+02	541	3.356E+02	582	3.550E+02
419	2.270E+01	460	3.345E+02	501	1.130E+02	542	3.366E+02	583	3.537E+02
420	2.597E+01	461	3.015E+02	502	1.207E+02	543	3.385E+02	584	3.520E+02

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
585	3.514E+02	626	2.184E+02	667	8.167E+01	708	2.489E+01	749	7.269E+00
586	3.501E+02	627	2.144E+02	668	7.943E+01	709	2.413E+01	750	7.074E+00
587	3.480E+02	628	2.101E+02	669	7.700E+01	710	2.348E+01	751	6.805E+00
588	3.471E+02	629	2.060E+02	670	7.527E+01	711	2.267E+01	752	6.612E+00
589	3.451E+02	630	2.020E+02	671	7.309E+01	712	2.211E+01	753	6.380E+00
590	3.431E+02	631	1.974E+02	672	7.104E+01	713	2.122E+01	754	6.240E+00
591	3.414E+02	632	1.932E+02	673	6.920E+01	714	2.075E+01	755	6.042E+00
592	3.389E+02	633	1.893E+02	674	6.735E+01	715	2.009E+01	756	5.863E+00
593	3.368E+02	634	1.855E+02	675	6.536E+01	716	1.928E+01	757	5.708E+00
594	3.343E+02	635	1.819E+02	676	6.335E+01	717	1.910E+01	758	5.559E+00
595	3.321E+02	636	1.779E+02	677	6.180E+01	718	1.848E+01	759	5.438E+00
596	3.293E+02	637	1.739E+02	678	6.007E+01	719	1.783E+01	760	5.322E+00
597	3.267E+02	638	1.702E+02	679	5.813E+01	720	1.746E+01	761	5.130E+00
598	3.238E+02	639	1.661E+02	680	5.676E+01	721	1.676E+01	762	4.940E+00
599	3.216E+02	640	1.623E+02	681	5.512E+01	722	1.627E+01	763	4.748E+00
600	3.189E+02	641	1.585E+02	682	5.361E+01	723	1.587E+01	764	4.662E+00
601	3.174E+02	642	1.549E+02	683	5.173E+01	724	1.550E+01	765	4.490E+00
602	3.139E+02	643	1.518E+02	684	5.041E+01	725	1.497E+01	766	4.400E+00
603	3.103E+02	644	1.477E+02	685	4.899E+01	726	1.453E+01	767	4.250E+00
604	3.076E+02	645	1.445E+02	686	4.776E+01	727	1.406E+01	768	4.104E+00
605	3.029E+02	646	1.413E+02	687	4.616E+01	728	1.362E+01	769	4.002E+00
606	3.000E+02	647	1.376E+02	688	4.506E+01	729	1.331E+01	770	3.891E+00
607	2.963E+02	648	1.343E+02	689	4.361E+01	730	1.298E+01	771	3.801E+00
608	2.925E+02	649	1.311E+02	690	4.230E+01	731	1.255E+01	772	3.728E+00
609	2.885E+02	650	1.278E+02	691	4.116E+01	732	1.211E+01	773	3.575E+00
610	2.852E+02	651	1.250E+02	692	3.993E+01	733	1.174E+01	774	3.518E+00
611	2.811E+02	652	1.212E+02	693	3.898E+01	734	1.141E+01	775	3.343E+00
612	2.777E+02	653	1.185E+02	694	3.756E+01	735	1.114E+01	776	3.240E+00
613	2.732E+02	654	1.155E+02	695	3.656E+01	736	1.081E+01	777	3.163E+00
614	2.689E+02	655	1.125E+02	696	3.534E+01	737	1.045E+01	778	3.029E+00
615	2.647E+02	656	1.101E+02	697	3.453E+01	738	1.024E+01	779	3.013E+00
616	2.608E+02	657	1.070E+02	698	3.344E+01	739	9.967E+00	780	2.900E+00
617	2.564E+02	658	1.042E+02	699	3.246E+01	740	9.438E+00		
618	2.519E+02	659	1.015E+02	700	3.143E+01	741	9.220E+00		
619	2.478E+02	660	9.878E+01	701	3.074E+01	742	8.934E+00		
620	2.440E+02	661	9.626E+01	702	2.975E+01	743	8.746E+00		
621	2.393E+02	662	9.378E+01	703	2.884E+01	744	8.488E+00		
622	2.356E+02	663	9.116E+01	704	2.793E+01	745	8.090E+00		
623	2.305E+02	664	8.850E+01	705	2.714E+01	746	8.020E+00		
624	2.265E+02	665	8.642E+01	706	2.648E+01	747	7.793E+00		
625	2.224E+02	666	8.395E+01	707	2.559E+01	748	7.555E+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**

