



Report No.: BLC1909006E-K-R

LM-79-08 Test Report

For

Shenzhen XinShengYang Opto- Electronics Technology Co., Ltd

(Brand Name: )

10-11/F, No. 2 Building, Hengchangrong High Tech Ind Park, Shangnan East Road, Hongtian, ShajingTown, Bao'an District, SHENZHENGuangdong 518125

High Bay Luminaires for Commercial and Industrial Buildings

Model name(s): XSY-LHB4P225-XXK-HL-HB-EF

Remark: XXK represents CCT, can be 40K for 4000K, 45K=4500K, 50K for 5000K, 57K=5700K. "E" can be "A" or "B", represent for motion sensor, A=without motion sensor, B= with motion sensor. "F" can be "A" or "B" or "C", represent for different mounting types.

Representative (Tested) Model:
XSY-LHB4P225-40K-HL-HB-AF

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

Test & Report By:

Sherry Yang

Engineer: Sherry Yang

Date: Sept. 10, 2019

Review By:

Jason Luo

Manager: Jason Luo



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Revision Summary

Date	Revisor	Item	Description of change
Sept. 10, 2019	Sherry Yang	/	Original Issue
Sept. 25, 2019	Sherry Yang	Tested dates	Added tested data at 277V



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1.1 Product Information:

Organization Name	Shenzhen XinShengYang Opto-Electronics Technology Co., Ltd	
Brand Name		
Model Number	XSY-LHB4P225-XXK-HL-HB-EF	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	High Bay Luminaires for Commercial and Industrial Buildings	
Rated Voltage / Frequency	120-347Vac, 50/60 Hz	
Nominal Power	225W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K, 5000K, 5700K	
LED Manufacturer	Seoul Semiconductor Co., LTD	
LED Model	STW8A2PD-XX	
Sample Number	BLC1909006E-K1(4000K)	
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	Sept. 06, 2019
Date of Test	Sept. 09, 2019
Test item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none"> 1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products 2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products 3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources 4. CIE 15-2004 Technical Report Colorimetry 5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source 6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	BL-QP-033

1.3 Test Methods

<p>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° vertical intervals and 22.5° horizontal intervals.</p>
<p>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.</p>
<p>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.</p>

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

Test date	2019-09-09	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	XSY-LHB4P225-40K-HL-HB-AF		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC190900 6E-K1	120.0	60	1.8819	224.25	0.993	11.67
	277.0	60	1.0121	222.16	0.967	10.23
	347.0	60	0.6716	220.23	0.945	8.02
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

Chromaticity Measurement - Sphere-Spectroradiometer Method:

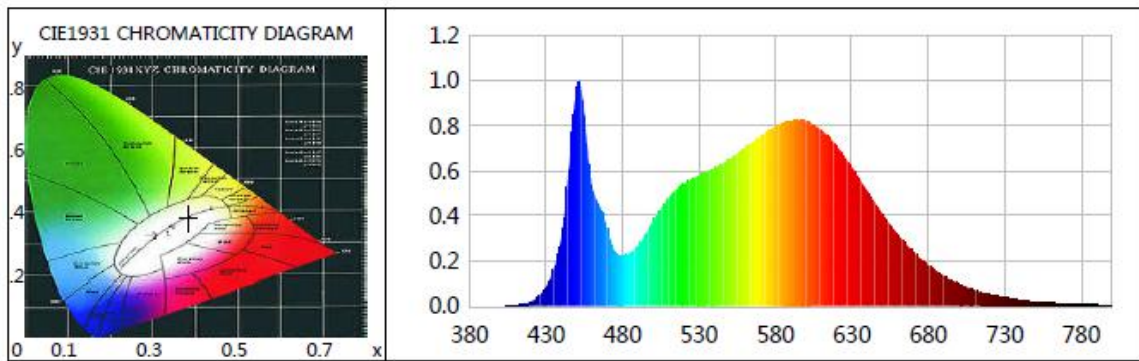
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	80	R9	5
Frequency (Hz)	60	R2	89	R10	74
CCT (K)	3951	R3	95	R11	80
Duv	0.00105	R4	81	R12	59
Chromaticity (x, y)	x=0.3834 y=0.3808	R5	81	R13	82
Chromaticity (u', v')	u(u')=0.2254 v'(v')=0.5038	R6	85	R14	97
Color Rendering Index (CRI)	82.3	R7	85	R15	74
R9	5	R8	63	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result			DLC V4.4 Pass Criteria
Test Voltage (V)	120.0	277.0	347.0	--
Frequency (Hz)	60	60	60	
Total Luminous (lm)	31643.9	31499.8	31367.7	≥ 10000 lm (-10%)
Luminous Efficacy (lm/W)	141.11	141.79	142.43	Premium: $\geq 130(-3\%)$
Most worst Luminous/Highest Watts	139.88			
Zonal lumens in the 20-50° zone (%)	54.7	--	--	$\geq 30(-10)$
Beam Angle (°)	102.9	--	--	--
Center Beam Candle Power (cd)	12329	--	--	--



Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary

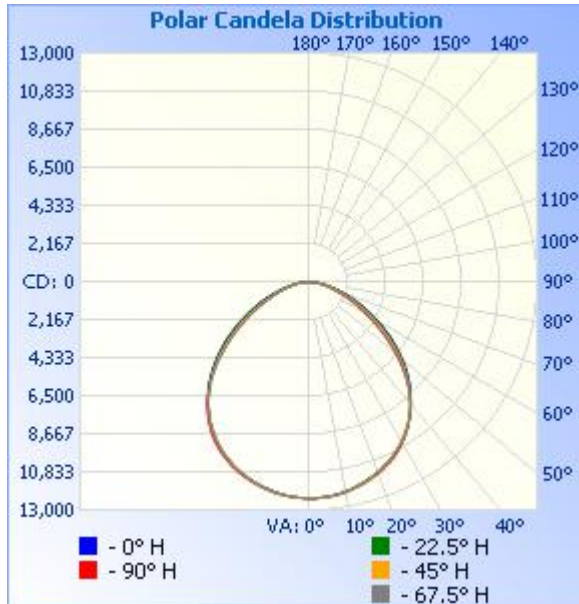
Zone	Lumens	% Lamp	% Luminaire
0-30	9,622.2	30.4%	30.4%
0-40	15,748.3	49.8%	49.8%
0-60	26,693.6	84.4%	84.4%
60-90	4,837.6	15.3%	15.3%
70-100	1,793.4	5.7%	5.7%
90-120	43.4	0.1%	0.1%
0-90	31,531.2	99.6%	99.7%
90-180	108.9	0.3%	0.3%
0-180	31,640.2	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	1,166.9	3.7%	90-100	15.6	0%
10-20	3,350.5	10.6%	100-110	13.9	0%
20-30	5,104.9	16.1%	110-120	14.0	0%
30-40	6,126.2	19.4%	120-130	14.6	0%
40-50	6,083.0	19.2%	130-140	15.0	0%
50-60	4,862.2	15.4%	140-150	14.3	0%
60-70	3,059.8	9.7%	150-160	11.5	0%
70-80	1,433.3	4.5%	160-170	7.5	0%
80-90	344.5	1.1%	170-180	2.6	0%

