



Report No.: BLC2009007E-I

## LM-79-08 Test Report

For

# LEDVANCE LLC

(Brand Name: SYLVANIA)

200 Ballardvale St. Wilmington, MA 01887 USA

## LED Corn Lamp

Model name(s): LED120HIDRSC2MOG

Representative (Tested) Model:  
LED120HIDRSC2MOG(3000K)  
LED120HIDRSC2MOG(4000K)  
LED120HIDRSC2MOG(5000K)

Model Different: All construction and rating are the same, except CCT

Test & Report By:

*Grace Li*

Engineer: Grace Li

Date: 2020-09-11

Review By:

*Jason Luo*

Manager: Jason Luo



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### 1.1 Product Information:

Organization Name	LEDVANCE LLC	
Brand Name	SYLVANIA	
Model Number	LED120HIDRSC2MOG	
SKU (if available)	N/A	
Type of Product (for integral lamps, list base type and lamp type)	LED Corn Lamp	
Rated Voltage / Frequency	100-277Vac, 50/60 Hz	
Nominal Power	120W	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K, 4000K, 5000K	
LED Manufacturer	Lumileds	
LED Model	L128-XX80RA35000H1	
Sample Number	BLC2009007E-I1(3000K), I2(4000K), I3(5000K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

#### Photo





## 1.2 Test Specifications:

Date of Receipt	2020-09-07
Date of Test	2020-09-11
Test item	<ol style="list-style-type: none"><li>1. Total Luminous Flux</li><li>2. Luminous Distribution Intensity</li><li>3. Luminous Efficacy</li><li>4. Correlated Color Temperature</li><li>5. Color Rendering Index</li><li>6. Chromaticity Coordinate</li><li>7. Electrical Parameters</li></ol>
Reference Standard	<ol style="list-style-type: none"><li>1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products</li><li>2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products</li><li>3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources</li><li>4. CIE 15-2004 Technical Report Colorimetry</li><li>5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source</li><li>6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems</li></ol>
Reference Work Instruction	BL-QP-033

## 1.3 Test Methods

### 1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ , measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at  $1^{\circ}$  vertical intervals and  $22.5^{\circ}$  horizontal intervals.

### 2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . 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 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

### 3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.



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**2.1 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

<b>Test date</b>	2020-09-11	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LED120HIDRSC2MOG(3000K)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC200900	120.1	60	1.000	119.22	0.993	8.52
7E-II	277.1	60	0.469	121.39	0.933	13.7
<b>DLC Pass Criteria</b>					$\geq 0.9(-3\%)$	$\leq 20(+5)$

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	1
Frequency (Hz)	60	R2	92	R10	82
CCT (K)	2930	R3	94	R11	79
Duv	-0.0013	R4	79	R12	73
Chromaticity (x, y)	x=0.4401 y=0.4019	R5	81	R13	83
Chromaticity (u', v')	u(u')=0.2535 v'=0.5210	R6	91	R14	97
Color Rendering Index (CRI)	82	R7	79	R15	72
R9	1	R8	55	--	--
Rf	84				
Rg	95				
Rcs,h1(%)	-12				

**Photometric Measurement – Goniophotometer Method:**

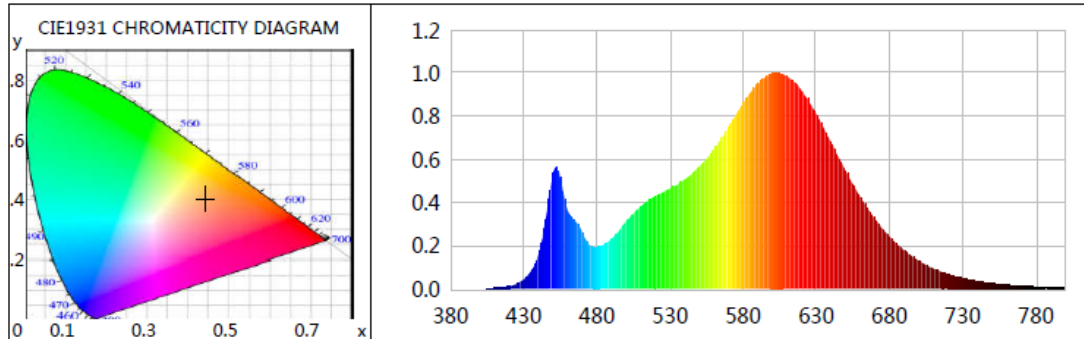
Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	17103.1	17413.1
Luminous Efficacy (lm/W)	143.46	143.45
Most worst Luminous/Highest	140.89	
Beam Angle (°)	--	--
Center Beam Candle Power (cd)	458	--



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## Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.1631	525	0.4476	162.8014	670	0.3235	117.6720
385	0.0006	0.2146	530	0.4640	168.7478	675	0.2803	101.9527
390	0.0005	0.1790	535	0.4819	175.2622	680	0.2420	88.0257
395	0.0002	0.0670	540	0.5069	184.3517	685	0.2085	75.8291
400	0.0005	0.1711	545	0.5315	193.3050	690	0.1793	65.1993
405	0.0012	0.4527	550	0.5644	205.2725	695	0.1531	55.6873
410	0.0025	0.8984	555	0.5999	218.1896	700	0.1307	47.5326
415	0.0054	1.9657	560	0.6464	235.1032	705	0.1106	40.2302
420	0.0117	4.2664	565	0.6966	253.3509	710	0.0945	34.3878
425	0.0230	8.3807	570	0.7488	272.3436	715	0.0798	29.0371
430	0.0438	15.9173	575	0.8063	293.2414	720	0.0681	24.7564
435	0.0816	29.6649	580	0.8611	313.1850	725	0.0575	20.9039
440	0.1555	56.5448	585	0.9080	330.2469	730	0.0490	17.8122
445	0.3216	116.9782	590	0.9512	345.9584	735	0.0416	15.1394
450	0.5364	195.0936	595	0.9803	356.5235	740	0.0346	12.5705
455	0.5138	186.8735	600	0.9978	362.9084	745	0.0306	11.1189
460	0.3651	132.7730	605	0.9975	362.7761	750	0.0266	9.6851
465	0.3163	115.0221	610	0.9866	358.8203	755	0.0218	7.9162
470	0.2599	94.5304	615	0.9586	348.6456	760	0.0190	6.8977
475	0.2031	73.8692	620	0.9188	334.1820	765	0.0160	5.8284
480	0.1927	70.0885	625	0.8678	315.6047	770	0.0143	5.1997
485	0.2076	75.5020	630	0.8097	294.4805	775	0.0124	4.5046
490	0.2302	83.7140	635	0.7469	271.6315	780	0.0093	3.3759
495	0.2678	97.4104	640	0.6804	247.4631	785	0.0082	2.9861
500	0.3114	113.2452	645	0.6120	222.5926	790	0.0076	2.7624
505	0.3483	126.6734	650	0.5468	198.8810	795	0.0055	1.9912
510	0.3831	139.3421	655	0.4848	176.3351	800	0.0044	1.6041
515	0.4078	148.3322	660	0.4261	154.9732			
520	0.4281	155.7098	665	0.3728	135.5896			

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## TM30

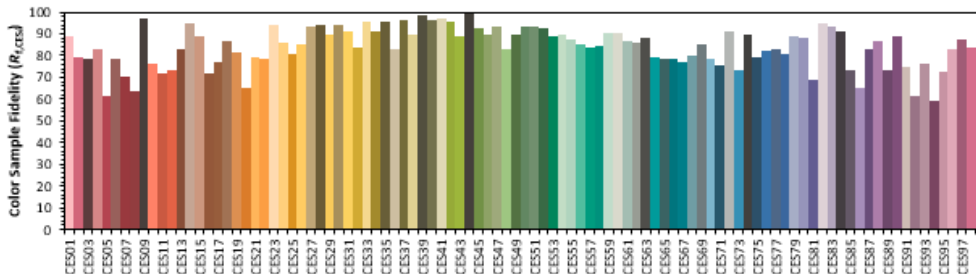
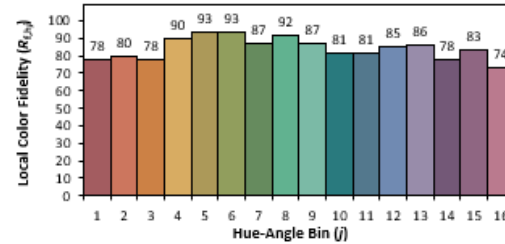
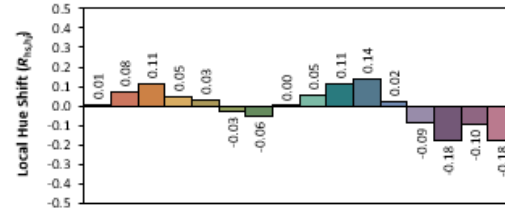
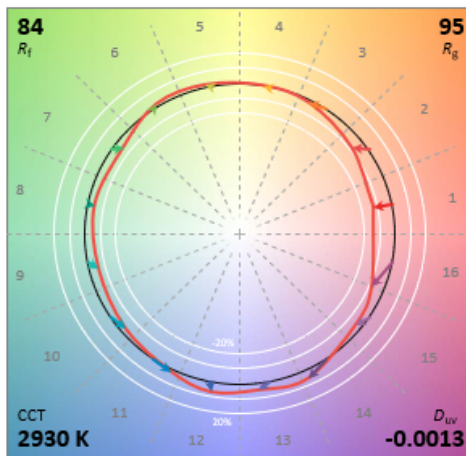
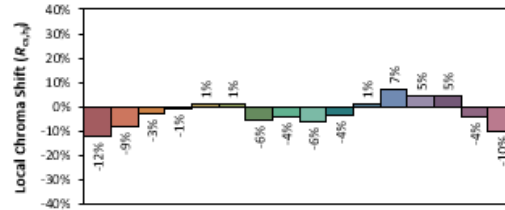
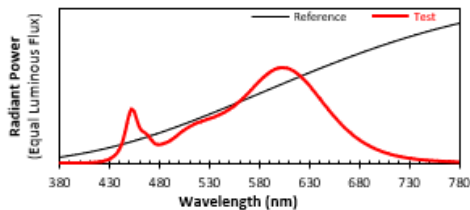
### ANSI/IES TM-30-18 Color Rendition Report

Source: L128-3080RA35000H1

Date: 2020/9/11

Manufacturer: ASMAIT LIGHT CO., LTD

Model: LED120HIDRSC2M0G(3000K)



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

$x$  0.4401  
 $y$  0.4019  
 $u'$  0.2535  
 $v'$  0.5210

CIE 13.3-1995  
(CRI)

$R_a$  82  
 $R_g$  1

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



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## Zonal Lumen Tabulation

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	631.5	3.7%	3.7%
0-40	1,358.7	7.9%	7.9%
0-60	3,856.8	22.6%	22.5%
60-90	5,271.6	30.8%	30.8%
70-100	5,507.7	32.2%	32.2%
90-120	5,100.3	29.8%	29.8%
0-90	9,128.4	53.4%	53.4%
90-180	7,975.9	46.6%	46.6%
0-180	17,104.3	100%	100%

### Lumens Per Zone

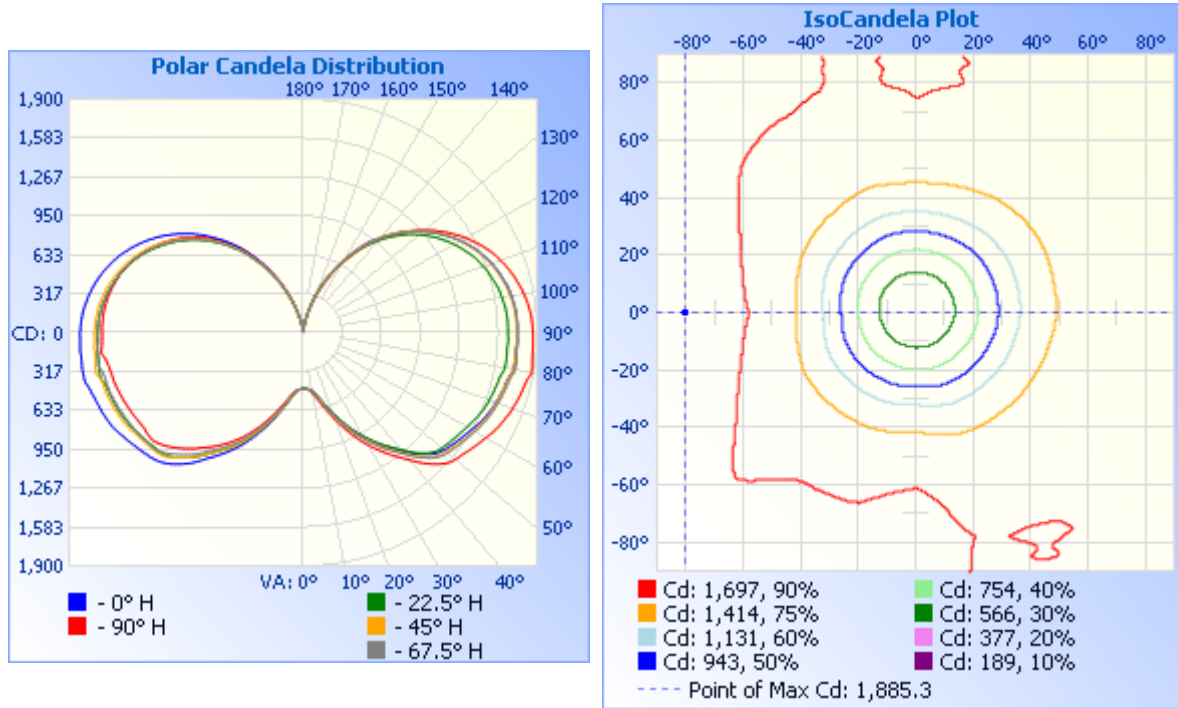
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	45.9	0.3%	90-100	1,855.2	10.8%
10-20	176.7	1.0%	100-110	1,734.7	10.1%
20-30	408.9	2.4%	110-120	1,510.3	8.8%
30-40	727.2	4.3%	120-130	1,205.7	7%
40-50	1,100.2	6.4%	130-140	858.6	5%
50-60	1,397.8	8.2%	140-150	516.5	3%
60-70	1,619.1	9.5%	150-160	232.0	1.4%
70-80	1,782.4	10.4%	160-170	59.0	0.3%
80-90	1,870.1	10.9%	170-180	3.9	0%