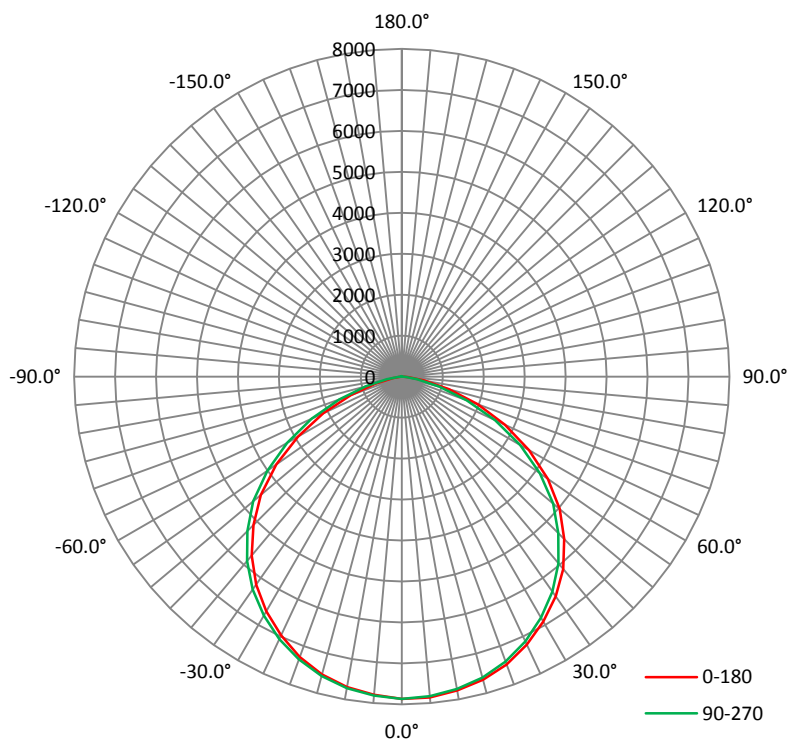
### Electrical Measurement

Input Voltage (V)	Frequency (Hz)	Input Current (A)	Power (W)	Power Factor
240.0	50	0.5219	119.3	0.9529

### Photometric Measurement

Luminous Flux (lm)	Efficacy (lm/W)	$I_{max}$ (cd)	S/MH (C0/180)	S/MH (C90/270)
21499.8	180.14	7883	1.31	1.28

### Luminous Intensity Distribution



	C0/180	C45/225	C90/270	C135/315	AVG.
Beam Angle (50% $I_{max}$ ):	111.4	111.5	111.7	111.6	111.6
Field Angle (10% $I_{max}$ ):	151.8	152.0	152.1	152.0	152.0