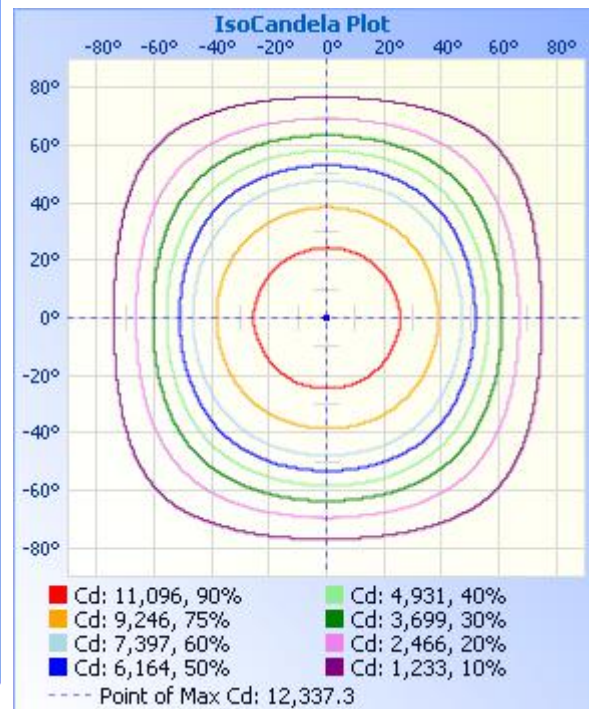
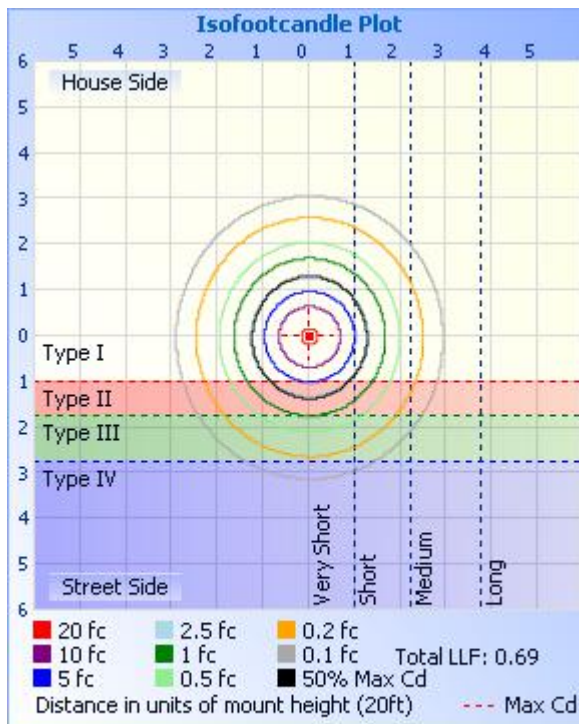


Photometric Data



	Center Beam fc	Beam Width	
17.0ft	42.7 fc	45.5 ft	42.7 ft
34.0ft	10.7 fc	91.0 ft	85.3 ft
51.0ft	4.74 fc	136.5 ft	128.0 ft
68.0ft	2.67 fc	182.0 ft	170.6 ft
85.0ft	1.71 fc	227.5 ft	213.3 ft
102.0ft	1.18 fc	273.0 ft	255.9 ft

