



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200306010BS

TEST REPORT of IES LM-79-08

Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

Client..... : RAB LIGHTING INC

Address..... : 170 Ludlow Ave,PO BOX 970,Northvale, NJ 07647-2305 USA

Brand Name..... : **RAB**[®]

Testing laboratory..... : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.

Address..... : B Area, 2F, Building B, Zhongyu Green Wenge Road, Heshuikou, Gongming Street,
Guangming New District, Shenzhen, Guangdong Prov .518000 China

Product description .. : LED Corn Light

Models..... : HID-54-EX39-850-BYP-PT/LC

Rating..... : AC100-277V, 50/60Hz, 54W

Date of Test..... : March 18, 2020

Date of Issue..... : March 18, 2020

Test by:

William Lian

William Lian/ Project Engineer

Check by:

Ian Luo

Ian Luo/ Director

Approved by:



Jesse Liu/ Manager

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1. Test Method

Test Item.....	: Integrating Sphere Test
Ambient Condition	: 25.1°C
Number of hours operated prior to Measurement	: 0h
Stabilization time	: 0.5h
Orientation(burning position) of SSL product during test	: down
Test Method	: The sample was tested according to the IES LM-79-2008. 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 rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.
Test Item.....	: Goniophotometer Test
Ambient Condition.....	: 25.1°C
Total operated time of the product for measurements including stabilization..... (h):	: 1.0h
Correction factors applied.....	: Intensity distribution
Orientation(burning position) of SSL product during test	: down
Test Method.....	: The sample was tested according to the IES LM-79-2008. Photometric paramters were measured using a type C goniophotometer and software. The sample reference plane was located at the center of the sample goniometer at a test distance of 26m from the detectors. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2. Product Information

Product description.....:	LED Corn Light
Model Number.....:	HID-54-EX39-850-BYP-PT/LC
Rated Inputs.....:	AC100-277V, 50/60Hz
Rated Power.....:	54W
Declared CCT.....:	5000K
LED Manufacturer.....:	N/A
LED Model.....:	N/A
LED Package, Array or Module.....:	N/A
Forward current of the LED chip.....:	N/A
Date of Receipt Samples.....:	March 16, 2020
Quantity of Receipt Samples.....:	1 unit

3. Test equipment list:

Manufacturer	Description	Equipment ID	Model	Calibration Date	Calibration Due Date
EVERFINE	Full-field Speed Goniophotometer	SLCS-S-112	GO-R5000	2019/07/01	2020/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2019/07/01	2020/07/01
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2019/07/01	2020/07/01
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2019/07/08	2020/07/08
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2019/07/01	2020/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2019/07/01	2020/07/01
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2019/07/01	2020/07/01
SENSING	Standard Lamp	SLCS-S-118	S11010017	2019/07/08	2020/07/08

4. Integrating Sphere Test Results:

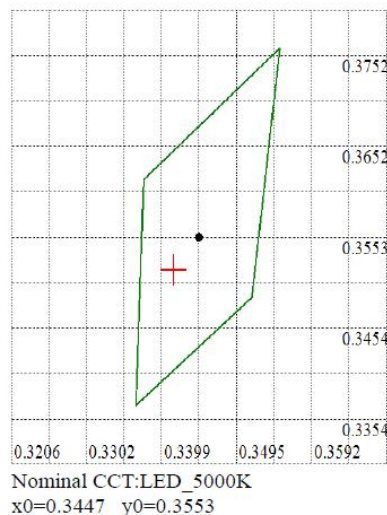
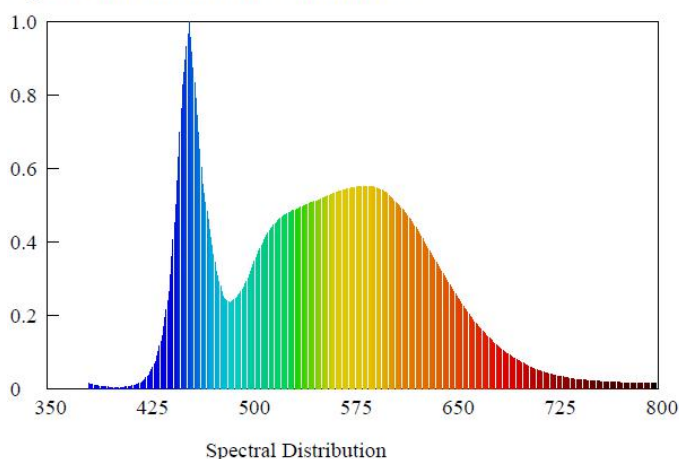
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	100.0	60.0	0.547	0.993	54.3

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	5144	84.5	+0.00156	7661.73	141.1

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3414 y=0.3517 u'=0.2089 v'=0.4842

