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

ZOHO Series - LED Pole Light

Model name(s): BLT-NSB-240WAT3

Test & Report By:

Garman Mo

Engineer: Garman Mo

Review By:

Tommy Liang

Manager: Tommy Liang

Date: Sept.20,2016

Update: Dec.19,2016

Update: Aug.08,2017

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

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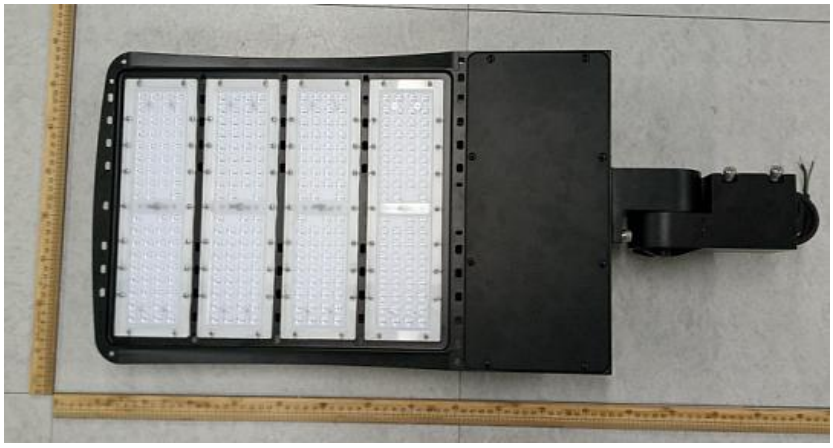
Revision Details

Report No.Revision	Revised Item	Revised Reason	Issue date
GZE160921-J-R	Photo and BUG Rating	For manufacturer's requirement, add Pole Mounting Bracket photos and BUG Rating.	Dec.19,2016
GZE160921-J-R1			Aug.08,2017

1.1 Product Information:

Organization Name	Beyond LED Technology	
Brand Name	Beyond LED	
Model Number	BLT-NSB-240WAT3	
SKU (if available)	110780	
Type of Luminaire (for integral lamps, list base type and lamp type)	ZOHO Series - LED Pole Light	
Rated Voltage / Frequency	100-277Vac,60 Hz	
Nominal Power	240W	
Rated Initial Lamp Lumen	--	
Declared CCT	5000K	
LED Manufacturer	Philips Lumileds	
LED Model	L130-xxyy003000W21	
Sample Number	GZE160921-J1(3000K),J2(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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	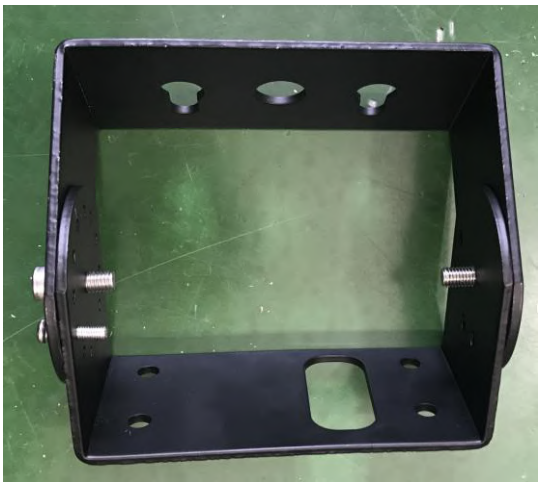
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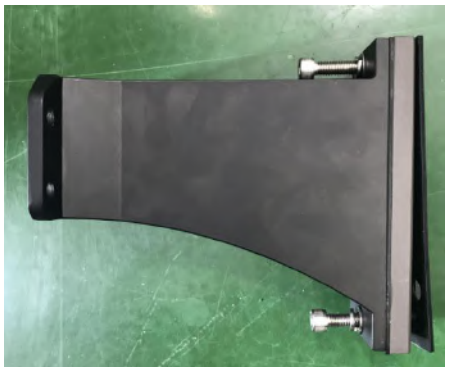
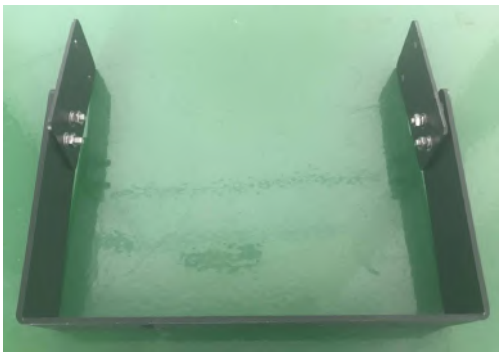
	