■ Vert. Spread: 106.5°
■ Horiz. Spread: 102.9°





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Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329	12329
1	12333	12334	12337	12334	12326	12322	12322	12325	12325	12320	12317	12324	12316	12319	12327	12328	12333
2	12330	12333	12334	12333	12327	12318	12309	12318	12311	12314	12315	12322	12312	12316	12325	12328	12330
3	12319	12319	12320	12322	12311	12310	12296	12301	12298	12295	12293	12306	12298	12304	12314	12320	12319
4	12304	12306	12307	12313	12296	12289	12284	12284	12279	12277	12270	12285	12289	12284	12297	12310	12304
5	12286	12297	12295	12301	12285	12272	12259	12257	12250	12253	12263	12285	12267	12264	12276	12284	12286
6	12263	12273	12278	12286	12260	12245	12237	12231	12239	12232	12247	12252	12253	12252	12255	12267	12263
7	12242	12238	12260	12262	12239	12221	12208	12199	12197	12202	12209	12224	12235	12224	12231	12243	12242
8	12208	12215	12227	12230	12217	12189	12174	12161	12162	12170	12180	12191	12203	12194	12199	12201	12208
9	12164	12171	12190	12202	12186	12160	12137	12133	12128	12126	12142	12164	12167	12164	12169	12165	12164
10	12119	12126	12146	12173	12159	12125	12100	12092	12072	12084	12099	12118	12131	12126	12136	12122	12119
11	12076	12082	12093	12127	12115	12079	12050	12041	12027	12037	12052	12076	12085	12085	12093	12075	12076
12	12025	12031	12054	12083	12074	12044	12002	11980	11981	11994	12011	12028	12041	12043	12047	12017	12025
13	11970	11984	11997	12029	12024	11994	11942	11935	11929	11942	11956	11976	11993	11988	11999	11966	11970
14	11923	11914	11949	11979	11981	11950	11896	11881	11877	11879	11896	11923	11938	11939	11942	11910	11923
15	11867	11857	11887	11924	11926	11894	11836	11824	11818	11817	11831	11867	11891	11882	11882	11854	11867
16	11806	11792	11826	11864	11869	11832	11779	11766	11758	11755	11774	11801	11838	11823	11822	11793	11806
17	11735	11727	11755	11802	11816	11771	11718	11702	11697	11690	11707	11733	11768	11766	11753	11729	11735
18	11672	11667	11688	11732	11751	11700	11649	11627	11623	11622	11638	11671	11710	11698	11675	11662	11672
19	11600	11596	11616	11653	11686	11629	11579	11557	11547	11553	11561	11602	11638	11620	11597	11592	11600
20	11525	11518	11534	11577	11617	11549	11505	11481	11477	11473	11483	11513	11578	11543	11525	11517	11525
21	11446	11434	11452	11495	11544	11467	11421	11402	11396	11400	11397	11427	11500	11459	11440	11442	11446
22	11364	11350	11375	11410	11470	11383	11335	11322	11308	11314	11320	11341	11417	11372	11352	11363	11364
23	11276	11266	11286	11327	11385	11287	11237	11234	11209	11226	11221	11252	11333	11285	11264	11268	11276
24	11189	11180	11194	11236	11300	11193	11137	11133	11115	11134	11126	11158	11243	11191	11173	11177	11189
25	11092	11090	11097	11135	11197	11094	11041	11037	11022	11030	11029	11063	11140	11081	11071	11082	11092
26	10996	10979	10986	11026	11102	10982	10942	10934	10920	10919	10912	10953	11041	10981	10970	10975	10996
27	10894	10878	10880	10919	10998	10871	10836	10828	10802	10807	10805	10847	10932	10873	10864	10872	10894
28	10788	10769	10772	10813	10882	10755	10724	10700	10692	10697	10691	10736	10825	10762	10748	10750	10788
29	10664	10652	10658	10703	10763	10642	10590	10578	10576	10575	10572	10614	10714	10646	10631	10639	10664

