



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..... : LED19WPT40KMED-G7

Rating..... : 100-277V~, 50/60Hz, 19W, 4000K

Test by: Seth Cai

Signature: 

Reviewed by: 

Signature: 



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.....	LED19WPT40KMED-G7
Rated Inputs.....	100-277V~, 50/60Hz
Rated Power.....	19W
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



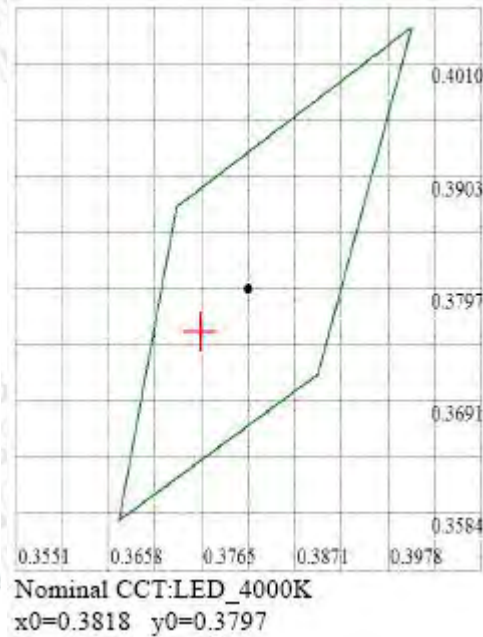
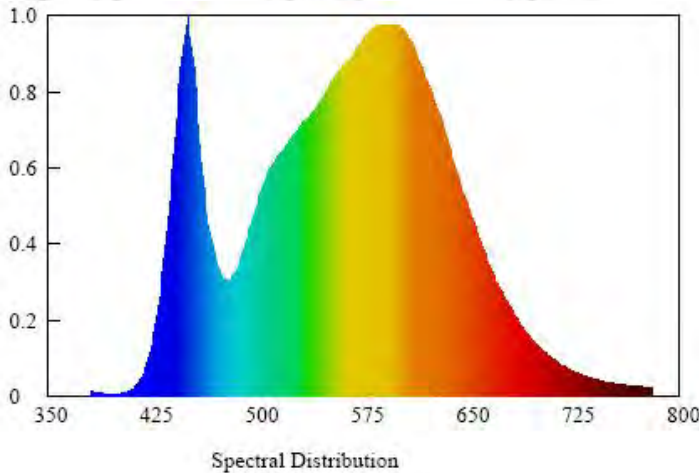
4. Integrating Sphere Test Results:

4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (w)
Input	277.0	60	0.076	0.904	19.1

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/w)
Output	4108	82.8	2411.0	126.2

4.2 Spectrum



Chromaticity Coordinates: $x=0.3763$ $y=0.3756$ $u'=0.2228$ $v'=0.5005$

Correlated Color Temperature: 4108 K

Colour Fidelity Index: $R_f=82$

Luminous Flux: 2411.00 lm

Chromaticity Difference: $+0.00072Duv$

Color Ratio: $K_r=37.5\%$ $K_g=52.7\%$ $K_b=9.8\%$

Bandwidth: 24.9nm

Photosynthetically Active Radiation(PAR): 7.45W

Rendering Index: $R_a=82.8$

$R_1=81$ $R_2=88$ $R_3=94$ $R_4=82$ $R_5=81$ $R_6=84$ $R_7=86$ $R_8=65$

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

Dominant Wavelength: 577.0 nm(E)