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## Photometric Data







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**Candela Table - Type C**

						112.		157.		202.		247.		292.		337.	
	0	22.5	45	67.5	90	5	135	5	180	5	225	5	270	5	315	5	360
0	458	458	458	458	458	458	458	458	458	458	458	458	458	458	458	458	458
1	458	458	460	459	456	459	459	460	460	458	460	460	457	459	458	457	458
2	457	458	459	459	458	460	461	459	460	459	461	460	459	460	458	457	457
3	458	459	460	460	461	463	462	461	462	461	463	463	461	460	460	459	458
4	460	460	460	462	463	465	465	465	465	465	466	464	463	463	461	459	460
5	461	462	463	464	466	469	471	468	472	470	470	467	466	465	463	461	461
6	465	464	466	469	472	473	475	477	478	478	477	474	472	469	467	465	465
7	469	468	471	473	479	483	485	488	488	487	487	482	479	475	472	469	469
8	475	475	478	480	487	492	497	499	500	498	498	492	485	486	479	475	475
9	484	483	488	490	500	506	510	513	513	512	511	504	496	493	487	485	484
10	496	493	498	503	513	521	524	529	529	529	526	516	508	504	499	494	496
11	505	506	511	517	529	538	544	547	549	547	543	533	521	518	510	507	505
12	521	520	526	532	548	555	562	569	570	566	563	551	538	534	525	521	521
13	536	537	544	550	569	576	583	590	591	586	583	573	556	553	542	539	536
14	556	556	565	571	590	601	607	612	613	609	606	592	576	572	561	556	556
15	575	575	582	591	613	621	630	636	639	631	629	613	598	593	579	577	575
16	596	596	608	616	637	648	655	661	661	656	652	637	620	615	603	598	596
17	620	620	633	643	662	675	682	686	693	682	680	659	640	637	627	622	620
18	643	646	658	667	691	697	708	716	719	707	705	684	665	661	651	646	643
19	671	669	684	694	720	725	737	744	746	734	732	712	689	685	674	674	671
20	696	696	709	719	747	755	767	772	777	763	759	739	715	712	699	698	696
21	721	723	737	745	778	783	797	801	808	794	788	765	741	738	723	724	721
22	747	750	766	776	809	811	823	830	839	822	816	793	768	763	753	751	747
23	777	776	793	804	839	840	853	863	867	849	845	821	794	791	780	781	777
24	802	803	822	834	871	867	882	890	899	872	869	849	821	817	807	808	802
25	832	832	852	865	902	897	916	919	929	902	902	876	849	844	833	840	832
26	865	865	883	890	932	930	945	947	958	932	930	904	874	867	863	864	865
27	891	891	913	920	963	959	974	976	991	960	958	931	900	898	888	894	891
28	920	920	941	949	997	985	100	1005	102	990	988	958	927	924	916	923	920

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29	947	946	970	979	102 7	1015	103 2	1037	105 3	1017	101 6	987	955	950	943	950	947
30	976	974	998	100 8	105 8	1042	106 3	1066	108 3	1044	104 7	1018	982	979	971	979	976
31	100 4	100 0	102 5	103 9	108 8	1068	109 1	1092	111 0	1069	107 3	1044	100 8	1004	998	1009	100 4
32	103 2	102 6	105 6	106 5	111 7	1098	111 7	1119	113 7	1096	109 4	1070	103 2	1031	102 4	1036	103 2
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34	108 7	108 3	111 1	112 5	117 6	1151	117 0	1172	119 5	1147	114 7	1118	108 2	1078	107 7	1092	108 7
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37	116 8	116 2	119 4	120 6	126 1	1231	125 5	1255	127 8	1224	122 5	1195	115 2	1151	115 0	1168	116 8
38	119 8	118 9	122 2	123 3	129 2	1256	128 1	1281	131 1	1251	125 2	1220	117 4	1173	117 8	1196	119 8
39	122 7	121 6	125 2	126 1	132 3	1282	130 9	1315	134 5	1283	128 0	1245	119 8	1198	120 1	1222	122 7
40	125 6	124 4	127 9	129 3	135 4	1310	133 8	1348	138 0	1313	131 3	1275	121 8	1219	122 7	1248	125 6
41	128 9	127 5	131 5	132 6	139 0	1340	137 3	1381	140 9	1340	133 7	1306	124 0	1240	125 4	1279	128 9
42	132 0	130 7	134 9	135 9	142 3	1374	140 4	1407	143 6	1370	136 6	1332	126 3	1263	127 9	1310	132 0
43	134 6	133 5	137 5	138 9	145 6	1405	143 4	1431	146 4	1392	139 0	1357	129 2	1290	130 8	1339	134 6
44	137 2	136 2	140 4	141 4	148 4	1429	146 1	1454	149 0	1413	141 5	1380	131 4	1315	133 4	1362	137 2
45	139 8	138 7	143 3	144 2	151 2	1453	148 0	1477	151 2	1438	143 8	1405	133 5	1335	135 9	1385	139 8
46	142	141	145	146	154	1479	150	1499	153	1461	146	1427	135	1357	138	1411	142

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	5	9	2	7	3		5		3		7		7		4		5
48	146	144	149	150	158	1517	154	1537	156	1494	150	1471	139	1402	142	1452	146
	5	5	0	3	4		4		9		6		7		5		5
49	147	145	149	151	159	1532	156	1550	158	1504	152	1491	141	1421	144	1466	147
	7	9	9	7	9		2		2		3		9		5		7
50	148	146	150	152	160	1543	157	1559	159	1514	153	1509	143	1441	146	1474	148
	8	7	7	6	9		4		4		4		8		2		8
51	150	147	151	153	161	1553	158	1570	160	1520	154	1524	145	1459	147	1483	150
	0	1	9	5	9		5		5		0		8		6		0
52	150	148	152	154	162	1561	159	1576	161	1526	154	1532	147	1474	148	1490	150
	7	0	8	4	7		2		2		6		2		8		7
53	151	148	153	155	163	1567	159	1586	162	1531	155	1541	148	1485	149	1497	151
	5	8	8	2	6		9		2		1		8		5		5
54	152	149	154	155	164	1571	160	1597	163	1538	155	1545	149	1494	149	1507	152
	6	3	7	9	7		7		3		7		9		9		6
55	153	150	155	156	165	1577	161	1606	164	1546	156	1552	150	1500	150	1517	153
	3	0	5	8	9		4		0		3		7		6		3
56	154	150	156	157	166	1583	162	1615	164	1553	157	1556	150	1503	151	1528	154
	2	7	7	5	8		0		9		1		8		3		2
57	155	151	157	158	168	1588	162	1624	166	1558	157	1561	151	1504	151	1536	155
	2	4	8	3	1		9		0		8		0		6		2
58	156	152	158	159	169	1594	163	1630	167	1566	158	1568	150	1507	152	1544	156
	0	0	2	3	1		6		0		4		9		3		0
59	157	152	159	160	170	1600	164	1638	167	1574	159	1574	150	1508	153	1553	157
	1	8	1	1	2		3		8		3		8		1		1
60	157	153	160	161	171	1608	165	1646	168	1582	160	1578	151	1512	153	1562	157
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61	159	154	160	161	172	1616	166	1653	170	1590	161	1583	151	1515	154	1570	159
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62	160	155	161	162	173	1621	166	1661	171	1598	161	1589	152	1517	155	1577	160
	1	3	8	9	8		6		2		9		1		1		1
63	161	156	162	163	175	1630	167	1669	172	1605	162	1594	152	1518	155	1584	161
	3	2	7	7	0		4		0		7		7		8		3
64	162	157	163	164	176	1635	168	1674	173	1611	163	1599	153	1523	156	1591	162

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	1	1	4	6	0		1		0		1		1		6		1
65	163	157	164	165	176	1644	168	1681	173	1616	163	1604	153	1528	157	1598	163
	1	8	1	2	9		8		6		7		7		1		1
66	163	158	165	166	177	1649	169	1687	174	1622	164	1608	154	1533	157	1603	163
	9	7	0	0	8		5		3		2		1		7		9
67	164	159	165	166	178	1655	170	1693	174	1628	164	1615	154	1538	158	1609	164
	7	4	6	5	6		2		9		7		6		2		7
68	165	159	166	167	179	1660	170	1699	175	1631	165	1620	155	1545	158	1614	165
	5	9	3	2	5		8		5		2		2		7		5
69	166	160	166	167	180	1666	171	1706	176	1637	165	1625	155	1549	159	1620	166
	2	6	7	7	3		4		0		8		8		2		2
70	166	160	167	168	181	1671	171	1710	176	1640	166	1630	156	1552	159	1625	166
	7	9	2	3	0		7		4		1		2		8		7
71	167	161	167	169	181	1674	172	1715	176	1643	166	1635	156	1556	160	1630	167
	3	2	5	0	7		3		8		6		7		2		3
72	167	161	167	169	182	1678	172	1719	177	1647	167	1639	157	1559	160	1634	167
	9	7	9	5	4		7		4		0		0		7		9
73	168	162	168	170	182	1680	173	1722	177	1649	167	1644	157	1561	161	1638	168
	3	1	4	0	9		0		8		3		7		0		3
74	168	162	168	170	183	1686	173	1726	178	1655	167	1645	158	1564	161	1643	168
	9	4	8	5	6		6		7		6		1		3		9
75	169	163	169	171	184	1690	174	1728	179	1659	167	1648	158	1568	161	1648	169
	6	0	3	0	1		1		2		8		6		6		6
76	169	163	170	171	184	1694	174	1735	180	1667	168	1650	158	1570	161	1649	169
	6	5	1	4	6		7		2		0		9		9		6
77	170	163	170	171	185	1699	174	1746	181	1683	168	1650	159	1572	162	1652	170
	4	8	4	9	3		8		5		7		0		0		4
78	171	164	171	172	185	1705	175	1758	181	1686	170	1654	159	1574	162	1659	171
	2	6	4	8	9		6		8		2		3		4		2
79	172	165	172	174	187	1713	176	1758	181	1683	171	1659	159	1576	162	1670	172
	7	7	7	1	3		6		8		4		8		8		7
80	173	166	173	175	188	1723	177	1755	181	1684	171	1675	160	1580	163	1684	173
	3	3	1	0	5		1		9		1		2		7		3
81	173	166	173	174	188	1724	177	1755	181	1683	171	1683	160	1583	164	1683	173
	5	6	2	9	3		6		9		1		9		9		5
82	173	166	173	175	188	1726	177	1752	181	1677	170	1682	161	1594	165	1682	173

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	7	6	4	0	1		4		6		3		5		2		7
83	173 6	166 5	173 5	174 9	187 5	1723	176 8	1748	181 5	1678	170 0	1680	162 8	1603	165 5	1679	173 6
84	173 5	166 6	173 5	174 4	187 3	1717	176 4	1746	181 3	1677	169 9	1675	164 6	1605	165 0	1679	173 5
85	173 4	166 2	173 3	174 2	187 2	1717	176 3	1747	181 7	1678	170 1	1676	164 6	1605	164 7	1679	173 4
86	173 6	166 3	173 5	174 4	187 2	1717	176 3	1746	181 5	1676	170 4	1677	164 0	1610	165 0	1681	173 6
87	174 1	166 6	173 5	174 6	187 2	1715	176 1	1744	181 5	1674	169 6	1669	163 6	1609	165 5	1686	174 1
88	174 4	166 8	173 6	174 4	186 9	1716	176 3	1744	181 3	1673	169 6	1665	163 3	1602	165 3	1685	174 4
89	173 9	166 5	173 4	174 3	186 9	1716	176 1	1743	181 3	1674	169 7	1667	163 3	1600	165 0	1680	173 9
90	174 0	166 5	173 4	174 4	186 7	1712	176 0	1742	181 3	1672	169 6	1666	163 2	1600	164 9	1679	174 0
91	174 1	166 5	173 5	174 4	186 5	1710	175 8	1741	181 0	1670	169 2	1666	163 4	1600	164 8	1680	174 1
92	174 1	166 4	173 4	174 3	186 3	1710	175 6	1738	180 9	1668	169 2	1663	163 4	1599	164 8	1681	174 1
93	174 0	166 5	173 4	174 1	186 2	1709	175 4	1734	180 6	1667	169 0	1661	163 3	1596	164 7	1678	174 0
94	174 0	166 3	173 2	174 1	185 9	1705	175 3	1732	180 2	1664	168 6	1659	163 2	1595	164 7	1678	174 0
95	173 7	166 1	173 1	173 9	185 4	1704	174 9	1729	179 9	1660	168 2	1656	163 0	1593	164 4	1675	173 7
96	173 5	165 9	172 9	173 5	184 8	1701	174 5	1726	179 4	1655	167 9	1652	162 9	1590	164 1	1673	173 5
97	173 3	165 6	172 5	173 2	184 3	1695	174 0	1720	178 8	1651	167 5	1648	162 6	1586	163 9	1669	173 3
98	172 8	165 0	172 0	172 8	183 7	1690	173 4	1715	178 1	1645	166 9	1644	162 2	1582	163 5	1665	172 8
99	172 4	164 6	171 6	172 3	182 9	1686	172 8	1709	177 5	1639	166 3	1639	161 8	1578	162 9	1663	172 4
10	171	164	171	171	182	1680	172	1701	176	1632	165	1633	161	1571	162	1656	171