Correlated Color Temperature: 5144 K

Dominant Wavelength: 567.0 nm(E)

Colour Fidelity Index: Rf=81

Gamut Index: Rg=93

Luminous Flux: 7661.73 lm

Purity: 0.0790

Chromaticity Difference: +0.00156Duv

Peak Wavelength: 455.0 nm

Color Ratio: Kr=33.8% Kg=54.7% Kb=11.5%

Bandwidth: 22.7nm

Radiant Flux: 25.384 W

Photosynthetically Active Radiation(PAR): 24.73W

Photosynthetic Photon Flux(PPF):114.14μmol/s

Rendering Index: Ra=84.5

R1=83 R2=91 R3=94 R4=83 R5=83 R6=85 R7=87 R8=69

R9=15 R10=77 R11=82 R12=59 R13=86 R14=97 R15=79 Re=78

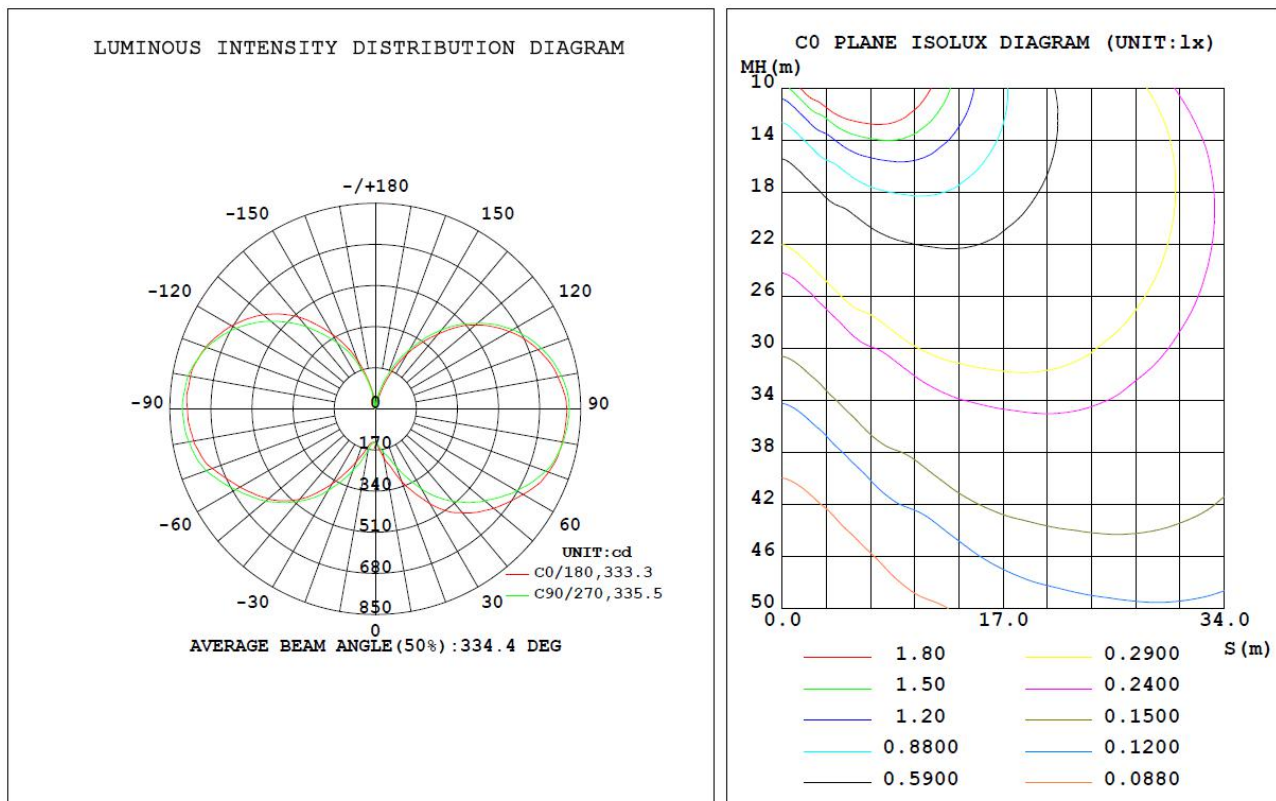
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	100.13	60.01	0.5460	0.9926	54.264

Test type	Total Flux (lm)	Luminous efficacy (lm/W)	I _{max} (cd)	Spacing Criteria (0~180°)	Spacing Criteria (90~270°)
Output	7652.81	141.03	833.1	3.59	3.65

