

LM-79-08 Test Report

For

Beyond LED Technology
(Brand Name: Beyond LED)1939 Parker Ct Suite C
Stone Mountain, GA 30087**Application 1: Outdoor Pole/Arm-Mounted Area and
Roadway Luminaires****Application 2: Architectural Flood and Spot Luminaires**

Remark: This luminaire has four kinds of mounting arm as below: Type A, Type B, Type C, Type D.

Type A, Type B, Type C and Type D for application 1.

Type C and Type D for application 2.

Model name(s): BLT-NSB-300WAT3

Representative (Tested) Model: SNC-S-G04-300WAT3B1 4000K
SNC-S-G04-300WAT3B1 5700K

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

Test & Report By:

Jack Luo

Engineer: Jack Luo

Date: May.11,2017

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 Guanhong 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	BLT-NSB-300WAT3	
SKU (if available)	110781	
Type of Luminaire (for integral lamps, list base type and lamp type)	Application 1: Outdoor Pole/Arm-Mounted Area and Roadway Luminaires Application 2: Architectural Flood and Spot Luminaires	
Rated Voltage / Frequency	100 -277Vac, 50/60 Hz	
Nominal Power	300W	
Rated Initial Lamp Lumen	--	
Declared CCT	4000K,5000K,5700K	
LED Manufacturer	Philips Lumileds	
LED Model	L130-xxyy003000W21	
Sample Number	GZE170173-H1(4000K),H2(5700K)	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Photo

SNC-S-G04-300WAT3B1



SNC-S-G04-300WAT3B1 Type A



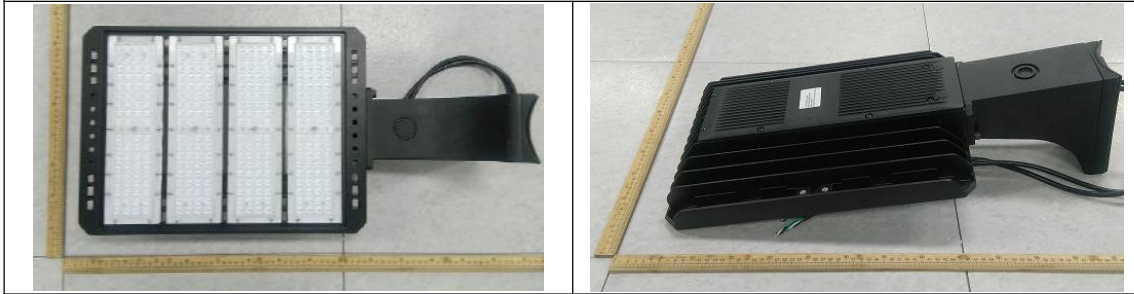
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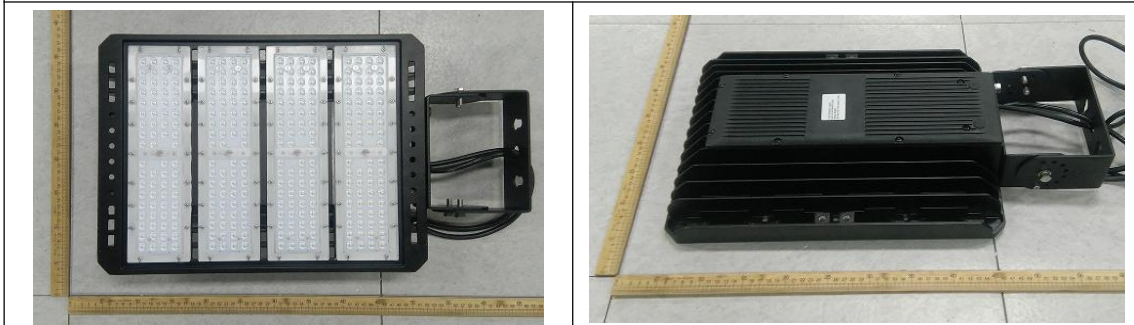
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Type B



Type C



Type D



1.2 Test Specifications:

Date of Receipt	May.07,2017
Date of Test	May.08,2017
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

<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° C ± 1° 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° C ± 1° 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° C ± 1° 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 QD25)

Test date	2017-05-08	Test Ambient:	25.2 ° C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-NSB-300WAT3		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE170173-	120.0	60	2.658	317.9	0.9968	4.85
H1	277.0	60	1.162	306.5	0.9520	12.00
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

