

TECH LIGHTING

TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER
7000WAST14ZLED930

REPORT NUMBER
103643585CHI-004

ISSUE DATE
October 8, 2018

REVISION DATE
None

DOCUMENT CONTROL NUMBER
TBD
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REPORT NO.:103643585CHI-004

REPORT DATE: October 8, 2018

TEST REPORT

TEST OF ONE LED WALL OUTDOOR

MODEL NO. 700OWAST14ZLED930
LED MODEL NO. 10.4W 351LEDCLU02801930 CITIZEN CLU028-1201C4-303H5K2 CRI 90 3000K 2 PCS
DRIVER MODEL NO. EPT D13-300RC

RENDERED TO:

TECH LIGHTING
7400 LINDER AVE.
SKOKIE, IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00912313-2.

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 700OWAST14ZLED930. The sample was received by Intertek on October 3, 2018 in undamaged condition and one sample was tested as received. The sample designation was AH10032018084710.

DATE OF TESTS

October 3, 2018 through October 4, 2018.

REPORT NO.:103643585CHI-004

REPORT DATE: October 8, 2018

TEST REPORT

SUMMARY

MODEL NO:	7000WAST14ZLED930
DESCRIPTION:	LED WALL OUTDOOR

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1028.4	1000.8
Input Power (W) @ 120 (VAC)	13.68	13.70
Lumen Efficacy (lm/W)	75.2	73.1
Input Power Factor () @ 120 (VAC)	0.995	0.995

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	8.85
Correlated Color Temperature (K)	3074
Color Rendering Index - Ra ()	92.4
Color Rendering - R9 ()	68.7
DUV ()	0.0016
Chromaticity Coordinate (x)	0.434
Chromaticity Coordinate (y)	0.407
Chromaticity Coordinate (u')	0.247
Chromaticity Coordinate (v')	0.522
BUG Rating	B1-U3-G0

REPORT NO.:103643585CHI-004

REPORT DATE: October 8, 2018

TEST REPORT

EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/9/2018	7/9/2019
Omega Newport Thermometer	DPI8-C24	146920	10/4/2017	10/4/2018
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
Newport Thermohygrometer	iServer	146957	11/17/2017	11/17/2018
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBU	VBU
Elgar AC Power Supply	CW1251M	146113	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146847	VBU	VBU
Yokogawa Power Analyzer	WT1600	146767	4/5/2018	4/5/2019
Omega Temperature	MDSi8	146873	7/10/2018	7/10/2019
Newport Thermohygrometer	iTHX-M	146379	4/16/2018	4/16/2019

TEST REPORT

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.

TEST REPORT

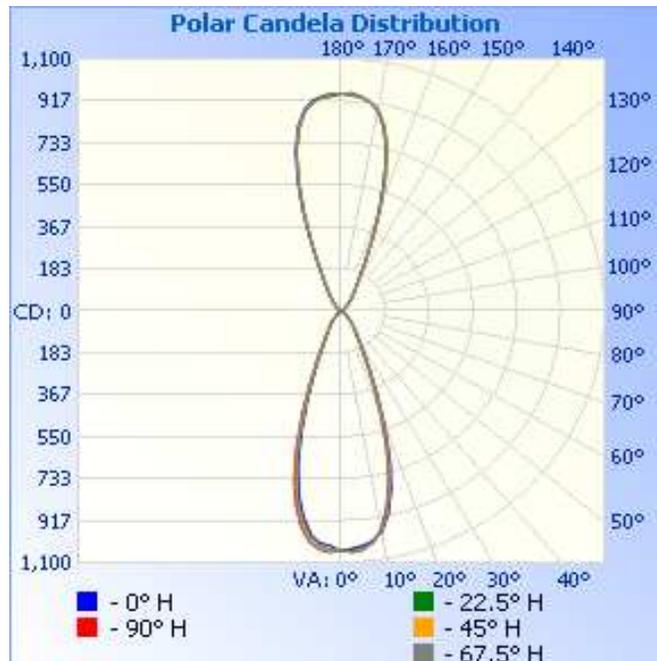
RESULTS OF TESTS

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)
AH10032018084710	Horizontal	120.1	114.7	13.70	0.995	1000.8	73.1

