



Report No.: BLC1909006E-H-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, Shajing Town, Bao'an District, SHENZHEN Guangdong 518125

High Bay Luminaires for Commercial and Industrial Buildings

Model name(s): XSY-LHB2P165-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-LHB2P165-40K-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

Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01
Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,
Guangzhou, People's Republic of China. Website: <http://www.blst.com>

Report Format Number BL-FM-SA-012



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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-LHB2P165-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	165W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K, 5000K, 5700K	
LED Manufacturer	Seoul Semiconductor Co., LTD	
LED Model	STW8A2PD-XX	
Sample Number	BLC1909006E-H1(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 Flux2. Luminous Distribution Intensity3. Luminous Efficacy4. Correlated Color Temperature5. Color Rendering Index6. Chromaticity Coordinate7. Electrical Parameters
Reference Standard	<ol style="list-style-type: none">1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources4. CIE 15-2004 Technical Report Colorimetry5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
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° vertical intervals and 22.5° 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.

**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-LHB2P165-40K-HL-HB-AF		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC190900 6E-H1	120.0	60	1.3669	163.54	0.997	7.33
	277.0	60	0.6083	163.12	0.968	8.14
	347.0	60	0.5000	162.91	0.939	9.37
DLC Pass Criteria					$\geq 0.9(-3\%)$	$\leq 20(+5)$

Chromaticity Measurement - Sphere-Spectroradiometer Method:

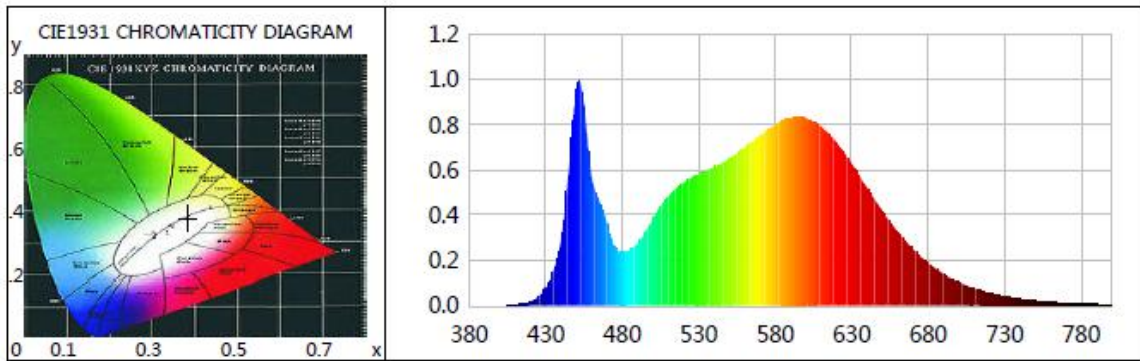
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	7
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	3936	R3	95	R11	81
Duv	0.00056	R4	82	R12	60
Chromaticity (x, y)	x=0.3837 y=0.3800	R5	81	R13	84
Chromaticity (u', v')	u(u')=0.2260 v'(v')=0.5035	R6	86	R14	98
Color Rendering Index (CRI)	83	R7	85	R15	75
R9	7	R8	64	--	--

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)	22666.8	22487.6	22355.4	≥ 10000 lm (-10%)
Luminous Efficacy (lm/W)	138.60	137.85	137.23	Premium: $\geq 130(-3\%)$
Most worst Luminous/Highest Watts	136.70			
Zonal lumens in the 20-50° zone (%)	55.3	--	--	$\geq 30(-10)$
Beam Angle (°)	96.4	--	--	--
Center Beam Candle Power (cd)	9132	--	--	--



