



Report No.: GZE160842-G

NVLAP LAB CODE 201011-0

LM-79-08 Test Report

For

Beyond LED Technology **(Brand Name: Beyond LED)**

1939 Parker Ct Suite C
Stone Mountain, GA 30087

HD FPB Series - High Definition Outdoor Corn Bulb Decorative Luminaires (Type B)

Model name(s): BLTCLW150W57K

Representative (Tested) Model: SNC-CLW-150WB1

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

Test & Report By:

Garman Mo

Engineer: Garman Mo

Date: Sept.01,2016

Review By:

Tommy Liang

Manager: Tommy Liang

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

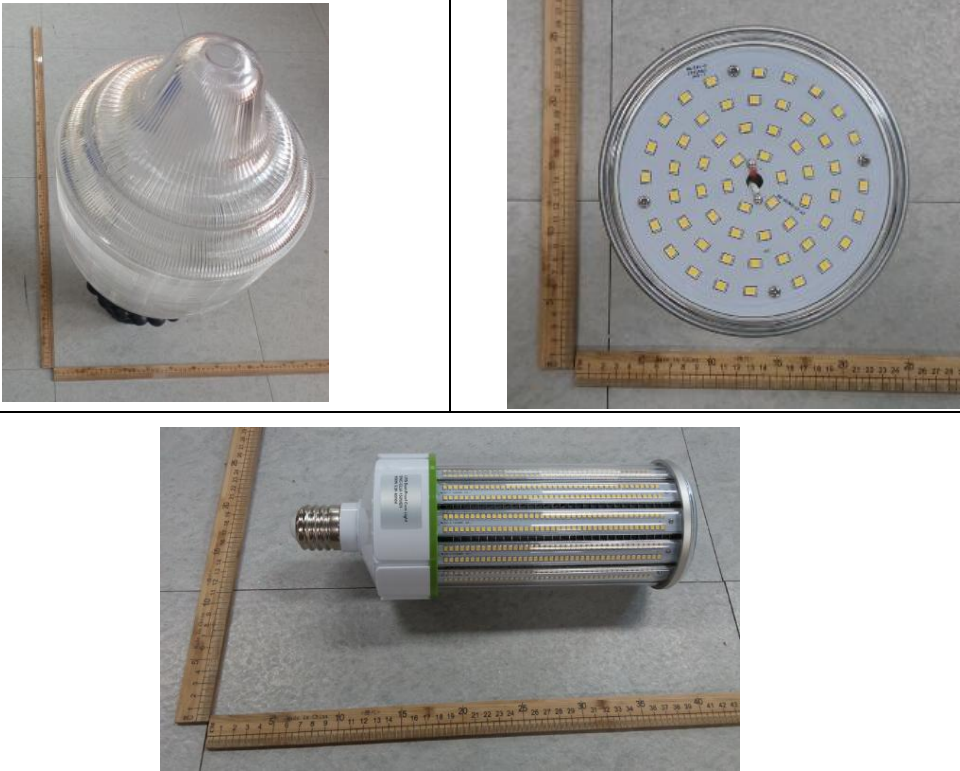
Laboratory: Standard-Tech Co. Ltd Testing Center
NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: Standard-Tech Building, No.6 Guan hong Road, Guangzhou Science City, Guangzhou 510663, China

Tel: 8620-3229 0320 Fax: 8620-32290422 <http://www.standard-tech.com>

1.1 Product Information:

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED	
Model Number	BLTCLW150W57K	
SKU (if available)	106534	
Type of Luminaire (for integral lamps, list base type and lamp type)	HD FPB Series - High Definition Outdoor Corn Bulb Decorative Luminaires (Type B)	
Rated Voltage / Frequency	100-277Vac,60 Hz	
Nominal Power	150W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,4500K,5000K,5700K	
LED Manufacturer	Shenzhen WeiXingXin Electronics Technology Co.,Ltd.	
LED Model	2835 0.5W White SMD LED	
Sample Number	GZE160842-G1(4000K),G2(5700K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		

