



Testing Lab. NVLAP LAB CODE:600112-0
Shenzhen LCS Compliance Testing Laboratory Ltd.



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Report No.: LCS1608151245S

TEST REPORT of IES LM-79-08

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

Client..... EIKO Global, LLC
 23220 W 84th St
 Shawnee, KS 66227

Trade mark..... 

Testing laboratory..... Shenzhen LCS Compliance Testing Laboratory Ltd.
 B Area, 2F, Building B, Zhongyu Green High-tech Industrial Park,
 Wenge Road, Heshuikou, Gongming Street, Guangming New
 District, Shenzhen, Guangdong, China

Luminaire Description ... : LED Corn Light

Models..... LED15WPT40KMED-G7

Rating..... 100-277V~, 50/60Hz, 15W, 4000K

Test by: Seth Cai

Signature: *Seth Cai*

Reviewed by: Hart Qiu

Signature: *Hart Qiu* 

Test date: August 17, 2016

Reviewed date: August 18, 2016

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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):	: 2.5h
Correction factors applied.....	: Intensity distribution
mounting height.....	: 25 ft
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.....	LED15WPT40KMED-G7
Rated Inputs.....	100-277V~, 50/60Hz
Rated Power.....	15W
Declared CCT.....	4000K
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.....	August 11, 2016
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	LCS-S-302	GO-R5000	2015/08/20	2016/08/19
EVERFINE	Digital Power Meter	LCS-S-293	PF2010	2016/08/08	2017/08/07
EVERFINE	AC Testing Power Source	LCS-S-305	DPS1060	2016/08/08	2017/08/07
EVERFINE	Total Spectral Radiant Flux Standard Lamp	LCS-S-380	D908S	2015/12/21	2016/12/20
SENSING	2 Meter Integrating Sphere	LCS-S-183	SPR-3000	2016/01/04	2017/01/03
YOKOGAWA	Digital Power Meter	LCS-S-244	WT310	2016/08/08	2017/08/07
ALL POWER ELECTRONIC	AC Testing Power Source	LCS-S-301	APW-105N	2016/08/08	2017/08/07
SENSING	Standard Lamp	LCS-S-227	S11010017	2015/08/28	2016/08/27



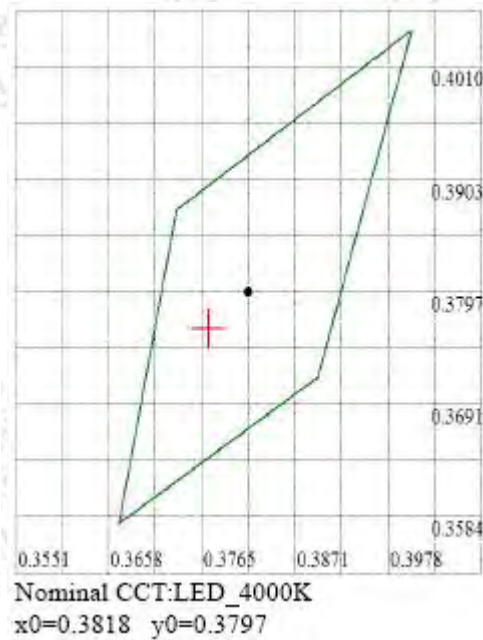
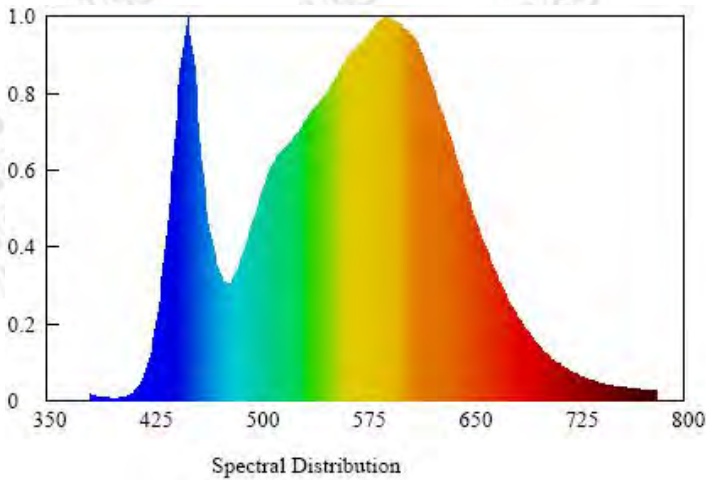
4. Integrating Sphere Test Results:

4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (w)
Input	277.0	60	0.060	0.901	14.7

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/w)
Output	4086	82.9	1929.36	131.2

4.2 Spectrum



Chromaticity Coordinates: $x=0.3772$ $y=0.3762$ $u'=0.2232$ $v'=0.5008$

Correlated Color Temperature: 4086 K

Colour Fidelity Index: $R_f=82$

Luminous Flux: 1929.36 lm

Chromaticity Difference: $+0.00069Duv$

Color Ratio: $K_r=37.6\%$ $K_g=52.6\%$ $K_b=9.8\%$

Bandwidth: 24.6nm

Photosynthetically Active Radiation(PAR): 5.76W

Rendering Index: $R_a=82.9$

$R_1=81$ $R_2=89$ $R_3=95$ $R_4=82$ $R_5=81$ $R_6=84$ $R_7=86$ $R_8=65$

$R_9=8$ $R_{10}=73$ $R_{11}=81$ $R_{12}=65$ $R_{13}=83$ $R_{14}=97$ $R_{15}=75$ $R_e=76$

Dominant Wavelength: 577.0 nm(E)

Gamut Index: $R_g=95$

Purity: 0.2611

Peak Wavelength: 450.0 nm

Radiant Flux: 5.911 W

Photosynthetic Photon Flux(PPF):27.06 μ mol/s



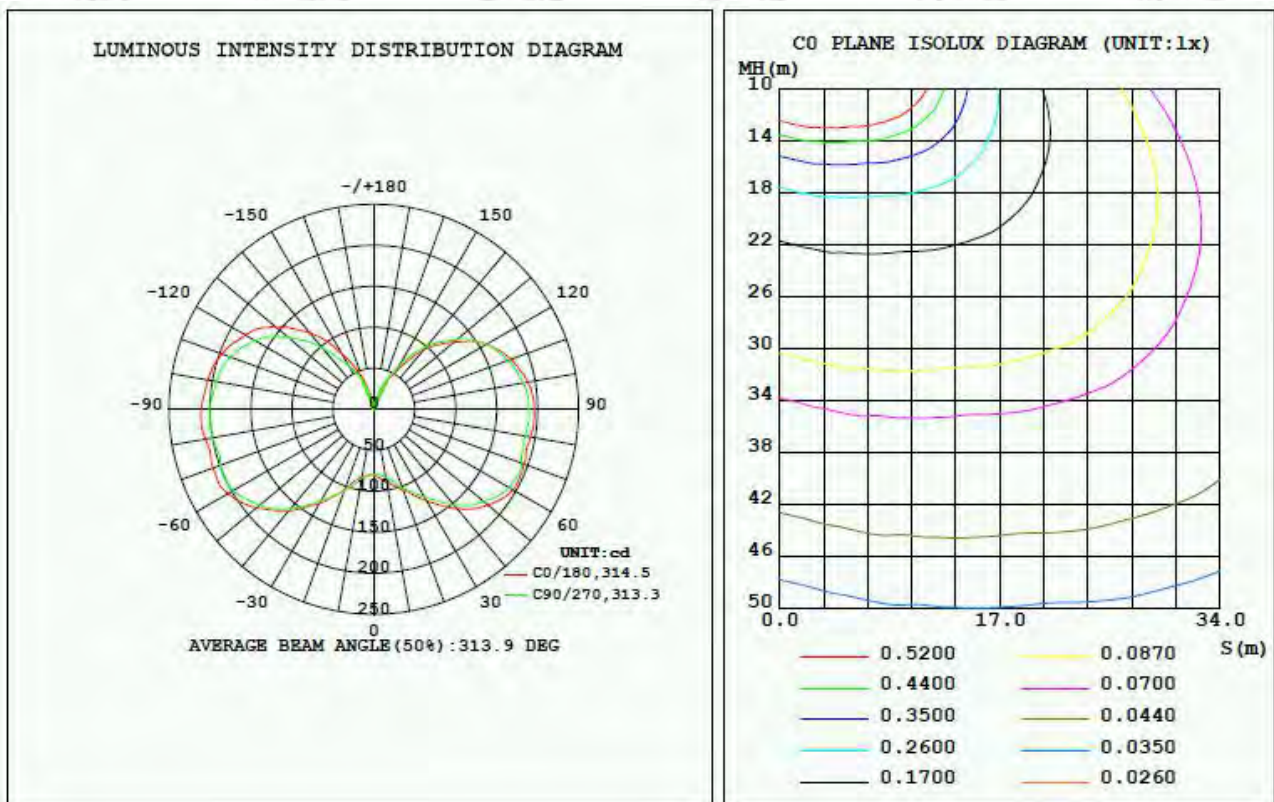
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	277.0	60	0.060	0.902	14.70

