



## Photometric Test Report

### Relevant Standards

- IES LM-79-2008
- ANSI C82.77-10-2014

### Prepared For

## GREEN INOVA LIGHTING TECHNOLOGY (SHENZHEN) LTD

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### Catalog Number

5SB(a)(b)(c)(d)(e)(f)(g)(h)(j)

### Project Number

4788254856

### Report Number

4788254856-7a

### Test Date

12/1/2017

### Issue Date

12/13/2017

### Revision Date

N/A

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Approved By

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The results contained in this report pertain only to the tested sample.

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## 1.0 Test Summary

DLC Technical Requirements v4.2- issued 2017-04-28

Requirement Category	Test Method	Requirements	Test value	Results (Fail/Pass)
Minimum Light Output (lm)	IES LM-79-2008	≥10000	12269.3	Pass
Minimum Lamp Output (lm)	IES LM-79-2008	N/A	N/A	N/A
Spacing Criteria (0-180°)	IES LM-79-2008	N/A	N/A	N/A
Spacing Criteria (90-270°)	IES LM-79-2008	N/A	N/A	N/A
Zonal Lumen Requirement (0°-90°)	IES LM-79-2008	≥99%	99.70%	Pass
Zonal Lumen Requirement (80°-90°)	IES LM-79-2008	≤10%	2.00%	Pass
Minimum Luminaire Efficacy (lm/W)	IES LM-79-2008	≥120	122.94	Pass
Minimum Lamp Efficacy (lm/ft)	IES LM-79-2008	N/A	N/A	N/A
Allowable CCTs* (K)	IES LM-79-2008 ANSI C78.377-2015	≤5700	N/A	N/A
Minimum CRI	IES LM-79-2008 CIE 13.3-1995	≥65	N/A	N/A
Power Factor	ANSI C82.77-10-2014	≥0.9	0.933	Pass
Total Harmonic Distortion (A%)	ANSI C82.77-10-2014	≤20%	11.84%	Pass
Minimum Luminaire Warranty (years)	N/A	5	5	Pass

\* The standards are NOT covered by the NVLAP scope of test laboratory UL Verification Services (Guangzhou) Co., Ltd.



## 2.0 Test List

Test Item	Test	Test Date	Model Number	Tests Conducted By
1	Goniophotometer Test	12/1/2017	5SB100H40B2DIV	Vince Lin
2	THD and PF Test	12/1/2017	5SB100H40B2DIV	Vince Lin

### **Remark** (if any)

1. UL test equipment information is recorded on Meter Use in UL's Aurora database.



### 3.0 Production Description

**Luminaire Description:** Outdoor-High Output, Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

**Model Number:** 5SB100H40B2DIV

**Rated Input and CCT:** 347-480 Vac, 50/60 Hz, 100W, 4000K

**Driver Model Number :** HVG-100-36B

**LED Package:** SAW7C22B-xx

**Family Model and Variation:** 5SB(a)(b)(c)(d)(e)(f)(g)(h)(j)

where (a) may be any number, represent products wattage; (b) may be L and H, L represent input voltage is 100-277V, H represent input voltage is 347-480V, (c) represents color temperature, may be 40, 45 and 50; (d) represents case color, may be B, W and BK, instead of bronze, white and black; (e) represents the employing driver manufacture, may be 1 and 2, 1 for E-DRIVER CO LTD, 2 for MEAN WELL ENTERPRISED CO LTD; (f) represents provided with photocell, can be P for provided with photocell or blank for no photocell; (g) represents the dimmable, can be D for dimmable or Blank for non-dimmable; (h) represents motion Sensor, can be M for provided with Motion Sensor or blank for no motion sensor; (j) represent a variety of aisle lens, may be T, I, IV and V, T represent Type II lens, I represent Type III lens, IV represent Type IV lens, V represent Type V lens.

#### Photos of Luminaire Characteristics





#### 4.0 LM-79 Measurement and Test Results

<b>Model No.</b>	5SB100H40B2DIV	<b>Sample ID.</b>	1278276-S001
<b>Operate time (Min.)</b>	90	<b>Stabilization time (Min.)</b>	45

#### Test Method

<p>1.The sample was tested according to the IES LM-79-2008.</p> <p>2.Photometric paramters were measured using a type C goniophotometer and software.</p> <p>3.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 reference standard lamp is rated current 3.865A omni-directional Incandescent lamp and was calibrated by china seprei laboratory.</p> <p>4.The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5° vertical intervals and 22.5° horizontal intervals..Photometric distance was more than five times of the largest dimension of the test SSL product.</p>
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#### Goniophotometer Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
25.1	346.98	60	0.2937	99.8	0.9786	Face Down