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0	8	1	2	7	1		3		8		6		3		4		8
10	171	163	170	171	181	1673	171	1693	175	1625	164	1627	160	1567	162	1652	171
1	3	6	5	2	3		6		8		9		9		0		3
10	170	163	170	170	180	1665	170	1685	175	1617	164	1618	160	1560	161	1645	170
2	7	2	0	5	3		7		1		2		3		2		7
10	170	162	169	169	179	1658	169	1678	174	1608	163	1610	159	1553	160	1640	170
3	2	5	3	9	4		9		1		5		7		6		2
10	169	161	168	168	178	1650	169	1668	173	1600	162	1602	158	1545	159	1633	169
4	2	7	5	9	4		1		2		6		9		9		2
10	168	160	167	168	177	1642	168	1658	172	1593	161	1593	158	1538	159	1625	168
5	2	7	6	2	4		1		1		6		2		1		2
10	167	159	166	167	176	1631	167	1649	170	1582	160	1585	157	1530	158	1616	167
6	4	9	8	1	3		2		9		5		6		2		4
10	166	158	165	166	175	1622	166	1639	169	1572	159	1573	156	1522	157	1606	166
7	7	9	9	2	1		0		9		5		7		2		7
10	165	158	164	165	173	1612	164	1626	168	1562	158	1562	156	1514	156	1596	165
8	7	4	9	3	9		9		6		2		0		4		7
10	164	157	164	164	172	1600	163	1615	167	1551	157	1551	154	1504	155	1587	164
9	6	4	0	3	5		6		2		1		7		5		6
11	163	156	162	163	171	1589	162	1603	165	1538	156	1540	153	1493	154	1575	163
0	4	2	8	2	2		4		9		1		7		2		4
11	162	155	161	162	169	1577	161	1591	164	1526	154	1527	152	1481	153	1566	162
1	4	2	6	1	7		2		6		7		8		1		4
11	161	154	160	160	168	1566	159	1575	163	1513	153	1514	151	1468	152	1554	161
2	1	1	3	7	3		8		0		4		7		0		1
11	159	153	159	159	166	1551	158	1561	161	1498	152	1501	150	1456	150	1540	159
3	6	1	1	3	8		3		6		1		5		7		6
11	158	151	157	158	165	1536	157	1548	159	1483	150	1488	149	1446	149	1530	158
4	3	9	9	0	2		1		9		7		3		4		3
11	157	150	156	156	163	1523	155	1532	158	1469	149	1472	147	1432	148	1515	157
5	1	4	6	7	3		4		0		2		8		1		1
11	155	148	155	155	161	1508	153	1516	156	1455	147	1457	146	1419	146	1501	155
6	6	9	0	2	6		7		4		6		7		6		6
11	154	147	153	153	159	1491	152	1499	154	1436	145	1441	145	1404	145	1485	154
7	0	5	4	6	5		1		5		9		3		3		0
11	152	146	152	152	157	1474	150	1482	152	1419	144	1426	143	1387	143	1470	152

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8	3	0	0	0	5		4		5		4		5		7		3
11	150	144	150	150	155	1457	148	1462	150	1402	142	1407	142	1372	142	1455	150
9	7	4	3	4	4		6		6		7		0		0		7
12	148	142	148	148	153	1440	146	1444	148	1384	140	1389	140	1357	140	1441	148
0	8	9	8	6	6		8		6		7		4		4		8
12	147	141	147	146	151	1420	144	1427	146	1363	138	1372	138	1339	138	1423	147
1	1	2	1	9	6		8		6		8		6		8		1
12	145	139	145	145	149	1402	142	1408	144	1346	137	1354	136	1321	137	1407	145
2	1	5	3	0	2		9		3		1		9		2		1
12	143	137	143	143	146	1382	140	1386	142	1327	134	1333	135	1304	135	1389	143
3	3	8	5	0	9		6		3		9		0		2		3
12	141	135	141	141	144	1365	138	1365	140	1305	132	1313	133	1288	133	1369	141
4	3	9	5	0	9		5		1		8		3		4		3
12	139	134	139	138	142	1342	136	1344	137	1285	130	1294	131	1267	131	1352	139
5	2	1	5	9	5		5		8		7		2		5		2
12	137	132	137	137	139	1323	134	1323	135	1265	128	1274	129	1250	129	1329	137
6	1	4	3	0	9		4		2		7		5		5		1
12	135	130	135	134	137	1302	131	1299	133	1245	126	1249	127	1231	127	1311	135
7	1	2	4	8	4		8		1		3		3		4		1
12	132	128	133	132	135	1279	129	1276	130	1220	124	1228	125	1209	125	1289	132
8	8	4	1	7	2		6		5		0		5		2		8
12	130	126	130	130	132	1254	127	1253	128	1199	121	1206	123	1189	123	1267	130
9	5	4	8	2	4		2		1		8		0		2		5
13	128	124	128	128	130	1231	124	1225	125	1176	119	1180	120	1164	120	1244	128
0	3	0	5	0	0		9		5		5		7		9		3
13	125	121	126	125	127	1208	122	1199	122	1152	116	1155	118	1148	118	1222	125
1	9	9	1	5	4		5		9		9		4		5		9
13	123	119	123	123	124	1183	119	1174	120	1128	114	1132	116	1124	116	1198	123
2	6	6	7	3	5		6		3		4		2		5		6
13	121	117	121	120	121	1157	117	1147	117	1102	111	1107	113	1104	114	1174	121
3	1	5	5	5	9		2		2		9		6		0		1
13	118	114	118	118	118	1133	114	1117	114	1078	109	1080	111	1078	111	1150	118
4	7	8	8	1	8		6		5		3		4		8		7
13	116	112	116	115	115	1105	111	1092	111	1050	106	1054	108	1053	109	1124	116
5	0	2	2	1	9		7		7		5		7		1		0
13	113	109	113	112	113	1079	108	1065	108	1024	103	1029	106	1029	106	1099	113

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6	4	7	5	4	0		9		5		8		2		5		4
13	110	107	110	109	109	1052	106	1038	105	998	101	1000	103	1005	103	1075	110
7	7	1	9	9	8		1		6		2		6		8		7
13	107	104	108	107	106	1024	103	1008	102	971	985	975	100	977	101	1046	107
8	9	6	4	1	8		3		7				9		3		9
13	105	101	105	104	103	997	100	979	999	945	954	947	985	951	985	1019	105
9	4	9	5	2	8		3										4
14	102	991	102	101	100	965	973	950	966	914	929	920	957	925	958	995	102
0	5		7	5	9												5
14	995	964	996	984	976	939	944	918	936	885	900	889	928	896	930	965	995
1																	
14	966	933	965	954	945	910	911	888	905	859	868	863	901	868	900	936	966
2																	
14	940	905	935	923	913	877	881	859	872	826	840	832	873	841	867	909	940
3																	
14	912	876	903	890	881	848	851	826	842	797	809	802	846	816	843	877	912
4																	
14	878	848	871	861	846	818	818	792	804	766	776	770	812	785	811	849	878
5																	
14	847	818	840	826	812	783	783	759	771	733	742	739	777	757	783	817	847
6																	
14	812	786	805	791	778	752	748	727	733	701	711	707	743	729	750	783	812
7																	
14	776	753	770	758	740	718	715	690	700	668	679	673	708	694	718	750	776
8																	
14	740	721	736	723	708	685	679	657	666	637	645	641	674	669	684	718	740
9																	
15	707	687	701	692	674	653	648	625	634	607	612	612	642	637	652	688	707
0																	
15	671	656	670	659	642	618	614	594	600	571	581	581	608	609	620	655	671
1																	
15	637	625	636	623	606	587	581	559	563	541	547	548	576	584	590	620	637
2																	
15	602	593	602	592	574	553	548	527	530	508	516	515	542	553	561	589	602
3																	
15	568	563	568	556	540	522	514	492	493	478	485	484	510	523	528	557	568

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4																	
15	533	531	532	523	504	489	480	460	461	446	453	450	477	494	495	525	533
5																	
15	498	503	499	489	470	456	449	424	427	415	422	420	444	461	461	494	498
6																	
15	468	469	465	454	437	424	411	393	392	384	387	390	412	427	430	461	468
7																	
15	437	438	430	421	404	390	380	362	358	351	356	360	380	394	400	426	437
8																	
15	403	405	398	389	369	359	348	327	327	322	327	327	348	363	371	393	403
9																	
16	372	374	366	357	339	329	316	298	298	292	296	299	319	330	340	362	372
0																	
16	341	343	333	326	309	295	286	270	268	261	265	272	290	301	312	330	341
1																	
16	312	314	301	295	276	266	257	242	237	234	238	244	260	274	287	303	312
2																	
16	279	283	269	265	250	238	229	211	210	207	212	215	234	246	259	273	279
3																	
16	254	252	242	235	220	209	200	186	183	179	184	190	208	219	232	245	254
4																	
16	223	226	213	209	193	183	174	161	157	156	160	163	183	194	209	215	223
5																	
16	197	196	185	180	168	159	150	136	134	134	138	141	157	171	182	189	197
6																	
16	171	170	160	155	145	135	128	116	113	113	114	119	135	149	159	165	171
7																	
16	148	146	137	133	121	114	105	96	93	93	95	100	114	126	137	143	148
8																	
16	125	121	115	110	102	93	86	78	76	76	78	82	96	107	117	118	125
9																	
17	105	100	94	92	83	75	70	62	59	60	63	65	80	87	95	100	105
0																	
17	86	82	75	72	66	58	53	48	47	46	48	52	63	70	79	82	86
1																	
17	68	64	60	57	53	45	40	37	37	36	37	41	49	56	63	66	68

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2																	
17	53	50	45	43	39	34	31	28	26	27	28	31	40	44	49	52	53
3																	
17	40	38	35	33	30	26	23	21	20	21	21	23	30	33	37	40	40
4																	
17	30	29	26	24	23	19	17	16	15	15	16	18	23	25	29	30	30
5																	
17	23	21	19	18	17	14	13	12	12	12	12	14	17	19	21	23	23
6																	
17	17	15	14	14	13	12	11	10	9	10	10	11	13	14	16	17	17
7																	
17	12	12	11	10	10	9	9	8	8	9	9	9	10	11	11	13	12
8																	
17	9	10	9	9	8	8	8	8	8	8	8	9	8	9	8	9	9
9																	
18	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
0																	



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**2.2 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

<b>Test date</b>	2020-09-11	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LED120HIDRSC2MOG(4000K)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC200900	120.1	60	0.985	117.46	0.993	8.53
7E-I2	277.1	60	0.469	121.20	0.933	13.82
<b>DLC Pass Criteria</b>					$\geq 0.9(-3\%)$	$\leq 20(+5)$

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	84	R9	13
Frequency (Hz)	60	R2	92	R10	82
CCT (K)	3757	R3	96	R11	82
Duv	-0.0020	R4	82	R12	66
Chromaticity (x, y)	x=0.3901 y=0.3782	R5	84	R13	86
Chromaticity (u', v')	u(u')=0.2309 v'=0.5037	R6	89	R14	99
Color Rendering Index (CRI)	84	R7	84	R15	77
R9	13	R8	64	--	--
Rf	84				
Rg	95				
Rcs,h1(%)	-12				

**Photometric Measurement – Sphere-Spectroradiometer Method:**

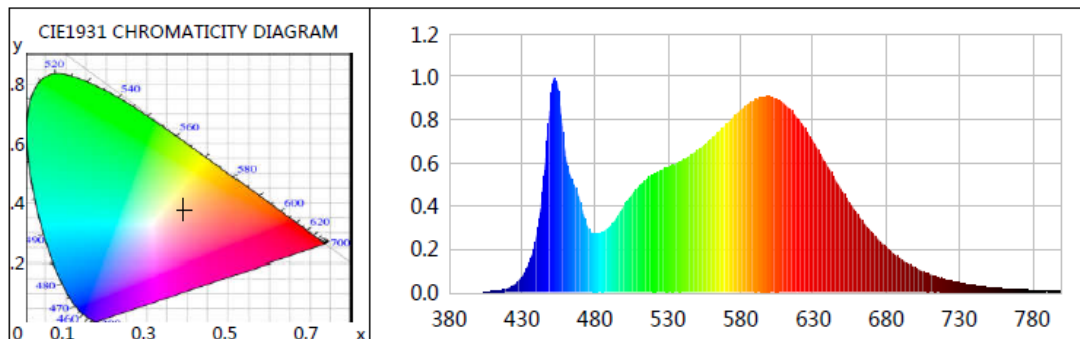
Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	18230.1	19038.3
Luminous Efficacy (lm/W)	155.20	157.08
Most worst Luminous/Highest Watts	150.41	