IM	**TM**
	

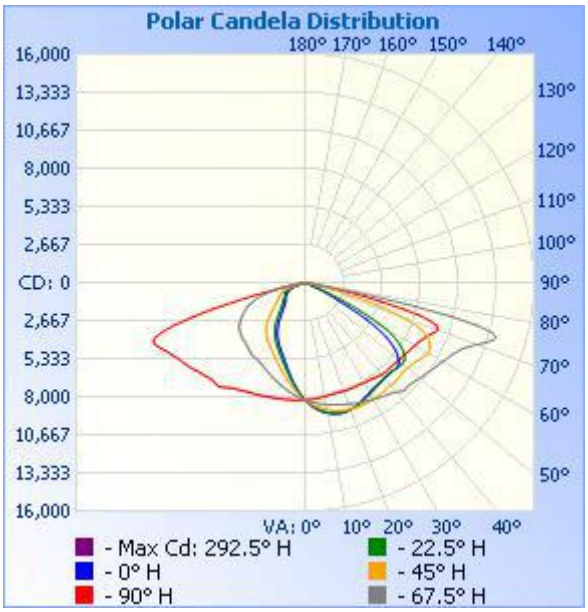
1.2 Test Specifications:

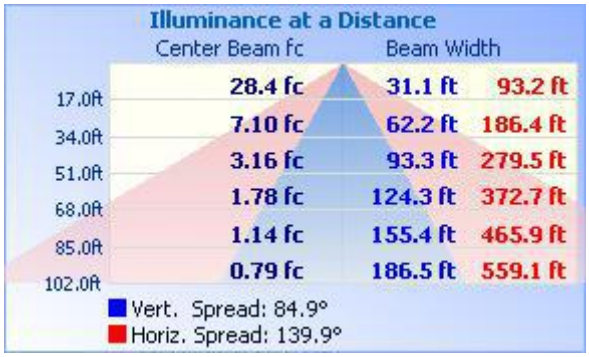
Date of Receipt	Sept.10,2016
Date of Test	Sept.11,2016
Test item	1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Electrical Parameters
Reference Standard	1. IES LM-79-2008 Electrical 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

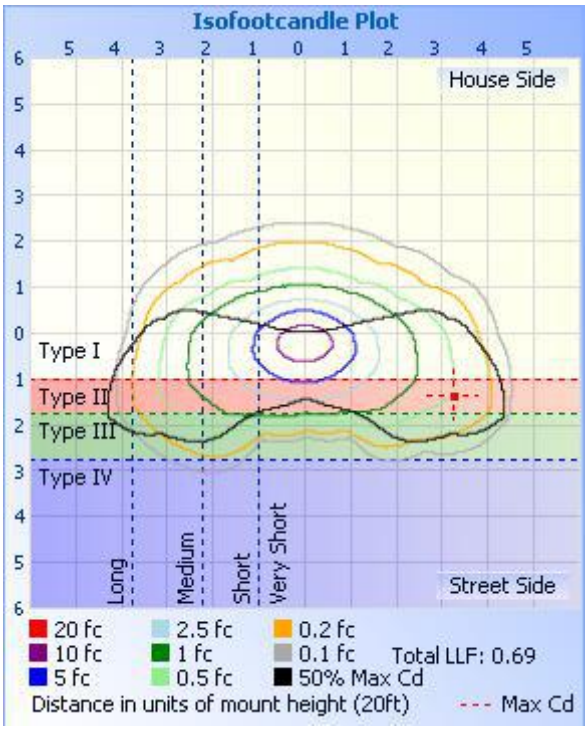
1.3 Test Methods

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° 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.
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 25º C ± 1º 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 25º C ± 1º 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.