Spectral Power Distribution & Chromaticity Diagram



Zonal Lumen Tabulation

Zonal Lumen Summary

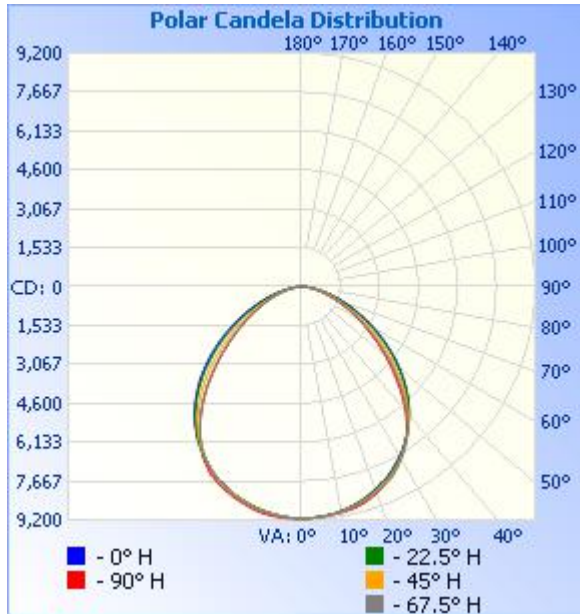
Zone	Lumens	% Lamp	% Luminaire
0-30	7,126.9	31.4%	31.4%
0-40	11,590.7	51.1%	51.1%
0-60	19,189.6	84.7%	84.7%
60-90	3,358.9	14.8%	14.8%
70-100	1,283.7	5.7%	5.7%
90-120	46.5	0.2%	0.2%
0-90	22,548.5	99.5%	99.5%
90-180	115.6	0.5%	0.5%
0-180	22,664.1	100%	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	865.0	3.8%	90-100	15.7	0.1%
10-20	2,485.9	11.0%	100-110	15.4	0.1%
20-30	3,776.1	16.7%	110-120	15.5	0.1%
30-40	4,463.8	19.7%	120-130	15.5	0.1%
40-50	4,277.3	18.9%	130-140	15.6	0.1%
50-60	3,321.7	14.7%	140-150	15.0	0.1%
60-70	2,090.9	9.2%	150-160	12.2	0.1%
70-80	1,006.8	4.4%	160-170	7.9	0%
80-90	261.2	1.2%	170-180	2.8	0%

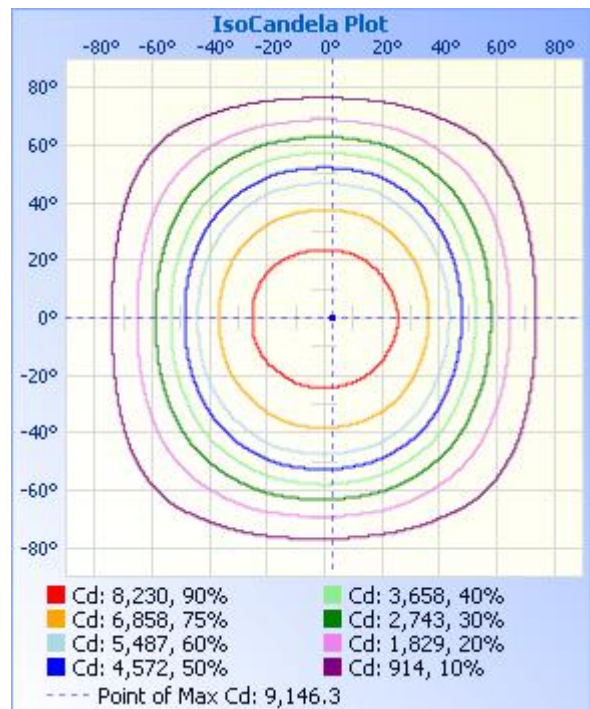
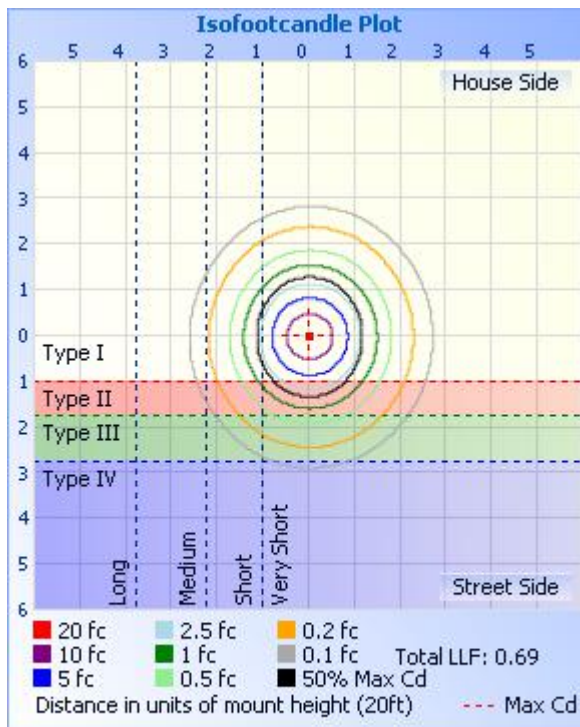