Gamut Index: $R_g=95$

Purity: 0.2566

Peak Wavelength: 450.0 nm

Radiant Flux: 7.636 W

Photosynthetic Photon Flux(PPF):34.97 μ mol/s



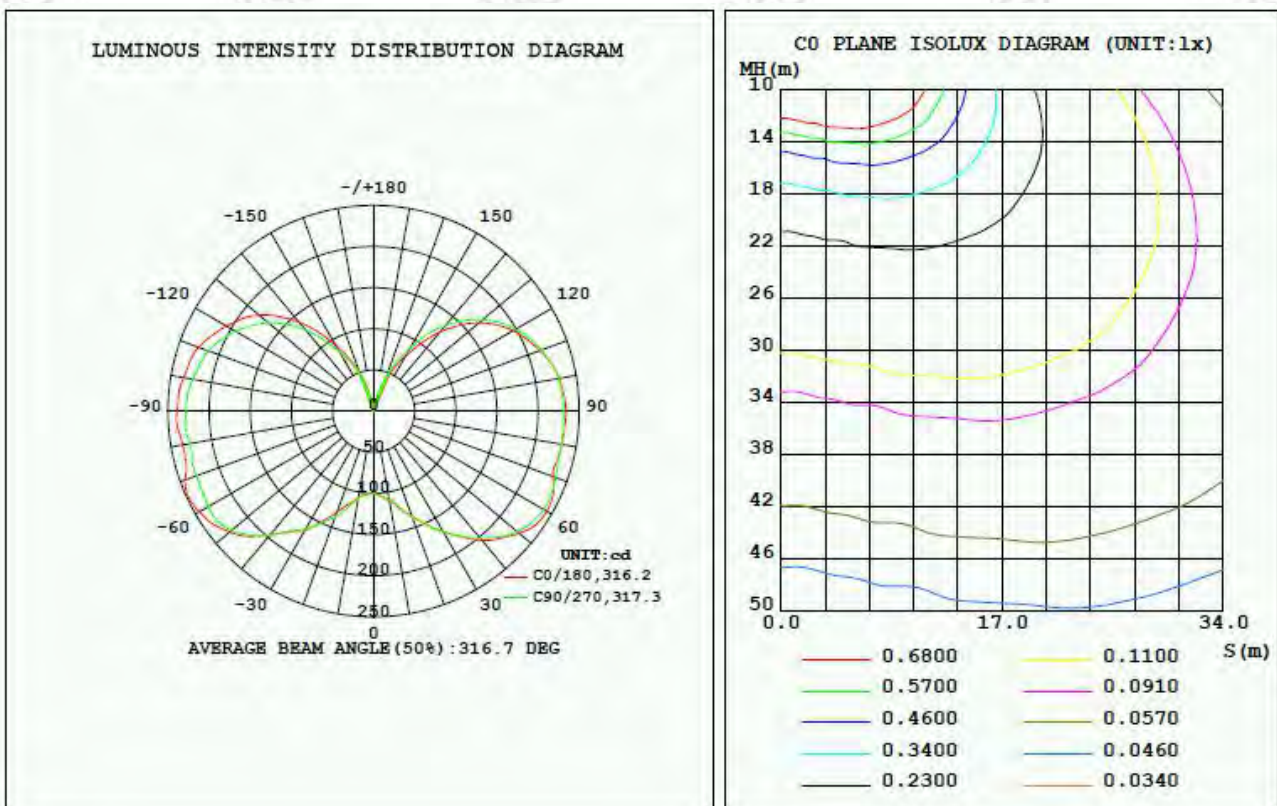
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	277.0	60	0.076	0.903	19.05

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	I _{max} (cd)	Spacing Criteria (0~180°)	Spacing Criteria (90~270°)
Output	2421.99	127.16	248.2	2.69	2.62

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





Testing Lab. NVLAP LAB CODE:600112-0
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5.3 Zonal Flux Diagram