Photometric Data







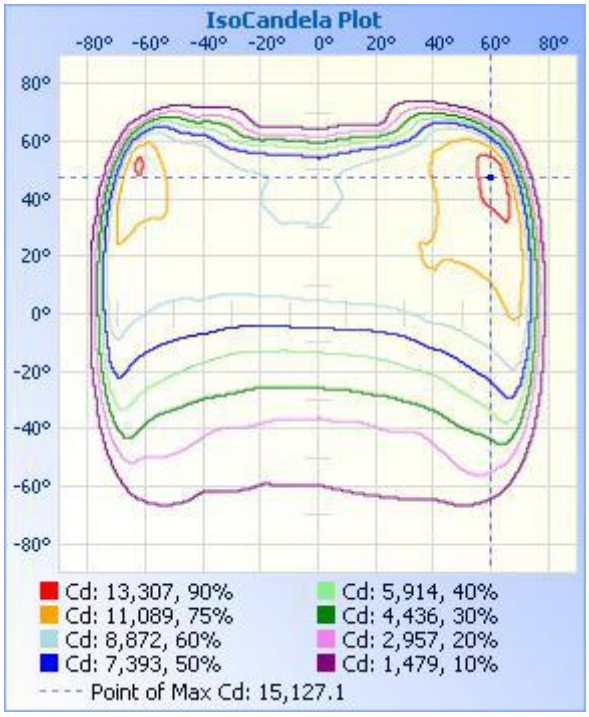


Table--1 UNIT: ×10cd

γ (DEG) \ C (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338		
0	821	821	821	821	821	821	821	821	821	821	821	821	821	821	821	821		
5	825	852	873	884	887	883	868	845	817	787	758	739	734	743	762	793		
10	830	883	915	930	928	923	902	866	809	746	687	653	641	657	697	760		
15	835	915	949	954	948	942	926	885	804	704	618	574	559	582	636	726		
20	845	944	972	962	944	943	941	905	806	665	559	510	499	523	582	694		
25	857	979	991	952	919	928	947	924	808	629	513	461	447	473	537	665		
30	874	1015	1001	936	894	904	945	945	812	597	474	408	388	422	501	641		
35	901	1054	1014	920	874	881	940	967	821	575	437	345	310	360	466	631		
40	945	1112	1031	907	867	867	934	1000	837	552	395	272	240	285	423	611		
45	947	1132	1038	908	871	868	931	1020	842	529	342	219	198	231	366	594		
50	972	1160	1035	931	856	886	933	1042	848	507	278	188	177	198	297	581		
55	1009	1204	1059	903	729	839	956	1070	862	480	227	166	166	176	244	561		
60	1045	1259	1104	750	422	655	990	1108	883	443	194	149	145	162	210	521		
65	1101	1330	1114	339	122	250	955	1160	919	384	167	134	123	147	184	466		
70	1113	1484	999	49.4	42.3	44.7	755	1269	980	318	141	97.5	63.2	98.7	159	392		
75	503	1142	528	29.4	29.7	28.0	273	1356	705	239	94.7	35.4	27.9	28.3	85.3	265		
80	50.6	133	49.7	20.2	19.0	19.8	41.8	181	86.9	111	15.5	12.0	15.0	12.5	15.3	69.5		
85	8.57	15.5	14.9	9.33	8.44	9.28	13.8	17.2	9.32	7.90	6.16	6.08	6.65	6.32	6.27	7.27		
90	0.90	1.00	0.64	0.11	0.06	0.08	0.48	1.13	0.85	0.82	0.36	0.02	0.00	0.05	0.41	1.10		
95	1.16	0.61	0.29	0.06	0.01	0.04	0.24	0.74	1.02	1.35	0.77	0.04	0.00	0.06	0.72	1.58		
100	1.48	0.57	0.24	0.07	0.04	0.11	0.22	0.72	1.43	1.84	1.26	0.21	0.08	0.23	1.09	1.92		
105	1.72	0.76	0.26	0.12	0.12	0.15	0.30	0.91	1.78	2.02	1.41	0.57	0.31	0.58	1.47	1.96		
110	1.95	1.17	0.33	0.19	0.18	0.23	0.43	1.14	1.99	2.15	1.62	0.89	0.59	0.89	1.60	2.38		
115	2.07	1.09	0.45	0.24	0.24	0.29	0.56	1.32	2.07	2.50	1.70	1.04	0.87	1.05	1.75	2.48		
120	2.15	1.15	0.56	0.32	0.26	0.33	0.68	1.40	2.00	2.49	1.97	1.32	1.01	1.23	1.96	2.33		
125	2.01	1.19	0.60	0.47	0.51	0.54	0.73	1.46	1.83	2.15	1.67	1.35	1.44	1.30	1.85	2.09		
130	1.87	1.20	0.63	0.56	0.62	0.64	0.80	1.39	1.80	1.82	1.58	1.78	1.46	1.70	1.93	1.89		
135	1.64	1.09	0.63	0.65	0.70	0.72	0.81	1.40	1.68	1.63	1.53	2.07	1.78	2.00	1.82	1.85		
140	1.60	1.09	0.64	0.72	0.81	0.80	0.77	1.28	1.64	1.67	1.27	2.03	1.58	1.87	1.49	1.95		
145	1.49	1.02	0.67	0.84	0.74	0.90	0.72	1.17	1.60	1.58	1.30	1.90	1.48	1.75	1.65	1.88		
150	1.43	1.01	0.90	0.96	0.97	1.02	0.96	1.18	1.52	1.56	1.53	1.83	1.60	1.65	2.05	1.74		
155	1.29	1.02	1.13	1.07	1.09	1.13	1.14	1.25	1.33	1.49	1.51	1.67	1.52	1.49	1.95	1.68		
160	1.22	1.05	1.20	1.16	1.16	1.18	1.20	1.26	1.36	1.43	1.35	1.57	1.50	1.42	1.73	1.67		
165	1.31	1.11	1.33	1.23	1.23	1.26	1.27	1.22	1.40	1.34	1.29	1.51	1.49	1.41	1.53	1.84		
170	1.45	1.34	1.56	1.47	1.30	1.52	1.60	1.37	1.61	1.61	1.53	1.86	2.02	1.93	1.99	2.12		
175	1.59	1.54	1.67	1.58	1.67	1.59	1.75	1.50	1.67	1.68	1.66	1.81	1.87	1.89	1.86	2.04		
180	1.50	1.59	1.65	1.58	1.67	1.59	1.82	1.53	1.50	1.51	1.56	1.64	1.59	1.68	1.58	1.81		