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30	10544	10541	10540	10588	10629	10517	10469	10453	10450	10454	10449	10494	10592	10512	10512	10520	10544
31	10422	10403	10399	10452	10494	10377	10338	10324	10312	10317	10312	10367	10467	10386	10385	10396	10422
32	10294	10276	10267	10321	10357	10240	10206	10196	10178	10183	10181	10218	10337	10246	10252	10266	10294
33	10156	10138	10129	10185	10215	10104	10070	10055	10039	10043	10041	10076	10175	10108	10108	10129	10156
34	10020	9996	9993	10045	10064	9959	9926	9898	9902	9901	9900	9933	10025	9968	9954	9976	10020
35	9870	9858	9851	9900	9910	9807	9760	9744	9753	9751	9748	9778	9875	9816	9804	9829	9870
36	9709	9705	9690	9736	9734	9634	9607	9590	9599	9578	9574	9622	9711	9642	9650	9672	9709
37	9548	9540	9530	9565	9567	9464	9438	9429	9427	9419	9412	9436	9539	9479	9479	9510	9548
38	9401	9372	9355	9390	9388	9298	9273	9246	9259	9250	9240	9262	9365	9310	9327	9344	9401
39	9225	9193	9175	9200	9204	9112	9079	9071	9092	9076	9063	9080	9181	9132	9146	9168	9225
40	9054	9028	8997	9007	8996	8925	8896	8894	8918	8900	8883	8882	8991	8924	8957	8991	9054
41	8866	8840	8801	8798	8784	8717	8703	8712	8735	8711	8688	8678	8777	8726	8766	8811	8866
42	8680	8649	8604	8590	8574	8489	8501	8523	8552	8499	8470	8446	8564	8521	8582	8615	8680
43	8493	8461	8403	8382	8352	8263	8297	8331	8339	8309	8255	8203	8362	8300	8368	8422	8493
44	8276	8231	8180	8185	8124	8068	8102	8109	8184	8147	8075	8024	8120	8112	8143	8214	8276
45	8111	8048	7980	7936	7877	7796	7859	7924	7962	7895	7829	7787	7908	7839	7944	8047	8111
46	7885	7832	7744	7690	7631	7556	7630	7716	7756	7682	7602	7524	7638	7599	7713	7797	7885
47	7675	7615	7522	7446	7368	7302	7397	7494	7516	7460	7369	7279	7378	7354	7482	7583	7675
48	7469	7384	7298	7203	7114	7054	7162	7251	7303	7241	7133	7024	7106	7104	7257	7367	7469
49	7237	7165	7066	6937	6821	6798	6895	7021	7079	7014	6889	6766	6842	6849	7001	7156	7237
50	7019	6920	6801	6683	6564	6519	6656	6800	6857	6766	6625	6481	6574	6587	6765	6909	7019
51	6767	6696	6549	6408	6298	6253	6408	6566	6627	6535	6372	6218	6260	6297	6499	6686	6767
52	6535	6454	6299	6140	6028	5996	6160	6328	6377	6301	6121	5951	5982	6038	6240	6425	6535
53	6298	6214	6045	5878	5756	5728	5906	6063	6139	6066	5869	5684	5702	5771	5980	6187	6298
54	6074	5973	5784	5609	5456	5467	5625	5818	5905	5825	5613	5415	5451	5508	5753	5968	6074
55	5823	5745	5539	5351	5193	5186	5373	5576	5671	5567	5342	5133	5162	5222	5476	5700	5823
56	5590	5487	5268	5067	4926	4931	5126	5335	5409	5329	5089	4873	4882	4957	5202	5440	5590
57	5343	5232	5010	4801	4665	4679	4877	5069	5173	5089	4840	4621	4616	4701	4959	5193	5343
58	5081	4989	4760	4540	4405	4430	4627	4828	4935	4849	4590	4366	4362	4452	4707	4951	5081
59	4857	4768	4519	4304	4135	4190	4365	4592	4703	4610	4351	4122	4130	4196	4459	4717	4857
60	4633	4521	4264	4050	3891	3952	4129	4355	4466	4349	4089	3883	3905	3981	4235	4493	4633
61	4385	4297	4040	3826	3660	3702	3901	4128	4213	4118	3860	3626	3657	3740	3981	4249	4385