**Luminous Intensity (cd) Distribution Data**

C Y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	7867	7867	7867	7867	7867	7867	7867	7867
1°	7861	7870	7857	7862	7867	7873	7866	7872
2°	7844	7849	7846	7851	7859	7869	7868	7877
3°	7834	7838	7839	7836	7851	7856	7855	7864
4°	7819	7816	7813	7828	7837	7842	7851	7855
5°	7798	7806	7802	7808	7816	7831	7842	7859
6°	7787	7790	7788	7790	7802	7818	7831	7849
7°	7757	7771	7766	7768	7786	7804	7816	7829
8°	7737	7741	7731	7752	7765	7789	7797	7820
9°	7712	7710	7710	7720	7748	7764	7778	7796
10°	7696	7684	7687	7698	7722	7737	7757	7779
11°	7661	7660	7664	7679	7704	7718	7740	7756
12°	7628	7626	7624	7640	7678	7703	7718	7733
13°	7592	7591	7593	7606	7636	7667	7681	7706
14°	7554	7560	7562	7574	7604	7634	7655	7677
15°	7525	7519	7526	7541	7566	7599	7623	7651
16°	7487	7473	7482	7505	7530	7565	7586	7620
17°	7433	7436	7435	7456	7485	7522	7550	7584
18°	7391	7381	7375	7416	7446	7483	7516	7553
19°	7332	7330	7332	7361	7398	7439	7473	7504
20°	7284	7278	7277	7316	7348	7395	7438	7468
21°	7224	7218	7227	7261	7315	7345	7386	7422
22°	7163	7162	7167	7209	7248	7295	7339	7366
23°	7103	7095	7106	7144	7192	7239	7283	7321
24°	7034	7031	7046	7083	7131	7178	7228	7268
25°	6970	6965	6975	7016	7072	7127	7164	7218
26°	6911	6898	6915	6954	7004	7060	7118	7155
27°	6833	6828	6837	6881	6944	6998	7044	7096
28°	6763	6747	6771	6817	6875	6932	6990	7038
29°	6686	6680	6692	6738	6805	6866	6931	6971
30°	6615	6602	6628	6668	6737	6797	6859	6897
31°	6532	6523	6545	6588	6669	6728	6789	6833
32°	6454	6455	6466	6515	6595	6661	6719	6761
33°	6375	6370	6387	6426	6511	6582	6641	6687
34°	6286	6285	6301	6348	6428	6501	6564	6612
35°	6199	6195	6219	6264	6346	6429	6490	6536
36°	6117	6111	6129	6175	6254	6347	6410	6458
37°	6018	6021	6035	6089	6177	6262	6327	6373
38°	5915	5919	5930	5984	6078	6180	6241	6284
39°	5813	5812	5824	5888	5981	6077	6151	6202
40°	5701	5699	5724	5777	5876	5980	6055	6106
41°	5588	5592	5612	5668	5776	5873	5952	6006
42°	5465	5476	5500	5560	5662	5772	5845	5897
43°	5356	5363	5386	5455	5552	5654	5735	5793
44°	5234	5249	5277	5340	5442	5545	5628	5686
45°	5123	5130	5162	5225	5330	5439	5518	5574
46°	5006	5012	5042	5108	5216	5323	5405	5466
47°	4876	4892	4925	4996	5100	5209	5295	5353
48°	4757	4764	4795	4875	4984	5090	5181	5241
49°	4622	4631	4673	4747	4857	4971	5061	5117