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	I _{max} (cd)	Spacing Criteria (0~180°)	Spacing Criteria (90~270°)
Output	1938.74	131.88	211.6	2.75	2.69

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





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5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	lum, lamp
10	90.64	81.92	84.67	83.05	83.94	82.80	86.64	87.50	0- 10	7.853	7.853	0.41,0.41
20	104.8	102.5	101.9	99.86	104.5	98.28	105.3	110.4	10- 20	26.84	34.69	1.79,1.79
30	128.7	122.5	123.5	119.5	132.4	123.9	129.1	132.3	20- 30	53.51	88.20	4.55,4.55
40	158.4	149.0	152.2	146.1	161.6	155.2	158.3	163.0	30- 40	88.07	176.3	9.09,9.09
50	181.5	166.7	175.1	170.8	187.0	184.3	181.9	185.2	40- 50	129.5	305.8	15.8,15.8
60	196.0	176.9	190.5	186.2	205.7	201.8	198.7	195.9	50- 60	166.1	471.9	24.3,24.3
70	195.1	174.3	191.8	190.5	208.9	204.0	199.4	193.7	60- 70	189.6	661.5	34.1,34.1
80	194.1	172.4	187.6	191.2	208.7	203.1	200.1	193.7	70- 80	199.1	860.6	44.4,44.4