y	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	111.5	108.4	108.9	104.2	106.2	105.2	107.6	108.9	0- 10	9.826	9.826	0.41,0.41
20	135.6	136.3	137.4	129.1	130.7	132.6	136.7	136.0	10- 20	34.19	44.02	1.82,1.82
30	169.0	169.1	168.7	159.9	166.9	165.4	164.6	167.5	20- 30	69.93	113.9	4.7,4.7
40	204.7	202.1	201.7	192.5	196.8	197.9	196.4	200.6	30- 40	114.5	228.3	9.43,9.43
50	230.7	225.4	227.3	221.3	228.6	226.6	225.6	229.4	40- 50	165.5	393.8	16.3,16.3
60	243.3	239.6	238.9	235.6	244.5	241.0	232.2	239.6	50- 60	209.8	603.7	24.9,24.9
70	231.8	230.2	235.9	234.5	244.3	236.9	229.4	233.5	60- 70	235.4	839.1	34.6,34.6
80	232.2	227.8	232.3	228.5	236.4	233.2	227.8	231.7	70- 80	244.5	1084	44.7,44.7
90	233.7	228.5	230.9	227.7	239.0	234.7	227.9	233.5	80- 90	252.0	1336	55.1,55.1
100	229.1	224.8	228.4	225.7	234.5	231.0	223.4	228.5	90-100	250.8	1586	65.5,65.5
110	215.2	212.3	217.2	215.2	226.7	223.0	214.3	218.9	100-110	235.7	1822	75.2,75.2
120	195.6	194.8	199.2	198.3	206.6	203.6	193.8	197.9	110-120	206.9	2029	83.8,83.8
130	167.1	167.0	173.1	173.1	181.8	178.1	166.8	170.1	120-130	166.9	2196	90.7,90.7
140	125.9	128.3	135.9	135.8	141.1	140.8	128.4	129.8	130-140	119.2	2315	95.6,95.6
150	76.15	80.52	87.35	87.11	91.80	92.30	83.09	76.98	140-150	69.06	2384	98.4,98.4
160	37.40	39.32	44.21	45.76	48.42	46.23	44.83	39.84	150-160	30.06	2414	99.7,99.7
170	6.708	7.719	10.37	10.98	11.68	11.79	9.238	6.704	160-170	7.519	2422	100,100
180	0.2694	0.2645	0.3352	0.1997	0.2694	0.2645	0.2682	0.2655	170-180	0.3982	2422	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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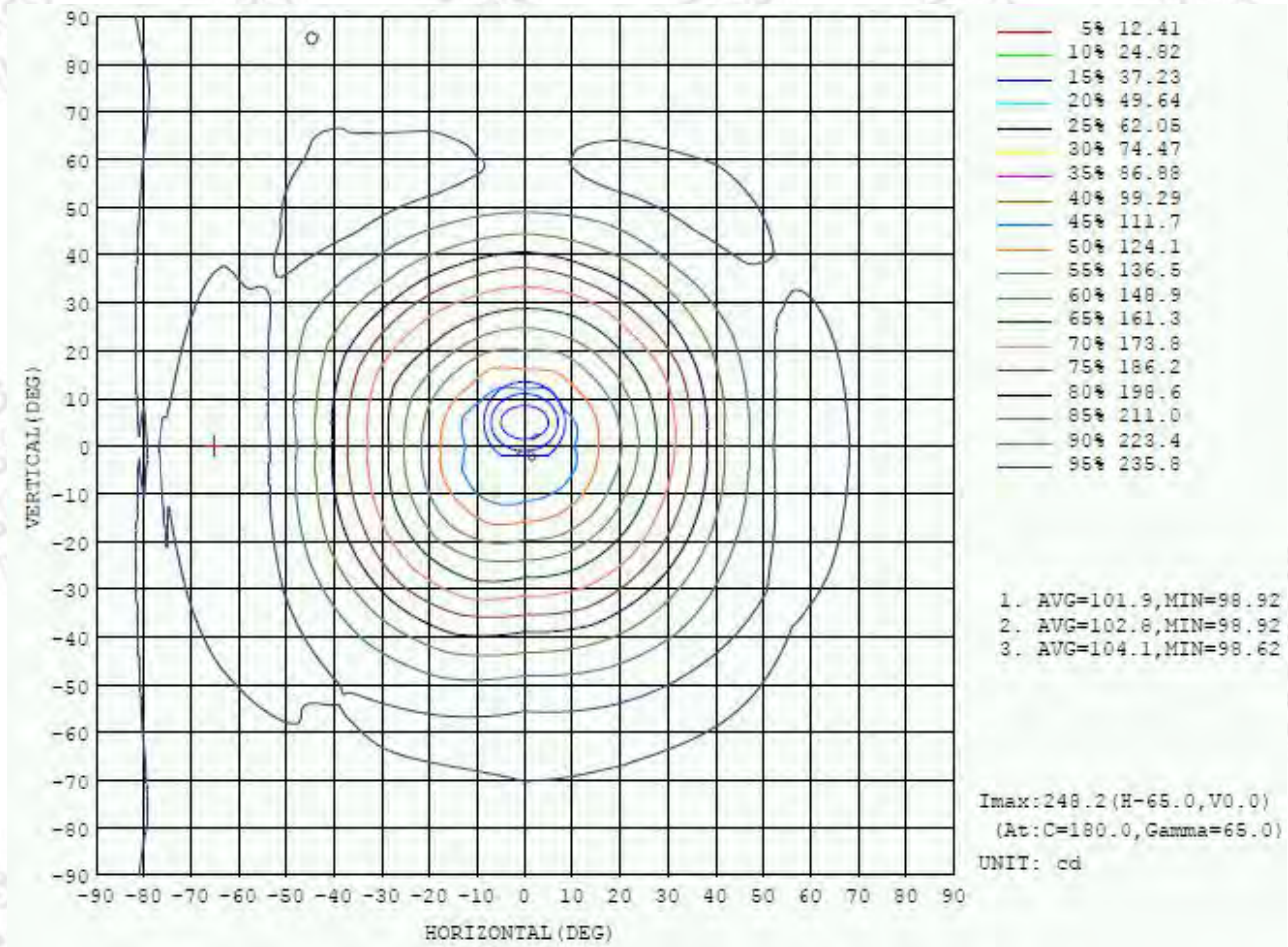