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### Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0002	0.0785	525	0.5648	207.7070	670	0.2758	101.4479
385	0.0004	0.1516	530	0.5796	213.1674	675	0.2401	88.3069
390	0.0004	0.1458	535	0.5940	218.4514	680	0.2073	76.2222
395	0.0003	0.1083	540	0.6146	226.0381	685	0.1791	65.8693
400	0.0004	0.1575	545	0.6316	232.3000	690	0.1545	56.8078
405	0.0013	0.4717	550	0.6557	241.1386	695	0.1325	48.7335
410	0.0035	1.2896	555	0.6804	250.2428	700	0.1133	41.6666
415	0.0084	3.0727	560	0.7128	262.1307	705	0.0959	35.2762
420	0.0177	6.5278	565	0.7452	274.0669	710	0.0822	30.2337
425	0.0363	13.3402	570	0.7782	286.2032	715	0.0702	25.8202
430	0.0722	26.5409	575	0.8146	299.5818	720	0.0600	22.0492
435	0.1392	51.2011	580	0.8488	312.1612	725	0.0503	18.4935
440	0.2617	96.2330	585	0.8723	320.7988	730	0.0437	16.0764
445	0.5353	196.8792	590	0.8959	329.4770	735	0.0361	13.2836
450	0.9278	341.2172	595	0.9061	333.2341	740	0.0310	11.3992
455	0.9359	344.1903	600	0.9097	334.5457	745	0.0271	9.9549
460	0.6345	233.3565	605	0.8965	329.7138	750	0.0227	8.3502
465	0.5122	188.3643	610	0.8761	322.2044	755	0.0192	7.0771
470	0.4154	152.7758	615	0.8436	310.2390	760	0.0170	6.2583
475	0.3054	112.3039	620	0.8026	295.1808	765	0.0135	4.9576
480	0.2696	99.1652	625	0.7509	276.1409	770	0.0128	4.6959
485	0.2803	103.0714	630	0.6973	256.4374	775	0.0113	4.1704
490	0.3030	111.4481	635	0.6402	235.4290	780	0.0094	3.4436
495	0.3463	127.3702	640	0.5804	213.4625	785	0.0075	2.7653
500	0.4007	147.3756	645	0.5206	191.4457	790	0.0076	2.7896
505	0.4491	165.1663	650	0.4660	171.3873	795	0.0055	2.0226
510	0.4914	180.7066	655	0.4137	152.1338	800	0.0043	1.5727
515	0.5220	191.9806	660	0.3626	133.3478			
520	0.5454	200.5669	665	0.3171	116.6251			

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TM30

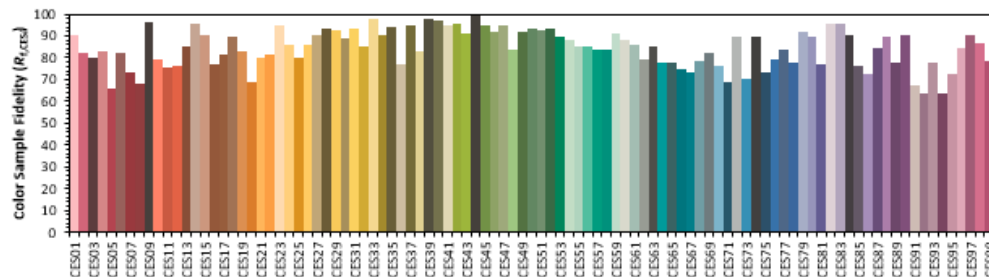
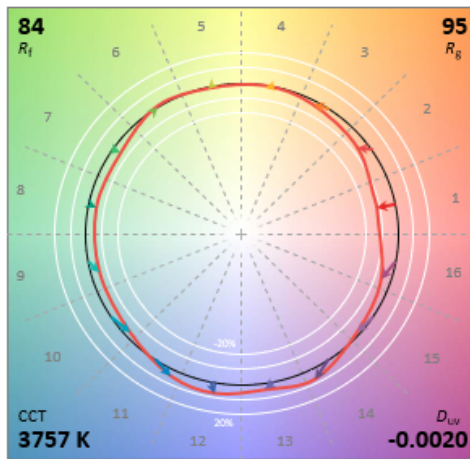
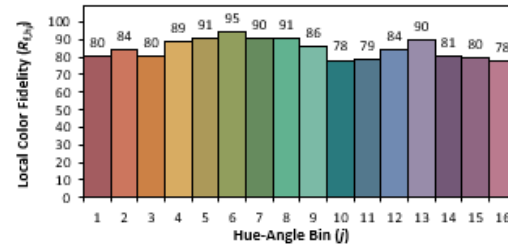
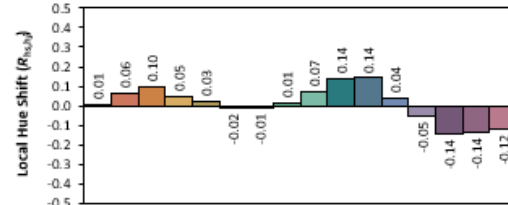
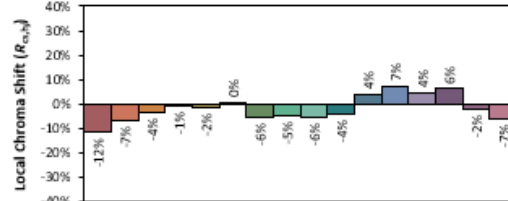
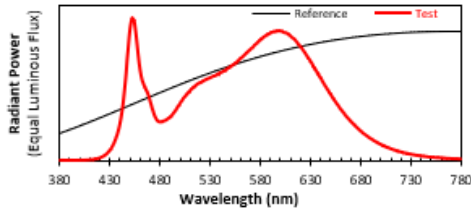
## ANSI/IES TM-30-18 Color Rendition Report

Source: L128-4080RA35000H1

Manufacturer: ASMAIT LIGHT CO., LTD

Date: 2020/9/11

Model: LED120HIDRSC2MDG(4000K)



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

$x$  0.3901

$y$  0.3782

$u'$  0.2309

$v'$  0.5037

CIE 13.3-1995  
(CRI)

$R_a$  84

$R_g$  13

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



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## Zonal Lumen Tabulation

### Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	670.5	3.7%	3.7%
0-40	1,450.9	8%	8%
0-60	4,106.8	22.5%	22.5%
60-90	5,617.4	30.8%	30.8%
70-100	5,865.6	32.2%	32.2%
90-120	5,433.4	29.8%	29.8%
0-90	9,724.2	53.3%	53.3%
90-180	8,507.1	46.7%	46.7%
0-180	18,231.3	100%	100%

### Lumens Per Zone

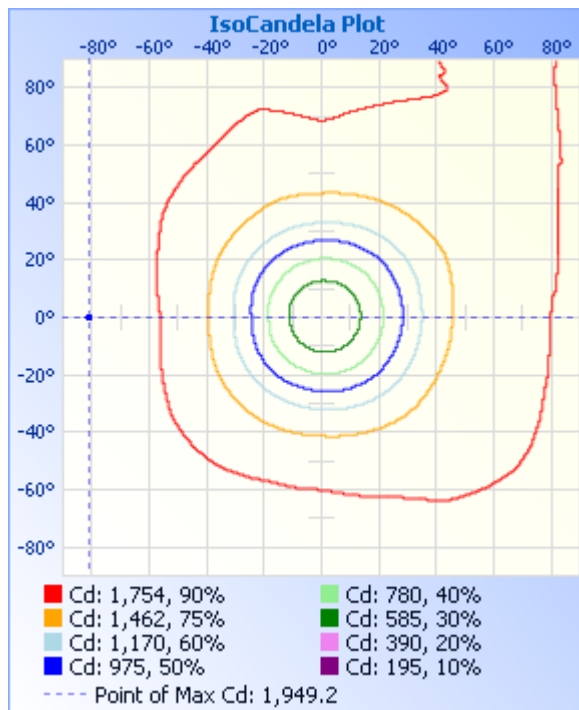
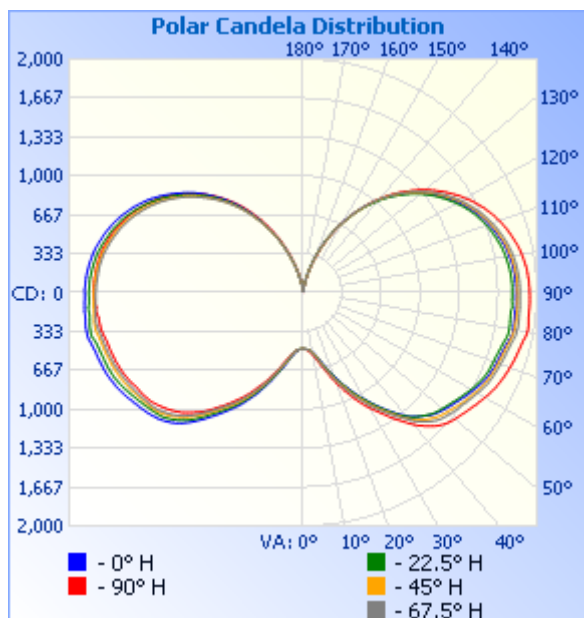
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	48.5	0.3%	90-100	1,975.3	10.8%
10-20	187.3	1.0%	100-110	1,848.0	10.1%
20-30	434.7	2.4%	110-120	1,610.1	8.8%
30-40	780.4	4.3%	120-130	1,287.0	7.1%
40-50	1,174.0	6.4%	130-140	918.2	5%
50-60	1,481.9	8.1%	140-150	552.8	3%
60-70	1,727.2	9.5%	150-160	248.7	1.4%
70-80	1,900.2	10.4%	160-170	62.9	0.3%
80-90	1,990.1	10.9%	170-180	4.1	0%



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## Photometric Data





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Candela Table - Type C

					112.		157.		202.		247.		292.		337.		
	0	22.5	45	67.5	90	5	135	5	180	5	225	5	270	5	315	5	360
0	483	483	483	483	483	483	483	483	483	483	483	483	483	483	483	483	483
1	483	483	484	485	485	483	483	483	483	482	483	481	483	482	483	484	483
2	485	485	484	484	486	485	484	485	484	483	483	481	485	484	484	484	485
3	485	485	485	484	487	487	487	489	486	483	484	482	486	486	486	486	485
4	488	488	486	488	492	491	490	491	489	488	488	485	489	488	488	487	488
5	490	489	490	490	497	497	495	497	494	492	490	488	493	491	489	488	490
6	494	494	496	496	504	505	504	504	501	498	496	493	496	494	493	493	494
7	499	500	503	503	515	514	514	514	511	507	504	501	502	499	498	499	499
8	506	509	513	513	528	527	527	528	522	518	515	510	510	506	504	506	506
9	516	518	523	525	541	541	542	541	537	532	528	522	519	516	514	515	516
10	528	531	537	542	558	558	558	558	553	548	543	536	530	527	525	528	528
11	543	547	555	559	576	577	577	576	571	566	558	553	543	540	537	541	543
12	561	565	572	578	598	598	597	595	591	583	575	569	560	554	553	557	561
13	579	586	595	600	621	620	619	618	613	604	595	587	578	575	573	576	579
14	600	607	617	623	645	643	645	644	636	625	619	610	598	595	592	595	600
15	623	632	641	648	669	669	670	668	661	651	639	633	620	616	613	616	623
16	647	657	667	673	696	698	696	695	685	674	666	655	642	640	636	641	647
17	672	681	692	703	726	725	724	722	713	704	691	679	667	662	660	666	672
18	700	707	719	730	757	753	753	752	744	730	718	705	695	687	685	692	700
19	725	735	748	761	786	782	781	784	773	758	745	735	721	713	710	717	725
20	755	764	779	790	819	813	816	814	802	786	775	762	745	739	736	745	755
21	783	795	808	819	851	845	847	847	836	816	802	790	773	770	766	773	783
22	812	821	837	853	880	872	877	876	865	848	833	819	802	797	793	803	812
23	845	855	864	881	915	909	909	907	898	880	860	851	833	824	822	831	845
24	873	879	896	913	946	941	941	939	934	912	891	877	862	852	850	862	873
25	904	911	928	944	980	972	974	973	963	942	921	910	887	879	875	891	904
26	934	944	963	974	1013	1007	1008	1006	995	971	953	939	916	907	908	920	934
27	966	974	993	100	104	1040	103	1037	102	1006	984	968	946	936	938	949	966





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				9	6		9		7								
28	998	1005	1024	1040	1079	1072	1069	1068	1061	1037	1015	998	978	966	966	980	998
29	1029	1037	1055	1072	1112	1101	1099	1100	1094	1068	1045	1028	1006	997	995	1010	1029
30	1059	1065	1086	1103	1141	1130	1130	1130	1123	1099	1076	1060	1036	1028	1027	1040	1059
31	1090	1099	1120	1133	1171	1159	1163	1161	1152	1128	1104	1089	1064	1054	1054	1070	1090
32	1123	1131	1152	1167	1202	1191	1192	1190	1180	1157	1132	1117	1091	1082	1084	1101	1123
33	1156	1165	1184	1197	1233	1222	1223	1219	1212	1185	1159	1143	1122	1110	1112	1134	1156
34	1186	1197	1215	1229	1266	1253	1253	1250	1242	1213	1186	1171	1150	1134	1142	1164	1186
35	1221	1229	1245	1261	1304	1286	1284	1285	1274	1242	1214	1197	1179	1165	1170	1193	1221
36	1252	1261	1277	1290	1337	1317	1317	1315	1305	1271	1247	1227	1208	1192	1202	1222	1252
37	1286	1293	1312	1323	1370	1355	1349	1346	1338	1304	1277	1257	1238	1224	1230	1255	1286
38	1320	1328	1347	1356	1404	1386	1378	1378	1373	1340	1307	1287	1269	1254	1261	1284	1320
39	1349	1358	1380	1387	1442	1419	1410	1410	1405	1372	1339	1319	1302	1284	1292	1316	1349
40	1382	1387	1412	1426	1475	1451	1442	1444	1438	1407	1370	1350	1330	1310	1320	1349	1382
41	1409	1411	1442	1459	1510	1480	1474	1477	1470	1439	1401	1383	1355	1336	1349	1379	1409
42	1431	1433	1468	1486	1536	1509	1507	1505	1500	1467	1430	1414	1380	1363	1378	1407	1431
43	1450	1452	1488	1512	1562	1538	1535	1530	1529	1496	1457	1440	1405	1387	1403	1432	1450
44	1470	1468	1511	1538	1588	1561	1560	1555	1553	1518	1480	1468	1432	1409	1430	1453	1470
45	149	148	152	155	161	1582	158	1576	157	1540	150	1490	145	1429	145	1471	149

