

VISUAL COMFORT & COMPANY TEST REPORT

SCOPE OF WORK

Electrical and Photometric tests as required to the IESNA LM-79 test standard.

MODEL NUMBER

700TDSNGPK**-LED927

REPORT NUMBER

104349704CHI-004

ISSUE DATE

August 17, 2020

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT DATE: August 17, 2020

TEST REPORT

TEST OF ONE SEDONA TRANSPARENT SMOKE

MODEL NO. 700TDSNGPK-LED927**

LED MODEL NO. 300BHV515

DRIVER MODEL NO. NA

RENDERED TO:

VISUAL COMFORT & COMPANY

7400 LINDER AVE

SKOKIE, IL 60077

STATEMENT OF LIMITATIONS

NVLAP Lab Code 600186-0. 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 G104349704.

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 700TDSNGPK**-LED927. The sample was received by Intertek on August 5, 2020 in undamaged condition and one sample was tested as received. The sample designation was AH08052020182125-004.

DATE OF TESTS

August 7, 2020 through August 12, 2020.

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SUMMARY

MODEL NO:	700TDS DNGPK**-LED927
DESCRIPTION:	SEDONA TRANSPARENT SMOKE

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	163.0	161.9
Input Power (W) @ 120 (VAC)	3.36	3.36
Lumen Efficacy (lm/W)	48.5	48.2
Input Power Factor @ 120 (VAC)	0.922	0.921

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	41.89
Correlated Color Temperature (K)	2686
Color Rendering Index - Ra	90.6
Color Rendering - R9	57.7
DUV	0.0005
Chromaticity Coordinate (x)	0.462
Chromaticity Coordinate (y)	0.413
Chromaticity Coordinate (u')	0.263
Chromaticity Coordinate (v')	0.528

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/1/2020	7/1/2021
Omega Thermometer	DPI8-C24	146920	10/3/2019	10/3/2020
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
Pacific, AC Power Supply	118-ACX	CHI0153	VBV	VBV
Labsphere Spectroradiometer	CDS-600	146923	VBV	VBV
2M Rotating Sphere	7660-ROT	146923	VBV	VBV
Omega thermometer	USB TC08	3QAH00261	4/7/2020	4/7/2021
Ametek DC Power Supply	XFR150-8	146846	VBV	VBV
Newport Humidity Recorder	iServer	CHI0456	10/11/2019	10/11/2020
Yokogawa Power Meter	WT210	146880	10/2/2019	10/2/2020
Chroma Power Supply	61604	CHI0371	VBV	VBV

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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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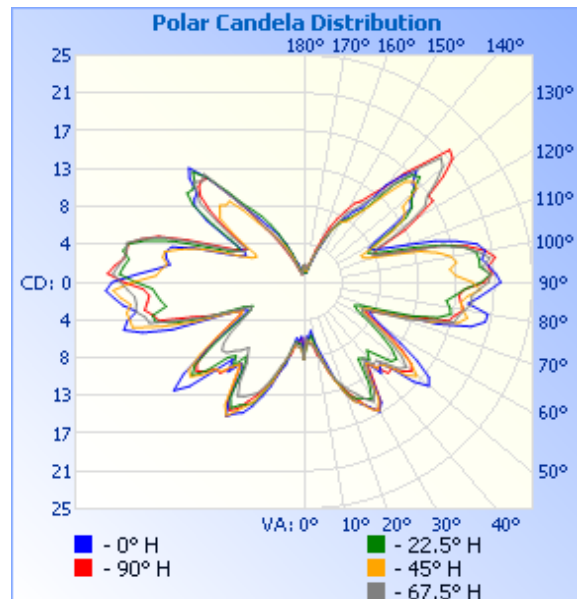
RESULTS OF TESTS

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)
AH08052020182125-004	Base Up	120.0	30.3	3.36	0.921	161.9	48.2

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	8	8	8	8	8
5	6	6	7	7	7
10	7	7	8	8	8
15	9	10	10	10	10
20	13	13	13	12	12
25	15	14	15	14	14
30	16	15	16	15	16
35	13	10	12	12	13
40	13	11	12	12	12
45	13	11	13	13	14
50	18	13	16	15	15
55	15	10	13	12	13
60	10	7	9	8	9
65	8	6	7	7	7
70	10	9	11	12	11
75	19	15	17	17	16
80	20	16	18	18	18
85	19	17	18	18	17
90	22	19	18	20	20
95	20	19	16	20	20
100	20	19	16	19	20
105	17	16	13	15	16
110	12	10	8	9	9
115	8	8	7	9	9
120	9	10	11	14	14
125	14	14	14	16	17
130	16	15	16	20	21
135	17	17	16	18	18
140	14	11	11	12	14
145	10	9	8	10	11
150	8	7	8	8	9
155	5	5	5	6	7
160	2	3	3	3	4
165	1	1	2	2	2
170	1	1	1	2	2
175	1	1	2	2	2
180	2	2	2	2	2



