

# VISUAL COMFORT GROUP TEST REPORT

## SCOPE OF WORK

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

## MODEL NUMBER

700LSNYR72xx-LED930

## REPORT NUMBER

104206403CHI-002

## ISSUE DATE

January 24, 2020

## REVISION DATE

None

## DOCUMENT CONTROL NUMBER

TBD

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**REPORT NO.: 104206403CHI-002**

**REPORT DATE: January 24, 2020**

**TEST REPORT**

TEST OF ONE NYRA 72" LINEAR CHANDELIER

MODEL NO. 700LSNYR72XX-LED930  
LED MODEL NO. SEOUL STW9A12D.3528  
DRIVER MODEL NO. MACRON MDR-608-24-100-LC

RENDERED TO:

VISUAL COMFORT GROUP  
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 Qu-01040682-1.

**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 700LSNYR72xx-LED930 . The sample was received by Intertek on January 9, 2020 in undamaged condition and one sample was tested as received. The sample designation was AH01092020032954-002.

**DATE OF TESTS**

January 22, 2020 through January 23, 2020.

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**SUMMARY**

<b>MODEL NO:</b>	700LSNYR72xx-LED930
<b>DESCRIPTION:</b>	Nyra 72" Linear Chandelier

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	7123.2	6897.0
Input Power (W) @ 120 (VAC)	94.38	94.45
Lumen Efficacy (lm/W)	75.5	73.0
Input Power Factor ( ) @ 120 (VAC)	0.998	0.998

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	2.80
Correlated Color Temperature (K)	2943
Color Rendering Index - Ra	93.8
Color Rendering - R9	65.9
DUV	-0.0010
Chromaticity Coordinate (x)	0.440
Chromaticity Coordinate (y)	0.403
Chromaticity Coordinate (u')	0.253
Chromaticity Coordinate (v')	0.521

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**EQUIPMENT LIST**

<b>EQUIPMENT USED</b>	<b>MODEL NO.</b>	<b>CONTROL NO.</b>	<b>LAST CAL DATE</b>	<b>CAL DUE DATE</b>
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	VBU	VBU
Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
Elgar, AC Power Supply	CW1251	146111	VBU	VBU
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU
3 Meter Sphere	SPR600	CHI0088	VBU	VBU
Elgar AC Power Supply	CW1251	146112	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
Newport Humidity Recorder	iTHX-SD	146382	4/17/2019	4/17/2020
Yokogawa Power Meter	WT1600	146769	4/3/2019	4/3/2020
Extech K Temperature Meter	SD200	CHI0207	4/3/2019	4/3/2020

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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.

**TEST REPORT**

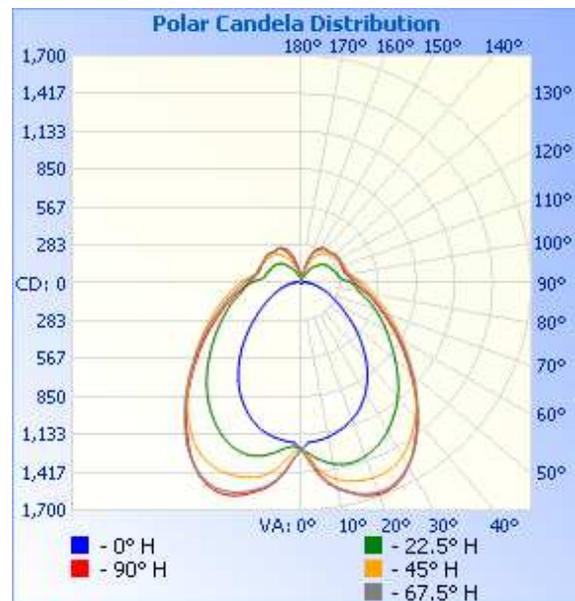
**RESULTS OF TESTS**

**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)
AH01092020032954-002	Base Up	120.1	788.2	94.45	0.998	6897.0	73.0