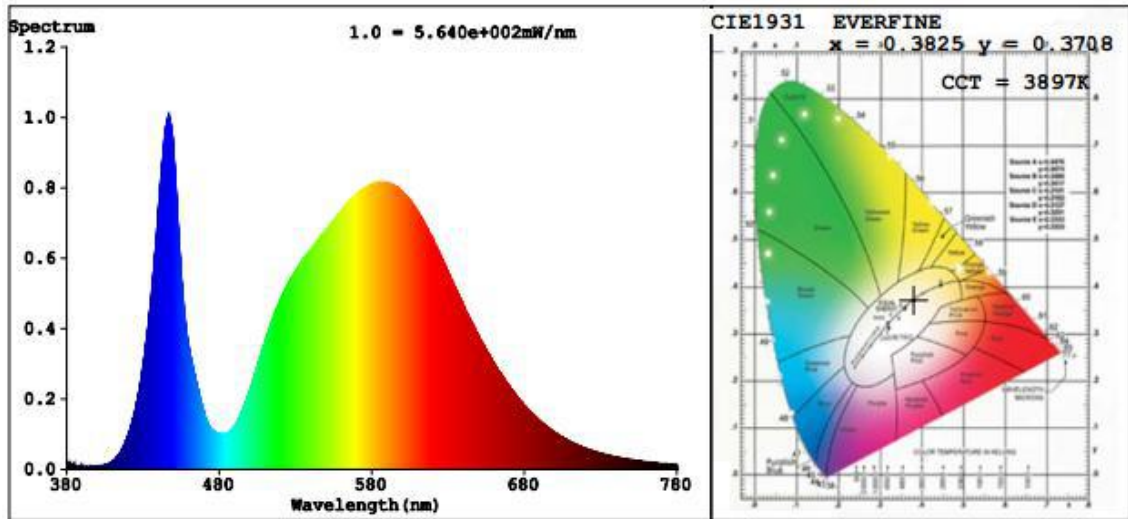
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	72	R9	0
Frequency (Hz)	60	R2	80	R10	51
CCT (K)	3897	R3	85	R11	70
Duv	-0.0034	R4	73	R12	47
Chromaticity (x, y)	x=0.3825 y=0.3708	R5	72	R13	73
Chromaticity (u', v')	u'=0.2289 v'=0.4992	R6	71	R14	91
Color Rendering Index (CRI)	73.8	R7	81	R15	68
R9	0	R8	57	--	--

Photometric Measurement – Goniophotometer Method:

Parameter	Result		DLC V4.2 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60	--	
Total Luminous (lm)	37201	36678	>=1000(-10%)	
Luminous Efficacy (lm/W)	117.02	119.67	Standard: >=	Premium: >=
Most Worst Luminous/Highest Watts	115.38		100(-3%)	120(-3%)
Zonal lumens in the 0-90° zone (%)	99.7	--	>= 100(-1)	
Zonal lumens in the 80-90° zone (%)	1.3	--	<= 10(+3)	
Beam Angle (°)	120.4	--	--	
Center Beam Candle Power (cd)	9073	--	--	