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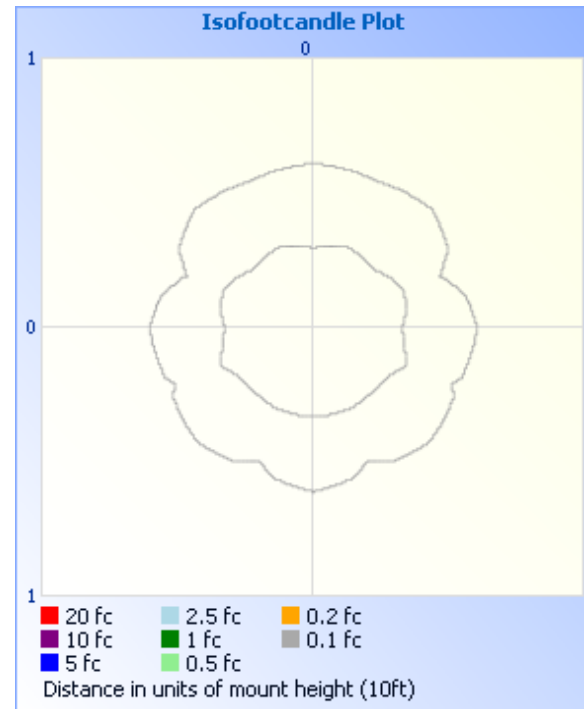
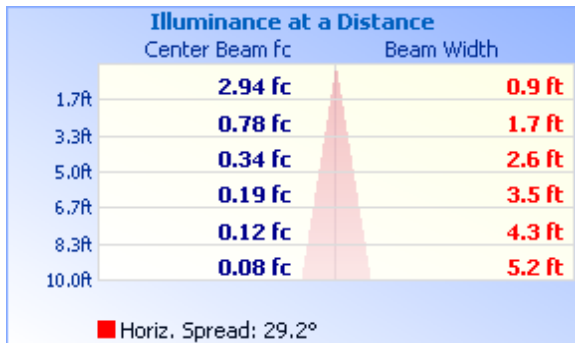
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RESULTS OF TESTS

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	10.3	6.4
0-40	18.3	11.3
0-60	39.2	24.2
60-90	45.0	27.8
70-100	57.6	35.6
90-120	45.4	28.0
0-90	84.2	52.0
90-180	77.7	48.0
0-180	161.9	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	0.7	0.4
10-20	2.9	1.8
20-30	6.7	4.2
30-40	8.0	4.9
40-50	10.1	6.3
50-60	10.8	6.7
60-70	8.0	4.9
70-80	17.0	10.5
80-90	20.0	12.4
90-100	20.5	12.7
100-110	16.3	10.0
110-120	8.6	5.3
120-130	11.8	7.3
130-140	11.9	7.4
140-150	5.8	3.6
150-160	2.2	1.4
160-170	0.5	0.3
170-180	0.1	0.1

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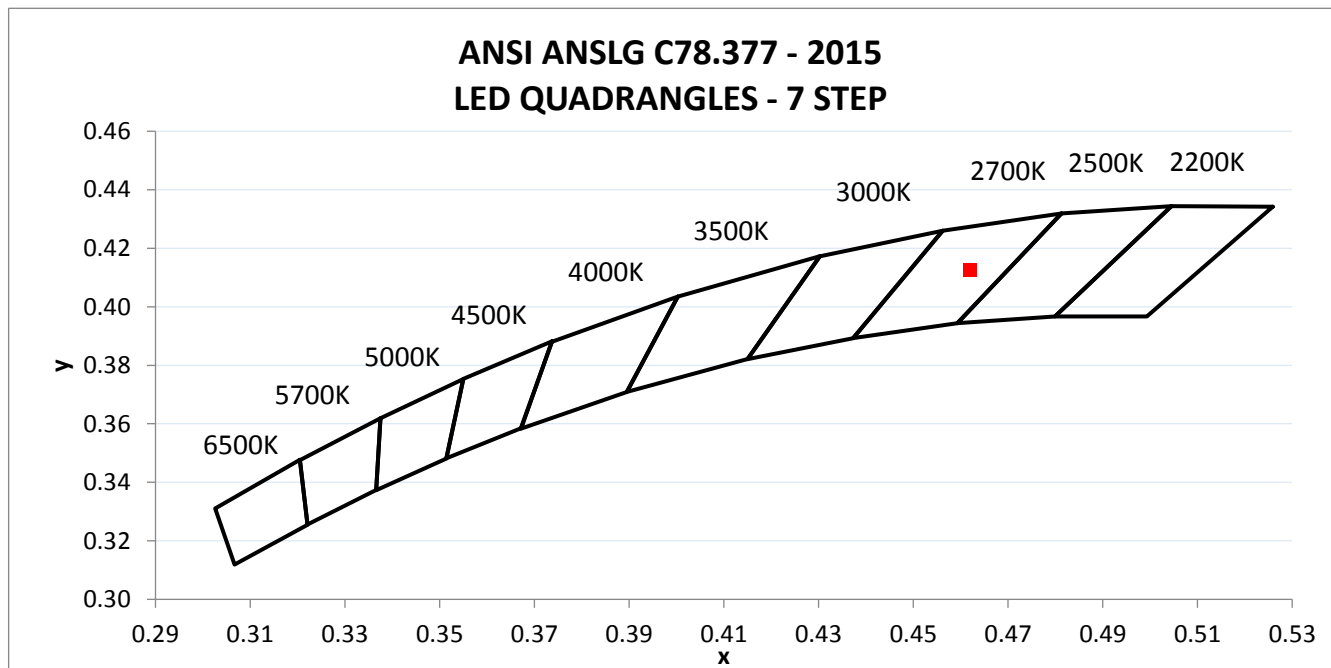
RESULTS OF TESTS