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5.4 Isocandela Diagram





5.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DBG) y (DBG)	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	100	100	99.9	99.9	99.8	99.7	99.8	99.7	100	100	99.9	99.9	99.8	99.7	99.8	99.7			
5	104	102	101	100	103	100.0	101	100	102	99.7	100	101	100	103	100	101			
10	111	108	108	107	109	104	104	104	106	102	105	107	108	108	109	107			
15	123	123	122	121	121	116	113	113	117	113	117	117	121	119	121	121			
20	136	137	136	136	137	131	129	130	131	131	133	133	137	134	136	136			
25	153	154	153	152	153	147	143	146	148	147	150	150	150	150	152	153			
30	169	171	169	168	169	161	160	162	167	161	165	165	165	164	167	167			
35	186	187	185	183	185	177	176	178	179	176	179	180	178	181	184	183			
40	205	203	202	199	202	194	192	194	197	193	198	198	196	201	201	202			
45	218	217	215	215	216	209	209	210	215	209	214	214	213	215	217	216			
50	231	228	225	226	227	221	221	223	229	221	227	227	226	226	229	227			
55	241	234	234	234	235	232	231	234	239	231	237	236	232	235	236	233			
60	243	237	240	240	239	238	236	239	244	235	241	240	232	240	240	235			
65	241	235	238	239	238	239	235	239	248	233	241	238	230	237	238	234			
70	232	233	230	235	236	232	234	238	244	232	237	234	229	230	234	231			
75	231	231	228	230	232	226	231	234	236	231	231	230	229	227	232	229			
80	232	229	228	229	232	226	229	230	236	228	233	231	228	229	232	229			
85	233	229	228	230	231	227	227	230	239	230	235	233	230	231	235	231			
90	234	229	229	230	231	227	228	231	239	230	235	232	228	230	233	230			
95	232	228	228	230	230	227	227	231	238	229	234	232	227	230	232	229			
100	229	226	225	228	228	225	226	230	235	226	231	228	223	225	229	224			
105	224	221	220	223	224	221	222	226	232	222	227	224	219	221	224	220			
110	215	213	212	216	217	214	215	219	227	217	223	218	214	215	219	214			
115	206	205	205	209	210	206	208	212	217	209	214	211	205	207	210	205			
120	196	195	195	199	199	196	198	202	207	199	204	200	194	196	198	194			
125	183	183	182	186	188	184	187	190	196	188	191	188	181	184	185	182			
130	167	167	167	171	173	170	173	176	182	175	178	175	167	169	170	167			
135	147	149	149	154	156	154	155	160	163	158	161	157	149	151	152	149			
140	126	127	128	133	136	133	136	138	141	137	141	134	128	129	130	128			
145	101	104	106	111	114	109	114	112	118	113	117	108	105	105	105	104			
150	76.1	79.5	80.5	86.2	87.3	84.5	87.1	88.5	91.8	89.1	92.3	85.7	83.1	82.5	77.0	82.0			
155	56.7	59.7	59.5	64.3	65.2	62.9	66.5	68.4	70.7	69.1	65.1	65.8	63.8	61.7	55.5	61.5			
160	37.4	39.6	39.3	44.2	44.2	43.3	45.8	47.3	48.4	47.9	46.2	45.0	44.8	40.6	39.8	39.4			
165	17.4	19.9	19.9	23.6	24.5	23.9	24.7	26.3	27.0	26.7	26.3	25.9	23.9	22.2	21.0	20.9			
170	6.71	7.40	7.72	9.25	10.4	10.5	11.0	11.9	11.7	11.6	11.8	11.3	9.24	8.33	6.70	7.30			
175	0.95	1.34	1.73	1.47	1.30	1.86	1.90	2.14	1.62	1.88	2.30	1.82	1.45	0.33	0.33	0.33			
180	0.27	0.13	0.26	0.20	0.34	0.20	0.20	0.27	0.27	0.26	0.26	0.26	0.27	0.26	0.27	0.27			



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6. Photo of sample:



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