**Luminous Intensity (cd) Distribution Data**

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
50°	4492	4490	4539	4618	4736	4851	4937	5003
51°	4344	4344	4388	4475	4602	4719	4810	4880
52°	4198	4191	4241	4331	4453	4583	4677	4754
53°	4044	4043	4087	4173	4304	4433	4528	4616
54°	3890	3888	3941	4025	4155	4286	4385	4471
55°	3736	3737	3791	3873	4005	4133	4239	4328
56°	3584	3582	3638	3724	3856	3983	4093	4169
57°	3421	3427	3482	3569	3703	3829	3940	4021
58°	3261	3267	3321	3409	3551	3677	3790	3867
59°	3091	3102	3163	3249	3393	3533	3641	3716
60°	2925	2942	3000	3088	3227	3360	3483	3561
61°	2761	2779	2842	2929	3072	3202	3321	3406
62°	2604	2624	2688	2770	2914	3039	3155	3241
63°	2440	2469	2526	2618	2756	2882	2994	3076
64°	2277	2306	2363	2457	2594	2728	2839	2916
65°	2113	2144	2198	2294	2429	2573	2679	2761
66°	1959	1985	2037	2140	2272	2415	2525	2604
67°	1793	1820	1871	1978	2113	2253	2356	2436
68°	1630	1657	1701	1814	1953	2095	2197	2273
69°	1476	1501	1547	1651	1785	1936	2038	2110
70°	1321	1349	1397	1496	1623	1773	1869	1952
71°	1172	1200	1250	1336	1468	1608	1703	1780
72°	1034	1059	1108	1186	1315	1449	1547	1621
73°	901	923	969	1047	1172	1300	1393	1466
74°	773	790	841	914	1027	1152	1243	1306
75°	658	674	720	789	899	1013	1106	1162
76°	554	567	610	669	772	885	964	1020
77°	464	475	516	570	657	759	834	882
78°	374	383	422	480	554	641	712	756
79°	285	291	327	390	463	533	600	642
80°	217	223	252	300	372	438	504	533
81°	159	165	189	227	280	342	409	440
82°	118	125	139	167	213	261	313	346
83°	86	90	99	117	151	193	233	264
84°	59	62	70	83	106	138	173	195
85°	49	51	53	63	76	99	123	141
86°	38	40	43	52	60	73	91	104
87°	27	29	33	41	49	59	68	76
88°	21	21	25	30	39	48	55	59
89°	16	17	19	23	29	38	44	49
90°	11	12	14	18	21	27	33	38
91°	7	7	9	13	17	20	25	28
92°	4	5	7	8	12	16	19	21
93°	2	3	4	6	7	11	14	13
94°	2	2	2	4	5	7	10	9
95°	2	2	2	2	3	4	7	5
96°	2	2	2	2	2	2	4	1
97°	2	2	2	2	2	2	1	1
98°	2	2	2	2	2	2	2	1
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	2	2	2
105°	2	2	2	2	2	2	2	2
106°	2	2	2	2	2	2	2	2
107°	2	2	2	2	2	2	2	2
108°	2	2	2	2	2	2	2	2
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°	3	3	2	3	2	2	2	2
115°	3	3	3	3	3	2	2	2
116°	3	3	3	3	3	2	2	2
117°	3	3	3	3	3	3	2	2
118°	3	3	3	3	3	3	3	2
119°	3	3	3	3	3	3	3	3
120°	3	3	3	3	3	3	3	3
121°	3	3	3	3	3	3	3	3
122°	3	3	3	3	3	3	3	3
123°	3	3	3	3	3	3	3	3
124°	3	3	3	3	3	3	3	3
125°	4	4	4	4	3	3	3	3
126°	4	4	4	4	4	4	3	3
127°	4	4	4	4	4	4	4	4
128°	4	4	4	4	4	4	4	4
129°	4	4	4	4	4	4	4	4
130°	4	4	4	4	4	4	4	4
131°	5	5	5	5	5	5	4	4
132°	5	5	5	5	5	5	5	4
133°	5	5	5	5	5	5	5	5
134°	5	5	5	5	5	5	5	5
135°	5	6	5	6	6	6	5	5
136°	6	6	6	6	6	6	6	5
137°	6	6	6	6	6	6	6	6
138°	6	6	6	6	6	6	6	6
139°	6	7	7	7	7	7	6	6
140°	7	7	7	7	7	7	7	6
141°	7	7	7	7	7	7	7	7
142°	7	8	8	8	8	8	7	7
143°	8	8	8	8	8	8	8	7
144°	8	8	9	8	9	9	8	8
145°	8	9	9	9	9	9	8	8
146°	8	9	9	9	9	9	9	8
147°	9	9	10	10	10	10	9	9
148°	9	10	10	10	10	10	9	9
149°	9	10	10	10	10	10	10	9

**Luminous Intensity (cd) Distribution Data**

C y	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
150°	9	10	10	10	10	10	10	9
151°	10	10	11	11	11	11	10	10
152°	10	11	11	11	11	11	11	10
153°	10	11	11	11	11	11	11	10
154°	11	11	11	11	11	11	11	10
155°	11	11	11	12	12	11	11	11
156°	11	12	12	12	12	12	11	11
157°	11	12	12	12	12	12	12	11
158°	11	12	12	12	12	12	12	11
159°	12	12	12	12	12	12	12	11
160°	12	12	12	12	12	12	12	11
161°	12	12	12	12	12	12	12	11
162°	12	12	12	12	12	12	12	11
163°	12	12	12	12	12	12	12	11
164°	12	12	12	12	12	12	12	11
165°	12	12	12	12	12	12	12	11
166°	11	11	11	12	12	12	12	11
167°	11	11	11	11	12	12	11	11
168°	11	11	11	11	11	11	11	11
169°	11	11	11	11	11	11	11	11
170°	11	11	11	11	11	11	11	11
171°	11	11	10	11	10	11	11	11
172°	11	11	10	10	10	10	11	10
173°	11	10	10	10	10	10	10	10
174°	11	10	10	10	10	10	10	10
175°	10	10	10	10	10	10	10	10
176°	10	10	10	10	9	10	10	10
177°	10	10	10	9	9	9	10	10
178°	10	9	9	9	9	9	9	10
179°	9	9	9	9	9	9	9	9
180°	9	9	9	8	8	9	9	9

Luminous Intensity (cd) Distribution Data (cont.)

