



Photometric Test Report

Relevant Standards

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

Prepared For

GREEN INOVA LIGHTING TECHNOLOGY (SHENZHEN) LTD

EAST WING, FL9.10.11, BLDG2, NO.2, CHONGQING RD QIAOTOU COMMUNITY, FUYONG STREET, BAOAN DISTRICT, SHENZHEN, GUANGDONG 518103 CHINA
Rose Meng, 1064624485@qq.com, 86-755-83405100

Test Laboratory: UL Verification Services (Guangzhou) Co., Ltd.

Test Laboratory Address: Building A1, 1F & 2F, Nansha Science and Technology Innovation Center, No. 25, South Huanshi Avenue, Nansha District, Guangzhou 511458, China

Catalog Number

4SB(a)(b)(c)(d)(e)(f)(g)(h)(j)

Project Number

4788254856

Report Number

4788254856-11a

Test Date

11/30/2017

Issue Date

12/13/2017

Revision Date

N/A

Prepared By

Alvin Xie

Alvin Xie

Approved By

Dendi Lin

Dendi Lin

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	≥30000	34547.8	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%	99.80%	Pass
Zonal Lumen Requirement (80°-90°)	IES LM-79-2008	≤10%	2.40%	Pass
Minimum Luminaire Efficacy (lm/W)	IES LM-79-2008	≥120	122.02	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	0.9409	Pass
Total Harmonic Distortion (A%)	ANSI C82.77-10-2014	≤20%	22.19%	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	11/30/2017	4SB280L40B2DIV	Vince Lin
2	THD and PF Test	11/30/2017	4SB280L40B2DIV	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-Very High Output, Outdoor Pole/Arm-Mounted Area and Roadway Luminaires

Model Number: 4SB280L40B2DIV

Rated Input and CCT: 100-277 Vac, 50/60 Hz, 280W, 4000K

Driver Model Number : HLG-320H-36B

LED Package: SAW7C22B-xx

Family Model and Variation: 4SB(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

Model No.	4SB280L40B2DIV	Sample ID.	1278281-S001
Operate time (Min.)	90	Stabilization time (Min.)	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>

Goniophotometer Test Conditions

Temperature (°C)	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	Orientation
25.1	120.01	60	2.3676	283.13	0.9966	Face Down

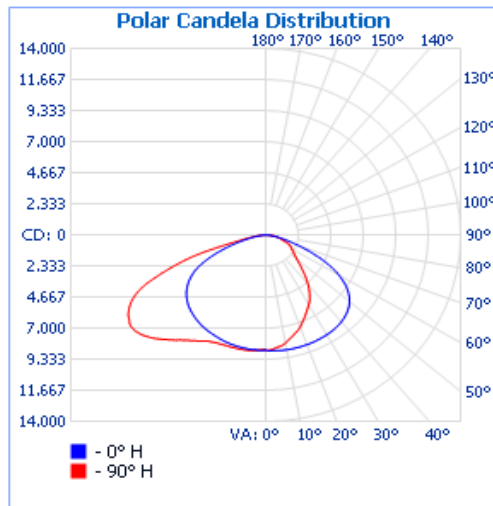
Test Result

Flux (lm)	Field Angle (10%)		Beam Angle (50%)		Luminous Efficacy (lm/W)
	Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread	
34547.8	123.1	165.8	54.9	151.7	122.02
Zonal Lumen Requirement (0°-90°)	Zonal Lumen Requirement (80°-90°)				
99.80%	2.40%				