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	0	5	9	8	3		3		5		5		5		4		0
46	150	150	154	157	163	1603	160	1598	159	1562	152	1511	147	1444	147	1492	150
	9	3	7	8	3		3		6		8		3		3		9
47	152	151	156	159	165	1622	162	1619	161	1580	155	1532	149	1461	149	1512	152
	6	7	3	5	1		2		4		0		1		3		6
48	153	153	157	160	166	1639	164	1634	163	1599	156	1549	150	1477	151	1528	153
	9	1	7	6	6		1		1		6		8		1		9
49	155	154	158	161	167	1650	165	1650	164	1611	158	1563	152	1492	152	1541	155
	3	1	6	6	8		6		4		4		4		6		3
50	156	154	159	162	168	1661	166	1662	165	1621	159	1580	153	1506	154	1553	156
	4	9	8	5	9		9		6		8		9		0		4
51	157	156	160	163	169	1672	168	1676	166	1630	161	1594	155	1519	155	1562	157
	5	0	8	6	8		1		9		0		4		3		5
52	158	156	161	164	170	1682	168	1684	167	1639	161	1606	156	1533	156	1572	158
	5	8	9	5	7		9		9		9		9		1		5
53	159	157	163	165	171	1692	169	1697	168	1648	162	1615	158	1544	157	1581	159
	6	9	0	5	8		9		9		7		2		1		6
54	160	158	164	166	172	1701	170	1709	169	1657	163	1623	159	1553	157	1593	160
	6	9	1	0	9		8		8		4		6		7		6
55	161	160	165	167	173	1710	171	1719	170	1667	164	1630	160	1559	158	1605	161
	7	2	2	0	9		5		8		3		6		6		7
56	162	161	166	168	175	1720	172	1730	171	1677	165	1637	161	1564	159	1617	162
	9	3	3	3	0		3		6		1		3		4		9
57	164	162	167	169	176	1729	173	1740	172	1687	165	1644	162	1572	160	1628	164
	1	4	4	1	2		2		7		8		0		1		1
58	165	163	168	170	177	1739	173	1748	173	1696	166	1651	162	1577	160	1638	165
	3	6	4	1	2		9		7		8		6		8		3
59	166	164	169	171	178	1749	174	1758	174	1705	167	1659	163	1583	161	1647	166
	4	7	3	2	4		7		8		6		2		7		4
60	167	166	170	172	179	1758	175	1766	175	1717	168	1667	163	1590	162	1657	167
	6	0	5	1	6		7		8		5		8		7		6
61	168	167	171	173	180	1769	176	1773	176	1727	169	1673	164	1598	163	1667	168
	8	1	5	3	7		5		7		5		6		6		8
62	170	168	172	174	181	1779	177	1784	177	1737	170	1681	165	1605	164	1674	170
	1	0	5	4	9		3		7		2		6		5		1
63	171	169	173	175	182	1788	178	1791	178	1745	171	1689	166	1612	165	1684	171

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	2	2	4	4	9		2		7		1		4		3		2
64	172	170	174	176	183	1797	178	1799	179	1756	171	1695	167	1619	166	1690	172
	2	0	1	3	8		9		5		7		2		1		2
65	173	170	175	176	184	1806	179	1805	180	1763	172	1702	167	1625	166	1698	173
	1	8	0	9	7		7		2		5		9		7		1
66	173	171	175	177	185	1812	180	1810	180	1772	173	1707	168	1631	167	1704	173
	9	5	5	6	4		5		9		0		6		3		9
67	174	172	176	178	186	1819	181	1818	181	1779	173	1715	169	1637	168	1710	174
	5	1	1	0	2		1		6		6		2		0		5
68	175	172	176	178	186	1824	181	1824	182	1782	174	1722	169	1643	168	1717	175
	0	5	5	6	8		7		2		2		8		5		0
69	175	172	177	179	187	1830	182	1830	182	1789	174	1728	170	1647	169	1722	175
	7	8	0	0	6		3		6		7		2		2		7
70	176	173	177	179	188	1833	182	1835	183	1792	175	1733	170	1651	169	1727	176
	0	3	4	6	1		8		1		2		7		6		0
71	176	173	177	180	188	1836	183	1839	183	1797	175	1737	171	1653	170	1729	176
	5	5	9	1	8		2		6		6		1		1		5
72	176	174	178	180	189	1842	183	1843	183	1798	176	1743	171	1656	170	1734	176
	9	0	4	6	4		6		9		1		5		3		9
73	177	174	178	181	190	1848	184	1848	184	1805	176	1746	171	1659	170	1738	177
	3	7	8	2	0		1		4		6		9		9		3
74	178	175	179	181	190	1852	184	1850	184	1808	177	1751	172	1660	170	1742	178
	3	2	4	7	5		6		7		0		3		9		3
75	178	176	180	182	191	1857	185	1855	185	1813	177	1754	172	1662	171	1747	178
	8	0	1	5	0		1		4		3		5		2		8
76	179	176	180	183	191	1859	185	1859	186	1820	177	1758	173	1667	171	1754	179
	6	6	9	2	6		4		1		8		0		8		6
77	180	177	181	184	192	1863	185	1868	186	1828	178	1763	173	1672	172	1759	180
	8	7	7	0	2		8		9		4		7		2		8
78	182	178	182	185	193	1874	186	1881	188	1843	179	1767	174	1679	172	1770	182
	0	6	5	0	0		5		0		0		4		7		0
79	182	179	183	185	194	1884	187	1883	188	1850	179	1774	175	1685	173	1779	182
	5	0	0	7	2		2		3		9		3		2		5
80	182	179	183	185	194	1889	187	1880	188	1849	180	1780	175	1691	174	1783	182
	6	1	3	7	8		9		2		5		8		3		6
81	182	179	183	186	194	1892	188	1880	188	1848	180	1787	175	1692	175	1782	182

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	3	0	6	2	9		2		3		4		8		0		3
82	182	178	183	186	194	1890	188	1880	188	1843	180	1791	176	1697	175	1783	182
	2	7	5	2	6		1		0		4		1		1		2
83	182	178	183	186	194	1884	187	1878	187	1839	180	1788	176	1701	175	1781	182
	1	6	7	0	4		7		6		0		2		4		1
84	181	178	183	185	193	1883	187	1878	187	1837	179	1786	177	1700	175	1780	181
	9	4	4	8	9		4		5		8		1		1		9
85	182	178	183	185	193	1882	187	1877	187	1841	179	1782	177	1697	174	1781	182
	0	5	6	9	9		1		8		6		9		9		0
86	182	179	183	185	194	1881	187	1877	187	1842	179	1780	177	1699	174	1782	182
	3	3	8	9	0		2		5		8		2		8		3
87	182	179	183	185	194	1880	187	1875	187	1835	179	1778	178	1699	175	1786	182
	5	1	5	7	0		1		2		8		0		1		5
88	182	178	183	185	193	1881	187	1873	187	1833	179	1775	178	1698	175	1780	182
	3	7	4	6	9		0		1		2		8		0		3
89	182	178	183	185	193	1880	187	1872	186	1833	179	1774	179	1697	174	1778	182
	1	9	5	5	9		0		9		1		4		9		1
90	182	178	183	185	193	1880	186	1872	186	1835	179	1774	179	1696	174	1780	182
	3	9	4	6	7		8		9		1		2		8		3
91	182	178	183	185	193	1878	186	1870	187	1833	179	1771	179	1695	174	1780	182
	3	9	4	5	8		6		0		0		3		8		3
92	182	178	183	185	193	1875	186	1868	186	1830	178	1771	179	1694	174	1779	182
	1	9	3	3	4		5		6		7		2		8		1
93	181	178	183	185	193	1873	186	1866	186	1829	178	1768	179	1692	174	1778	181
	9	7	2	2	3		3		4		7		0		6		9
94	181	178	183	185	192	1871	186	1864	186	1827	178	1766	178	1690	174	1777	181
	7	5	0	1	9		0		2		4		9		5		7
95	181	178	182	184	192	1868	185	1861	185	1822	177	1763	178	1688	174	1775	181
	5	3	7	7	6		5		9		9		5		3		5
96	181	178	182	184	192	1864	185	1856	185	1819	177	1760	178	1686	174	1772	181
	2	0	4	4	4		2		3		8		4		0		2
97	180	177	182	184	191	1858	184	1853	184	1814	177	1758	178	1682	173	1768	180
	9	6	0	1	8		7		9		4		1		7		9
98	180	177	181	183	191	1852	184	1848	184	1808	176	1753	177	1678	173	1764	180
	5	1	6	6	2		0		5		9		8		3		5
99	179	176	181	183	190	1847	183	1841	183	1802	176	1747	177	1673	172	1759	179

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	8	6	2	0	6		5		7		3		2		8		8
10	179	176	180	182	189	1840	182	1836	183	1797	175	1743	176	1668	172	1753	179
0	2	1	4	4	9		9		2		7		9		2		2
10	178	175	179	181	189	1832	182	1827	182	1790	175	1737	176	1663	171	1749	178
1	6	5	6	8	1		2		5		1		2		7		6
10	177	174	179	180	188	1825	181	1819	181	1781	174	1728	175	1656	171	1741	177
2	9	9	1	9	4		3		8		4		6		1		9
10	177	174	178	180	187	1816	180	1810	180	1772	173	1720	174	1650	170	1733	177
3	2	2	5	3	4		5		8		6		8		4		2
10	176	173	177	179	186	1805	179	1801	179	1762	172	1711	173	1641	169	1726	176
4	3	4	5	3	2		5		8		8		8		6		3
10	175	172	176	178	185	1796	178	1791	178	1752	171	1702	173	1632	168	1718	175
5	2	3	5	3	2		6		7		7		0		6		2
10	174	171	175	177	184	1785	177	1779	177	1741	170	1692	172	1624	167	1706	174
6	1	4	3	3	2		4		8		5		2		6		1
10	173	170	174	176	183	1774	176	1769	176	1730	169	1682	171	1616	166	1697	173
7	0	5	5	1	0		3		7		6		2		8		0
10	172	169	173	175	181	1763	174	1756	175	1719	168	1671	170	1608	165	1688	172
8	1	5	5	1	8		9		4		5		0		9		1
10	170	168	172	174	180	1751	173	1743	174	1709	167	1660	168	1596	164	1676	170
9	9	6	2	0	4		8		3		4		9		8		9
11	169	167	171	172	179	1738	172	1731	173	1696	166	1649	167	1585	163	1665	169
0	7	4	1	6	1		6		0		2		9		7		7
11	168	166	169	171	177	1726	171	1718	171	1683	165	1635	166	1574	162	1654	168
1	5	2	8	4	6		2		6		0		6		3		5
11	167	164	168	170	176	1711	169	1702	170	1670	163	1622	165	1563	161	1641	167
2	1	9	5	0	2		9		3		6		4		2		1
11	165	163	167	168	174	1697	168	1688	168	1656	162	1609	164	1551	159	1628	165
3	8	5	1	5	5		2		8		1		1		8		8
11	164	162	165	167	172	1679	166	1674	167	1639	160	1595	162	1540	158	1613	164
4	4	3	6	2	8		9		2		6		8		6		4
11	162	160	164	165	171	1663	165	1658	165	1622	159	1580	161	1526	157	1600	162
5	8	9	2	6	2		1		5		2		3		0		8
11	161	159	162	164	169	1646	163	1639	163	1607	157	1563	159	1510	155	1584	161
6	1	4	5	0	2		3		9		5		9		7		1
11	159	157	160	162	167	1626	161	1622	162	1588	156	1547	158	1495	154	1569	159

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7	4	8	9	2	3		7		2		0		3		2		4
11	157	156	159	160	165	1608	159	1605	160	1570	154	1531	156	1479	152	1553	157
8	6	1	3	5	5		9		3		3		6		6		6
11	156	154	157	158	163	1590	157	1586	158	1551	152	1514	155	1463	150	1536	156
9	2	3	5	8	5		9		5		5		0		9		2
12	154	152	155	156	161	1571	156	1567	156	1533	150	1495	153	1447	149	1521	154
0	2	4	9	9	2		0		6		5		2		3		2
12	152	150	153	155	159	1551	153	1546	154	1511	148	1475	151	1428	147	1503	152
1	2	7	9	0	2		9		5		6		3		5		2
12	150	148	151	153	157	1528	151	1527	152	1492	146	1458	149	1410	145	1482	150
2	4	5	9	1	1		8		3		7		5		6		4
12	148	146	149	150	154	1508	149	1503	150	1472	144	1437	147	1393	143	1465	148
3	3	7	7	9	6		8		1		7		5		6		3
12	146	144	147	148	152	1486	147	1482	147	1450	142	1416	145	1374	141	1444	146
4	4	7	6	8	3		4		9		6		4		5		4
12	144	142	145	146	149	1464	145	1460	145	1426	140	1395	143	1356	139	1423	144
5	3	7	5	7	9		3		6		4		4		6		3
12	142	140	143	144	147	1440	143	1437	143	1403	138	1374	141	1337	137	1404	142
6	2	7	5	3	6		0		0		2		2		6		2
12	139	138	141	142	144	1417	140	1411	140	1380	135	1350	139	1318	135	1382	139
7	7	4	2	1	9		5		6		8		1		5		7
12	137	136	138	139	142	1392	137	1387	138	1357	133	1327	136	1295	133	1357	137
8	4	4	8	6	4		9		4		5		7		3		4
12	135	134	136	137	139	1365	135	1361	135	1331	131	1304	134	1275	131	1334	135
9	1	0	5	2	9		6		6		1		4		1		1
13	132	131	133	134	137	1340	133	1336	133	1306	128	1277	132	1252	128	1310	132
0	6	8	8	7	1		1		1		8		1		7		6
13	130	129	131	132	134	1315	130	1306	130	1282	126	1253	129	1231	126	1286	130
1	0	4	4	0	3		4		6		4		7		4		0
13	127	126	128	129	131	1288	127	1280	128	1256	123	1226	127	1207	123	1262	127
2	6	9	8	3	6		7		0		5		3		9		6
13	125	124	126	126	128	1257	124	1252	125	1227	121	1200	124	1185	121	1236	125
3	2	1	2	8	6		9		3		0		7		6		2
13	122	121	123	123	125	1231	122	1223	122	1200	118	1172	122	1160	118	1209	122
4	6	6	5	8	4		1		2		3		0		8		6
13	119	118	120	121	122	1202	119	1193	119	1171	115	1146	119	1134	116	1182	119