Spectral Power Distribution & Chromaticity Diagram

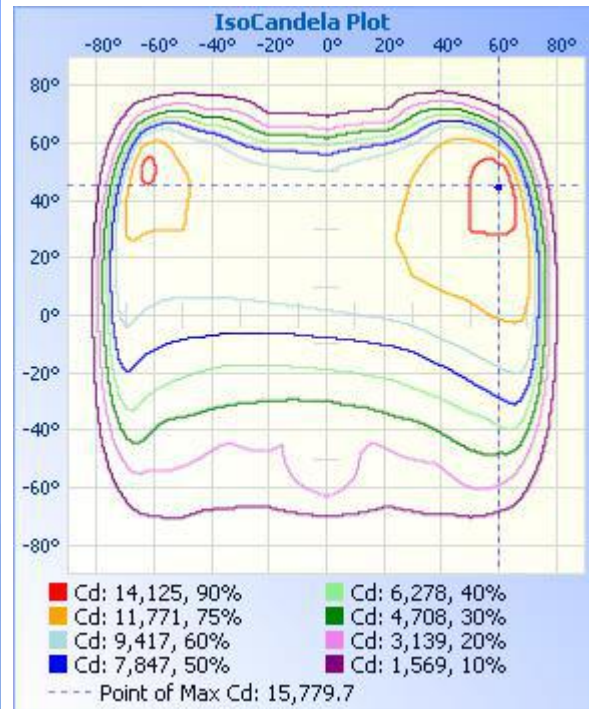
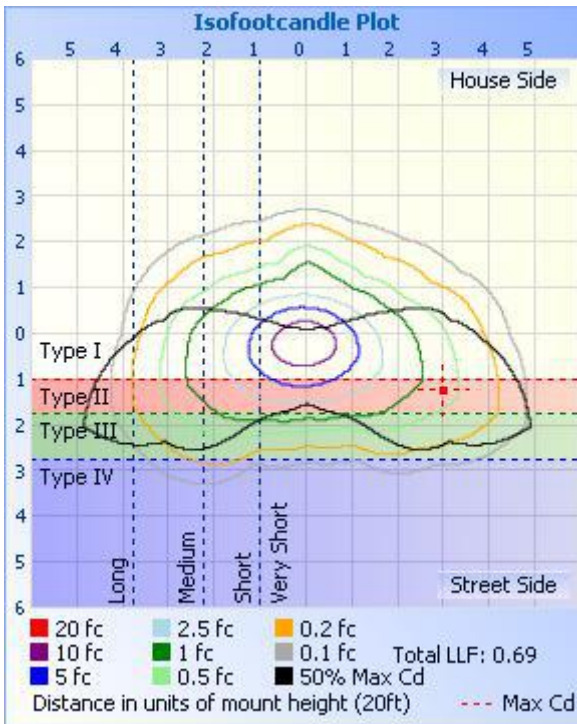
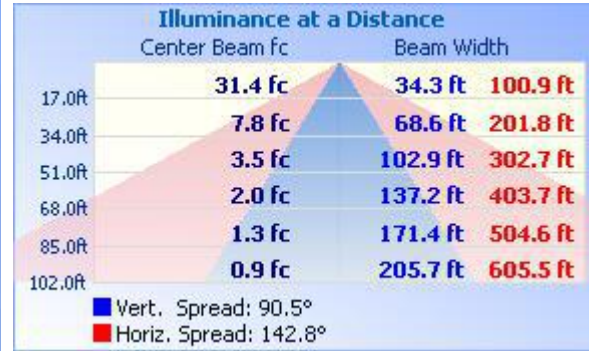
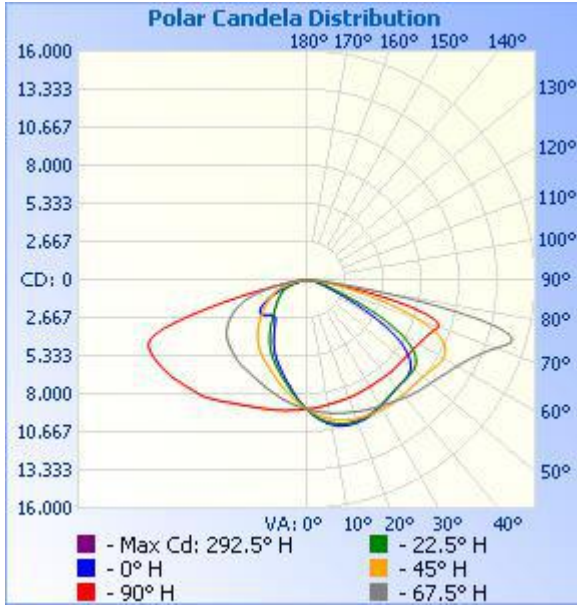


Zonal Lumen Tabulation

Lumen Summary		
Zone	Lumens	% Luminaire
0-30	7,335.5	19.7%
0-40	12,521.0	33.7%
0-60	25,763.6	69.3%
60-90	11,337.2	30.5%
70-100	4,689.4	12.6%
90-120	38.1	0.1%
0-90	37,100.8	99.7%
90-180	93.4	0.3%
0-180	37,194.3	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	860.7	2.3%	90-100	9.1	0%
10-20	2,507.0	6.7%	100-110	13.1	0%
20-30	3,967.8	10.7%	110-120	15.9	0%
30-40	5,185.5	13.9%	120-130	16.0	0%
40-50	6,242.3	16.8%	130-140	13.7	0%
50-60	7,000.4	18.8%	140-150	10.7	0%
60-70	6,656.9	17.9%	150-160	8.0	0%
70-80	4,178.8	11.2%	160-170	4.9	0%
80-90	501.5	1.3%	170-180	2.0	0%