C Y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
0°	7867	7867	7867	7867	7867	7867	7867	7867
1°	7874	7876	7864	7854	7864	7860	7863	7855
2°	7878	7876	7863	7828	7867	7854	7846	7850
3°	7874	7883	7871	7867	7860	7844	7834	7829
4°	7870	7873	7862	7857	7849	7837	7820	7813
5°	7861	7864	7855	7841	7831	7819	7806	7804
6°	7848	7852	7844	7824	7817	7803	7784	7771
7°	7838	7835	7832	7811	7802	7788	7757	7755
8°	7825	7811	7812	7794	7784	7772	7752	7732
9°	7802	7810	7790	7781	7771	7746	7726	7714
10°	7779	7786	7771	7762	7746	7719	7703	7685
11°	7758	7760	7747	7736	7717	7699	7681	7668
12°	7735	7735	7717	7713	7693	7674	7640	7630
13°	7717	7713	7703	7689	7663	7642	7616	7591
14°	7693	7691	7674	7658	7639	7609	7580	7563
15°	7662	7659	7646	7619	7610	7577	7542	7529
16°	7625	7636	7617	7591	7572	7543	7507	7482
17°	7592	7596	7576	7556	7531	7496	7457	7439
18°	7555	7565	7536	7517	7495	7466	7427	7394
19°	7518	7518	7505	7476	7452	7409	7374	7348
20°	7479	7470	7456	7436	7405	7368	7327	7292
21°	7437	7432	7407	7377	7358	7313	7270	7238
22°	7380	7388	7365	7335	7304	7269	7221	7188
23°	7333	7343	7317	7283	7249	7207	7156	7131
24°	7285	7278	7259	7233	7194	7147	7097	7065
25°	7221	7225	7206	7176	7136	7085	7035	7000
26°	7165	7167	7142	7116	7072	7018	6963	6924
27°	7106	7105	7076	7047	7001	6950	6890	6858
28°	7043	7041	7022	6989	6933	6877	6834	6793
29°	6977	6977	6956	6920	6871	6801	6756	6709
30°	6908	6906	6886	6842	6794	6730	6683	6629
31°	6847	6848	6808	6765	6716	6661	6611	6549
32°	6774	6769	6741	6700	6648	6583	6528	6475
33°	6705	6706	6667	6624	6568	6506	6437	6387
34°	6630	6627	6592	6547	6495	6430	6356	6308
35°	6551	6551	6515	6465	6411	6338	6272	6221
36°	6474	6463	6435	6387	6326	6256	6189	6122
37°	6389	6389	6351	6298	6230	6163	6094	6029
38°	6302	6306	6269	6199	6146	6086	6004	5933
39°	6221	6223	6182	6116	6054	5984	5899	5828
40°	6129	6135	6089	6030	5951	5875	5798	5718
41°	6034	6042	5993	5930	5850	5774	5681	5610
42°	5930	5938	5894	5828	5741	5659	5561	5492
43°	5821	5837	5786	5726	5630	5547	5446	5377
44°	5721	5720	5676	5613	5517	5426	5329	5259
45°	5605	5615	5568	5504	5405	5311	5209	5140
46°	5493	5502	5450	5386	5293	5195	5095	5021
47°	5383	5387	5347	5268	5180	5078	4973	4901
48°	5266	5277	5224	5151	5063	4959	4850	4770
49°	5150	5156	5111	5032	4947	4831	4723	4645

Luminous Intensity (cd) Distribution Data (cont.)

