



REPORT

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

Project No. G101352868

Date: October 15, 2013

REPORT NO. 101352868CHI-001

TEST OF ONE LED SPOT HEAD - 20°

MODEL NO. 700FJISO8302006S-LED
DRIVER MODEL NO. LTF TA60W12LED-0000

RENDERED TO

GENERATION BRANDS
7400 LINDER AVENUE
SKOKIE, IL 60077

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

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number 500481937.

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 700FJISO8302006S-LED. The sample was received by Intertek on September 19, 2013, in undamaged condition and one sample was tested as received. The sample designation was CHI09192013021949A.

DATES OF TESTS: October 7, 2013 through October 11, 2013.



SUMMARY

Model No.:	700FJISO8302006S-LED
Description:	LED Spot Head - 20°

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	783.1	795.8
Total Power (W)	16.54	16.30
Luminaire Efficacy (LPW)	47.35	48.82

Criteria	Result
Power Factor	0.812
Current ATHD %	51.80
Correlated Color Temperature (CCT - K)	2986
Color Rendering Index (CRI - Ra)	85.1
Color Rendering Index (CRI - R9)	24.8
DUV	0.000
Chromaticity Coordinate (x)	0.439
Chromaticity Coordinate (y)	0.406
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.523

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU
3 Meter Sphere	SPR600	CHI0088	VBU	VBU
Elgar AC Power Supply	CW1251M	146112	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
Newport Humidity Recorder	iTHX-SD	146382	08/26/13	08/26/14
Yokogawa Power Meter	WT1600	146769	05/17/13	05/17/14
Omega Temperature Meter	MDSi8	146139	06/20/13	06/20/14
Yokogawa Power Meter	WT210	146919	09/06/13	09/06/14
Omega Thermometer	DPI8-C24	146920	08/26/13	08/26/14
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
Newport Hygrometer	iServer	146960	02/21/13	02/21/14
Elgar, AC Power Supply	CW1251P	146918	VBU	VBU
Cole-Parmer Triple Timer	94440-00	CHI0041	06/20/13	06/20/14



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 Three Meter 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

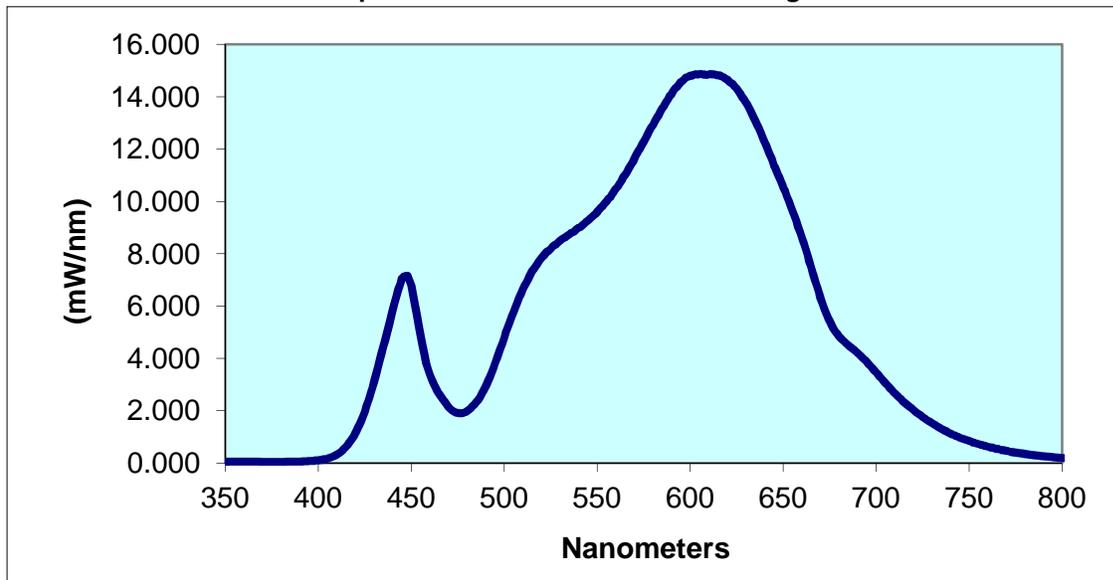
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
CHI09192013021949A	UP	120.0	169.8	16.54	0.812	51.80	783.1	47.35

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')
2986	85.1	24.8	0.000	0.439	0.406	0.251	0.523

Spectral Distribution over Visible Wavelengths

nm	mW/nm								
350	0.06	440	5.847	530	8.489	620	14.66	710	2.665
355	0.051	445	7.058	535	8.74	625	14.31	715	2.329
360	0.055	450	6.777	540	8.995	630	13.77	720	2.031
365	0.049	455	4.855	545	9.255	635	13.07	725	1.76
370	0.043	460	3.368	550	9.6	640	12.28	730	1.522
375	0.042	465	2.644	555	9.997	645	11.4	735	1.307
380	0.042	470	2.15	560	10.48	650	10.53	740	1.127
385	0.048	475	1.915	565	11.01	655	9.629	745	0.97
390	0.055	480	1.99	570	11.63	660	8.627	750	0.837
395	0.072	485	2.323	575	12.29	665	7.494	755	0.723
400	0.104	490	2.921	580	12.92	670	6.32	760	0.623
405	0.17	495	3.78	585	13.55	675	5.412	765	0.537
410	0.324	500	4.798	590	14.1	680	4.845	770	0.46
415	0.626	505	5.769	595	14.56	685	4.507	775	0.397
420	1.15	510	6.645	600	14.81	690	4.206	780	0.341
425	1.96	515	7.334	605	14.86	695	3.856		
430	3.112	520	7.821	610	14.86	700	3.453		
435	4.448	525	8.193	615	14.82	705	3.044		