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1.2 Test Specifications:

Date of Receipt	Aug.26,2016
Date of Test	Aug.28,2016
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	QD25

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 QD25)

Test date	2016-08-28	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLTCLW150W57K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	1.237	147.7	0.9954	4.30
G1	277.0	60	0.5569	144.4	0.9361	13.52
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

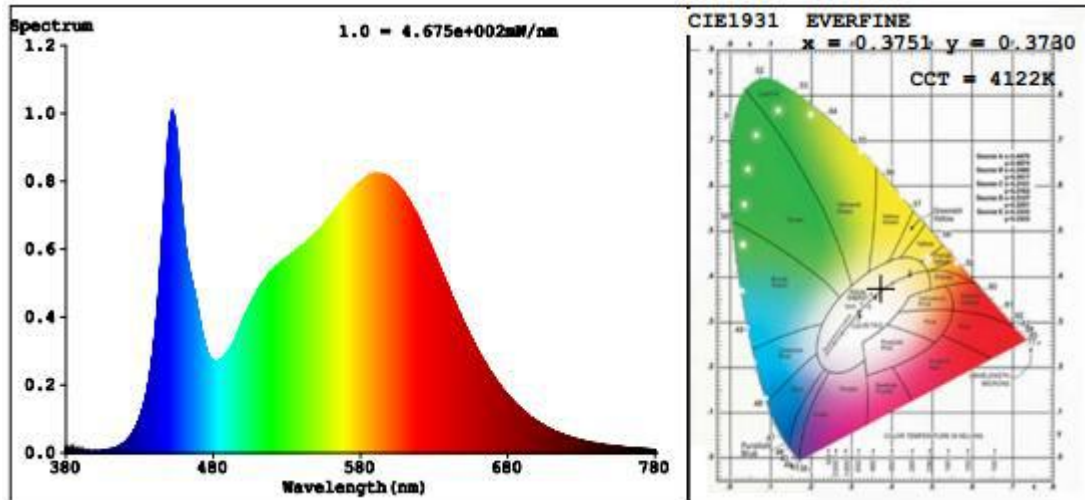
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	3
Frequency (Hz)	60	R2	90	R10	76
CCT (K)	4122	R3	95	R11	78
Duv	-0.0002	R4	80	R12	60
Chromaticity (x, y)	x=0.3751 y=0.3730	R5	81	R13	83
Chromaticity (u', v')	u'=0.2231 v'=0.4991	R6	85	R14	98
Color Rendering Index (CRI)	82.3	R7	85	R15	74
R9	3	R8	62	--	--

Photometric Measurement – Goniophotometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result		DLC V4.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	17592	17146	In luminaire: >=10000(±10%)
Luminous Efficacy (lm/W)	119.11	118.74	In luminaire:>=95(-3%)
Zonal lumens in the 0-90° zone (%)	88.3	--	>= 65(-3)
Beam Angle (°)	173.7	--	--
Center Beam Candle Power (cd)	1035	--	--