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5	6	6	4	1	5		0		4		4		3		0		6
13	116	115	117	118	119	1170	116	1164	116	1143	112	1119	116	1108	113	1154	116
6	7	9	6	1	5		0		4		5		3		4		7
13	114	113	114	115	116	1140	113	1135	113	1114	109	1092	113	1082	110	1129	114
7	0	3	9	4	6		2		2		8		7		8		0
13	111	110	112	112	113	1109	110	1107	110	1085	106	1062	110	1053	108	1101	111
8	0	4	1	4	5		4		2		9		8		1		0
13	108	107	109	109	109	1079	107	1073	107	1056	103	1032	107	1027	105	1070	108
9	3	5	0	2	9		0		2		9		9		2		3
14	105	104	105	106	106	1047	103	1041	104	1023	101	1006	105	1000	102	1043	105
0	2	2	8	3	8		9		2		0		0		1		2
14	102	100	102	103	103	1015	100	1012	100	994	981	973	101	971	992	1010	102
1	1	9	8	1	3		8		8				9				1
14	989	979	991	995	999	984	973	976	977	961	947	944	989	939	960	981	989
2																	
14	960	947	959	961	965	947	941	943	944	928	916	913	960	911	930	950	960
3																	
14	928	917	926	927	930	914	907	909	911	895	884	882	926	882	900	916	928
4																	
14	897	882	889	894	889	878	872	872	873	860	855	848	895	854	867	886	897
5																	
14	860	849	857	858	858	846	835	838	841	828	817	815	861	822	838	850	860
6																	
14	825	816	818	820	820	806	800	804	805	793	784	783	824	793	803	816	825
7																	
14	789	777	783	785	781	771	764	769	766	758	750	746	789	758	769	780	789
8																	
14	753	744	749	748	746	733	729	729	731	723	712	713	754	725	736	745	753
9																	
15	720	708	712	715	709	699	695	695	695	688	679	680	720	694	699	714	720
0																	
15	683	673	677	680	675	661	656	660	661	650	646	647	685	660	667	679	683
1																	
15	645	640	644	644	637	628	622	623	623	618	613	612	647	631	634	644	645
2																	
15	611	608	610	607	601	593	584	588	590	581	577	579	612	598	600	611	611

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3																	
15	576	574	571	569	565	554	549	552	555	548	544	545	576	567	568	574	576
4																	
15	543	539	536	530	528	518	515	516	516	514	510	511	544	533	533	538	543
5																	
15	508	506	498	497	489	482	478	478	481	478	476	475	507	501	498	504	508
6																	
15	473	469	463	464	453	448	440	444	446	442	439	442	470	466	463	472	473
7																	
15	436	436	426	427	419	410	406	410	412	407	406	410	436	433	427	436	436
8																	
15	405	400	395	392	383	378	373	376	375	375	374	376	402	397	393	401	405
9																	
16	369	369	358	358	349	345	339	340	344	343	340	344	370	363	361	367	369
0																	
16	337	335	323	326	316	311	306	309	311	308	310	313	337	332	331	339	337
1																	
16	307	304	292	291	286	276	274	278	279	277	278	284	305	303	302	305	307
2																	
16	275	270	261	261	254	246	245	247	247	247	249	253	274	270	271	274	275
3																	
16	245	243	232	231	224	217	214	216	218	217	219	224	243	244	243	244	245
4																	
16	215	214	202	200	194	187	186	189	191	190	193	198	215	214	216	216	215
5																	
16	188	183	174	173	167	160	161	163	162	165	167	170	188	185	189	188	188
6																	
16	163	159	150	147	141	137	137	136	138	141	144	147	161	160	163	162	163
7																	
16	136	134	126	123	118	114	115	113	116	119	119	124	137	137	140	137	136
8																	
16	114	110	103	103	97	92	93	94	96	97	100	104	117	115	116	116	114
9																	
17	94	90	85	82	78	74	75	75	76	79	82	86	96	95	96	95	94
0																	
17	76	71	66	65	61	59	57	59	60	62	64	68	77	78	77	75	76

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1																	
17	59	55	51	50	47	44	44	45	46	48	50	54	61	61	63	61	59
2																	
17	45	42	38	38	36	33	33	34	34	36	39	41	48	47	47	47	45
3																	
17	34	32	29	27	26	25	25	25	25	28	30	32	36	36	36	36	34
4																	
17	25	24	22	21	19	18	18	19	19	21	22	23	27	27	28	27	25
5																	
17	19	17	16	16	15	14	14	14	15	16	17	18	20	20	20	20	19
6																	
17	13	13	12	12	11	10	10	11	11	12	13	14	15	15	15	15	13
7																	
17	11	10	10	9	9	9	9	9	10	10	11	10	12	11	11	10	11
8																	
17	9	9	9	9	8	8	8	8	9	9	10	9	9	9	9	8	9
9																	
18	9	9	9	9	8	8	8	8	8	9	9	9	8	8	8	9	9
0																	



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**2.2 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

<b>Test date</b>	2020-09-11	<b>Test Ambient:</b>	25.2 ° C
<b>Test Orientation</b>	As intended	<b>Stabilization Time (min)</b>	90
<b>Model Number</b>	LED120HIDRSC2MOG(5000K)		

**Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC200900	120.1	60	1.026	122.41	0.993	9.1
7E-I3	277.1	60	0.481	124.80	0.936	13.59
<b>DLC Pass Criteria</b>					$\geq 0.9(-3\%)$	$\leq 20(+5)$

**Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	6
Frequency (Hz)	60	R2	89	R10	73
CCT (K)	4971	R3	94	R11	80
Duv	0.0028	R4	81	R12	55
Chromaticity (x, y)	x=0.3465 y=0.3584	R5	81	R13	83
Chromaticity (u', v')	u(u')=0.2098 v'=0.4882	R6	84	R14	97
Color Rendering Index (CRI)	83	R7	87	R15	75
R9	6	R8	66	--	--
Rf	83				
Rg	95				
Rcs,h1(%)	-13				

**Photometric Measurement – Sphere-Spectroradiometer Method:**

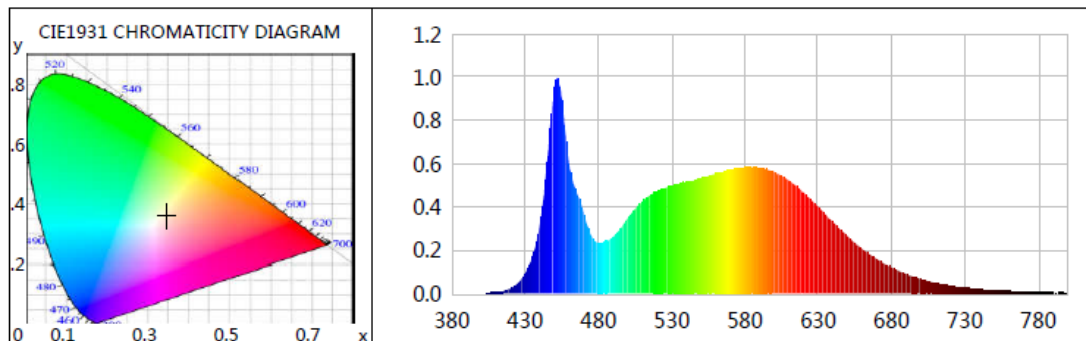
Parameter	Result	
Test Voltage (V)	120.0	277.0
Frequency (Hz)	60	60
Total Luminous (lm)	18153.6	18770.3
Luminous Efficacy (lm/W)	148.30	150.40
Most worst Luminous/Highest Watts	145.46	



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### Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0008	0.3785	525	0.4861	240.7568	670	0.1571	77.8090
385	0.0006	0.2926	530	0.4945	244.9217	675	0.1373	67.9760
390	0.0003	0.1317	535	0.5048	249.9845	680	0.1191	58.9704
395	0.0004	0.1752	540	0.5151	255.0820	685	0.1040	51.5083
400	0.0011	0.5511	545	0.5219	258.4864	690	0.0891	44.1457
405	0.0019	0.9628	550	0.5321	263.5169	695	0.0774	38.3382
410	0.0043	2.1125	555	0.5427	268.7682	700	0.0655	32.4207
415	0.0108	5.3471	560	0.5542	274.4520	705	0.0559	27.6766
420	0.0229	11.3368	565	0.5624	278.5028	710	0.0485	23.9957
425	0.0471	23.3259	570	0.5710	282.7966	715	0.0412	20.4270
430	0.0918	45.4448	575	0.5788	286.6697	720	0.0356	17.6149
435	0.1720	85.2000	580	0.5831	288.7925	725	0.0299	14.8256
440	0.3134	155.2227	585	0.5817	288.0786	730	0.0252	12.5019
445	0.6044	299.3414	590	0.5811	287.7694	735	0.0219	10.8436
450	0.9569	473.9208	595	0.5739	284.2035	740	0.0182	9.0100
455	0.8977	444.5638	600	0.5615	278.1037	745	0.0166	8.2314
460	0.5982	296.2392	605	0.5434	269.1213	750	0.0139	6.8763
465	0.4709	233.2252	610	0.5220	258.5139	755	0.0121	6.0036
470	0.3659	181.2315	615	0.4960	245.6332	760	0.0107	5.2914
475	0.2670	132.2445	620	0.4661	230.8194	765	0.0079	3.9219
480	0.2348	116.2950	625	0.4329	214.3931	770	0.0078	3.8718
485	0.2411	119.3937	630	0.3991	197.6467	775	0.0059	2.9343
490	0.2600	128.7561	635	0.3644	180.4813	780	0.0062	3.0711
495	0.2990	148.0930	640	0.3296	163.2570	785	0.0044	2.1740
500	0.3473	171.9843	645	0.2959	146.5308	790	0.0043	2.1119
505	0.3894	192.8308	650	0.2642	130.8485	795	0.0037	1.8395
510	0.4266	211.2686	655	0.2329	115.3277	800	0.0030	1.5065
515	0.4521	223.9191	660	0.2055	101.7576			
520	0.4705	233.0378	665	0.1803	89.3058			

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TM30

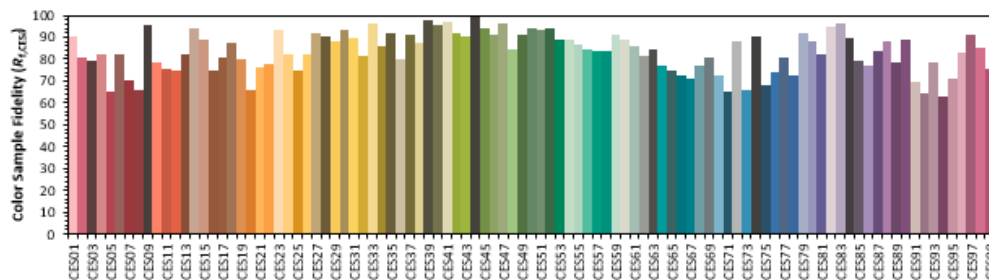
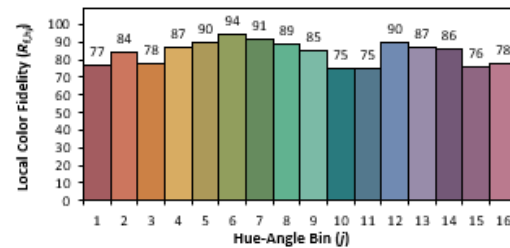
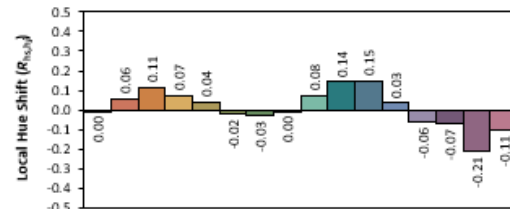
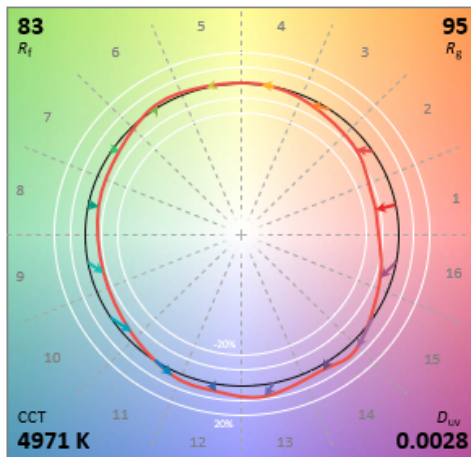
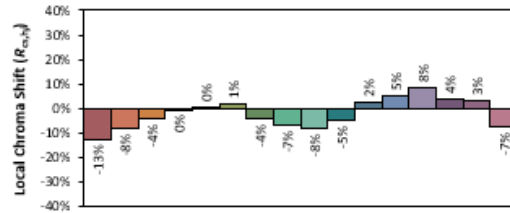
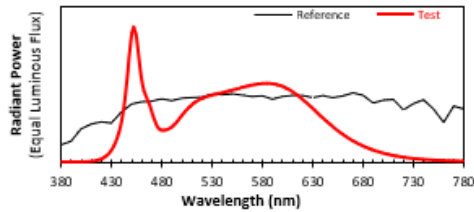
### ANSI/IES TM-30-18 Color Rendition Report

