

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

700FJISO8305006S-LED

REPORT NUMBER

104114581CHI-001

ISSUE DATE

October 21, 2019

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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TEST REPORT

REPORT NO.: 104114581CHI-001

REPORT DATE October 21, 2019:

TEST OF ONE LED SPOT HEAD

MODEL NO. 700FJISO8305006S-LED
LED MODEL NO. CITIZEN CLU028-1202C4
DRIVER MODEL NO. LTF DL112W300C40RC1-0000

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE
SKOKIE, IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00981438-2.

STANDARDS USED

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI NEMA ANSLG C78.377: 2015: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE

The client submitted one production sample of model number 700FJISO8305006S-LED. The sample was received by Intertek on October 10, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH10102019014456-001.

DATE OF TESTS

October 14, 2019

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REPORT DATE October 21, 2019:

SUMMARY

MODEL NO:	700FJISO8305006S-LED
DESCRIPTION:	LED Spot Head

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1150.9	1155.3
Input Power (W) @ 12 (VAC)	13.72	13.61
Lumen Efficacy (lm/W)	83.9	84.9
Input Power Factor @ 12 (VAC)	0.661	0.650

CRITERIA	RESULTS
Input Current ATHD (%) @ 12 (VAC)	86.25
Correlated Color Temperature (K)	3073
Color Rendering Index - Ra	83.9
Color Rendering - R9	11.1
DUV	0.0008
Chromaticity Coordinate (x)	0.431
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.248
Chromaticity Coordinate (v')	0.519

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/1/2019	7/1/2020
Omega Thermometer	DPI8-C24	146920	10/3/2019	10/3/2020
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	12/11/2018	12/11/2019
Pacific, AC power supply	118-ACX	CHI0358	VBV	VBV
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBV	VBV
Elgar AC Power Supply	CW1251M	146113	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146847	VBV	VBV
Yokogawa Power Analyzer	WT1600	146767	4/3/2019	4/3/2020
Omega Temperature	MDSi8	146873	7/2/2019	7/2/2020
Newport Thermohygrometer	iTHX-M	146961	7/26/2019	7/26/2020

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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 Spectroradiometer and integrating 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. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a 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 Type C Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

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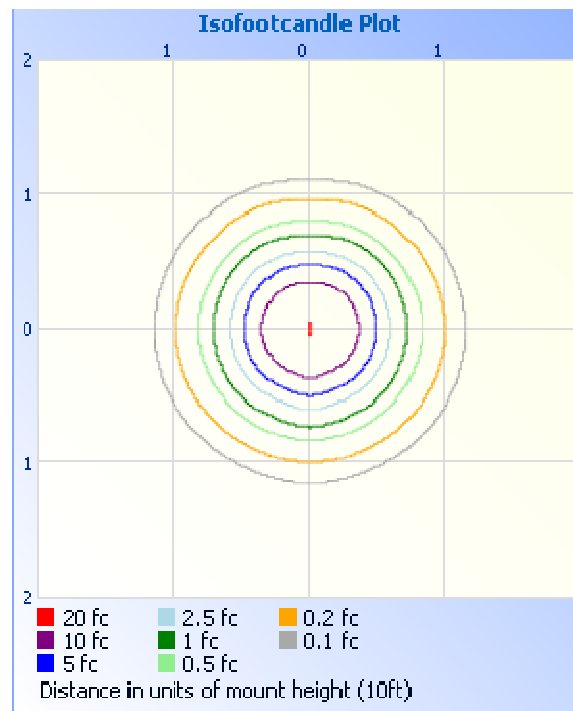
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)
AH10102019014456-001	Base Up	12.0	1743.9	13.61	0.650	1155.3	84.9

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	2006	2006	2006	2006	2006
5	1962	1937	1941	1945	1950
10	1814	1774	1785	1789	1793
15	1563	1501	1516	1527	1537
20	1206	1138	1151	1156	1174
25	800	731	740	752	763
30	437	387	402	416	417
35	211	190	198	202	206
40	104	94	98	100	102
45	55	51	52	54	54
50	32	30	30	31	32
55	19	18	18	19	19
60	12	12	12	12	12
65	8	8	8	8	8
70	6	5	6	5	5
75	4	4	4	4	4
80	2	2	2	2	2
85	1	1	1	1	1
90	0	0	0	0	0



