



REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102748333

Date: April 5, 2017

REPORT NO. 102748333CHI-033

TEST OF ONE LED CORN LIGHT

MODEL NO. CL-CW80-E39
LED MODEL NO. HONGLI HL-A-2835HW-S1-08-HR3
DRIVER MODEL NO. SNC 80W

RENDERED TO

SUPER BRIGHT LEADS, INC.
4400 EARTH CITY EXPRESSWAY
SAINT LOUIS, MO 63045

TEST: Electrical and Photometric tests as required to the IESNA test standard.

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00723537-3.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number CL-CW80-E39. The sample was received by Intertek on March 24, 2017, in undamaged condition and one sample was tested as received. The sample designation was 03242017034051-033.

DATES OF TESTS: April 3, 2017 through April 5, 2017.

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SUMMARY

Model No.:	CL-CW80-E39
Description:	LED Corn Light

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	11197	10748
Total Power (W)	80.17	80.25
Luminaire Efficacy (LPW)	139.7	133.9

Criteria	Result
Power Factor at 120Vac	0.998
Power Factor at 277Vac	0.917
Current ATHD % at 120Vac	3.03
Current ATHD % at 277Vac	17.75
Correlated Color Temperature (CCT - K)	5148
Color Rendering Index (CRI - Ra)	82.8
Color Rendering Index (CRI - R9)	6.3
DUV	0.002
Chromaticity Coordinate (x)	0.341
Chromaticity Coordinate (y)	0.355
Chromaticity Coordinate (u')	0.208
Chromaticity Coordinate (v')	0.486

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/11/16	07/11/17	04/05/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	04/05/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	04/05/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	04/05/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	04/05/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	04/03/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	04/03/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	04/03/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	04/03/17
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	04/03/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	04/03/17
Fluke J/K Temperature Meter	52	146004	01/10/17	01/10/18	04/03/17

TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

Photometric and Electrical Measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

RESULTS OF TEST

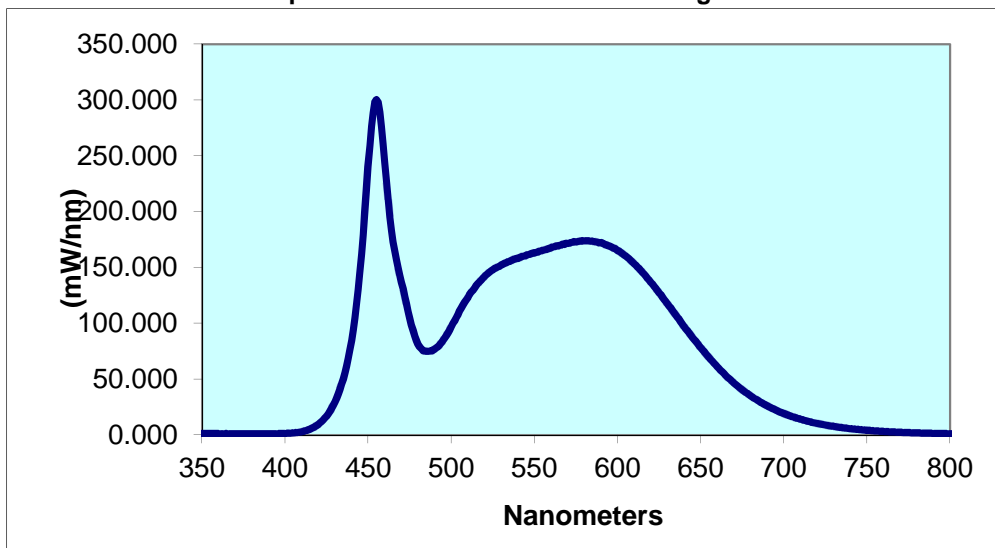
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
03242017034051-033	Up	120.0 277.0	669.4 319.7	80.17 81.23	0.998 0.917	3.03 17.75	11197	139.7
Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')	
5148	82.8	6.3	0.002	0.341	0.355	0.208	0.486	

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	1.062	440	84.63	530	152.2	620	136.7	710	14.10
355	1.159	445	144.9	535	155.6	625	127.4	715	12.11
360	1.111	450	240.3	540	158.1	630	117.5	720	10.38
365	1.064	455	300.2	545	160.9	635	107.4	725	8.913
370	0.955	460	244.2	550	163.1	640	97.30	730	7.648
375	0.870	465	173.0	555	165.4	645	87.58	735	6.526
380	0.846	470	136.8	560	167.7	650	78.20	740	5.603
385	0.827	475	104.6	565	169.6	655	69.42	745	4.815
390	0.872	480	81.44	570	171.5	660	61.21	750	4.158
395	1.006	485	74.82	575	172.9	665	53.49	755	3.581
400	1.264	490	76.90	580	173.7	670	46.61	760	3.095
405	1.818	495	84.66	585	173.6	675	40.50	765	2.679
410	2.980	500	96.93	590	172.2	680	35.08	770	2.299
415	5.306	505	110.9	595	169.2	685	30.34	775	2.003
420	9.498	510	123.2	600	165.3	690	26.09	780	1.732
425	17.06	515	133.9	605	160.2	695	22.44		
430	29.57	520	141.9	610	153.4	700	19.27		
435	50.19	525	147.9	615	145.6	705	16.51		

