

PURE EDGE LIGHTING

TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

ZSD-5W-4S-36-30K-SN

REPORT NUMBER

102602453CHI-019

ISSUE DATE

June 4, 2018

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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TEST OF ONE LINEAR LED FIXTURE

MODEL NO. ZSD-5W-4S-36-30K-SN
LED MODEL NO. LUMILED/SS5CL-12MM-24VDC-C-30K
DRIVER MODEL NO. MEANWELL APV-16-25

RENDERED TO:

PURE EDGE LIGHTING
1718 WEST FULLERTON
CHICAGO, IL 60614

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00685500-1.

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 ZSD-5W-4S-36-30K-SN. The sample was received by Intertek on May 17, 2018 in undamaged condition and one sample was tested as received. The sample designation was AH05172018024639-019.

DATE OF TESTS

May 23, 2018 through May 25, 2018.

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SUMMARY

MODEL NO:	ZSD-5W-4S-36-30K-SN
DESCRIPTION:	Linear LED fixture

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	915.9	904.0
Input Power (W) @ 120 (VAC)	17.38	17.494
Lumen Efficacy (lm/W)	52.7	51.7
Input Power Factor () @ 120 (VAC)	0.523	0.514

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	83.17
Correlated Color Temperature (K)	2931
Color Rendering Index - Ra ()	97.3
Color Rendering - R9 ()	89.8
DUV ()	0.0039
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.395
Chromaticity Coordinate (u')	0.254
Chromaticity Coordinate (v')	0.518

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/10/2017	7/10/2018
Omega Newport Thermometer	DPI8-C24	146920	10/4/2017	10/4/2018
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	11/17/2017	11/17/2018
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	4/5/2018	4/5/2019
Omega Temperature	MDSi8	146873	7/20/2017	7/20/2018
Newport Thermohygrometer	iTHX-M	146382	7/14/2017	7/14/2018

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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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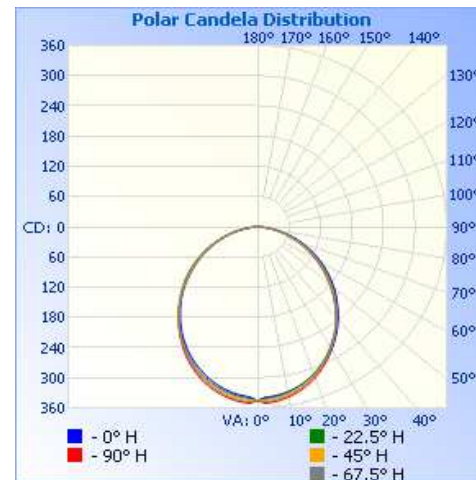
RESULTS OF TESTS

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)
AH05172018024639-019	Base Up	120.1	283.7	17.494	0.514	904.0	51.7

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	345	345	345	345	345
5	338	340	342	346	349
10	333	334	337	340	343
15	324	324	327	330	333
20	312	311	314	316	319
25	298	295	297	299	302
30	281	277	278	279	282
35	261	256	257	257	258
40	238	234	234	233	234
45	215	210	209	207	208
50	190	186	183	181	181
55	165	160	157	155	154
60	139	134	131	128	128
65	113	108	105	103	102
70	87	82	80	78	77
75	62	57	55	54	54
80	38	34	33	32	32
85	17	14	14	14	14
90	0	0	0	0	0



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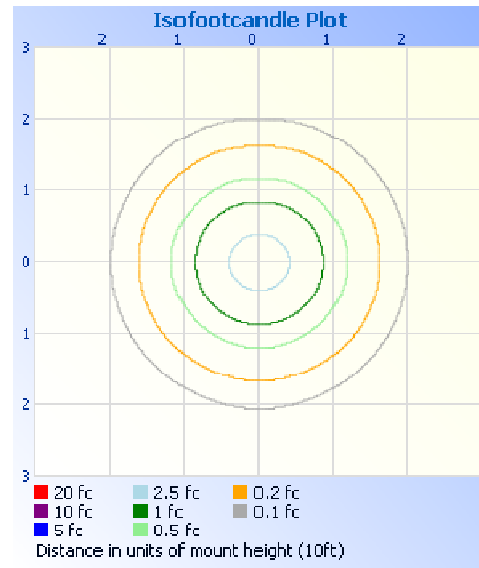
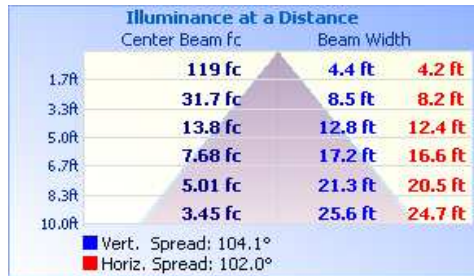
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RESULTS OF TESTS