**INTENSITY SUMMARY - CANDELAS**

Angle	0	22.5	45	67.5	90
0	1247	1247	1247	1247	1247
5	1188	1318	1392	1441	1421
10	1168	1376	1492	1565	1561
15	1133	1396	1534	1634	1641
20	1088	1379	1552	1665	1683
25	1029	1339	1544	1649	1663
30	947	1277	1498	1580	1583
35	852	1198	1414	1472	1464
40	742	1110	1314	1341	1333
45	626	1010	1199	1209	1198
50	513	909	1078	1079	1060
55	407	812	967	956	939
60	319	730	862	845	828
65	252	654	770	746	726
70	196	583	689	659	638
75	150	514	615	586	565
80	112	446	549	520	499
85	83	408	499	465	439
90	64	371	459	424	396
95	47	306	407	387	366
100	36	278	364	357	344
105	28	271	350	338	327
110	21	260	339	336	325
115	17	245	333	332	325
120	14	239	329	331	321
125	12	227	315	333	326
130	10	215	303	327	326
135	8	195	299	315	319
140	7	168	290	309	310
145	6	142	268	310	310
150	5	111	246	292	305
155	5	75	201	266	279
160	5	61	154	217	238
165	4	43	89	154	166
170	4	20	60	74	79
175	4	7	19	32	30
180	5	5	5	5	5



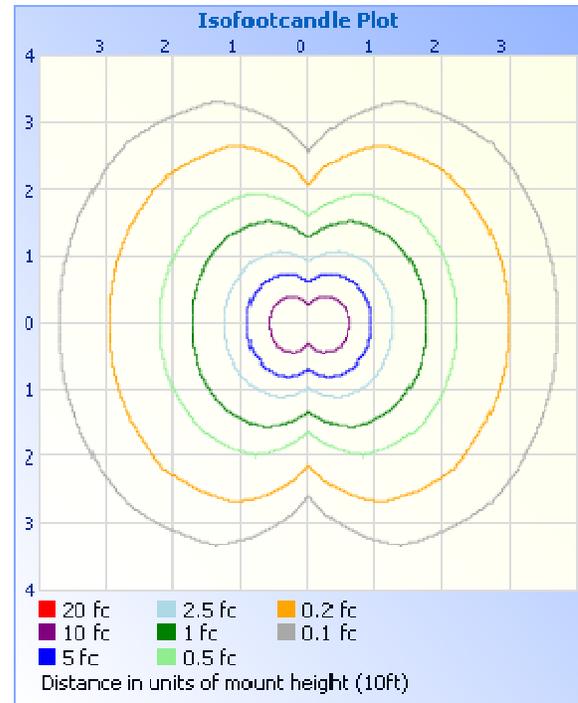
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**RESULTS OF TESTS**

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

**MOUNTING HEIGHT: 10ft**

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

ZONE	LUMENS	% LUMINAIRE
0-30	1220.4	17.7
0-40	2035.9	29.5
0-60	3632.4	52.7
60-90	1667.8	24.2
70-100	1365.3	19.8
90-120	928.1	13.5
0-90	5300.1	76.8
90-180	1596.8	23.2
0-180	6897.0	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	131.1	1.9
10-20	417.4	6.1
20-30	671.9	9.7
30-40	815.5	11.8
40-50	832.8	12.1
50-60	763.7	11.1
60-70	662.6	9.6
70-80	553.1	8.0
80-90	452.1	6.6
90-100	360.1	5.2
100-110	300.0	4.4
110-120	267.9	3.9
120-130	234.4	3.4
130-140	189.4	2.7
140-150	136.8	2.0
150-160	78.2	1.1
160-170	27.0	0.4
170-180	3.0	0.0