Spectral Data Over Visible Wavelengths



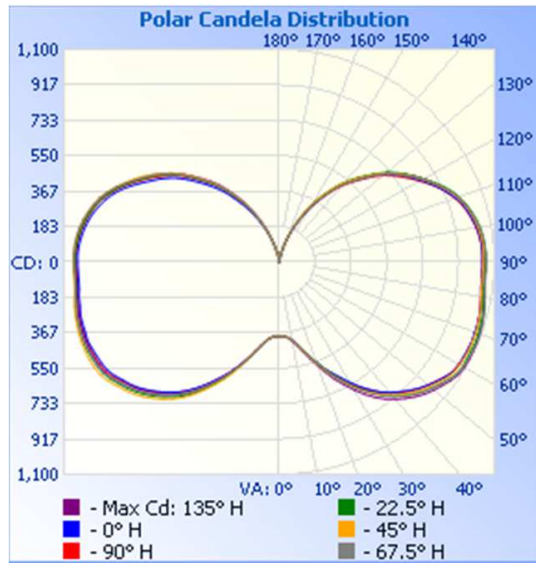
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (LPW)
03242017034051-033	Up	120.0	670.3	80.25	0.998	10748	133.9

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	382	382	382	382	382
5	387	388	388	388	389
10	413	416	417	418	419
15	476	475	477	478	481
20	551	552	557	561	561
25	633	644	650	654	644
30	718	738	741	744	729
35	806	827	828	833	813
40	882	903	899	909	884
45	940	966	957	970	944
50	992	1016	1004	1017	992
55	1036	1058	1046	1060	1036
60	1062	1082	1066	1085	1058
65	1066	1082	1072	1093	1065
70	1064	1083	1069	1094	1066
75	1060	1076	1062	1083	1059
80	1048	1062	1048	1068	1047
85	1038	1053	1040	1058	1037
90	1039	1055	1044	1058	1040
95	1039	1054	1045	1054	1038
100	1026	1042	1033	1040	1023
105	1000	1017	1009	1012	998
110	963	982	973	977	960
115	908	926	918	919	905
120	842	858	853	853	837
125	780	793	788	784	768
130	711	723	716	710	699
135	619	635	631	619	610
140	536	551	546	528	526
145	441	456	454	433	432
150	340	359	358	336	335
155	243	258	258	244	242
160	158	160	162	156	154
165	85	81	82	82	81
170	31	29	29	29	28
175	8	8	10	9	9



RESULTS OF TEST (cont'd)

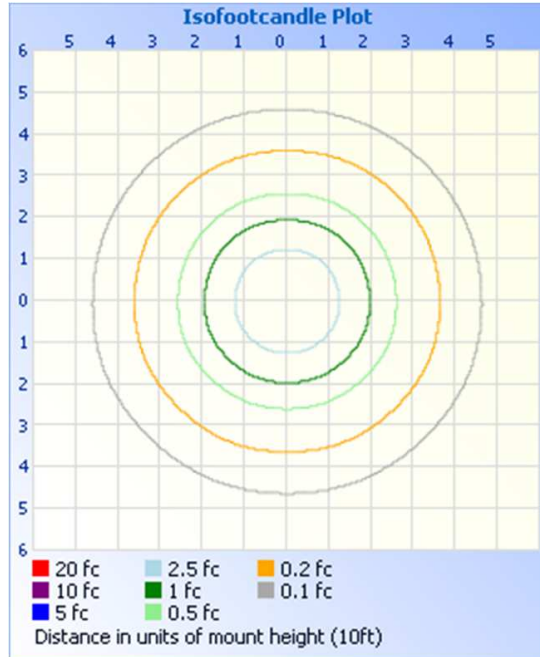
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light

Illuminance at a Distance		
	Center Beam fc	Beam Width
1.7ft	132 fc	
3.3ft	35.1 fc	
5.0ft	15.3 fc	
6.7ft	8.52 fc	
8.3ft	5.55 fc	
10.0ft	3.83 fc	

Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	481.5	4.5
0-40	1003	9.3
0-60	2687	25.0
60-90	3345	31.1
0-90	6032	56.1
90-180	4717.0	43.9
0-180	10748	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	38.1	0.4
10-20	139.4	1.3
20-30	304.1	2.8
30-40	521.3	4.9
40-50	744.1	6.9
50-60	940.0	8.7
60-70	1070	10.0
70-80	1131	10.5
80-90	1144	10.6
90-100	1139	10.6
100-110	1063	9.9
110-120	906.7	8.4
120-130	701.5	6.5
130-140	483.5	4.5
140-150	278.9	2.6
150-160	117.3	1.1
160-170	25.8	0.2
170-180	1.4	0.0

PICTURES (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:



Hector Huitron
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division