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
50°	5030	5038	4987	4907	4821	4704	4596	4509
51°	4909	4921	4869	4785	4696	4582	4461	4371
52°	4781	4788	4740	4662	4561	4440	4315	4223
53°	4647	4663	4611	4522	4421	4295	4161	4074
54°	4509	4513	4467	4380	4273	4144	4013	3916
55°	4356	4366	4317	4231	4117	3988	3861	3756
56°	4204	4215	4159	4079	3968	3836	3706	3598
57°	4048	4060	4009	3919	3807	3678	3547	3444
58°	3894	3908	3855	3764	3656	3520	3391	3281
59°	3742	3748	3702	3604	3498	3354	3221	3113
60°	3586	3595	3545	3447	3333	3182	3050	2946
61°	3430	3431	3382	3279	3161	3014	2883	2782
62°	3260	3264	3219	3121	2995	2847	2723	2621
63°	3096	3100	3048	2955	2830	2687	2562	2463
64°	2933	2934	2886	2792	2673	2529	2390	2297
65°	2774	2776	2731	2632	2510	2366	2226	2130
66°	2619	2619	2572	2470	2341	2199	2065	1973
67°	2459	2462	2407	2307	2181	2039	1912	1818
68°	2294	2301	2240	2144	2023	1881	1742	1648
69°	2130	2142	2079	1983	1859	1718	1575	1490
70°	1969	1983	1919	1820	1689	1556	1422	1331
71°	1801	1813	1748	1649	1523	1391	1278	1192
72°	1633	1649	1587	1494	1367	1248	1134	1052
73°	1479	1487	1429	1336	1227	1106	990	914
74°	1326	1325	1285	1196	1087	963	860	786
75°	1189	1187	1142	1056	947	837	736	666
76°	1051	1049	999	917	812	707	620	560
77°	914	911	863	785	692	594	518	465
78°	781	782	734	661	579	493	423	373
79°	662	660	623	556	477	396	336	295
80°	557	551	514	455	380	313	261	225
81°	454	447	414	362	296	235	197	179
82°	356	350	324	277	226	187	156	133
83°	273	267	247	204	177	139	115	87
84°	204	202	195	162	129	92	74	60
85°	162	160	143	119	81	65	53	47
86°	120	118	92	77	61	50	43	38
87°	79	76	69	59	49	41	34	29
88°	59	58	55	48	39	31	25	22
89°	49	48	44	38	30	23	19	17
90°	38	37	34	28	22	18	14	12
91°	29	28	25	21	17	13	9	7
92°	21	19	19	16	12	8	5	3
93°	14	10	14	11	7	4	1	1
94°	7	1	9	6	3	1	1	1
95°	1	1	5	2	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°	1	1	1	1	1	1	1	1
109°	1	1	1	1	1	1	1	1
110°	1	1	1	1	1	1	1	1
111°	1	1	1	1	1	1	1	1
112°	1	1	1	1	1	1	1	2
113°	1	1	1	1	1	2	2	2
114°	1	1	1	1	2	2	2	2
115°	1	1	1	2	2	2	2	2
116°	2	1	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°	2	2	2	2	2	2	2	2
122°	2	2	2	2	2	2	2	2
123°	2	2	2	2	2	2	2	2
124°	2	2	2	2	2	2	2	2
125°	2	2	2	2	2	2	2	2
126°	2	2	2	2	2	2	2	3
127°	2	2	2	2	2	3	3	3
128°	2	2	2	2	3	3	3	3
129°	3	3	3	3	3	3	3	3
130°	3	3	3	3	3	3	3	3
131°	3	3	3	3	3	3	3	3
132°	3	3	3	3	3	3	3	3
133°	3	3	3	3	3	3	3	3
134°	3	3	3	3	3	3	3	3
135°	3	3	3	3	3	3	3	3
136°	3	3	3	3	3	3	3	4
137°	3	3	3	3	3	3	3	4
138°	3	3	3	3	3	3	4	4
139°	4	3	3	4	4	4	4	4
140°	4	3	4	4	4	4	4	4
141°	4	4	4	4	4	4	4	4
142°	4	4	4	4	4	4	4	4
143°	4	4	4	4	4	4	4	4
144°	4	4	4	4	4	4	4	4
145°	4	4	4	4	4	4	4	4
146°	4	4	4	4	4	4	4	4
147°	4	4	4	4	4	4	4	4
148°	4	4	4	4	4	4	4	5
149°	4	4	4	5	5	5	4	5



Luminous Intensity (cd) Distribution Data (cont.)