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	1048	1048	1048	1048	1048
5	1029	1040	1046	1048	1047
10	980	970	972	969	963
15	807	789	784	773	766
20	528	502	503	497	479
25	284	263	263	256	247
30	154	144	143	140	135
35	99	95	95	93	90
40	68	66	65	63	61
45	42	40	40	38	36
50	22	19	19	19	18
55	9	8	8	8	8
60	3	3	3	3	3
65	2	2	2	2	2
70	2	2	1	1	1
75	1	1	1	1	1
80	1	1	1	1	1
85	1	0	0	0	0
90	0	0	0	0	0
95	1	1	0	0	0
100	1	1	1	1	1
105	1	1	1	1	1
110	2	1	1	1	1
115	2	2	2	2	2
120	2	2	2	2	2
125	6	6	6	6	6
130	15	16	16	16	16
135	32	34	34	33	33
140	56	58	58	58	56
145	83	86	86	84	84
150	126	130	131	128	127
155	232	244	240	237	233
160	462	483	477	469	460
165	726	741	738	728	724
170	893	888	889	884	885
175	942	938	939	940	937
180	950	950	950	950	950



Lum. Classification System (LCS)

LCS Zone	Lumens	%Lamp	%Lum	
FL	(0-30)	217.1	N.A.	21.6
FM	(30-60)	49.5	N.A.	4.9
FH	(60-80)	1.6	N.A.	0.2
FVH	(80-90)	0.3	N.A.	0
BL	(0-30)	201.5	N.A.	20.1
BM	(30-60)	44.5	N.A.	4.4
BH	(60-80)	1.4	N.A.	0.1
BVH	(80-90)	0.2	N.A.	0
UL	(90-100)	0.5	N.A.	0.1
UH	(100-180)	487.1	N.A.	48.5
Total		1003.7	N.A.	100
BUG Rating	B1-U3-G0			

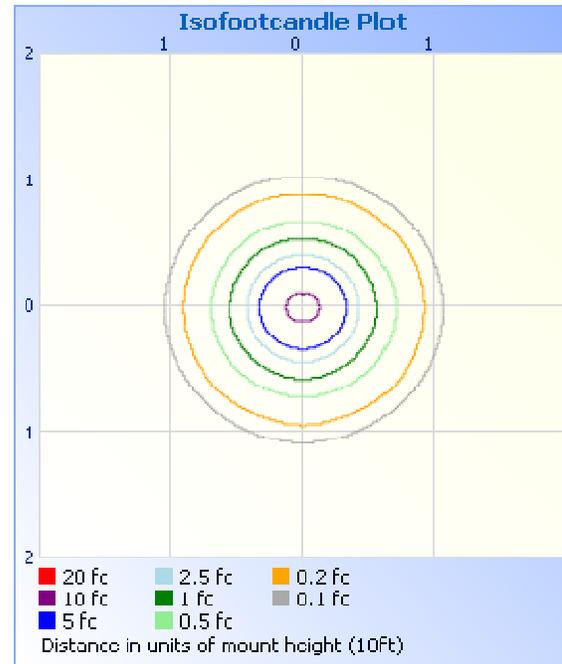
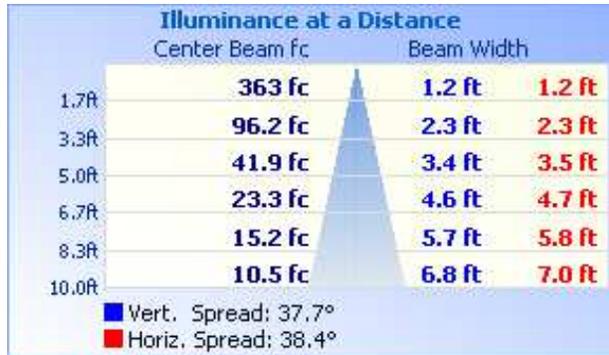
TEST REPORT