Photometric Data



	Center Beam fc	Beam Width	
17.0ft	31.6 fc	44.2 ft	38.0 ft
34.0ft	7.90 fc	88.4 ft	76.1 ft
51.0ft	3.51 fc	132.7 ft	114.1 ft
68.0ft	1.97 fc	176.9 ft	152.1 ft
85.0ft	1.26 fc	221.1 ft	190.1 ft
102.0ft	0.88 fc	265.3 ft	228.2 ft

■ Vert. Spread: 104.9°
■ Horiz. Spread: 96.4°





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	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132	9132
1	9135	9137	9136	9138	9124	9131	9136	9125	9126	9128	9127	9131	9140	9128	9135	9130	9135
2	9130	9129	9137	9134	9117	9131	9128	9123	9124	9125	9124	9126	9146	9125	9128	9124	9130
3	9120	9122	9129	9132	9116	9123	9119	9117	9115	9118	9114	9119	9142	9118	9125	9115	9120
4	9109	9113	9117	9122	9100	9119	9109	9104	9095	9101	9103	9112	9146	9109	9117	9102	9109
5	9099	9096	9109	9111	9096	9111	9098	9093	9082	9085	9086	9093	9135	9097	9100	9085	9099
6	9081	9082	9096	9092	9081	9098	9080	9077	9060	9062	9070	9081	9121	9078	9088	9070	9081
7	9060	9063	9079	9077	9069	9080	9054	9050	9030	9042	9045	9058	9111	9062	9071	9052	9060
8	9034	9044	9056	9057	9057	9059	9031	9024	9008	9013	9022	9041	9095	9043	9044	9030	9034
9	9011	9015	9035	9039	9047	9040	9003	8995	8977	8989	8997	9020	9078	9018	9023	8997	9011
10	8979	8986	9009	9008	9032	9011	8963	8967	8947	8954	8973	8990	9049	8993	9001	8966	8979
11	8940	8951	8981	8986	9021	8983	8924	8935	8915	8913	8934	8965	9022	8965	8964	8936	8940
12	8908	8915	8950	8954	9002	8952	8890	8907	8876	8880	8897	8934	8991	8937	8935	8902	8908
13	8868	8880	8914	8923	8977	8917	8855	8864	8832	8843	8859	8896	8948	8899	8897	8863	8868
14	8825	8842	8876	8888	8944	8886	8819	8825	8790	8799	8808	8857	8904	8859	8854	8823	8825
15	8777	8789	8829	8859	8910	8851	8782	8779	8746	8754	8766	8816	8855	8820	8804	8775	8777
16	8732	8740	8790	8818	8873	8807	8741	8741	8700	8707	8712	8760	8807	8777	8762	8729	8732
17	8676	8690	8745	8776	8829	8757	8683	8692	8646	8653	8659	8711	8750	8728	8708	8682	8676
18	8621	8638	8689	8732	8780	8712	8630	8638	8592	8604	8598	8663	8705	8678	8648	8624	8621
19	8556	8583	8636	8676	8719	8663	8576	8579	8531	8551	8550	8605	8653	8620	8583	8570	8556
20	8501	8522	8574	8623	8656	8608	8517	8520	8474	8491	8489	8538	8603	8554	8521	8512	8501
21	8430	8448	8513	8561	8589	8551	8450	8456	8399	8423	8419	8471	8545	8486	8455	8434	8430
22	8345	8356	8447	8497	8517	8490	8381	8375	8320	8357	8346	8393	8483	8419	8383	8356	8345
23	8318	8356	8354	8425	8443	8422	8282	8333	8320	8316	8339	8347	8417	8321	8297	8332	8318
24	8240	8272	8344	8346	8368	8322	8271	8277	8221	8230	8229	8275	8343	8312	8270	8263	8240
25	8161	8192	8262	8345	8264	8313	8186	8186	8134	8146	8151	8188	8252	8207	8175	8179	8161
26	8084	8103	8174	8228	8229	8209	8088	8107	8054	8071	8071	8091	8223	8116	8087	8089	8084
27	7991	8022	8088	8139	8123	8119	8004	8027	7964	7988	7984	7991	8092	8021	7999	8009	7991
28	7899	7936	7991	8050	8026	8026	7915	7947	7876	7902	7895	7894	7987	7924	7905	7925	7899
29	7817	7845	7900	7943	7925	7930	7826	7857	7784	7816	7790	7786	7879	7822	7809	7840	7817