Spectral Power Distribution & Chromaticity Diagram

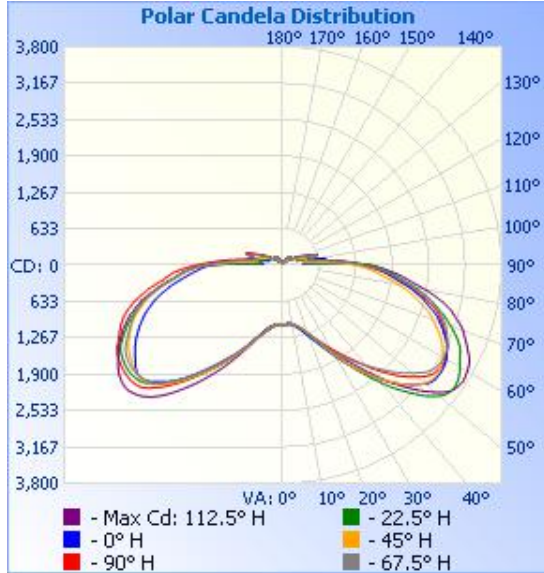


Zonal Lumen Tabulation

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	1,170.1	6.7%
0-40	2,552.8	14.5%
0-60	7,754.1	44.1%
60-90	7,772.8	44.2%
70-100	5,557.2	31.6%
90-120	1,645.1	9.4%
0-90	15,526.9	88.3%
90-180	2,064.0	11.7%
0-180	17,590.9	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	99.7	0.6%	90-100	855.7	4.9%
10-20	337.6	1.9%	100-110	467.4	2.7%
20-30	732.8	4.2%	110-120	322.0	1.8%
30-40	1,382.8	7.9%	120-130	181.3	1%
40-50	2,256.0	12.8%	130-140	122.6	0.7%
50-60	2,945.3	16.7%	140-150	71.9	0.4%
60-70	3,071.3	17.5%	150-160	31.2	0.2%
70-80	2,726.1	15.5%	160-170	9.7	0.1%
80-90	1,975.4	11.2%	170-180	2.1	0%

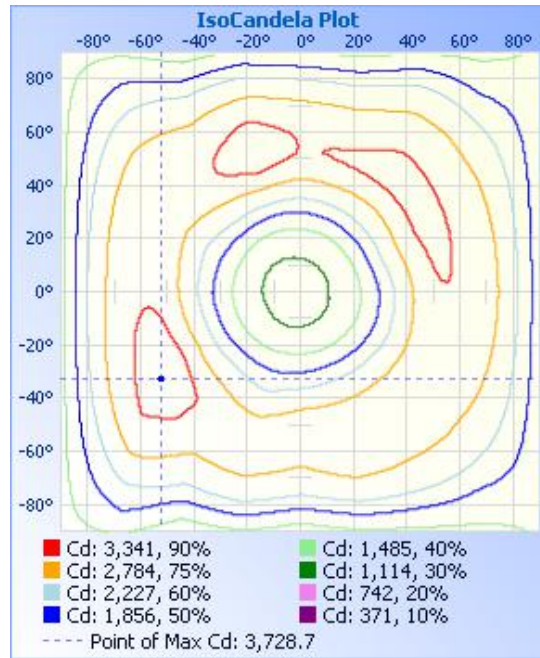
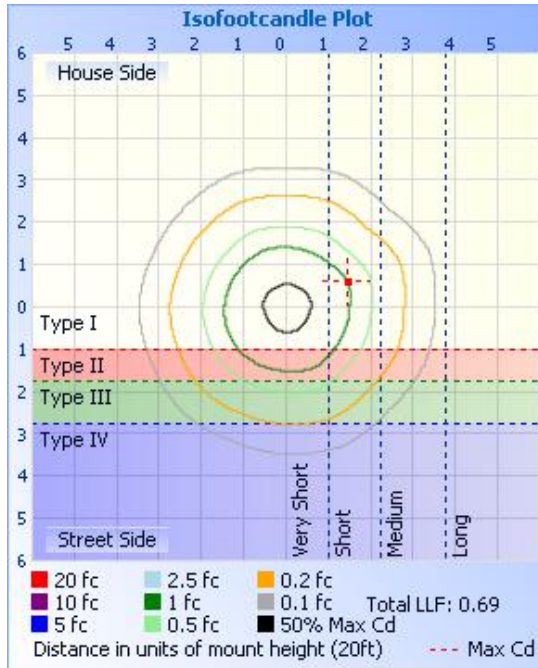
Photometric Data



Illuminance at a Distance

	Center Beam fc	Beam Width	
17.0ft	3.58 fc	179.5 ft	27.5 ft
34.0ft	0.90 fc	359.1 ft	55.0 ft
51.0ft	0.40 fc	538.6 ft	82.5 ft
68.0ft	0.22 fc	718.2 ft	110.0 ft
85.0ft	0.14 fc	897.7 ft	137.5 ft
102.0ft	0.10 fc	1,077.3 ft	165.0 ft