TEST REPORT

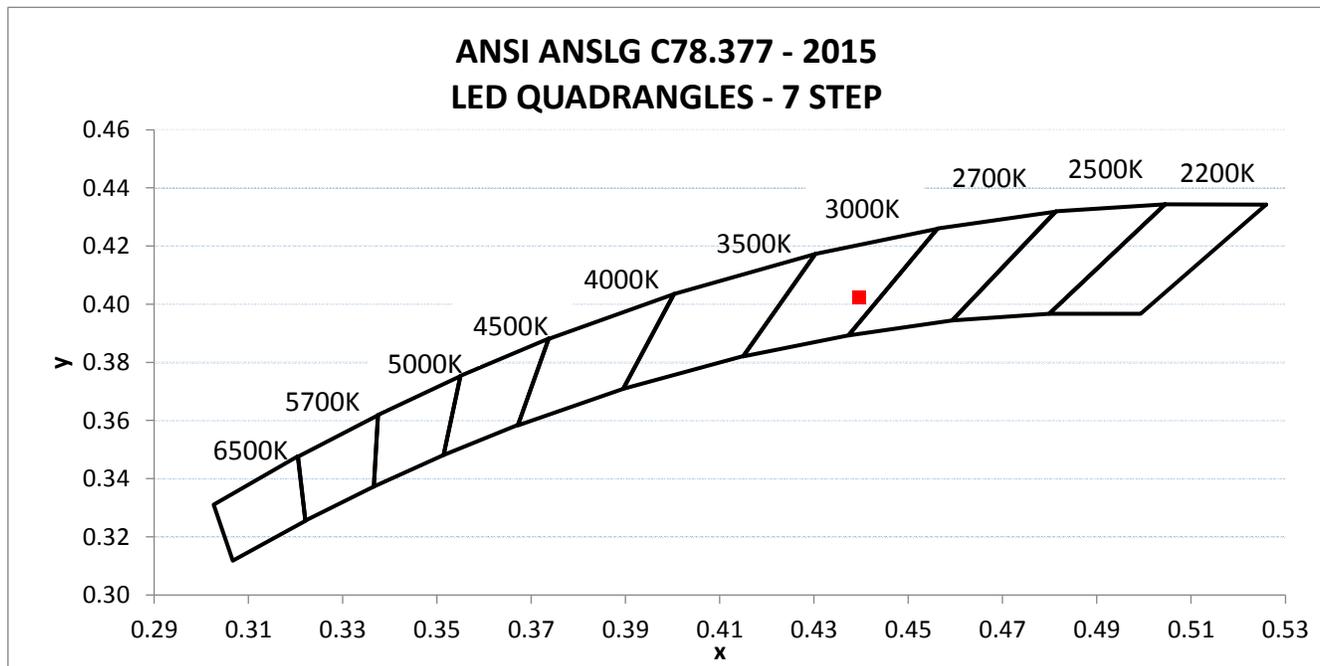
RESULTS OF TESTS

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 (%)
AH01092020032954-002	Base Up	120.03	787.70	94.38	0.998	2.80

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
7123.2	75.5	2943	93.8	65.9	-0.0010