Source: L128-5080RA35000H1

Manufacturer: ASMAIT LIGHT CO., LTD

Date: 2020/9/11

Model: LED120HIDRSC2MOG(5000K)



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

$x$  0.3465  
 $y$  0.3584  
 $u'$  0.2098  
 $v'$  0.4882

CIE 13.3-1995  
(CRI)

$R_a$  83  
 $R_g$  6

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



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### Zonal Lumen Tabulation

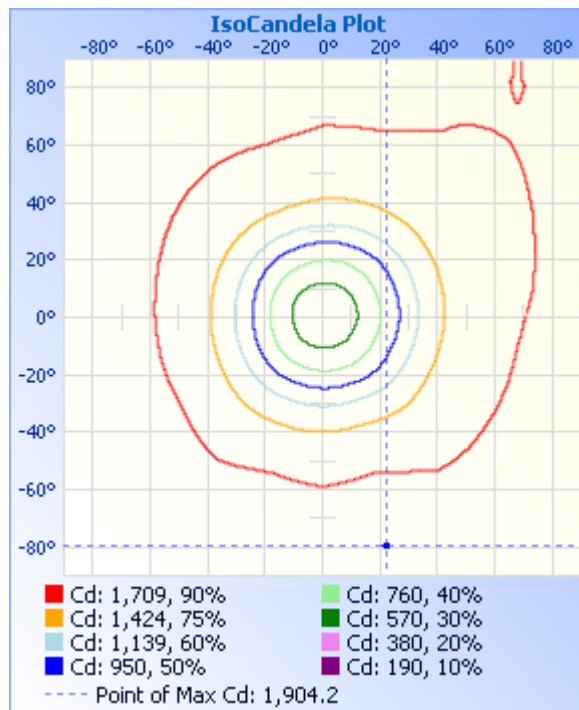
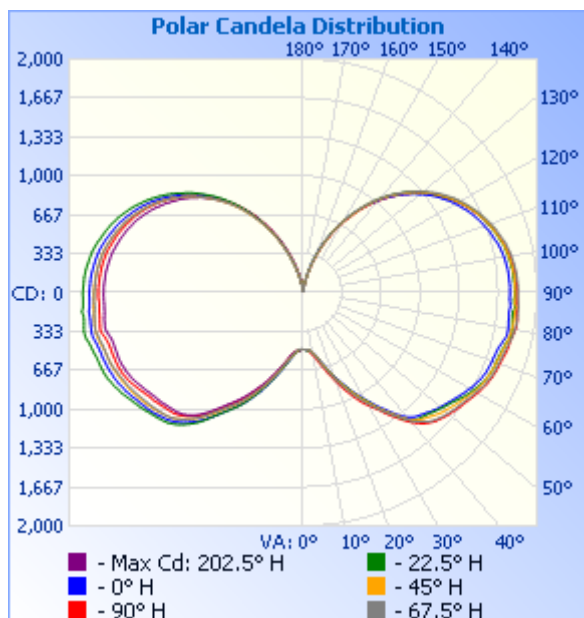
Zonal Lumen Summary				Lumens Per Zone					
Zone	Lumens	% Lamp	% Luminaire	Zone	Lumens	% Total	Zone	Lumens	% Total
0-30	673.6	3.7%	3.7%	0-10	48.9	0.3%	90-100	1,958.8	10.8%
0-40	1,460.2	8%	8%	10-20	188.5	1.0%	100-110	1,833.5	10.1%
0-60	4,106.9	22.6%	22.6%	20-30	436.2	2.4%	110-120	1,599.0	8.8%
60-90	5,586.1	30.8%	30.8%	30-40	786.6	4.3%	120-130	1,281.6	7.1%
70-100	5,824.3	32.1%	32.1%	40-50	1,176.1	6.5%	130-140	916.8	5%
90-120	5,391.3	29.7%	29.7%	50-60	1,470.6	8.1%	140-150	553.8	3.1%
0-90	9,693.0	53.4%	53.4%	60-70	1,720.6	9.5%	150-160	250.3	1.4%
90-180	8,461.9	46.6%	46.6%	70-80	1,890.0	10.4%	160-170	63.9	0.4%
0-180	18,154.9	100%	100%	80-90	1,975.4	10.9%	170-180	4.3	0%



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## Photometric Data





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### Candela Table - Type C

	112.				157.				202.				247.				292.				337.			
	0	22.5	45	67.5	90	5	135	5	180	5	225	5	270	5	315	5	360							
0	485	485	485	485	485	485	485	485	485	485	485	485	485	485	485	485	485							
1	488	489	486	487	484	486	484	486	485	485	484	483	488	487	486	486	488							
2	489	489	489	488	485	487	486	488	487	486	487	482	489	489	488	487	489							
3	491	493	488	489	488	492	487	490	490	489	487	485	491	492	489	489	491							
4	493	493	491	488	492	494	491	494	496	495	491	488	495	495	491	490	493							
5	494	496	493	493	498	501	497	501	501	499	496	492	497	496	493	493	494							
6	498	498	496	498	506	509	505	510	511	508	503	499	501	501	496	496	498							
7	502	505	504	504	517	518	517	521	521	517	514	509	508	505	499	499	502							
8	511	512	512	514	528	529	530	533	534	532	525	520	515	514	508	508	511							
9	518	523	523	524	543	543	543	547	550	546	538	535	526	523	515	516	518							
10	530	533	534	538	557	560	559	563	568	563	553	549	537	535	528	528	530							
11	543	547	551	555	574	578	578	581	585	580	570	566	551	548	539	540	543							
12	562	565	568	575	596	599	597	604	605	598	588	585	569	564	555	556	562							
13	580	586	588	596	616	619	617	625	625	619	610	605	590	586	574	573	580							
14	601	610	609	617	640	644	641	650	649	644	630	625	610	607	593	594	601							
15	623	631	632	642	663	667	665	673	673	667	654	648	633	626	614	615	623							
16	645	655	656	668	688	696	690	700	698	694	678	672	657	651	638	638	645							
17	672	680	684	694	719	723	718	728	728	721	705	699	682	676	664	664	672							
18	698	706	709	721	746	750	744	761	756	749	732	728	709	700	688	688	698							
19	726	734	739	753	775	777	777	789	783	778	762	755	737	729	713	717	726							
20	753	767	768	784	805	811	806	819	813	809	789	783	765	756	740	744	753							
21	783	795	795	811	838	842	837	850	846	841	819	811	794	785	769	770	783							
22	810	823	827	841	869	871	865	880	874	869	851	843	822	814	797	797	810							
23	838	850	856	870	901	902	899	910	912	905	878	870	850	842	825	829	838							
24	865	877	883	902	932	932	929	944	941	936	909	905	879	869	852	860	865							
25	900	907	914	935	962	964	964	977	972	967	941	935	907	895	878	886	900							
26	930	940	947	968	994	999	993	1008	1005	1001	971	963	936	923	910	916	930							
27	963	975	979	997	1029	1032	1026	1040	1036	1032	1002	993	967	954	940	946	963							

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28	992	100 7	100 7	103 0	106 0	1064	105 6	1070	106 7	1066	103 3	1027	997	984	969	978	992
29	102 1	103 7	104 3	106 2	108 9	1094	108 6	1101	109 5	1097	106 3	1057	102 9	1015	999	1008	102 1
30	105 6	106 7	107 3	109 4	111 5	1122	111 7	1129	112 3	1128	109 3	1086	105 8	1044	102 8	1038	105 6
31	108 6	110 1	110 6	112 7	114 3	1150	114 5	1158	115 1	1155	111 9	1112	108 5	1073	105 7	1068	108 6
32	112 1	113 9	114 2	115 9	117 1	1182	117 4	1186	118 1	1185	114 7	1139	111 2	1100	108 7	1102	112 1
33	115 7	117 6	117 7	118 9	120 2	1213	120 5	1217	121 1	1215	117 5	1166	114 1	1129	111 9	1132	115 7
34	119 1	121 3	120 9	122 3	124 1	1246	123 6	1248	124 4	1244	120 3	1195	117 2	1156	115 0	1165	119 1
35	122 2	124 6	124 3	125 6	127 5	1280	127 0	1285	127 8	1276	123 7	1226	120 4	1190	118 0	1198	122 2
36	125 9	128 4	127 6	129 2	131 1	1317	130 5	1319	131 2	1311	127 0	1257	123 7	1224	121 1	1229	125 9
37	129 6	132 0	131 4	132 4	134 5	1357	133 9	1354	134 8	1355	130 4	1291	127 3	1257	124 6	1263	129 6
38	133 2	136 2	135 1	136 0	138 4	1393	137 0	1386	138 2	1393	133 9	1330	130 8	1295	128 0	1295	133 2
39	136 6	139 6	138 8	139 6	141 9	1431	140 3	1420	141 3	1431	137 3	1366	134 3	1327	131 2	1330	136 6
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42	143 1	145 9	146 7	148 9	150 8	1514	149 5	1500	149 7	1520	145 9	1458	142 2	1415	140 9	1416	143 1
43	144 3	146 9	148 3	151 3	153 0	1538	151 9	1524	152 1	1544	148 2	1485	144 6	1434	143 3	1439	144 3
44	145 3	147 6	149 8	153 7	154 9	1559	154 1	1548	154 3	1568	150 8	1509	146 7	1454	145 4	1457	145 3
45	146 5	148 3	150 9	155 4	156 6	1579	156 4	1568	156 1	1588	153 0	1530	148 5	1470	147 6	1472	146 5

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46	147 7	149 3	152 4	156 9	158 2	1595	158 1	1584	157 7	1605	154 8	1548	150 1	1481	149 0	1485	147 7
47	149 3	150 5	153 9	158 0	159 1	1610	159 5	1601	159 2	1619	156 3	1563	151 4	1490	150 6	1499	149 3
48	150 3	151 7	155 4	159 2	160 4	1622	161 0	1614	160 3	1630	157 4	1574	152 2	1497	151 7	1514	150 3
49	151 9	153 0	156 7	160 1	161 5	1630	162 3	1628	161 6	1640	158 5	1585	153 0	1506	152 9	1529	151 9
50	152 7	154 0	157 6	161 2	162 4	1640	163 5	1641	162 6	1649	159 6	1592	153 7	1512	153 9	1542	152 7
51	153 9	155 2	158 7	162 2	163 2	1650	164 4	1656	163 9	1659	160 8	1602	154 7	1521	155 0	1554	153 9
52	154 9	156 5	160 0	163 0	164 2	1660	165 3	1668	165 0	1669	161 9	1609	155 6	1531	155 9	1566	154 9
53	156 0	157 6	161 0	164 1	165 0	1673	166 3	1681	166 0	1682	162 8	1618	156 4	1538	156 8	1575	156 0
54	157 3	159 0	162 2	164 8	166 2	1685	167 2	1692	166 5	1692	163 8	1627	157 5	1546	157 6	1585	157 3
55	158 4	160 5	163 3	165 7	167 0	1699	168 1	1702	167 5	1705	164 9	1634	158 1	1552	158 4	1597	158 4
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57	160 9	163 7	165 5	167 5	169 0	1721	169 7	1724	169 4	1726	166 6	1651	160 0	1570	160 1	1621	160 9
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62	167 0	170 4	171 1	173 0	174 1	1781	173 7	1767	174 2	1784	170 7	1697	165 8	1622	164 9	1672	167 0
63	167 7	171 3	172 2	174 0	175 0	1790	174 5	1775	175 2	1795	171 4	1703	166 9	1634	165 8	1680	167 7

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67	170 9	174 4	174 4	176 9	177 7	1825	177 4	1802	177 9	1832	174 1	1734	169 8	1661	168 7	1710	170 9
68	171 3	174 9	175 0	177 3	178 2	1829	178 0	1806	178 5	1837	174 7	1741	170 3	1667	169 2	1714	171 3
69	171 6	175 3	175 3	177 7	178 6	1835	178 4	1810	178 9	1841	175 2	1749	170 6	1671	170 0	1719	171 6
70	171 9	175 5	175 7	177 9	178 9	1839	178 7	1814	179 3	1845	175 5	1754	170 9	1675	170 2	1722	171 9
71	172 1	175 7	176 1	178 3	179 3	1840	179 2	1818	179 7	1847	175 8	1758	171 0	1676	170 6	1727	172 1
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74	173 4	177 1	177 8	179 9	181 2	1857	180 6	1827	180 8	1861	177 1	1769	171 6	1678	171 3	1739	173 4
75	174 5	178 1	178 4	180 6	181 5	1863	180 7	1832	181 5	1868	177 8	1771	171 9	1680	171 8	1745	174 5
76	175 6	178 9	179 2	181 4	181 7	1864	181 0	1838	182 0	1875	178 8	1777	172 5	1684	172 3	1752	175 6
77	176 7	180 1	180 1	182 0	182 1	1867	181 6	1846	182 9	1883	179 5	1785	173 4	1692	172 9	1760	176 7
78	178 1	181 2	180 5	182 8	182 8	1878	182 0	1854	183 9	1897	180 2	1792	174 8	1705	173 6	1770	178 1
79	178 1	181 5	181 1	183 4	183 5	1887	182 5	1855	184 1	1902	180 3	1801	176 2	1716	174 2	1777	178 1
80	178 1	181 6	181 2	183 8	184 2	1894	183 2	1854	184 0	1904	180 5	1806	176 3	1722	175 2	1779	178 1
81	177 8	181 2	181 7	184 3	184 8	1897	183 4	1854	184 0	1899	180 4	1806	176 0	1718	175 5	1779	177 8