RESULTS OF TESTS

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

MOUNTING HEIGHT: 10ft

ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT
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ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	417.3	41.7
0-40	474.7	47.4
0-60	511.2	51.1
60-90	3.4	0.3
70-100	2.0	0.2
90-120	3.3	0.3
0-90	514.6	51.4
90-180	486.2	48.6
0-180	1000.8	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	96.5	9.6
10-20	202.2	20.2
20-30	118.6	11.9
30-40	57.3	5.7
40-50	29.0	2.9
50-60	7.5	0.7
60-70	1.9	0.2
70-80	1.1	0.1
80-90	0.4	0.0
90-100	0.5	0.1
100-110	1.1	0.1
110-120	1.7	0.2
120-130	6.3	0.6
130-140	26.3	2.6
140-150	53.9	5.4
150-160	114.8	11.5
160-170	193.7	19.4
170-180	87.9	8.8

TEST REPORT

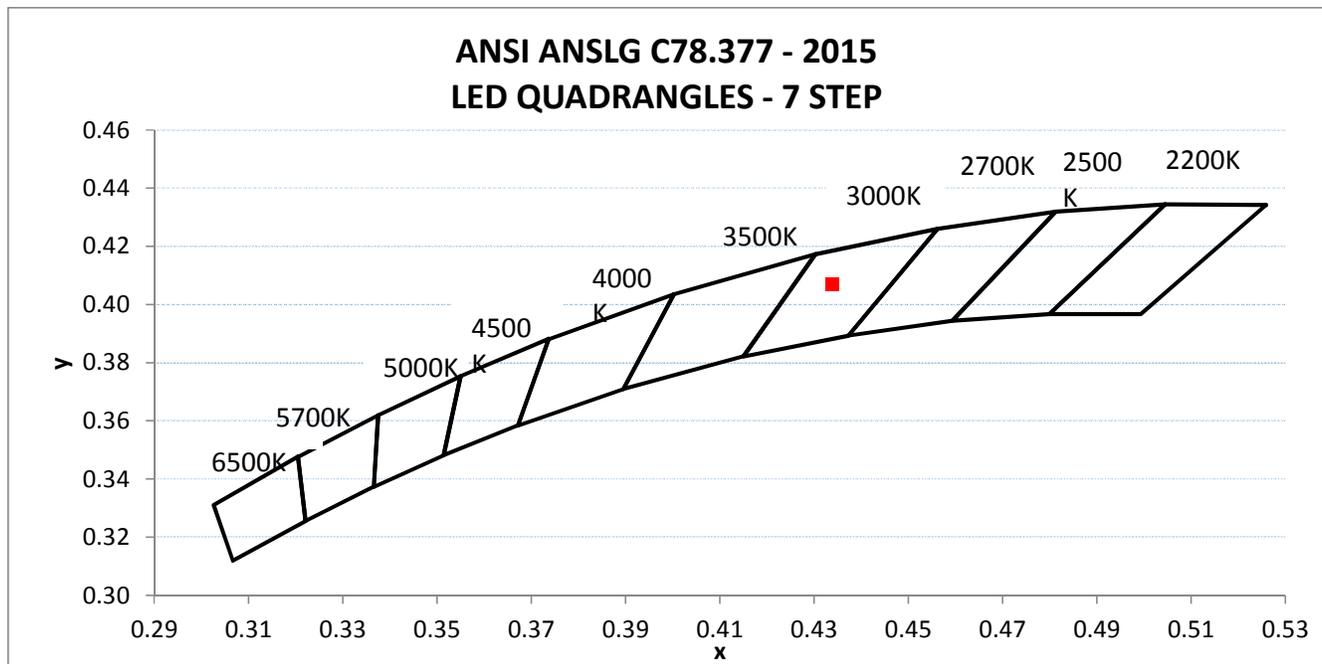
RESULTS OF TESTS

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 (%)
AH10032018084710	Horizontal	120.00	114.55	13.68	0.995	8.85