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 (%)
AH08052020182125-004	Base Up	120.11	30.34	3.36	0.922	41.89

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
163.0	48.5	2686	90.6	57.7	0.0005

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.462	0.413	0.263	0.528



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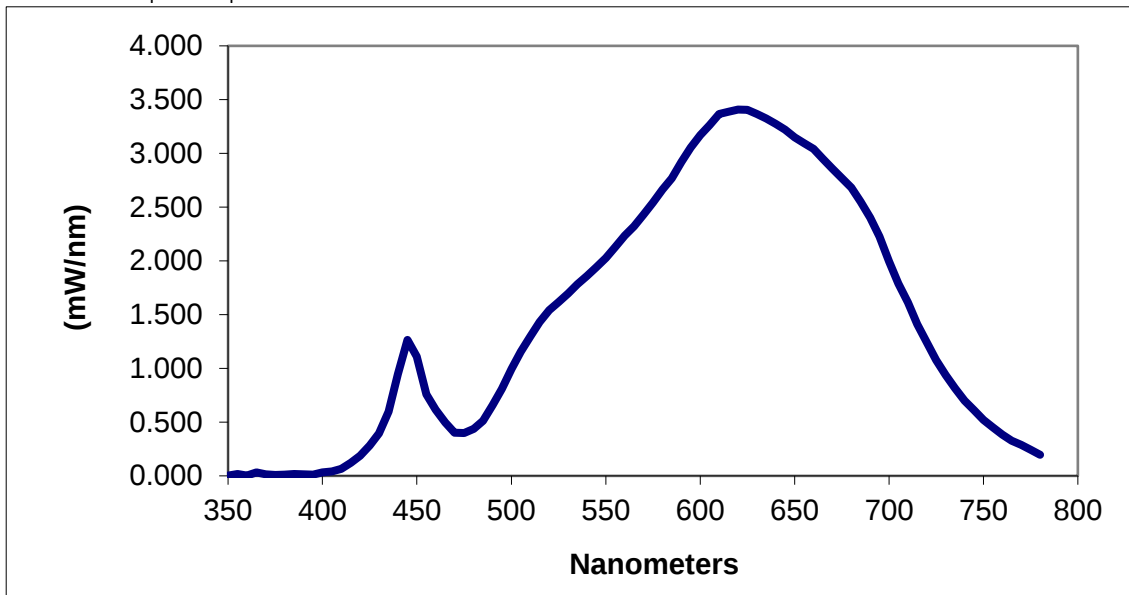
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RESULTS OF TESTS

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	0.003	460	0.617	570	2.431	680	2.681
355	0.017	465	0.496	575	2.541	685	2.549
360	0.003	470	0.403	580	2.664	690	2.403
365	0.034	475	0.397	585	2.769	695	2.227
370	0.014	480	0.439	590	2.919	700	1.993
375	0.008	485	0.513	595	3.053	705	1.789
380	0.012	490	0.656	600	3.168	710	1.612
385	0.017	495	0.811	605	3.261	715	1.410
390	0.014	500	0.994	610	3.365	720	1.242
395	0.011	505	1.154	615	3.386	725	1.076
400	0.032	510	1.297	620	3.407	730	0.937
405	0.041	515	1.431	625	3.406	735	0.814
410	0.066	520	1.542	630	3.366	740	0.700
415	0.122	525	1.615	635	3.325	745	0.613
420	0.187	530	1.696	640	3.274	750	0.521
425	0.282	535	1.784	645	3.221	755	0.453
430	0.396	540	1.861	650	3.147	760	0.383
435	0.597	545	1.941	655	3.097	765	0.326
440	0.947	550	2.027	660	3.041	770	0.289
445	1.266	555	2.128	665	2.949	775	0.244
450	1.109	560	2.235	670	2.856	780	0.197
455	0.758	565	2.322	675	2.770		

*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:

Timothy Quigley
Project Engineer
Lighting Division

Report Reviewed By:

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				