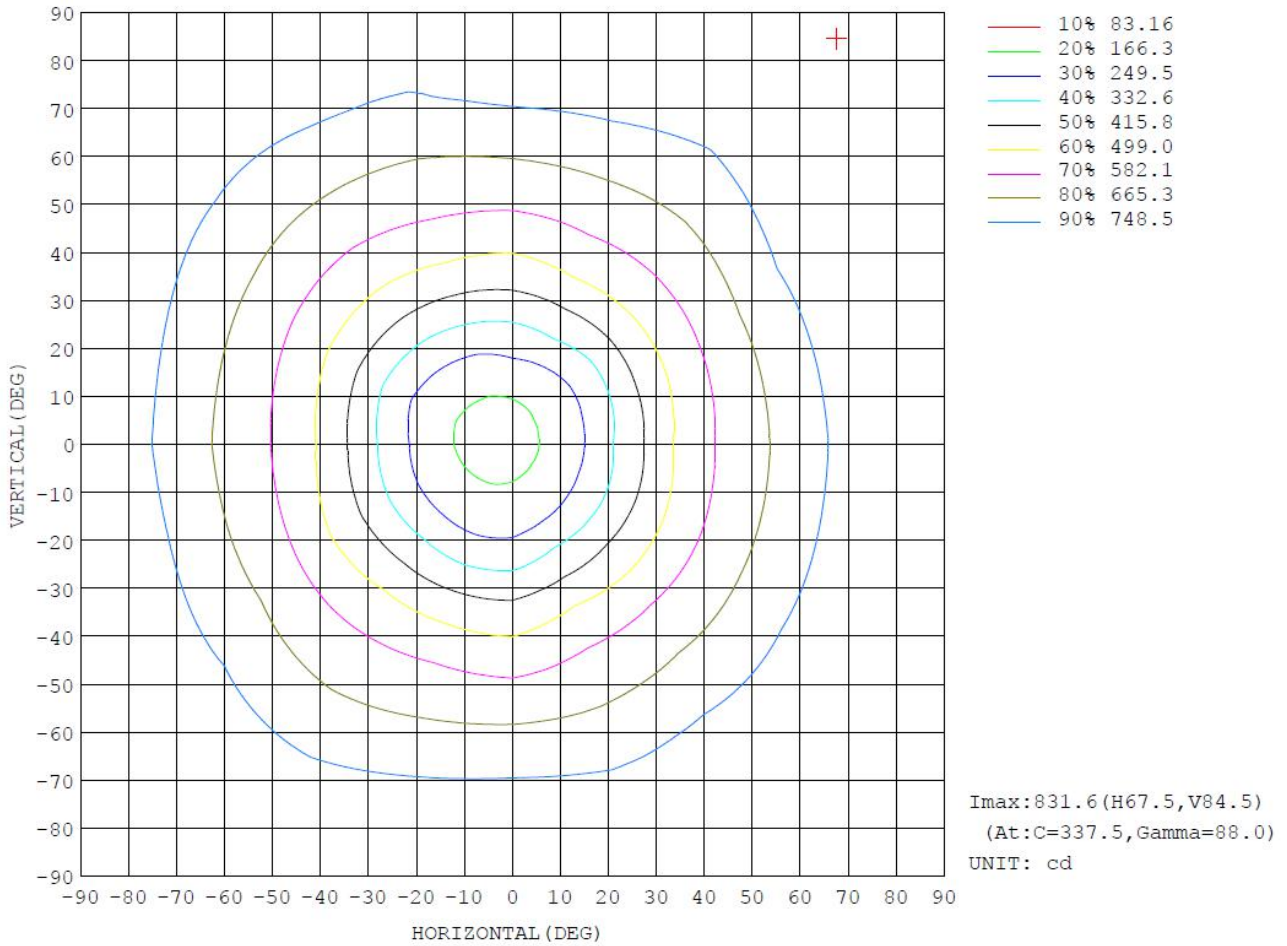
5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)