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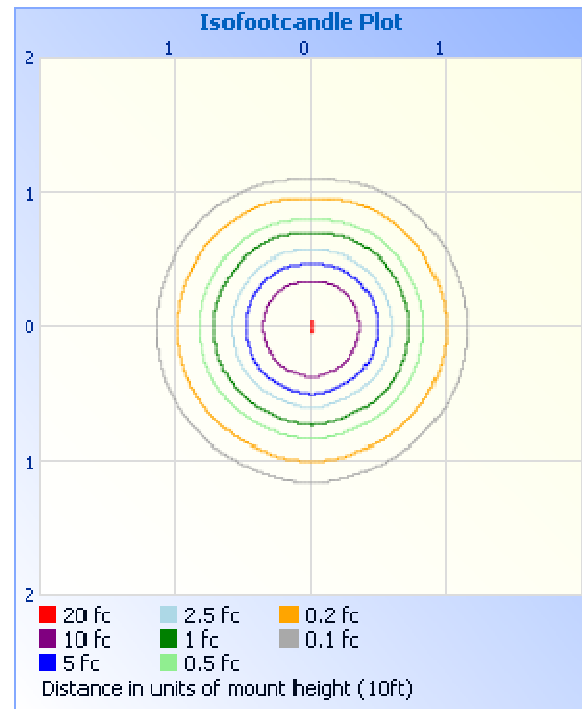
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

MOUNTING HEIGHT: 10ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	946.8	81.9
0-40	1081.9	93.6
0-60	1142.8	98.9
60-90	12.5	1.1
70-100	4.6	0.4
90-120	0.0	0.0
0-90	1155.3	100.0
90-180	0.0	0.0
0-180	1155.3	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	181.0	15.7
10-20	419.4	36.3
20-30	346.3	30.0
30-40	135.2	11.7
40-50	43.6	3.8
50-60	17.2	1.5
60-70	7.9	0.7
70-80	3.7	0.3
80-90	0.9	0.1

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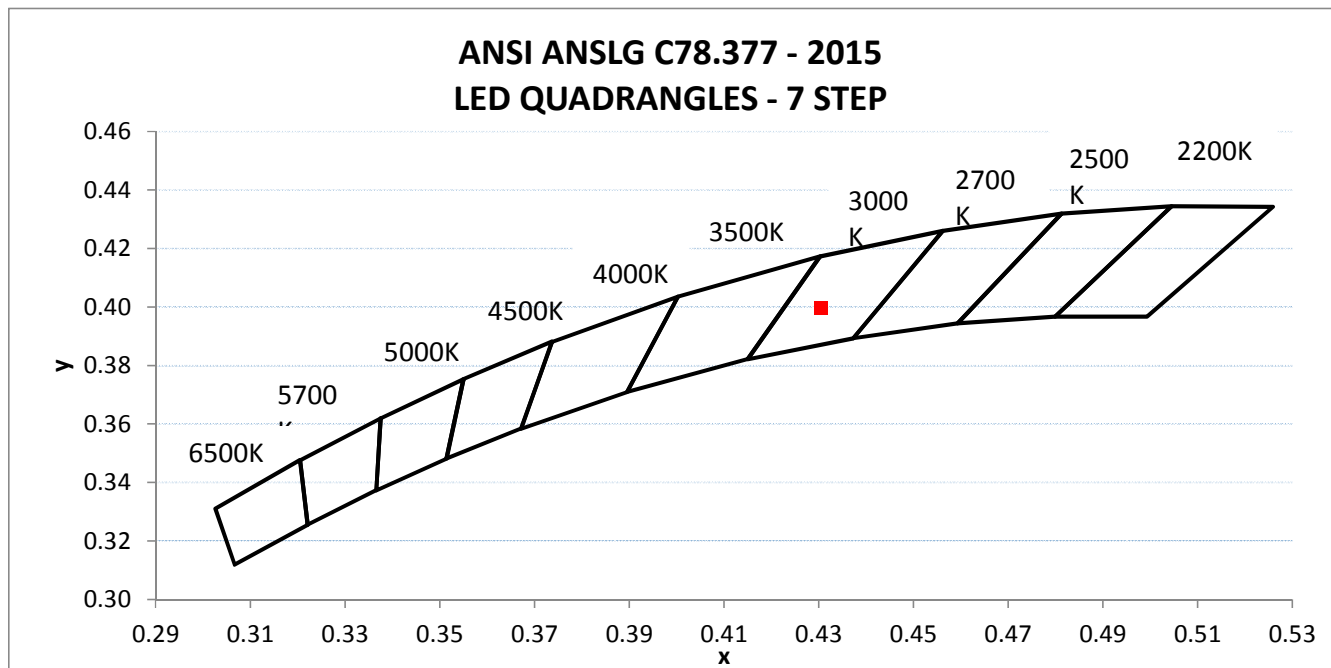
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	INPUT CURRENT ATHD (%)
AH10102019014456-001	Base Up	12.00	1729.60	13.72	0.661	86.25

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1150.9	83.9	3073	83.9	11.1	0.0008