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.440	0.403	0.253	0.521



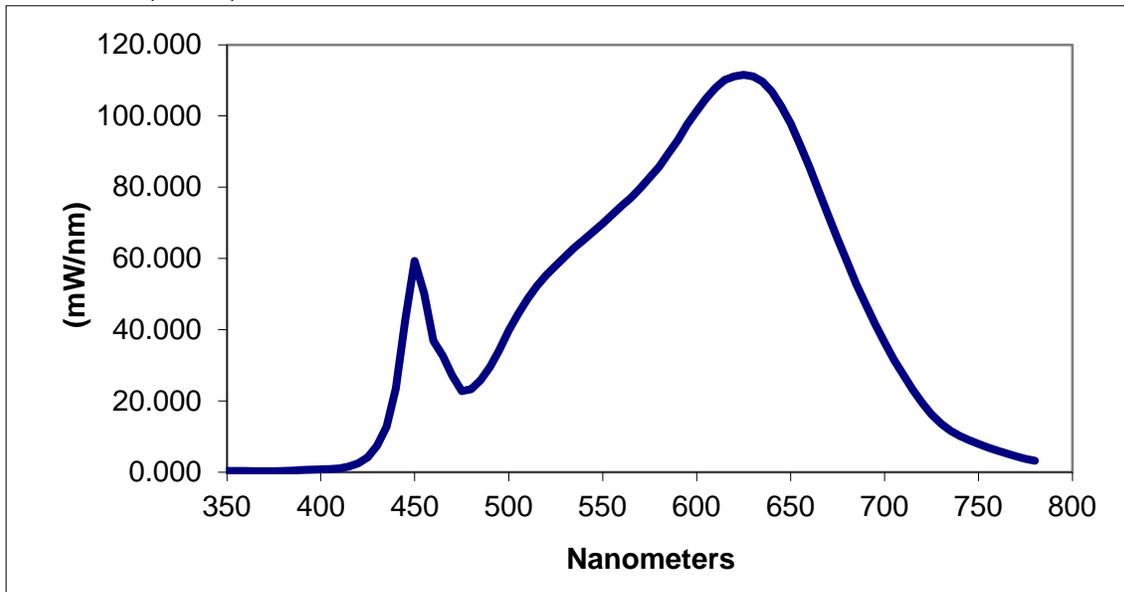
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**RESULTS OF TESTS**

**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	0.360	460	36.841	570	79.747	680	59.103
355	0.308	465	32.568	575	82.682	685	52.740
360	0.331	470	27.103	580	85.742	690	47.057
365	0.297	475	22.800	585	89.429	695	41.578
370	0.269	480	23.263	590	93.198	700	36.395
375	0.297	485	25.792	595	97.600	705	31.618
380	0.336	490	29.577	600	101.347	710	27.335
385	0.447	495	34.320	605	104.847	715	23.200
390	0.583	500	39.833	610	107.867	720	19.486
395	0.669	505	44.334	615	110.134	725	16.245
400	0.794	510	48.620	620	111.104	730	13.650
405	0.872	515	52.214	625	111.558	735	11.684
410	1.103	520	55.347	630	111.035	740	10.183
415	1.591	525	57.961	635	109.637	745	9.043
420	2.470	530	60.492	640	106.807	750	7.954
425	4.167	535	62.990	645	102.774	755	6.987
430	7.397	540	65.300	650	97.833	760	6.075
435	12.734	545	67.540	655	91.937	765	5.223
440	23.518	550	69.833	660	85.663	770	4.427
445	42.955	555	72.244	665	78.895	775	3.778
450	59.241	560	74.730	670	72.092	780	3.216
455	50.138	565	76.950	675	65.544		

\*Without correction of sample absorption.

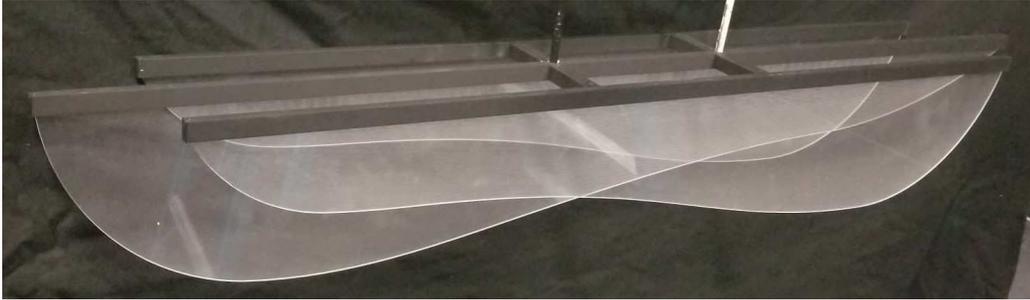


**End Of Test Results**

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**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:

*Ian Smith*

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Lighting Division

Report Reviewed By:

*Jeffrey Davis*

Jeff Davis  
NA Technical Lead  
Lighting Division

Attachments: IES File

**REVISION HISTORY**

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