5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	205.8	200.5	181.0	166.7	152.0	155.5	170.5	192.6	0- 10	15.20	15.20	0.20,0.20
20	319.4	301.9	255.1	243.5	232.9	236.6	268.3	283.7	10- 20	63.34	78.54	1.03,1.03
30	452.4	436.7	381.8	375.3	356.3	356.9	388.7	424.2	20- 30	154.8	233.4	3.05,3.05
40	561.0	551.7	496.7	503.8	487.4	481.1	499.5	543.2	30- 40	290.0	523.4	6.84,6.84
50	639.2	640.3	591.2	594.4	578.4	576.3	592.3	622.3	40- 50	437.1	960.5	12.6,12.6
60	705.9	711.7	676.5	664.9	646.3	655.4	667.4	692.6	50- 60	578.5	1539	20.1,20.1
70	762.8	774.5	750.4	736.5	718.4	730.4	745.1	754.2	60- 70	712.7	2252	29.4,29.4
80	785.6	802.8	789.2	774.3	763.3	783.8	782.5	779.8	70- 80	816.7	3069	40.1,40.1
90	792.5	809.8	802.5	787.3	778.0	800.7	798.4	786.5	80- 90	866.4	3935	51.4,51.4
100	766.6	783.8	782.8	779.2	776.9	797.8	786.4	770.5	90-100	866.0	4801	62.7,62.7
110	716.4	731.4	732.2	741.0	746.3	763.2	742.3	723.9	100-110	809.5	5610	73.3,73.3
120	640.3	650.8	655.7	679.5	687.0	700.2	666.7	652.9	110-120	702.4	6313	82.5,82.5
130	540.2	542.8	551.5	589.2	606.1	612.5	564.4	555.9	120-130	559.2	6872	89.8,89.8
140	404.2	408.0	427.8	472.5	496.6	492.5	444.0	425.4	130-140	398.1	7270	95,95
150	262.2	265.8	284.1	332.7	356.1	342.4	316.6	294.5	140-150	238.8	7509	98.1,98.1
160	113.0	121.7	145.4	179.8	211.9	200.9	183.1	153.3	150-160	111.1	7620	99.6,99.6
170	16.76	19.81	36.67	56.06	76.85	72.00	61.46	38.28	160-170	30.27	7650	100,100
180	2.190	2.136	1.407	0	2.190	2.127	1.965	2.161	170-180	2.494	7653	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

5.4 Isocandela Diagram





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5.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140			
5	161	162	161	156	153	150	145	142	139	139	140	140	144	149	155	160			
10	206	206	201	190	181	173	167	160	152	152	156	160	171	182	193	203			
15	249	249	241	226	206	199	196	197	189	184	193	199	221	231	231	244			
20	319	310	302	290	255	246	243	237	233	222	237	248	268	283	284	301			
25	383	375	372	356	315	309	309	294	290	273	290	311	327	353	353	369			
30	452	442	437	422	382	377	375	359	356	339	357	374	389	415	424	440			
35	515	502	495	491	445	446	446	423	424	410	424	442	449	480	488	500			
40	561	554	552	540	497	505	504	480	487	471	481	499	500	531	543	553			
45	602	599	600	584	547	558	551	535	537	526	532	545	548	576	585	598			
50	639	640	640	621	591	601	594	588	578	572	576	588	592	615	622	642			
55	672	678	678	655	634	637	631	634	612	615	615	624	629	648	657	687			
60	706	717	712	688	676	673	665	674	646	655	655	655	667	685	693	727			
65	741	753	750	723	716	711	704	714	680	695	692	693	708	725	727	767			
70	763	779	775	751	750	745	736	751	718	731	730	730	745	755	754	795			
75	779	795	793	770	774	770	761	785	746	761	759	750	769	775	771	815			
80	786	804	803	779	789	782	774	804	763	781	784	765	782	786	780	828			
85	790	810	808	784	797	788	783	819	773	794	795	773	793	793	786	832			
90	792	810	810	787	803	791	787	824	778	797	801	780	798	796	786	831			
95	783	802	800	782	798	790	791	827	782	799	804	775	793	791	780	823			
100	767	785	784	768	783	777	779	820	777	795	798	771	786	782	770	810			
105	747	759	760	750	761	762	766	805	765	781	783	755	767	764	751	784			
110	716	727	731	722	732	738	741	780	746	759	763	736	742	740	724	751			
115	683	686	693	690	698	708	715	748	718	731	735	709	707	707	694	710			
120	640	641	651	652	656	670	679	710	687	696	700	677	667	666	653	663			
125	594	590	600	608	608	626	637	662	649	652	659	637	618	620	608	606			
130	540	532	543	557	552	578	589	610	606	604	613	594	564	571	556	546			
135	479	468	478	497	493	522	535	551	555	551	555	542	505	511	495	482			
140	404	397	408	425	428	456	473	490	497	491	492	478	444	444	425	409			
145	334	323	336	356	355	384	404	421	426	421	421	408	378	373	361	334			
150	262	252	266	284	284	315	333	347	356	349	342	340	317	307	295	266			
155	185	177	193	208	215	244	259	272	287	281	269	274	256	236	221	195			
160	113	108	122	135	145	167	180	198	212	211	201	202	183	161	153	131			
165	44.6	49.3	61.6	69.7	83.2	100	110	126	136	138	131	130	119	99.1	89.5	73.3			
170	16.8	15.2	19.8	26.2	36.7	46.5	56.1	65.6	76.8	77.1	72.0	70.9	61.5	48.6	38.3	29.7			
175	4.31	3.68	4.72	7.30	9.97	14.5	19.0	23.1	29.1	29.7	28.6	25.9	22.1	16.7	11.3	7.59			
180	2.19	2.20	2.14	1.99	1.41	0.21	0.00	0.86	2.19	2.08	2.13	1.95	1.97	2.05	2.16	2.16			



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6. Photo of sample:



----- End of test report -----