BUG Rating: B4-U3-G3

IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	3888.8	12.4
FM - Front-Medium(30-60)	11037	35.3
FH - Front-High(60-80)	6324.8	20.2
FVH - Front-Very High(80-90)	90.341	0.3
Total Forward Light	21366	68.3
BL - Back-Low(0-30)	2579.6	8.2
BM - Back-Medium(30-60)	4764.4	15.2
BH - Back-High(60-80)	2477	7.9
BVH - Back-Very High(80-90)	63.159	0.2
Total Back Light	9929.6	31.7
UL - Uplight-Low(90-100)	6.188	0.0
UH - Uplight-High(100-180)	64.322	0.2
Total Up Light	70.51	0.2
BUG(Back,Up,Glare) Rating	B4-U3-G3	

Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	9884.2	45.39	9929.6
Street Side	21340	25.121	21366

2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2016-09-11	Test Ambient:	25.2 º C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	BLT-NSB-240WAT3		

Electrical Measurement :

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
GZE160921-J2	120.0	60	2.067	244.9	0.9873	5.64
	277.0	60	0.9165	236.8	0.9328	10.72
				DLC Pass Criteria	>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method :

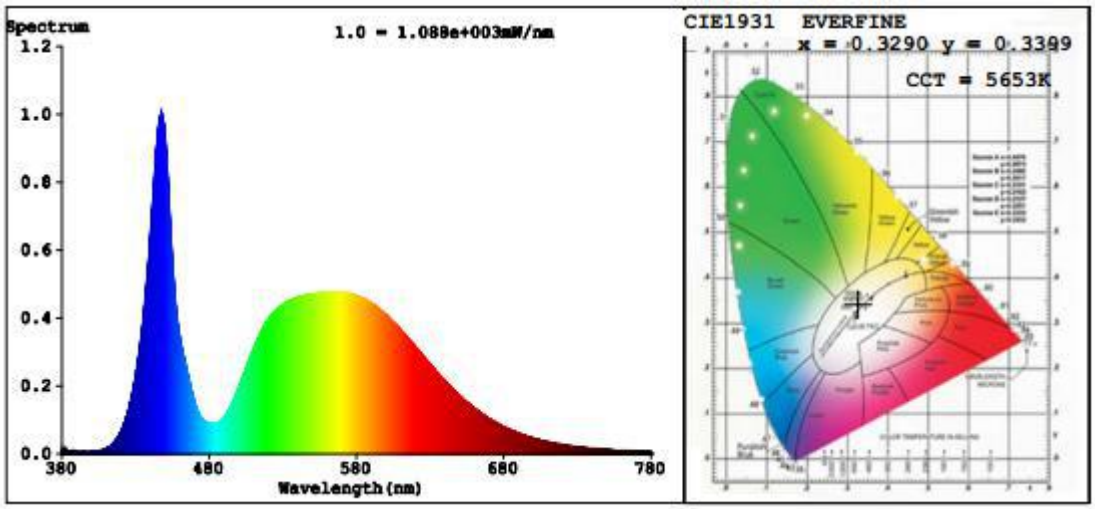
Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
CCT (K)	5653
Duv	0.0009
Chromaticity (x, y)	x=0.3290 y=0.3399
Chromaticity (u', v')	u'=0.2050 v'=0.4764
Color Rendering Index (CRI)	73.3
R9	0

Special Color Rendering Indices			
R1	72	R9	0
R2	76	R10	43
R3	78	R11	74
R4	75	R12	45
R5	74	R13	72
R6	68	R14	88
R7	80	R15	68
R8	62	--	--

Photometric Measurement – Sphere-Spectroradiometer Method :

Parameter	Result		DLC V4.0 Pass Criteria	
Test Voltage (V)	120.0	277.0	--	
Frequency (Hz)	60	60		
Total Luminous (lm)	32153	31790	>=10000(±10%)	
Luminous Efficacy (lm/W)	131.29	134.25	Standard: >= 100(-3%)	Premium: >= 120(-3%)

Spectral Power Distribution & Chromaticity Diagram



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 ********