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.431	0.400	0.248	0.519



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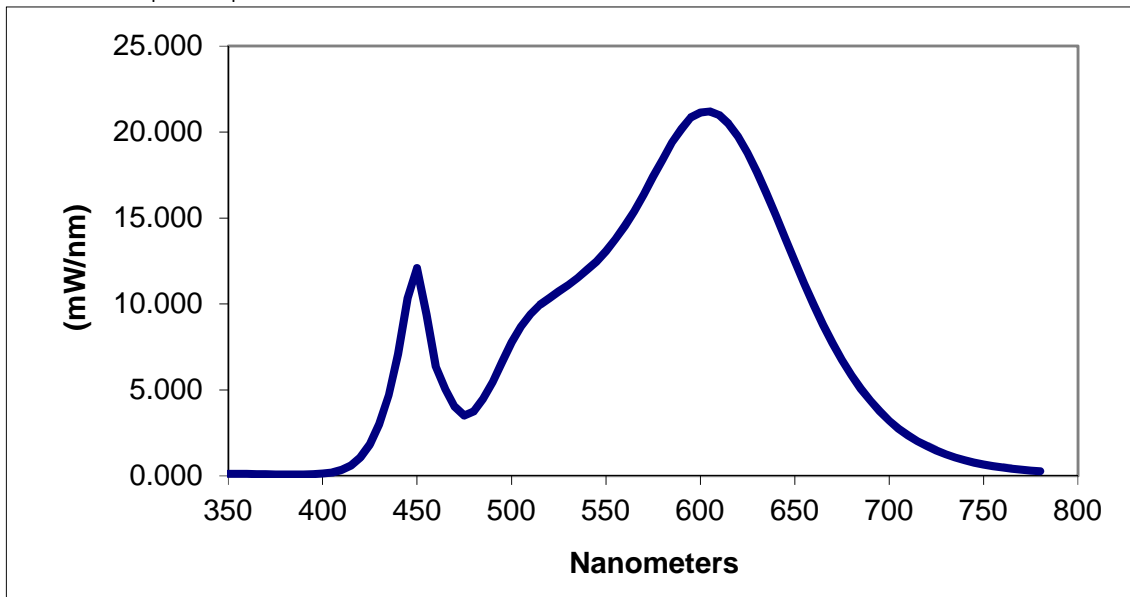
REPORT DATE October 21, 2019:

RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.124	460	6.356	570	16.370	680	5.862
355	0.124	465	5.037	575	17.402	685	5.068
360	0.123	470	4.039	580	18.392	690	4.379
365	0.105	475	3.520	585	19.385	695	3.774
370	0.103	480	3.762	590	20.187	700	3.223
375	0.092	485	4.483	595	20.844	705	2.754
380	0.083	490	5.467	600	21.138	710	2.354
385	0.088	495	6.619	605	21.195	715	2.019
390	0.098	500	7.772	610	20.982	720	1.738
395	0.106	505	8.678	615	20.481	725	1.483
400	0.139	510	9.405	620	19.736	730	1.263
405	0.201	515	9.960	625	18.794	735	1.068
410	0.343	520	10.341	630	17.647	740	0.912
415	0.612	525	10.728	635	16.443	745	0.778
420	1.078	530	11.112	640	15.146	750	0.670
425	1.837	535	11.521	645	13.823	755	0.575
430	3.017	540	11.990	650	12.486	760	0.495
435	4.698	545	12.470	655	11.196	765	0.424
440	7.085	550	13.069	660	9.949	770	0.365
445	10.343	555	13.760	665	8.793	775	0.315
450	12.086	560	14.542	670	7.715	780	0.272
455	9.398	565	15.385	675	6.746		

*Without correction of sample absorption.



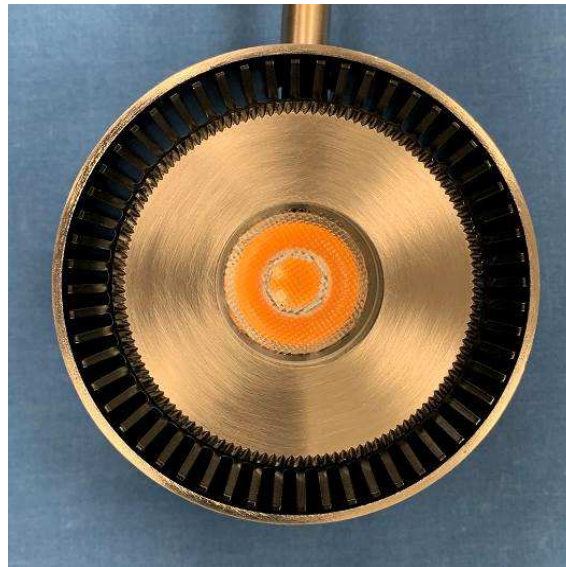
End Of Test Results

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PICTURES



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

Timothy Quigley
Project Engineer
Lighting Division

Report Reviewed By:

Jeff Davis

Jeff Davis
N.A. Technical Lead
Lighting Division

Attachments: IES File

REVISION HISTORY

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY	REVISION NOTE
None				