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	261.7	28.9
0-40	422.3	46.7
0-60	724.1	80.1
60-90	180.0	19.9
70-100	75.5	8.4
90-120	0.0	0.0
0-90	904.0	100.0
90-180	0.0	0.0
0-180	904.0	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	32.5	3.6
10-20	92.2	10.2
20-30	137.0	15.2
30-40	160.6	17.8
40-50	161.0	17.8
50-60	140.8	15.6
60-70	104.4	11.5
70-80	59.0	6.5
80-90	16.5	1.8

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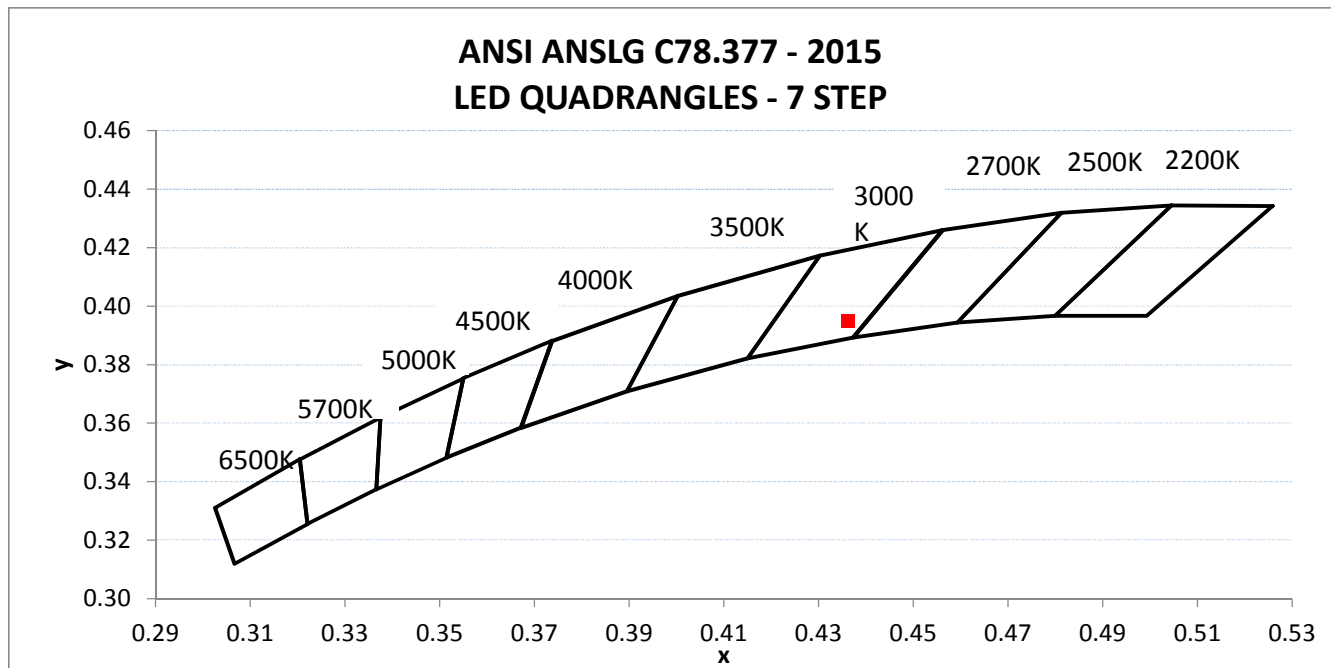
RESULTS OF TESTS

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 (%)
AH05172018024639-019	Base Up	120.04	277.13	17.38	0.523	83.17

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
915.9	52.7	2931	97.3	89.8	0.0039