Photometric Data



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Table--1

UNIT: ×10cd

C (DEG) \ γ (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338	
0	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907	907	
5	918	946	967	978	979	972	954	929	898	867	843	827	822	832	854	884	
10	930	984	1018	1033	1031	1018	991	948	888	827	777	746	740	758	798	859	
15	942	1022	1062	1069	1058	1044	1018	967	882	785	714	675	668	692	746	833	
20	957	1065	1098	1086	1060	1049	1035	985	878	746	659	613	604	634	699	809	
25	976	1105	1126	1087	1050	1040	1044	1004	874	710	608	551	537	578	657	787	
30	1003	1153	1150	1080	1028	1024	1049	1023	870	675	561	482	461	516	619	769	
35	1039	1208	1177	1071	1005	1002	1050	1047	869	646	512	409	388	447	579	758	
40	1080	1273	1204	1061	987	985	1051	1076	873	617	460	348	344	378	535	746	
45	1108	1321	1222	1060	982	982	1051	1104	876	589	403	317	351	321	482	727	
50	1136	1358	1232	1062	952	980	1060	1131	878	559	347	306	383	279	424	708	
55	1167	1406	1258	1023	842	929	1084	1165	888	528	298	286	397	244	367	684	
60	1190	1457	1290	885	604	765	1103	1214	904	487	258	247	356	213	317	639	
65	1205	1518	1281	581	314	463	1062	1286	931	431	223	194	268	178	270	576	
70	1136	1578	1133	262	155	210	868	1406	977	371	187	127	147	129	223	484	
75	570	1136	728	124	80.3	106	485	1463	784	299	138	74.3	54.4	80.0	149	340	
80	140	255	244	60.9	40.0	54.4	182	637	288	195	51.8	29.3	26.7	31.3	49.6	157	
85	25.6	51.7	43.1	25.2	15.7	23.2	47.2	110	48.7	40.4	11.9	10.7	10.8	11.2	12.1	30.4	
90	1.35	1.42	1.05	0.34	0.20	0.27	0.86	1.83	1.27	1.23	0.67	0.18	0.11	0.21	0.77	1.65	
95	1.42	0.84	0.53	0.21	0.13	0.17	0.48	1.14	1.31	1.62	1.09	0.28	0.14	0.27	1.04	2.01	
100	1.71	0.78	0.42	0.21	0.25	0.21	0.45	1.07	1.71	2.16	1.63	0.57	0.31	0.51	1.47	2.27	
105	2.07	0.99	0.45	0.36	0.43	0.32	0.55	1.26	2.16	2.55	1.96	0.94	0.58	0.85	1.85	2.55	
110	2.36	1.21	0.53	0.48	0.63	0.41	0.69	1.54	2.48	2.80	2.15	1.39	0.97	1.24	1.94	3.04	
115	2.41	1.35	0.66	0.56	0.66	0.48	0.86	1.73	2.57	3.11	2.30	1.54	1.39	1.36	2.03	2.93	
120	2.40	1.35	0.76	0.71	0.68	0.64	0.97	1.80	2.55	3.07	2.49	1.97	1.59	1.64	2.06	2.54	
125	2.29	1.41	0.82	0.86	1.03	0.90	1.03	1.87	2.39	2.79	2.16	2.34	2.31	2.06	2.00	2.31	
130	2.16	1.43	0.84	0.92	1.22	1.02	1.07	1.78	2.38	2.40	2.14	2.52	2.75	2.26	2.14	2.12	
135	1.95	1.28	0.86	1.01	1.21	1.12	1.12	1.61	2.19	2.07	2.09	2.57	2.80	2.34	2.04	1.99	
140	1.85	1.29	0.86	1.06	1.27	1.19	1.02	1.61	2.07	2.11	1.74	2.42	2.61	2.28	1.75	2.12	
145	1.83	1.22	0.93	1.17	1.20	1.29	0.97	1.51	2.05	1.97	1.64	2.36	2.31	2.27	1.98	2.06	
150	1.79	1.22	1.17	1.26	1.47	1.39	1.25	1.52	1.97	1.93	1.87	2.32	2.64	2.32	2.39	1.97	
155	1.55	1.20	1.41	1.37	1.51	1.43	1.45	1.53	1.74	1.89	1.82	2.13	2.15	2.17	2.30	1.81	
160	1.52	1.23	1.49	1.45	1.52	1.52	1.47	1.52	1.72	1.82	1.66	1.97	2.13	2.08	2.10	1.89	
165	1.64	1.29	1.61	1.50	1.56	1.59	1.52	1.47	1.78	1.69	1.52	1.83	1.93	1.98	1.97	2.01	
170	1.80	1.51	1.90	1.95	1.78	2.02	1.84	1.61	2.03	2.00	1.75	2.25	2.68	2.69	2.56	2.39	
175	1.97	1.74	2.10	2.12	2.32	2.14	2.00	1.76	2.12	2.12	1.89	2.23	2.54	2.70	2.44	2.33	
180	1.85	1.78	2.10	2.15	2.40	2.16	2.08	1.79	1.89	1.89	1.73	2.03	2.16	2.39	2.09	2.09	