Spectral Data Over Visible Wavelengths



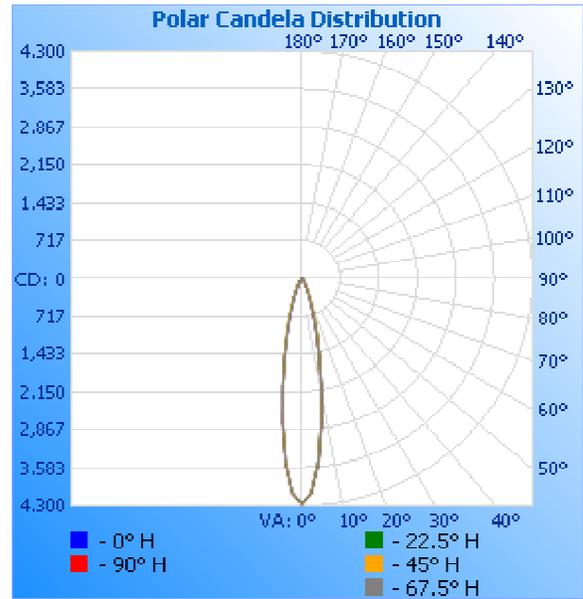
RESULTS OF TEST (cont'd)

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 (Lumens Per Watt)
CHI09192013021949A	UP	120.0	169.7	16.30	0.800	795.8	48.82

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	4271	4271	4271	4271	4271
5	3509	3502	3499	3520	3532
10	2073	2047	2048	2052	2053
15	1051	1100	1102	1049	1048
20	480	562	577	491	496
25	216	262	272	225	223
30	106	120	126	111	111
35	59	63	65	60	60
40	37	39	39	36	36
45	29	30	30	28	28
50	24	24	24	24	23
55	18	18	17	17	17
60	10	10	10	10	10
65	6	6	6	6	6
70	3	3	3	3	4
75	2	2	2	2	2
80	1	1	1	1	1
85	0	0	0	0	0
90	0	0	0	0	0

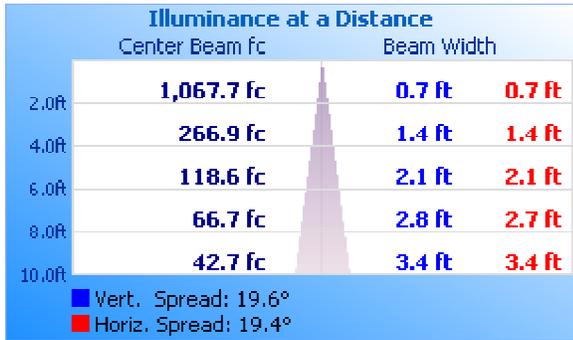


RESULTS OF TEST (cont'd)

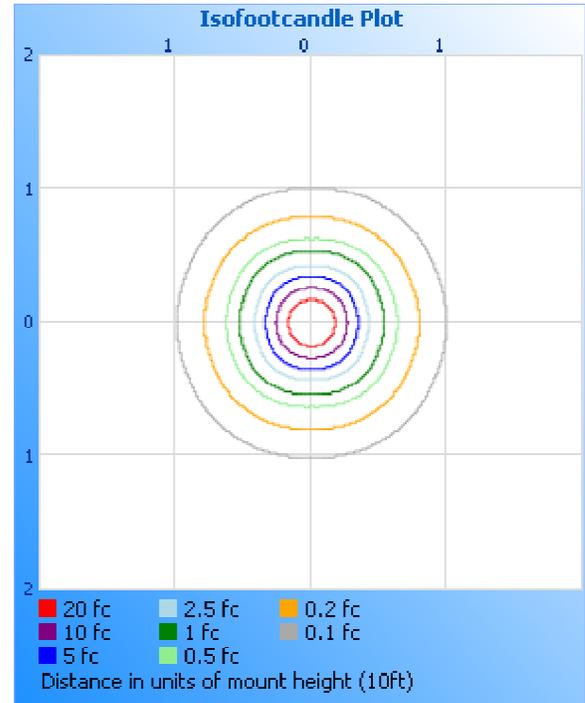
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	707.7	88.9
0-40	748.9	94.1
0-60	787.1	98.9
60-90	8.8	1.1
0-90	795.8	100.0
90-180	0.0	0.0
0-180	795.8	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	283.4	35.6
10-20	303.5	38.1
20-30	120.8	15.2
30-40	41.2	5.2
40-50	22.8	2.9
50-60	15.4	1.9
60-70	6.1	0.8
70-80	2.1	0.3
80-90	0.6	0.1

PICTURE (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:



Tim Quigley
Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Joe Schledorn
Project Engineer
Lighting Division