■ Vert. Spread: 158.6°
■ Horiz. Spread: 77.9°



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Table--1

UNIT: cd

γ (DEG) \ C (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	1035	
5	1040	1034	1035	1040	1036	1028	1023	1018	1013	1011	1017	1027	1035	1036	1037	1035	
10	1108	1101	1091	1076	1064	1053	1048	1052	1046	1056	1055	1061	1070	1079	1089	1095	
15	1212	1212	1204	1188	1159	1131	1119	1110	1122	1133	1139	1148	1168	1186	1201	1204	
20	1380	1391	1391	1348	1320	1277	1262	1251	1262	1274	1297	1314	1344	1364	1382	1368	
25	1611	1674	1656	1588	1536	1496	1482	1453	1442	1474	1521	1545	1585	1613	1619	1591	
30	1892	2040	1997	1911	1837	1802	1805	1721	1676	1742	1815	1800	1852	1923	1912	1865	
35	2219	2445	2344	2274	2188	2214	2178	2002	1957	2082	2138	2035	2161	2245	2234	2178	
40	2621	2865	2717	2668	2561	2675	2553	2285	2308	2516	2483	2278	2528	2584	2582	2538	
45	3001	3241	3096	3048	2926	3143	2925	2607	2688	2998	2840	2543	2868	2913	2932	2887	
50	3276	3440	3424	3332	3214	3539	3201	2920	3026	3440	3088	2864	3119	3175	3144	3118	
55	3328	3446	3468	3364	3318	3662	3283	3173	3241	3701	3195	3075	3123	3251	3152	3179	
60	3289	3309	3392	3228	3285	3556	3209	3228	3261	3702	3111	3108	2972	3221	3082	3145	
65	3160	3120	3239	3055	3134	3400	3033	3164	3153	3553	2940	3002	2788	3083	2952	2981	
70	2992	2902	2988	2792	2905	3110	2782	2997	2952	3336	2662	2818	2570	2843	2761	2786	
75	2733	2583	2695	2462	2598	2760	2457	2737	2682	3030	2341	2541	2294	2542	2497	2538	
80	2369	2196	2351	2116	2241	2376	2086	2334	2263	2547	1989	2184	1944	2169	2139	2143	
85	1972	1796	1915	1744	1859	1949	1664	1906	1839	2052	1582	1802	1589	1789	1756	1778	
90	1522	1379	1479	1381	1515	1552	1292	1445	1375	1520	1201	1355	1245	1387	1356	1357	
95	1005	882	731	372	352	382	618	886	891	896	504	386	334	389	638	879	
100	552	481	441	570	704	589	424	447	469	450	435	486	578	556	455	480	
105	587	526	486	306	376	342	403	586	580	580	377	278	309	329	428	555	
110	622	554	441	261	254	265	323	484	517	516	307	268	248	304	378	536	
115	423	400	318	279	298	272	268	346	370	379	269	283	274	301	295	377	
120	313	289	258	247	271	238	221	244	270	257	224	242	241	259	242	276	
125	213	192	209	196	203	191	200	180	201	178	196	190	182	197	204	190	
130	183	163	193	164	177	159	186	165	178	163	177	156	159	161	183	176	
135	198	181	170	142	108	139	165	183	192	180	152	134	98.9	135	159	195	
140	198	180	140	113	108	115	137	176	189	174	125	103	95.9	107	132	187	
145	172	158	111	81.6	74.7	83.5	107	153	164	154	106	61.4	46.5	66.3	103	161	
150	138	129	86.6	54.1	29.1	59.5	88.0	123	131	126	90.5	54.4	29.2	54.0	78.4	123	
155	99.8	93.8	65.9	35.8	27.7	48.3	69.4	92.4	96.4	94.2	71.3	46.3	28.2	36.2	57.8	84.9	
160	62.3	59.7	43.2	26.1	27.8	37.5	52.0	64.8	62.4	63.4	51.5	38.2	30.1	25.0	37.6	51.3	
165	37.2	37.0	29.1	27.6	27.1	30.1	35.7	42.1	37.5	36.1	35.9	27.6	30.4	24.2	23.9	32.1	
170	21.7	28.3	24.2	25.4	22.2	24.9	27.4	29.4	22.7	22.9	28.5	26.4	22.3	18.7	20.5	22.7	
175	19.9	25.0	23.6	24.3	25.5	25.6	26.5	26.8	19.7	19.9	19.3	20.8	20.9	21.1	21.0	17.6	
180	21.7	18.6	16.2	18.6	21.1	20.9	18.7	13.4	20.5	21.1	19.3	19.4	19.8	20.2	21.0	19.6	