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82	177 3	180 7	181 9	184 5	184 8	1896	183 5	1854	183 7	1893	180 1	1802	175 8	1717	175 7	1779	177 3
83	177 2	180 3	181 8	184 6	184 5	1892	183 4	1856	183 6	1889	180 2	1797	175 2	1713	175 8	1781	177 2
84	176 9	180 1	181 9	184 6	183 9	1889	183 1	1855	183 7	1888	179 9	1796	175 1	1708	175 8	1780	176 9
85	176 9	180 3	181 8	184 4	183 5	1888	182 7	1856	184 1	1900	179 5	1791	175 0	1706	175 5	1779	176 9
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88	176 8	180 5	181 5	184 0	183 3	1888	182 5	1849	182 9	1884	179 1	1790	175 0	1707	175 0	1774	176 8
89	176 8	180 9	181 7	183 9	183 3	1889	182 3	1848	182 9	1885	179 1	1786	175 4	1707	175 2	1775	176 8
90	177 0	181 0	181 6	183 8	183 1	1889	182 2	1849	182 9	1886	179 0	1786	175 1	1707	175 0	1775	177 0
91	177 0	180 9	181 4	183 8	183 0	1889	182 1	1847	182 8	1883	178 8	1785	175 1	1705	175 0	1774	177 0
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95	176 4	180 4	181 0	183 2	182 4	1880	181 2	1838	181 9	1873	177 8	1775	174 3	1699	174 3	1768	176 4
96	176 3	180 3	180 6	182 8	181 9	1874	180 9	1835	181 3	1869	177 6	1773	174 1	1696	173 9	1766	176 3
97	175 9	179 7	180 2	182 4	181 4	1870	180 4	1830	180 8	1864	177 1	1768	173 7	1692	173 8	1763	175 9
98	175 4	179 3	179 8	182 0	180 9	1866	179 8	1825	180 3	1857	176 6	1763	173 4	1687	173 3	1758	175 4
99	175 1	178 9	179 3	181 5	180 4	1861	179 3	1820	179 8	1852	176 1	1758	173 0	1683	172 9	1754	175 1

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1	0	7	3	4	2		9		5		9		9		8		0
10	173	177	177	179	178	1841	177	1797	178	1829	174	1738	171	1667	171	1736	173
2	4	1	5	6	3		1		0		3		3		2		4
10	172	176	177	178	177	1831	176	1789	177	1819	173	1729	170	1659	170	1730	172
3	7	6	0	8	5		2		0		4		4		5		7
10	171	175	176	178	176	1820	175	1779	175	1808	172	1720	169	1650	169	1721	171
4	9	6	0	2	5		3		8		3		3		7		9
10	170	174	175	177	175	1812	174	1769	175	1796	171	1711	168	1642	168	1713	170
5	8	4	1	0	5		1		0		2		5		7		8
10	169	173	174	175	174	1801	173	1757	173	1785	170	1701	167	1633	167	1702	169
6	8	6	0	8	5		1		7		2		7		8		8
10	168	172	172	174	173	1790	172	1747	172	1774	169	1692	166	1625	166	1693	168
7	9	9	8	7	4		1		5		0		8		9		9
10	168	171	171	173	172	1780	171	1736	171	1763	168	1680	165	1615	166	1683	168
8	0	6	8	9	3		0		4		1		8		1		0
10	167	170	170	172	171	1767	169	1723	170	1750	166	1667	164	1605	165	1671	167
9	0	9	7	7	0		7		4		8		6		1		0
11	165	169	169	171	169	1754	168	1711	169	1737	165	1656	163	1595	163	1659	165
0	6	7	8	5	9		6		3		7		3		9		6
11	164	168	168	170	168	1742	167	1698	167	1723	164	1643	162	1582	162	1649	164
1	4	4	7	3	6		4		9		5		5		8		4
11	163	167	167	168	167	1729	166	1685	166	1709	163	1631	161	1571	161	1637	163
2	3	2	1	8	2		0		3		2		2		5		3
11	162	166	165	167	165	1715	164	1669	164	1693	161	1617	159	1561	160	1624	162
3	1	1	9	3	8		3		9		8		9		1		1
11	160	164	164	166	164	1697	163	1655	163	1677	160	1602	158	1548	158	1613	160
4	9	6	3	0	4		0		4		4		6		9		9
11	159	163	163	164	162	1681	161	1638	162	1660	158	1585	157	1533	157	1598	159
5	5	4	0	7	8		6		0		8		4		7		5
11	158	161	161	163	161	1665	159	1622	160	1644	156	1569	155	1519	156	1582	158
6	0	6	4	0	3		7		4		9		8		1		0
11	156	160	159	161	159	1647	157	1605	158	1625	155	1555	154	1504	154	1568	156
7	5	1	8	4	6		9		6		5		3		6		5

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11	154	158	158	159	157	1628	156	1585	157	1606	153	1536	152	1489	153	1550	154
8	7	6	1	8	9		5		0		9		8		1		7
11	153	156	156	158	156	1610	154	1568	155	1585	152	1520	151	1473	151	1536	153
9	2	7	6	1	2		4		1		0		1		6		2
12	151	154	154	156	154	1590	152	1550	153	1567	150	1502	149	1457	149	1518	151
0	6	9	7	3	5		6		2		0		3		7		6
12	149	153	152	154	152	1567	150	1531	151	1545	148	1483	147	1437	148	1500	149
1	8	1	8	5	5		5		4		2		7		0		8
12	148	151	151	152	150	1547	148	1511	149	1524	146	1464	145	1420	146	1483	148
2	0	0	0	7	5		6		1		3		8		0		0
12	146	149	149	150	148	1527	146	1488	147	1503	144	1443	144	1403	144	1462	146
3	0	0	1	6	3		5		1		1		1		4		0
12	144	146	147	148	146	1506	144	1467	145	1479	142	1421	141	1383	142	1444	144
4	2	9	1	4	4		5		0		1		9		3		2
12	142	144	144	146	144	1483	142	1446	142	1456	140	1401	140	1364	140	1425	142
5	3	8	9	4	5		4		8		0		1		5		3
12	140	142	142	144	142	1460	140	1423	140	1433	138	1380	138	1345	138	1405	140
6	4	8	9	4	2		2		3		0		0		3		4
12	138	140	140	142	140	1438	137	1398	138	1409	135	1356	135	1328	136	1381	138
7	3	8	9	2	2		9		0		5		8		3		3
12	135	138	138	139	137	1414	135	1374	135	1384	133	1333	133	1309	134	1357	135
8	9	6	5	7	7		3		7		2		4		1		9
12	133	136	136	137	135	1385	132	1350	133	1357	130	1311	131	1287	131	1336	133
9	8	3	1	2	2		9		1		9		3		7		8
13	131	134	133	134	132	1361	130	1322	130	1330	128	1282	129	1264	129	1310	131
0	2	1	8	8	7		5		7		5		3		5		2
13	129	131	131	132	130	1336	128	1294	128	1305	125	1257	126	1242	127	1287	129
1	0	7	3	2	1		0		1		9		6		3		0
13	126	129	128	129	127	1309	125	1268	125	1278	123	1233	124	1218	124	1266	126
2	6	0	5	7	5		1		8		2		5		8		6
13	124	126	126	126	124	1278	122	1243	122	1250	120	1207	121	1197	122	1241	124
3	0	6	0	9	6		5		7		6		8		3		0
13	121	124	123	124	122	1250	119	1212	120	1221	118	1176	119	1170	119	1210	121
4	7	0	2	6	1		8		1		0		4		5		7
13	118	121	120	121	119	1219	116	1185	117	1191	114	1150	116	1144	116	1187	118
5	9	3	5	6	3		9		3		9		8		6		9

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13	116	118	117	118	116	1191	114	1157	114	1161	112	1123	114	1117	114	1161	116
6	2	2	7	7	3		1		2		1		1		1		2
13	113	115	114	115	113	1160	111	1126	111	1132	109	1092	111	1092	111	1134	113
7	4	4	8	9	3		3		4		3		3		8		4
13	110	112	112	113	110	1131	108	1096	108	1102	106	1066	108	1066	109	1105	110
8	5	7	1	1	4		4		6		4		4		0		5
13	107	109	109	110	107	1097	105	1067	105	1072	103	1037	105	1036	106	1077	107
9	9	7	1	1	4		3		6		4		8		1		9
14	104	106	106	107	104	1065	102	1038	102	1037	100	1008	102	1008	103	1046	104
0	9	5	2	3	2		2		4		5		5		3		9
14	101	103	103	103	101	1035	993	1002	993	1005	976	975	996	981	100	1017	101
1	8	6	0	8	3										3		8
14	987	100	997	100	980	1000	959	971	964	975	941	945	966	953	973	985	987
2		0		4													
14	960	968	965	973	949	967	926	937	931	939	910	914	938	923	944	954	960
3																	
14	930	935	930	937	915	933	894	906	896	907	877	882	909	894	912	920	930
4																	
14	898	902	897	904	881	897	858	865	865	869	843	847	873	868	882	889	898
5																	
14	864	865	861	867	847	860	822	835	830	836	809	815	842	835	850	856	864
6																	
14	834	832	824	832	810	824	790	800	792	799	776	780	810	803	816	819	834
7																	
14	799	797	789	796	774	788	756	763	756	763	742	745	777	771	782	783	799
8																	
14	762	762	755	762	740	751	718	727	722	729	706	710	742	739	749	749	762
9																	
15	728	724	722	729	707	714	683	693	688	693	671	678	709	704	718	715	728
0																	
15	694	689	690	693	672	676	649	658	653	654	637	645	675	671	684	682	694
1																	
15	660	654	655	657	637	642	615	620	617	620	600	607	640	637	649	648	660
2																	
15	627	623	622	621	603	607	578	587	583	583	568	574	607	604	616	613	627
3																	

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154	590	590	584	585	565	568	544	551	545	549	535	541	570	573	578	576	590
155	556	552	547	545	529	531	508	513	510	512	500	504	536	538	541	540	556
156	524	517	509	511	493	495	474	478	475	476	466	471	502	504	505	507	524
157	487	483	475	478	459	457	438	445	440	441	429	438	466	472	471	474	487
158	453	447	438	444	423	421	405	410	404	404	396	406	433	439	436	440	453
159	418	414	405	405	391	389	371	373	372	372	365	370	398	403	403	409	418
160	385	381	371	370	358	352	336	341	341	340	330	339	366	373	370	377	385
161	349	346	337	339	326	316	304	309	308	304	300	309	332	340	342	345	349
162	318	315	302	304	292	285	273	278	274	273	269	278	301	311	308	314	318
163	287	282	271	274	260	255	244	246	245	243	240	247	273	278	278	279	287
164	256	253	241	241	231	222	214	218	216	213	211	219	242	250	249	249	256
165	223	222	213	212	203	195	187	189	186	185	185	191	215	219	221	221	223
166	195	194	185	185	176	169	160	161	161	161	160	166	186	190	193	192	195
167	168	167	158	157	150	143	136	137	137	137	134	143	159	166	167	166	168
168	144	140	134	132	126	118	115	115	114	115	113	121	138	141	143	142	144
169	121	119	112	110	105	98	95	94	92	94	94	101	115	118	121	120	121
170	99	97	93	89	86	80	78	75	75	76	77	82	96	98	99	100	99
171	80	78	73	72	68	62	60	59	59	59	61	66	76	80	81	81	80

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17 2	64	62	58	56	52	48	46	46	44	45	47	52	60	63	64	64	64
17 3	49	46	43	42	39	37	35	34	34	35	37	40	47	49	49	51	49
17 4	38	36	33	31	30	27	26	25	25	27	28	30	36	38	38	38	38
17 5	28	26	25	25	22	21	19	19	20	20	21	23	27	29	29	29	28
17 6	21	20	19	17	16	15	15	15	15	15	16	18	21	22	22	22	21
17 7	15	15	14	13	13	12	12	11	12	12	13	13	16	16	16	17	15
17 8	12	11	11	11	11	10	10	10	11	11	11	11	11	12	12	13	12
17 9	10	10	10	9	9	9	9	9	9	10	10	10	9	10	9	10	10
18 0	9	9	9	9	9	9	10	9	9	9	9	9	9	10	9	9	9





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### 3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2021/2/26
AC Power Source	CHP-500C	N/A	2021/3/29
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2021/3/1
Digital Power Meter	WT500	DYDWQ200006	2021/3/29
Integral Sphere (2M)	2M	DYJCE120067	2021/2/26
Digital Power Meter	WT500	DYDWQ200006	2021/3/29
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2021/2/26
Expand Uncertainty: Photometric Measurement (Sphere): 2.08%, k=2 Chromaticity Measurement(Sphere):25.6K, k=2 Photometric Measurement(Goniophotometer):2.645%, k=2			

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