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30	7724	7754	7800	7845	7811	7826	7728	7757	7688	7726	7688	7668	7752	7701	7699	7751	7724
31	7630	7654	7702	7740	7704	7726	7625	7660	7595	7616	7587	7551	7626	7584	7595	7660	7630
32	7533	7547	7598	7627	7588	7604	7511	7566	7501	7518	7479	7415	7467	7461	7486	7550	7533
33	7421	7439	7488	7501	7466	7482	7395	7465	7400	7413	7367	7276	7320	7329	7369	7443	7421
34	7317	7335	7360	7380	7339	7357	7285	7359	7300	7303	7228	7137	7166	7189	7249	7333	7317
35	7208	7227	7244	7237	7195	7225	7164	7245	7178	7188	7100	6982	7013	7032	7110	7225	7208
36	7084	7111	7113	7107	7038	7079	7039	7115	7062	7052	6969	6825	6842	6887	6988	7109	7084
37	6962	6992	6980	6957	6884	6913	6898	6997	6940	6926	6822	6642	6659	6726	6843	6985	6962
38	6841	6861	6840	6792	6716	6763	6761	6871	6822	6802	6676	6473	6469	6555	6696	6851	6841
39	6704	6727	6685	6623	6543	6594	6616	6739	6684	6667	6509	6293	6274	6375	6541	6713	6704
40	6574	6600	6546	6444	6368	6424	6468	6588	6552	6528	6348	6106	6076	6193	6379	6584	6574
41	6442	6460	6379	6281	6177	6244	6308	6447	6414	6367	6185	5918	5881	6005	6207	6439	6442
42	6303	6319	6212	6096	5970	6066	6152	6302	6273	6219	6014	5726	5673	5806	6048	6299	6303
43	6158	6179	6042	5899	5776	5860	5968	6153	6135	6066	5837	5517	5483	5606	5873	6142	6158
44	6003	6034	5881	5713	5584	5676	5803	5986	5970	5892	5645	5322	5270	5419	5696	5992	6003
45	5847	5858	5692	5517	5365	5479	5631	5827	5818	5735	5461	5123	5064	5222	5503	5826	5847
46	5694	5698	5500	5325	5171	5268	5454	5667	5667	5568	5274	4901	4857	4998	5322	5667	5694
47	5533	5541	5321	5129	4969	5069	5250	5495	5505	5400	5087	4704	4651	4800	5123	5505	5533
48	5373	5381	5133	4928	4781	4875	5069	5328	5344	5229	4896	4507	4440	4607	4932	5334	5373
49	5205	5201	4943	4722	4585	4678	4879	5133	5160	5052	4684	4307	4250	4408	4739	5170	5205
50	5043	5035	4750	4533	4380	4488	4696	4961	4991	4861	4494	4119	4058	4206	4563	4983	5043
51	4863	4851	4570	4332	4193	4274	4507	4787	4818	4683	4301	3908	3867	4010	4358	4813	4863
52	4704	4668	4372	4140	4007	4085	4302	4608	4645	4502	4109	3725	3681	3814	4158	4629	4704
53	4521	4490	4182	3962	3824	3895	4117	4424	4470	4324	3902	3544	3503	3629	3973	4448	4521
54	4351	4305	3988	3774	3645	3714	3934	4246	4278	4141	3713	3367	3318	3456	3784	4264	4351
55	4183	4135	3815	3585	3451	3519	3751	4051	4105	3942	3530	3182	3154	3270	3594	4088	4183
56	3997	3942	3623	3408	3280	3343	3556	3875	3931	3763	3352	3017	2988	3105	3419	3897	3997
57	3833	3757	3448	3228	3108	3178	3379	3699	3755	3586	3159	2856	2829	2941	3239	3715	3833
58	3646	3576	3263	3059	2940	3010	3204	3520	3580	3407	2984	2700	2673	2782	3059	3529	3646
59	3482	3414	3093	2885	2780	2852	3036	3335	3392	3220	2820	2549	2524	2620	2893	3362	3482
60	3322	3231	2926	2734	2610	2690	2868	3162	3219	3046	2655	2402	2377	2481	2731	3182	3322
61	3144	3067	2763	2567	2461	2527	2697	2995	3059	2885	2502	2250	2225	2327	2575	3019	3144