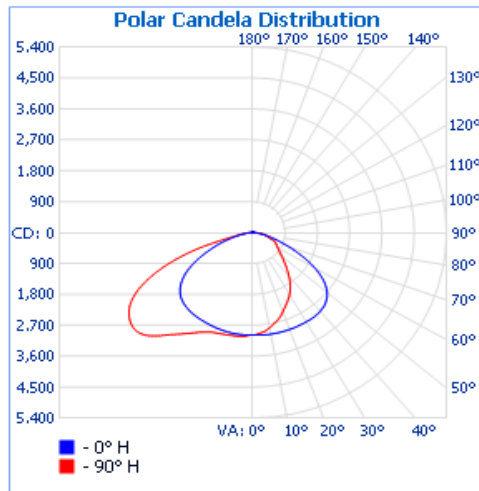
#### Test Result

Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)
	Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread	
12269.3	121.3	163.2	51.9	146.1	122.94
<b>Zonal Lumen Requirement (0°-90°)</b>	<b>Zonal Lumen Requirement (80°-90°)</b>				
99.70%	2.00%				

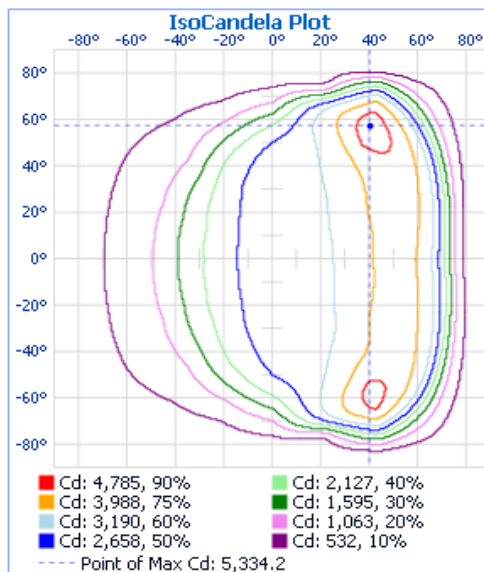


## 4.2 Goniophotometer Test (Cont'd)

### Light Distribution Curve



### IsoCandela Plot





## 4.2 Goniophotometer Test (Cont'd)

### Zonal Lumen Summary

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	2,415.0	19.7%
0-40	4,142.9	33.8%
0-60	8,488.3	69.2%
60-90	3,749.4	30.6%
70-100	1,540.9	12.6%
90-120	13.7	0.1%
0-90	12,237.7	99.7%
90-180	31.6	0.3%
0-180	12,269.3	100%

### Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	71.4	0.6%	90-95	2.5	0%
5-10	212.8	1.7%	95-100	2.1	0%
10-15	348.7	2.8%	100-105	2.1	0%
15-20	477.1	3.9%	105-110	2.3	0%
20-25	596.1	4.9%	110-115	2.4	0%
25-30	709.1	5.8%	115-120	2.4	0%
30-35	815.8	6.6%	120-125	2.4	0%
35-40	912.1	7.4%	125-130	2.4	0%
40-45	999.1	8.1%	130-135	2.3	0%
45-50	1,072.1	8.7%	135-140	2.1	0%
50-55	1,122.3	9.1%	140-145	1.9	0%
55-60	1,151.8	9.4%	145-150	1.7	0%
60-65	1,148.9	9.4%	150-155	1.4	0%
65-70	1,064.2	8.7%	155-160	1.2	0%
70-75	827.3	6.7%	160-165	1.0	0%
75-80	469.6	3.8%	165-170	0.8	0%
80-85	195.0	1.6%	170-175	0.5	0%
85-90	44.5	0.4%	175-180	0.2	0%