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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2016-08-28	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLTCLW150W57K		

Electrical Measurement in LEXALITE LINDY MODEL 424:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160842-	120.0	60	1.246	148.2	0.9915	5.29
G2	277.0	60	0.5635	145.3	0.9308	14.51
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

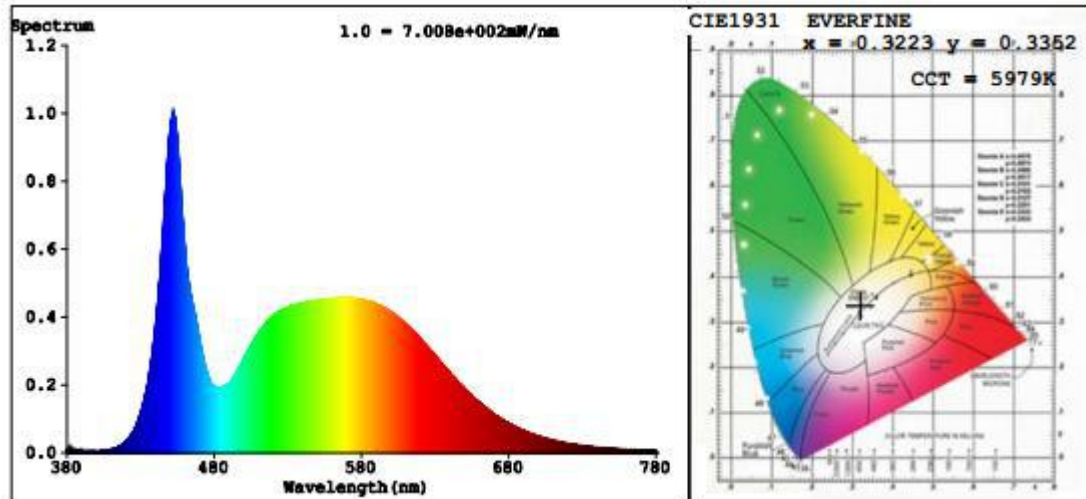
Chromaticity Measurement - Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	81	R9	9
Frequency (Hz)	60	R2	87	R10	68
CCT (K)	5979	R3	90	R11	81
Duv	0.0017	R4	83	R12	55
Chromaticity (x, y)	x=0.3223 y=0.3352	R5	82	R13	83
Chromaticity (u', v')	u'=0.2021 v'=0.4730	R6	81	R14	94
Color Rendering Index (CRI)	82.6	R7	88	R15	77
R9	9	R8	70	--	--

Photometric Measurement – Sphere-Spectroradiometer Method in LEXALITE LINDY MODEL 424:

Parameter	Result		DLC V4.0 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	17946	17506	In luminaire: >=10000(±10%)
Luminous Efficacy (lm/W)	121.09	120.48	In luminaire:>=95(-3%)

Spectral Power Distribution & Chromaticity Diagram



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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-331	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-01	2017-06-30
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
EE-09	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-01	2017-06-30
PF210	Power Meter for Goniophotometer	2016-07-01	2017-06-30
ST-R-181A	Temperature Tester	2016-07-01	2017-06-30
Uncertainty: Photometric Measurement (Sphere):1.74% Chromaticity Measurement(Sphere):14.3K Photometric Measurement(Goniophotometer):1.62%			

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