90	195.9	176.1	189.2	194.4	210.9	200.2	200.5	192.2	80- 90	206.8	1067	55.1,55.1
100	191.2	173.1	185.6	192.7	205.6	193.3	195.2	186.4	90-100	205.0	1272	65.6,65.6
110	178.0	163.1	174.7	181.7	197.2	183.9	186.4	177.1	100-110	191.8	1464	75.5,75.5
120	158.7	148.5	158.8	165.5	181.1	166.6	167.9	160.9	110-120	167.4	1631	84.2,84.2
130	127.4	124.3	132.4	139.1	157.2	141.5	136.0	135.6	120-130	133.9	1765	91.1,91.1
140	94.87	95.87	100.6	108.4	121.8	105.9	98.29	99.06	130-140	93.33	1859	95.9,95.9
150	52.70	56.12	59.28	65.56	78.68	64.37	61.32	55.99	140-150	52.00	1911	98.6,98.6
160	25.43	26.06	29.31	33.84	40.50	35.31	30.85	29.00	150-160	22.09	1933	99.7,99.7
170	4.677	5.365	7.463	9.836	10.34	8.772	7.091	3.404	160-170	5.593	1938	100,100
180	0.2028	0.1309	0.2005	0.2675	0.1352	0.1959	0.2005	0.2006	170-180	0.3035	1939	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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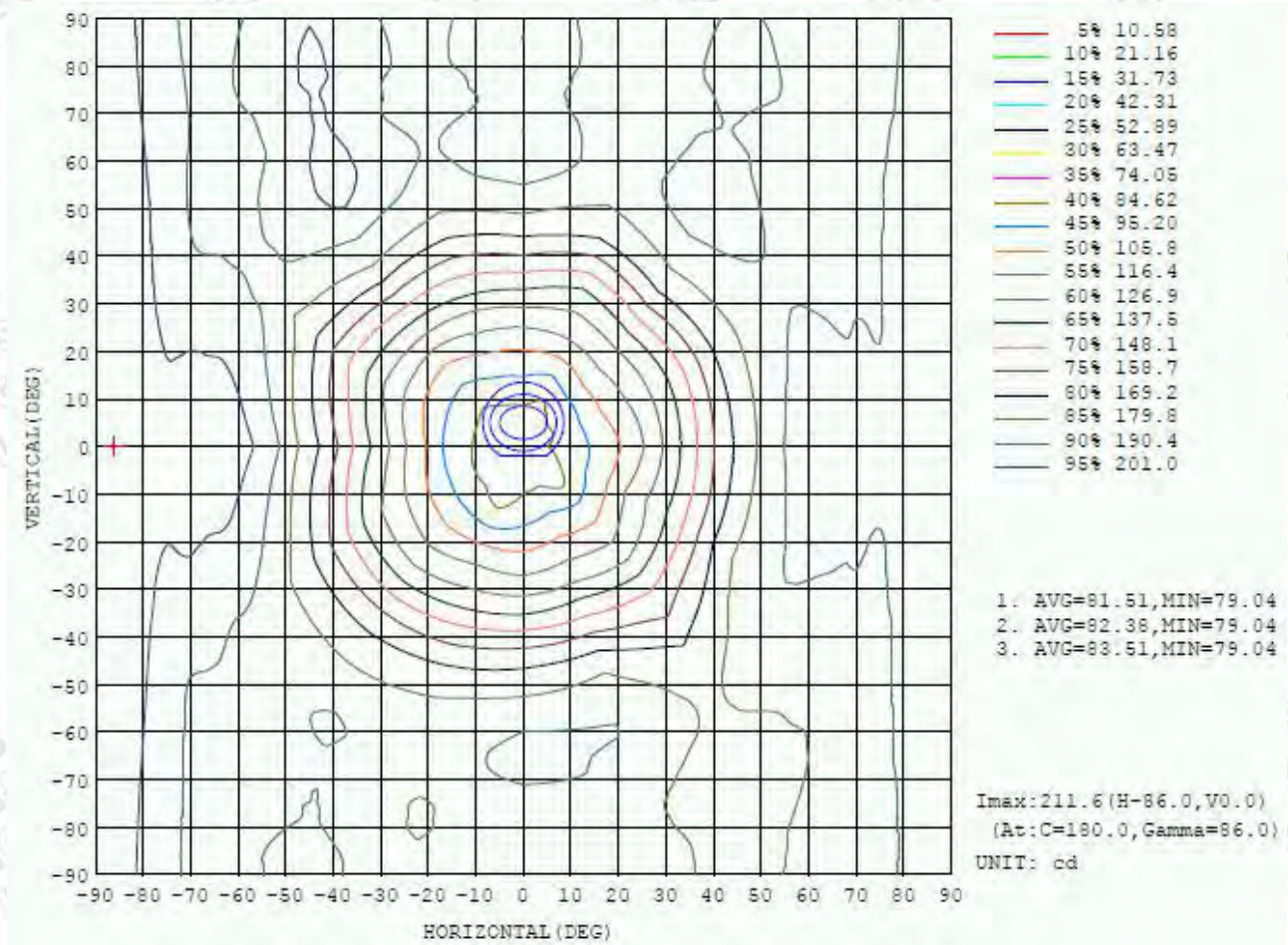