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2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2017-05-08	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-NSB-300WAT3		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE170173-	120.0	60	2.639	316.1	0.9981	5.06
H2	277.0	60	1.156	305.0	0.9528	11.83
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

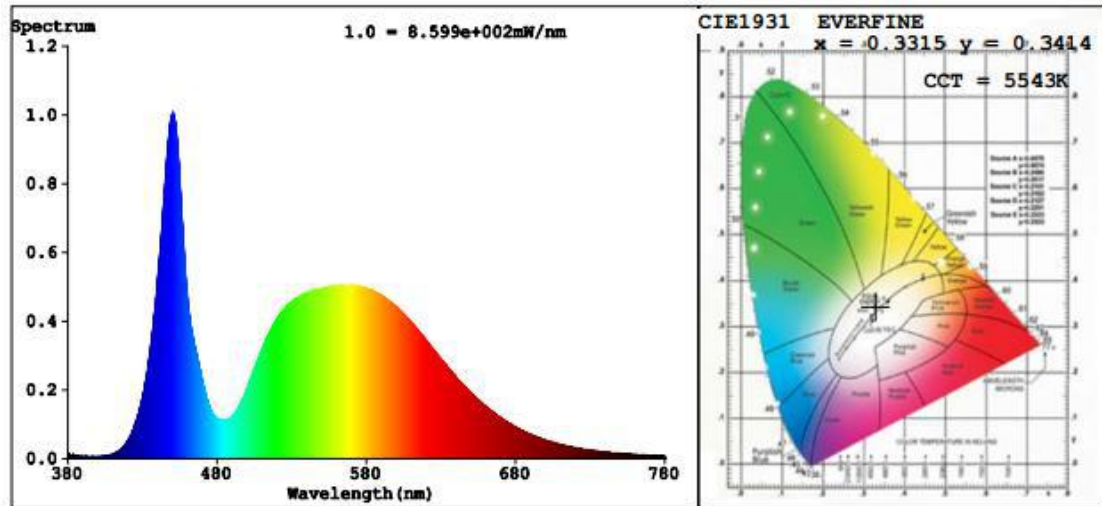
Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	74	R9	0
Frequency (Hz)	60	R2	79	R10	50
CCT (K)	5543	R3	82	R11	74
Duv	0.0006	R4	77	R12	46
Chromaticity (x, y)	x=0.3315 y=0.3414	R5	75	R13	75
Chromaticity (u', v')	u'=0.2061 v'=0.4776	R6	71	R14	89
Color Rendering Index (CRI)	75.5	R7	83	R15	70
R9	0	R8	63	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V4.2 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	37518	36887	>=1000(-10%)	
Luminous Efficacy (lm/W)	118.69	120.94	Standard: >=	Premium: >=
Most Worst Luminous/Highest Watts	116.69		100(-3%)	120(-3%)

Spectral Power Distribution & Chromaticity Diagram



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2.3 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
BLT-NSB-300WAT3 4000K	4000K	37201	317.9	117.02
BLT-NSB-300WAT3 5000K	5000K	37360*1	317.0*2	117.85*3
BLT-NSB-300WAT3 5700K	5700K	37518	316.1	118.69

- *1: This value is calculated and the calculation formula is as below:
 $37360 = (37518 - 37201) / 2 + 37201$
- *2: This value is calculated and the calculation formula is as below:
 $317.0 = (316.1 + 317.9) / 2$
- *3: This value is calculated and the calculation formula is as below:
 $117.85 = 37360 / 317.0$

3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-331	2 meter Integrating Sphere	2016-07-01	2017-06-30
ST-R-327	Spectral analysis system HAAS-2000	2016-07-01	2017-06-30
D204	Standard Lamp	2016-07-12	2017-07-11
PF2010	Power Meter for Integrating Sphere	2016-07-01	2017-06-30
GO-R5000	Goniophotometer system	2016-07-01	2017-06-30
D908S	Standard Lamp	2016-07-12	2017-07-11
PF210	Power Meter for Goniophotometer	2016-07-07	2017-07-06

Expand Uncertainty:
Photometric Measurement (Sphere):2.04%, k=2
Chromaticity Measurement(Sphere):28.8K, k=2
Photometric Measurement(Goniophotometer):2.36%, k=2

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

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