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1028.4	75.2	3074	92.4	68.7	0.0016

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.434	0.407	0.247	0.522



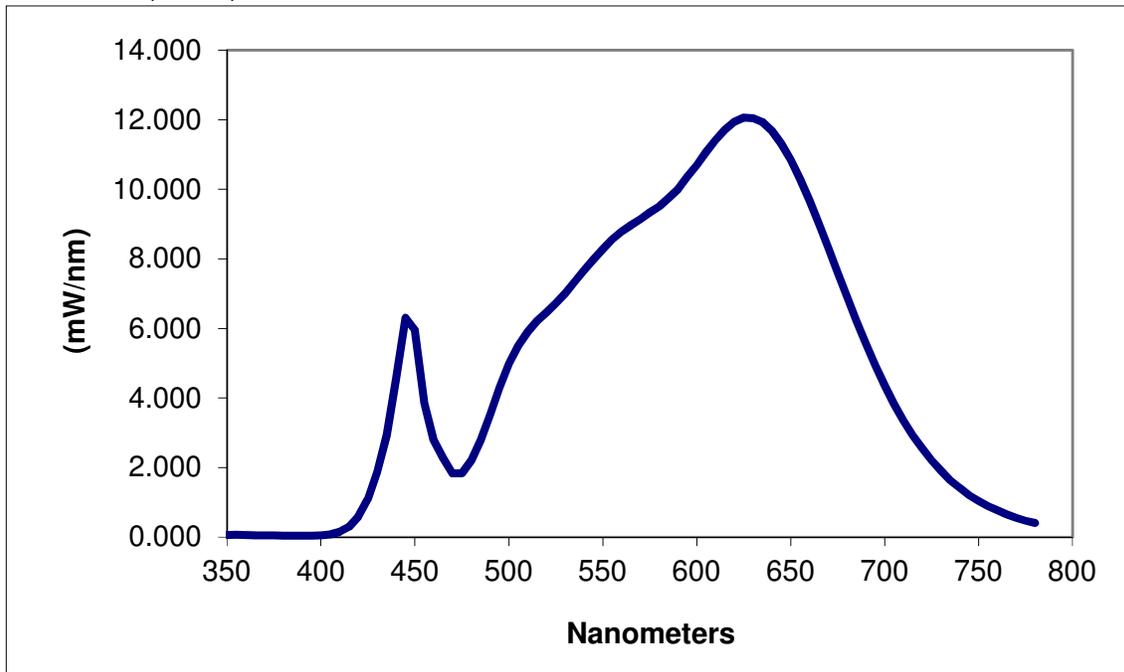
TEST REPORT

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	0.066	460	2.801	570	9.148	680	6.901
355	0.068	465	2.274	575	9.332	685	6.220
360	0.064	470	1.837	580	9.510	690	5.560
365	0.056	475	1.836	585	9.749	695	4.948
370	0.053	480	2.212	590	10.006	700	4.359
375	0.053	485	2.792	595	10.362	705	3.827
380	0.042	490	3.530	600	10.703	710	3.349
385	0.042	495	4.299	605	11.069	715	2.929
390	0.040	500	4.995	610	11.421	720	2.554
395	0.043	505	5.503	615	11.718	725	2.211
400	0.054	510	5.908	620	11.943	730	1.908
405	0.083	515	6.220	625	12.064	735	1.638
410	0.152	520	6.461	630	12.041	740	1.411
415	0.304	525	6.718	635	11.935	745	1.208
420	0.597	530	7.015	640	11.677	750	1.043
425	1.098	535	7.340	645	11.315	755	0.895
430	1.868	540	7.670	650	10.843	760	0.779
435	2.934	545	7.984	655	10.294	765	0.656
440	4.531	550	8.283	660	9.678	770	0.560
445	6.309	555	8.561	665	9.018	775	0.477
450	5.962	560	8.790	670	8.311	780	0.407
455	3.854	565	8.968	675	7.608		

*Without correction of sample absorption.



End Of Test Results

TEST REPORT

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
Engineer
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				