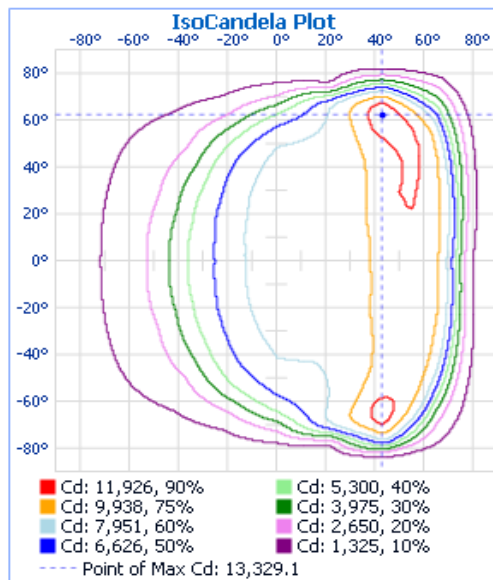


4.2 Goniophotometer Test (Cont'd)

Light Distribution Curve



IsoCandela Plot





4.2 Goniophotometer Test (Cont'd)

Zonal Lumen Summary

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	6,962.5	20.2%
0-40	11,846.7	34.3%
0-60	23,634.7	68.4%
60-90	10,829.0	31.3%
70-100	4,865.4	14.1%
90-120	38.4	0.1%
0-90	34,463.7	99.8%
90-180	84.0	0.2%
0-180	34,547.8	100%