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62	2972	2890	2599	2411	2321	2378	2542	2834	2881	2724	2339	2117	2101	2191	2417	2840	2972
63	2803	2721	2451	2261	2169	2239	2394	2662	2724	2552	2194	1990	1970	2054	2267	2673	2803
64	2648	2558	2288	2122	2038	2100	2245	2504	2565	2394	2054	1863	1839	1927	2125	2503	2648
65	2494	2407	2144	1989	1913	1957	2092	2356	2410	2248	1924	1735	1722	1808	1983	2363	2494
66	2332	2249	2018	1867	1785	1828	1954	2206	2260	2101	1790	1620	1608	1685	1850	2199	2332
67	2190	2108	1883	1738	1668	1712	1826	2066	2101	1960	1654	1508	1507	1569	1724	2067	2190
68	2041	1947	1751	1614	1546	1590	1700	1913	1961	1814	1535	1403	1399	1463	1603	1902	2041
69	1895	1811	1613	1499	1436	1471	1569	1780	1829	1683	1424	1294	1294	1351	1480	1764	1895
70	1746	1680	1496	1390	1333	1365	1451	1650	1692	1552	1315	1197	1192	1252	1365	1635	1746
71	1618	1547	1377	1284	1229	1263	1341	1526	1554	1439	1200	1103	1103	1155	1253	1501	1618
72	1497	1434	1274	1182	1120	1160	1232	1392	1429	1306	1102	1013	1018	1057	1158	1389	1497
73	1380	1310	1173	1091	1031	1061	1137	1278	1312	1194	1008	924	932	969	1062	1266	1380
74	1247	1200	1069	988	942	970	1026	1170	1197	1086	918	840	842	882	962	1158	1247
75	1134	1088	968	902	863	883	933	1050	1077	983	823	768	768	797	868	1049	1134
76	1025	984	875	818	784	802	844	951	971	885	743	697	693	720	785	944	1025
77	917	886	787	747	709	724	760	853	873	787	670	622	626	652	708	848	917
78	825	788	713	669	631	640	675	761	776	693	593	547	551	581	628	754	825
79	726	700	628	595	564	578	599	674	687	614	521	486	491	520	561	671	726
80	638	613	555	527	500	510	527	586	593	533	451	424	430	450	492	581	638
81	545	531	487	462	429	443	462	510	512	454	392	370	370	390	421	503	545
82	469	456	415	401	371	386	391	433	437	385	341	314	322	339	363	432	469
83	406	384	364	347	320	327	338	365	371	326	287	267	269	285	316	367	406
84	331	330	306	296	265	278	281	305	299	265	232	220	227	236	261	299	331
85	265	266	256	246	219	224	226	245	238	217	183	172	181	196	210	251	265
86	212	208	203	195	167	172	180	190	189	156	141	134	140	152	166	194	212
87	159	159	155	150	125	130	134	138	131	112	104	97	105	109	122	143	159
88	111	110	111	112	92	94	90	93	78	71	67	66	71	77	82	96	111
89	69	70	72	78	56	56	52	48	42	31	32	33	40	39	45	60	69
90	29	28	30	32	20	17	19	24	18	15	15	18	14	19	23	29	29
91	18	15	18	18	0	16	18	18	18	16	12	16	14	14	16	18	18
92	18	13	19	16	0	11	16	15	16	13	15	18	12	15	13	20	18
93	17	14	10	20	7	14	14	18	12	12	12	18	12	15	17	21	17

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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 *****