C y	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
150°	4	4	4	5	5	5	5	5
151°	4	4	5	5	5	5	5	5
152°	5	4	5	5	5	5	5	5
153°	5	5	5	5	5	5	5	5
154°	5	5	5	5	5	5	5	5
155°	5	5	5	5	5	5	5	5
156°	5	5	5	5	5	5	5	6
157°	5	5	5	5	5	5	5	6
158°	5	5	5	5	5	5	5	6
159°	6	5	6	5	5	5	5	6
160°	6	6	6	5	5	6	5	6
161°	6	6	6	6	6	6	5	6
162°	6	6	6	6	6	6	6	6
163°	6	6	6	6	6	6	6	6
164°	6	6	6	6	6	6	6	6
165°	6	6	6	6	6	6	6	6
166°	6	6	6	6	6	6	6	7
167°	6	6	6	6	6	6	6	7
168°	7	7	6	6	6	6	6	7
169°	7	7	6	6	6	6	6	7
170°	7	7	6	6	6	6	6	7
171°	7	7	7	6	6	6	6	7
172°	7	7	7	7	6	6	6	7
173°	7	7	7	7	7	7	7	7
174°	7	7	7	7	7	7	7	8
175°	8	8	8	7	7	7	7	8
176°	8	8	8	8	7	7	8	8
177°	8	8	8	8	8	7	8	8
178°	9	9	8	8	8	8	8	9
179°	9	9	9	8	8	8	8	9
180°	9	9	9	9	8	8	9	9

**Zonal Lumen Density Measurement**

Deg	Flux (lm)	%	Deg	Flux (lm)	%
0-5	187.6	0.87	0-5	187.6	0.87
5-10	556.5	2.59	0-10	744.1	3.46
10-15	908.7	4.23	0-15	1652.8	7.69
15-20	1233.3	5.73	0-20	2886.1	13.42
20-25	1518.5	7.07	0-25	4404.6	20.49
25-30	1754.0	8.16	0-30	6158.6	28.65
30-35	1934.6	8.99	0-35	8093.2	37.64
35-40	2051.8	9.55	0-40	10145.0	47.19
40-45	2088.8	9.71	0-45	12233.8	56.90
45-50	2048.2	9.53	0-50	14282.0	66.43
50-55	1920.0	8.93	0-55	16201.9	75.36
55-60	1692.3	7.87	0-60	17894.2	83.23
60-65	1390.2	6.47	0-65	19284.4	89.70
65-70	1040.2	4.83	0-70	20324.7	94.53
70-75	665.9	3.10	0-75	20990.6	97.63
75-80	339.2	1.58	0-80	21329.8	99.21
80-85	115.5	0.54	0-85	21445.2	99.75
85-90	27.3	0.12	0-90	21472.5	99.87
90-95	5.9	0.03	0-95	21478.4	99.90
95-100	0.7	0.00	0-100	21479.2	99.90
100-105	0.8	0.01	0-105	21479.9	99.91
105-110	0.9	0.00	0-110	21480.8	99.91
110-115	1.0	0.01	0-115	21481.7	99.92
115-120	1.1	0.00	0-120	21482.8	99.92
120-125	1.2	0.01	0-125	21484.0	99.93
125-130	1.4	0.00	0-130	21485.4	99.93
130-135	1.6	0.01	0-135	21487.0	99.94
135-140	1.8	0.01	0-140	21488.8	99.95
140-145	1.9	0.01	0-145	21490.7	99.96
145-150	2.0	0.01	0-150	21492.7	99.97
150-155	2.0	0.01	0-155	21494.7	99.98
155-160	1.8	0.00	0-160	21496.4	99.98
160-165	1.5	0.01	0-165	21497.9	99.99
165-170	1.0	0.01	0-170	21498.9	100.00
170-175	0.6	0.00	0-175	21499.6	100.00
175-180	0.2	0.00	0-180	21499.8	100.00

## 6. Product Photo







**ULLEDLIGHTING**

## **LED High Bay Light**

**Model:** UL-H120W-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
R2DG200115802-10	2020-04-22	Original report.
R2DG200115802-10-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.
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\*\*\*\*\*END OF REPORT\*\*\*\*\*