Lumens Per Zone

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	206.5	0.6%	90-95	6.6	0%
5-10	616.0	1.8%	95-100	6.4	0%
10-15	1,009.3	2.9%	100-105	6.4	0%
15-20	1,380.6	4.0%	105-110	6.4	0%
20-25	1,719.8	5.0%	110-115	6.4	0%
25-30	2,030.3	5.9%	115-120	6.3	0%
30-35	2,318.7	6.7%	120-125	6.1	0%
35-40	2,565.5	7.4%	125-130	6.0	0%
40-45	2,767.5	8.0%	130-135	5.7	0%
45-50	2,923.0	8.5%	135-140	5.3	0%
50-55	3,027.7	8.8%	140-145	4.8	0%
55-60	3,069.8	8.9%	145-150	4.3	0%
60-65	3,047.5	8.8%	150-155	3.7	0%
65-70	2,929.1	8.5%	155-160	3.1	0%
70-75	2,486.9	7.2%	160-165	2.6	0%
75-80	1,552.0	4.5%	165-170	2.1	0%
80-85	674.6	2.0%	170-175	1.4	0%
85-90	138.9	0.4%	175-180	0.5	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	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638	8638
1	8684	8670	8663	8668	8668	8666	8664	8667	8664	8670	8570	8586	8578	8597	8579	8586	8588
2	8694	8668	8652	8649	8646	8646	8647	8660	8664	8676	8603	8606	8624	8616	8618	8597	8596
3	8700	8664	8629	8601	8599	8599	8610	8640	8663	8694	8618	8649	8660	8669	8650	8633	8610
4	8710	8660	8605	8567	8552	8555	8578	8625	8662	8701	8641	8674	8685	8701	8671	8650	8624
5	8720	8648	8582	8531	8508	8515	8551	8610	8652	8714	8644	8692	8704	8722	8690	8677	8638
6	8730	8648	8559	8497	8456	8470	8523	8600	8661	8719	8662	8701	8723	8735	8714	8686	8640
7	8735	8639	8539	8458	8425	8440	8496	8580	8659	8722	8674	8710	8742	8746	8738	8697	8646
8	8739	8631	8512	8419	8380	8402	8468	8570	8656	8727	8682	8717	8751	8763	8754	8713	8652
9	8746	8615	8472	8358	8306	8335	8421	8546	8642	8725	8683	8726	8757	8776	8760	8727	8653
10	8749	8596	8420	8280	8217	8254	8364	8517	8636	8726	8686	8727	8762	8785	8778	8747	8664
11	8751	8577	8368	8198	8126	8171	8309	8488	8631	8724	8685	8726	8764	8792	8785	8752	8666
12	8752	8559	8312	8118	8033	8090	8250	8460	8619	8720	8683	8733	8765	8794	8792	8762	8666
13	8755	8540	8259	8036	7941	8007	8194	8432	8610	8718	8677	8717	8768	8800	8800	8770	8665
14	8755	8522	8206	7951	7854	7925	8134	8403	8599	8710	8676	8714	8768	8802	8804	8776	8667
15	8756	8495	8152	7880	7766	7847	8084	8379	8588	8702	8665	8718	8768	8805	8808	8780	8667
16	8751	8480	8101	7801	7678	7770	8031	8353	8577	8693	8658	8716	8772	8804	8819	8784	8668
17	8754	8463	8048	7726	7591	7696	7978	8327	8566	8685	8649	8715	8773	8813	8818	8782	8666
18	8752	8418	7994	7646	7507	7617	7922	8295	8554	8674	8641	8708	8780	8815	8821	8789	8665
19	8746	8386	7928	7559	7409	7529	7855	8257	8540	8660	8632	8710	8779	8822	8821	8793	8661
20	8748	8352	7852	7453	7302	7426	7778	8215	8522	8642	8619	8709	8790	8828	8822	8796	8656
25	8723	8174	7424	6877	6685	6857	7350	7991	8414	8543	8565	8758	8888	8899	8826	8786	8636
30	8683	7959	7009	6351	6125	6337	6941	7760	8310	8436	8531	8896	9189	9098	8844	8764	8595
35	8615	7663	6499	5735	5497	5740	6447	7468	8179	8290	8539	9300	9652	9486	8897	8712	8520
40	8470	7307	5838	4930	4656	4964	5828	7094	7992	8126	8604	9783	10299	9975	8987	8618	8377
45	8239	6803	5028	4012	3750	4078	5106	6643	7750	7959	8760	10420	11010	10570	9198	8489	8152
50	7844	6049	4074	3160	2994	3221	4250	6058	7414	7818	9022	11039	11642	11258	9517	8340	7772
55	7162	5010	3121	2540	2496	2560	3322	5266	6906	7719	9539	11561	11879	11852	9981	8162	7077
60	6104	3747	2367	2134	2180	2120	2501	4120	6177	7756	10249	11613	11374	12124	10899	8011	6004
65	4612	2490	1798	1818	1941	1793	1836	2786	5039	7997	11441	11187	10190	12071	12268	7877	4549
70	2896	1596	1381	1502	1474	1471	1381	1759	3430	7926	12780	10023	7353	11653	###	6828	2889
75	1562	1069	1054	1072	1126	1112	1042	1149	1901	4701	12294	7140	3540	9825	11123	2841	1530
80	773	698	718	731	800	732	704	731	858	1056	8024	3202	1238	5524	5210	691	763
85	298	307	322	390	411	382	327	356	299	348	1513	1204	469	1602	1079	260	304
90	8	16	16	21	19	32	23	22	17	19	18	14	11	14	14	8	8
95	7	12	17	15	12	17	18	11	8	9	10	9	8	14	11	6	7
100	8	14	19	18	16	20	20	13	8	7	8	6	5	13	11	6	8
105	10	16	20	20	19	22	21	14	9	7	6	5	5	6	8	7	9
110	11	16	20	21	20	22	21	15	10	7	6	5	5	5	7	8	10
115	11	16	20	20	21	23	20	16	11	8	6	5	5	5	7	8	12
120	12	16	20	20	21	23	20	15	12	9	7	6	6	6	7	9	12
125	12	17	21	21	20	23	21	15	12	10	8	6	6	6	8	10	12
130	13	17	21	21	20	23	21	16	12	10	9	8	7	8	9	11	13
135	14	17	20	20	20	21	20	17	14	11	10	8	8	8	10	11	14
140	14	16	18	19	20	20	19	17	14	12	11	10	9	9	11	12	14
145	14	16	17	18	19	19	18	16	15	14	12	11	9	10	12	13	14
150	15	15	16	17	18	17	17	16	15	14	13	12	12	12	12	14	14
155	14	15	15	16	16	16	16	15	15	14	13	13	12	13	13	14	14
160	15	15	15	16	16	16	16	16	16	15	14	14	14	14	14	14	14
165	16	16	17	17	18	18	18	17	17	17	16	16	15	16	16	16	15
170	18	18	18	19	19	19	20	20	19	19	19	18	18	18	18	18	18
175	19	19	20	20	21	21	21	21	21	21	21	20	20	20	20	19	19
180	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20



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	120	60	2.3917	285.97	0.9964	4.15%
25.1	277	60	1.6667	277.93	0.9409	22.19%



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