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62	4143	4047	3797	3583	3415	3482	3653	3881	3994	3892	3632	3405	3416	3500	3737	4004	4143
63	3915	3816	3566	3355	3200	3248	3436	3661	3778	3647	3391	3195	3190	3268	3509	3768	3915
64	3692	3592	3348	3140	2985	3038	3220	3442	3558	3427	3175	2985	2977	3062	3293	3547	3692
65	3478	3379	3139	2922	2788	2837	3013	3234	3324	3215	2971	2765	2777	2843	3082	3338	3478
66	3274	3155	2925	2733	2588	2638	2808	3026	3116	3005	2767	2569	2573	2655	2869	3115	3274
67	3055	2959	2716	2529	2384	2457	2600	2807	2916	2807	2577	2390	2396	2468	2678	2918	3055
68	2843	2732	2517	2341	2203	2259	2415	2616	2720	2595	2372	2214	2212	2265	2481	2717	2843
69	2643	2538	2330	2163	2034	2095	2238	2428	2514	2411	2199	2031	2036	2088	2289	2520	2643
70	2452	2352	2151	1996	1868	1929	2063	2246	2322	2228	2024	1868	1862	1928	2116	2320	2452
71	2268	2172	1986	1835	1703	1773	1888	2057	2144	2055	1865	1716	1722	1766	1948	2158	2268
72	2079	2006	1827	1688	1550	1621	1729	1887	1969	1869	1703	1566	1564	1622	1778	1973	2079
73	1915	1828	1662	1537	1415	1469	1578	1731	1805	1709	1542	1416	1428	1472	1630	1815	1915
74	1729	1669	1517	1398	1280	1336	1438	1576	1627	1555	1395	1282	1283	1328	1465	1635	1729
75	1569	1515	1374	1264	1148	1209	1295	1416	1476	1398	1262	1159	1153	1194	1328	1486	1569
76	1417	1364	1224	1129	1029	1087	1161	1276	1332	1259	1134	1042	1035	1070	1198	1337	1417
77	1269	1225	1107	1025	923	973	1040	1144	1193	1126	1003	929	920	955	1065	1196	1269
78	1136	1086	979	907	818	852	922	1016	1045	994	887	813	825	856	955	1070	1136
79	999	968	871	812	724	754	817	898	919	879	778	714	724	747	835	938	999
80	873	840	759	700	627	661	704	771	805	755	678	622	630	655	732	821	873
81	755	728	653	609	547	567	612	670	695	648	577	532	535	567	631	712	755
82	645	615	562	520	466	484	522	571	584	556	490	450	456	485	533	597	645
83	549	519	476	438	391	404	434	476	486	461	408	378	388	405	453	511	549
84	447	434	389	367	319	334	358	383	390	377	333	307	316	331	373	421	447
85	354	349	318	299	252	267	284	302	312	290	264	242	244	266	297	336	354
86	272	269	245	231	191	201	215	232	236	219	197	174	184	196	228	256	272
87	198	193	181	167	136	137	157	160	161	148	132	119	127	136	162	183	198
88	130	130	113	109	79	86	96	99	95	90	78	71	77	79	102	116	130
89	69	68	59	64	31	44	50	44	45	35	41	38	37	38	56	59	69
90	17	26	31	30	10	18	21	16	15	19	21	14	15	19	29	18	17
91	16	18	20	16	0	10	13	16	13	17	11	8	11	9	17	16	16
92	22	17	20	17	0	11	19	17	17	15	15	14	9	13	23	17	22
93	21	17	18	18	0	11	22	16	14	17	16	13	8	12	20	16	21

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94	19	16	18	13	0	10	22	15	14	15	14	13	8	11	20	17	19
95	18	12	19	15	0	11	21	13	13	16	12	12	11	14	24	14	18
96	16	17	18	15	0	10	21	15	13	15	19	12	0	12	15	12	16
97	22	18	16	15	0	10	18	15	16	18	17	13	8	11	20	13	22
98	14	16	21	18	0	10	17	14	12	15	15	11	11	12	22	14	14
99	17	13	17	12	0	8	18	15	14	15	15	0	9	12	21	17	17
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102	12	18	20	8	0	12	18	14	12	14	15	13	0	11	21	14	12
103	18	14	14	12	0	8	22	14	13	11	15	15	10	13	19	15	18
104	21	14	17	14	0	10	13	15	11	14	19	14	7	10	20	17	21
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107	21	16	16	12	0	8	18	13	14	15	19	11	0	13	18	16	21
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117	19	18	18	16	0	0	18	16	16	18	17	12	7	14	23	16	19
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122	22	20	22	16	0	10	21	17	16	17	18	15	10	12	21	14	22
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124	21	20	24	17	0	13	16	11	17	19	20	19	9	14	23	18	21
125	18	20	25	16	0	9	23	18	18	19	22	14	10	14	22	17	18

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126	20	17	12	21	0	8	22	20	18	15	19	15	8	16	28	20	20
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180	31	32	31	28	13	24	35	17	26	28	29	24	22	20	31	27	31



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3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2020-01-14
AC Power Source	CHP-500C	N/A	2020-01-13
Total Luminous Flux Standard Lamp	24V/150W	DYJYR040040	2020-01-21
Digital Power Meter	WT500	DYDWQ200006	2020-01-13
Integral Sphere (2M)	2M	DYJCE120067	2020-01-14
Digital Power Meter	WT500	DYDWQ200006	2020-01-13
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2020-01-14

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 *****