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5.4 Isocandela Diagram





5.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DMS) y (DMS)	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	79.9	79.9	79.8	79.7	79.7	79.8	79.7	79.7	79.9	79.9	79.8	79.7	79.7	79.8	79.7	79.7			
5	84.5	82.3	79.5	80.1	80.2	81.3	79.3	79.7	80.4	80.5	80.4	80.8	81.7	79.4	82.6	82.4			
10	90.6	87.2	81.9	86.3	84.7	81.4	83.1	83.0	83.9	84.0	82.8	85.6	86.6	83.9	87.5	88.7			
15	96.8	97.0	91.2	95.7	91.5	86.7	89.5	90.3	90.5	90.5	89.0	94.1	95.7	92.9	99.9	100			
20	105	108	103	105	102	99.5	99.9	102	105	99.8	98.3	104	105	105	110	109			
25	115	121	112	115	112	113	110	113	118	111	109	115	116	118	121	119			
30	129	130	123	126	123	123	119	123	132	123	124	126	129	127	132	130			
35	143	143	136	141	137	135	131	132	146	135	139	141	143	137	147	142			
40	158	157	149	155	152	149	146	147	162	148	155	154	158	152	163	158			
45	171	172	158	169	166	162	161	160	174	161	171	166	172	167	176	172			
50	182	182	167	180	175	173	171	172	187	174	184	178	182	175	185	181			
55	191	186	173	186	184	180	179	180	198	181	194	184	190	182	192	186			
60	196	189	177	190	190	184	186	186	206	187	202	187	199	184	196	189			
65	196	187	178	190	193	185	191	187	210	188	205	189	201	184	195	187			
70	195	184	174	189	192	183	191	187	209	185	204	185	199	181	194	183			
75	193	182	172	185	188	180	190	185	207	181	202	184	197	180	191	184			
80	194	183	172	185	188	178	191	183	209	184	203	185	200	182	194	186			
85	196	185	175	186	189	181	193	185	211	186	203	186	201	181	194	185			
90	196	185	176	186	189	182	194	185	211	184	200	185	200	181	192	184			
95	195	185	176	187	189	183	195	186	208	182	196	182	198	177	189	181			
100	191	181	173	183	186	181	193	184	206	180	193	180	195	175	186	179			
105	185	177	168	178	180	176	187	180	203	178	190	178	192	173	183	176			
110	178	171	163	173	175	172	182	174	197	173	184	173	186	167	177	171			
115	169	164	156	167	167	166	174	169	190	166	176	165	178	160	170	163			
120	159	156	148	158	159	159	166	161	181	158	167	157	168	152	161	154			
125	145	145	137	148	147	149	154	152	172	149	157	147	156	142	151	143			
130	127	133	124	137	132	138	139	140	157	139	142	135	136	130	136	130			
135	112	117	111	123	116	125	124	126	139	125	125	121	118	114	119	114			
140	94.9	97.0	95.9	105	101	108	108	108	122	106	106	102	98.3	92.2	99.1	93.4			
145	72.7	78.4	76.1	83.8	81.3	87.7	89.7	88.3	102	86.5	83.7	82.6	76.1	72.2	73.3	73.8			
150	52.7	59.7	56.1	63.2	59.3	69.3	65.6	67.4	78.7	67.3	64.4	64.6	61.3	57.1	56.0	55.6			
155	38.0	43.2	39.2	47.6	43.3	52.0	47.4	50.1	58.4	52.2	49.9	49.3	46.8	44.0	42.2	41.4			
160	25.4	27.0	26.1	33.2	29.3	34.2	33.8	36.3	40.5	37.9	35.3	34.4	30.8	30.0	29.0	29.0			
165	12.2	14.0	14.2	17.8	16.0	20.0	20.1	22.6	23.5	22.8	20.3	18.6	17.2	14.6	14.4	14.1			
170	4.68	4.98	5.37	6.57	7.46	8.98	9.84	10.0	10.3	10.4	8.77	8.17	7.09	5.65	3.40	4.13			
175	0.43	0.68	1.06	1.08	0.94	0.72	1.08	1.68	1.41	1.52	2.34	1.54	1.05	0.20	0.20	0.27			
180	0.20	0.20	0.13	0.20	0.20	0.20	0.27	0.20	0.14	0.20	0.20	0.20	0.20	0.20	0.20	0.20			



6. Photo of sample:



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