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.436	0.395	0.254	0.518



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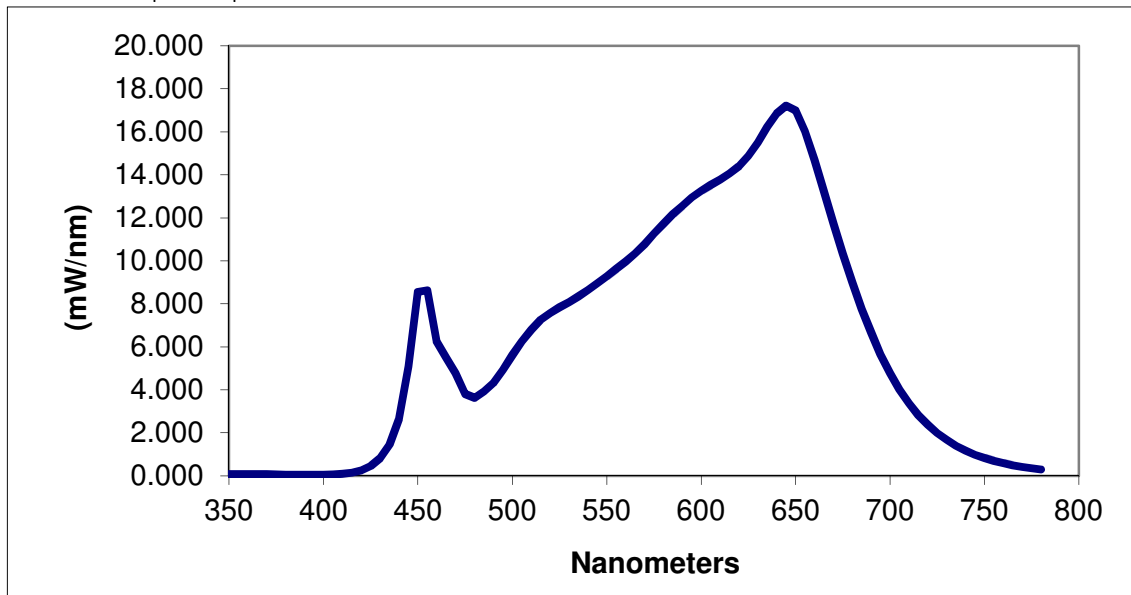
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RESULTS OF TESTS

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	0.075	460	6.244	570	10.780	680	9.009
355	0.073	465	5.483	575	11.271	685	7.773
360	0.069	470	4.771	580	11.731	690	6.666
365	0.068	475	3.811	585	12.173	695	5.656
370	0.068	480	3.632	590	12.559	700	4.780
375	0.057	485	3.925	595	12.939	705	4.022
380	0.047	490	4.335	600	13.260	710	3.383
385	0.047	495	4.918	605	13.530	715	2.832
390	0.041	500	5.628	610	13.784	720	2.377
395	0.039	505	6.254	615	14.059	725	1.997
400	0.044	510	6.802	620	14.402	730	1.673
405	0.052	515	7.264	625	14.882	735	1.400
410	0.081	520	7.569	630	15.499	740	1.174
415	0.145	525	7.839	635	16.241	745	0.981
420	0.257	530	8.081	640	16.865	750	0.825
425	0.461	535	8.351	645	17.225	755	0.697
430	0.820	540	8.652	650	16.998	760	0.590
435	1.460	545	8.952	655	16.026	765	0.495
440	2.627	550	9.281	660	14.683	770	0.414
445	5.094	555	9.629	665	13.246	775	0.352
450	8.552	560	9.974	670	11.747	780	0.297
455	8.627	565	10.344	675	10.338		

*Without correction of sample absorption.



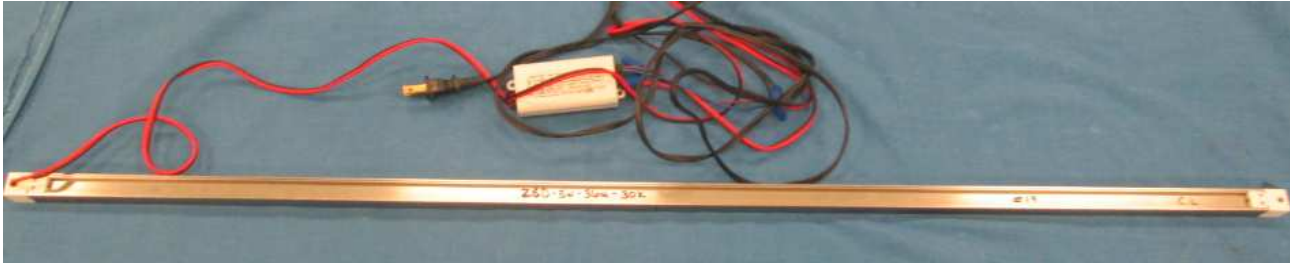
End Of Test Results

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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:

Tess Gallagher

Tess Gallagher
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Lighting Division

Report Reviewed By:

Tim Quigley

Timothy Quigley
Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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