## 4.2 Goniophotometer Test (Cont'd)

### Intensity Data(cd)

	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	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985	2985
1	2982	2980	2976	2977	2984	2977	2979	2983	2981	2986	2988	2986	2986	2983	2984	2982	2978
2	2986	2978	2968	2966	2967	2966	2970	2979	2978	2990	2995	2998	2994	2991	2991	2986	2981
3	2992	2977	2962	2958	2952	2952	2962	2977	2986	3002	3012	3014	3010	3010	3008	3002	2990
4	2994	2978	2953	2951	2933	2941	2951	2971	2992	3009	3021	3026	3026	3024	3019	3011	2992
5	2996	2978	2943	2928	2922	2925	2946	2970	2990	3014	3029	3033	3036	3031	3029	3017	2995
6	2998	2974	2931	2913	2909	2914	2936	2964	2984	3013	3032	3038	3038	3039	3036	3022	2998
7	2996	2971	2920	2889	2889	2894	2928	2964	2991	3024	3040	3040	3042	3043	3038	3026	2997
8	3002	2960	2914	2873	2858	2869	2903	2955	2990	3020	3038	3044	3046	3047	3044	3027	2996
9	3002	2951	2898	2851	2826	2844	2882	2943	2987	3023	3040	3049	3048	3049	3046	3032	2999
10	3001	2947	2881	2829	2799	2812	2864	2935	2992	3028	3046	3051	3052	3052	3050	3035	3001
11	3001	2940	2856	2805	2766	2786	2845	2924	2985	3023	3048	3053	3053	3057	3053	3038	3000
12	2996	2936	2836	2772	2732	2755	2827	2914	2982	3028	3049	3056	3059	3056	3057	3042	3001
13	3004	2930	2812	2739	2704	2727	2806	2907	2985	3030	3048	3059	3065	3064	3060	3046	3002
14	3003	2921	2798	2709	2671	2701	2789	2898	2980	3029	3049	3061	3065	3066	3062	3048	3003
15	3004	2914	2769	2679	2646	2673	2770	2890	2976	3026	3053	3063	3069	3071	3065	3049	3004
16	3003	2902	2754	2647	2611	2646	2748	2878	2974	3027	3050	3068	3075	3078	3067	3048	3008
17	3002	2891	2732	2614	2573	2614	2726	2870	2972	3027	3052	3070	3081	3083	3067	3052	3003
18	3002	2882	2711	2584	2533	2577	2700	2854	2968	3020	3050	3072	3087	3090	3073	3051	2998
19	3002	2870	2689	2549	2490	2534	2667	2842	2966	3022	3048	3076	3096	3092	3071	3052	3004
20	3003	2864	2665	2511	2449	2496	2640	2830	2962	3020	3051	3085	3102	3102	3072	3054	3002
25	3001	2800	2513	2322	2249	2311	2488	2752	2937	3001	3056	3147	3198	3166	3097	3056	3000
30	2996	2731	2355	2128	2057	2136	2350	2676	2923	2987	3081	3269	3376	3318	3144	3054	2995
35	2993	2643	2200	1905	1806	1901	2169	2576	2903	2968	3131	3440	3612	3527	3222	3060	2990
40	2954	2515	1959	1635	1527	1630	1944	2444	2864	2956	3222	3704	3913	3786	3344	3062	2948
45	2875	2332	1635	1332	1254	1341	1677	2273	2795	2956	3389	4039	4229	4123	3563	3083	2870
50	2701	2033	1273	1070	1037	1092	1375	2034	2657	2974	3639	4301	4340	4395	3892	3137	2698
55	2388	1611	972	876	879	894	1080	1702	2407	3044	4029	4390	4220	4491	4377	3264	2401
60	1919	1182	756	736	772	751	818	1269	2024	3169	4570	4348	3891	4454	4971	3396	1971
65	1355	787	605	625	686	640	636	858	1531	3226	5059	4169	3239	4226	5334	3258	1428
70	846	526	482	522	512	539	502	578	1039	2859	5014	3705	2283	3576	4962	2338	848
75	483	359	359	386	400	399	397	402	609	1330	3957	2643	1056	2254	3743	862	453
80	227	237	210	256	291	276	285	279	311	348	2008	1173	377	961	1771	247	215
85	65	94	79	127	149	152	138	151	120	119	445	422	150	338	257	73	69
90	2	3	5	4	3	13	17	28	11	23	30	22	7	7	4	2	2
95	2	4	7	6	4	5	6	4	2	3	4	3	2	3	3	2	2
100	3	5	7	7	5	7	7	4	2	2	2	2	2	2	2	2	3
105	3	6	8	7	6	8	8	6	3	2	2	2	2	2	2	2	3
110	4	7	8	8	7	8	8	6	4	2	2	2	2	2	2	2	4
115	4	7	9	8	7	9	8	6	4	3	2	2	2	2	2	3	4
120	4	7	10	8	8	9	9	6	4	3	2	2	2	2	2	3	5
125	5	7	9	9	8	10	9	6	4	3	3	2	2	2	3	4	5
130	5	7	9	9	8	10	10	7	5	3	3	2	2	3	3	4	6
135	5	7	8	9	8	9	9	8	6	4	4	3	3	3	4	4	5
140	6	7	8	8	9	8	7	7	6	5	4	4	3	3	4	5	5
145	6	6	7	8	8	8	8	6	6	5	4	4	4	4	4	5	5
150	5	6	6	7	7	7	7	6	6	5	4	5	4	4	4	5	5
155	5	6	6	6	6	6	6	6	5	5	5	4	4	5	5	5	6
160	6	6	6	6	7	6	7	6	6	5	6	5	6	5	5	5	6
165	6	6	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6
170	7	7	7	8	7	8	8	7	7	7	7	6	7	7	6	7	6
175	8	7	7	8	8	8	8	8	8	8	7	7	8	7	7	7	7
180	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8





## 5.0 THD and PF Test

### Test Method

1. The samples were tested according to the ANSI C82.77-2002.
2. The ambient temperature condition was maintained at  $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$ . The sample measurement was made using a digital power meter and power supply. The sample was operated at rated voltage and stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.

### Test Results

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Current THD
25.1	346.98	60	0.2937	99.78	0.9786	11.84%
25.1	480.04	60	0.2249	100.7	0.933	9.55%



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