

# VISUAL COMFORT GROUP TEST REPORT

## SCOPE OF WORK

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

## MODEL NUMBER

700LSNYR60\*\*-LED930

## REPORT NUMBER

104206403CHI-009

## ISSUE DATE

January 24, 2020

## REVISION DATE

None

## DOCUMENT CONTROL NUMBER

TBD

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**REPORT NO.: 104206403CHI-009**

**REPORT DATE: January 24, 2020**

**TEST REPORT**

**TEST OF ONE NYRA 60 LINEAR SUSPENSION**

MODEL NO. 700LSNYR60\*\*-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 700LSNYR60\*\*-LED930. The sample was received by Intertek on January 10, 2020 in undamaged condition and one sample was tested as received. The sample designation was AH01102020125804-009.

**DATE OF TESTS**

January 16, 2020 through January 21, 2020.

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**SUMMARY**

<b>MODEL NO:</b>	700LSNYR60***-LED930
<b>DESCRIPTION:</b>	Nyra 60 Linear Suspension

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	6313.2	6126.3
Input Power (W) @ 120 (VAC)	78.98	78.48
Lumen Efficacy (lm/W)	79.9	78.1
Input Power Factor ( ) @ 120 (VAC)	0.998	0.998

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	2.75
Correlated Color Temperature (K)	2926
Color Rendering Index - Ra	93.6
Color Rendering - R9	64.9
DUV	-0.0008
Chromaticity Coordinate (x)	0.441
Chromaticity Coordinate (y)	0.403
Chromaticity Coordinate (u')	0.254
Chromaticity Coordinate (v')	0.522

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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

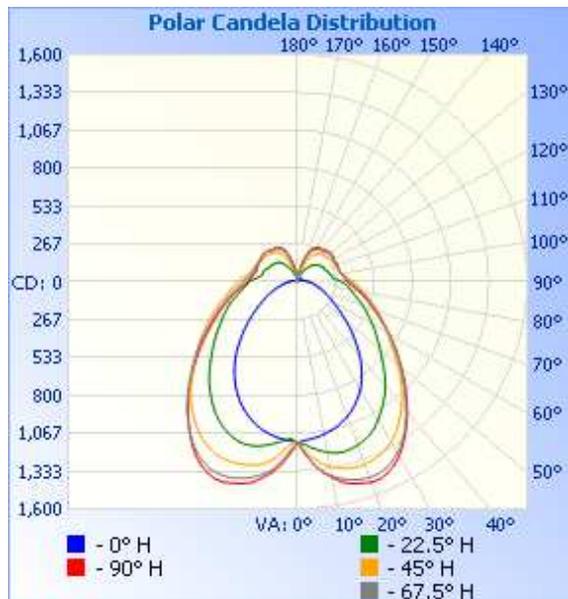
RESULTS OF TESTS

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)
AH01102020125804-009	Base Up	120.1	655.3	78.48	0.998	6126.3	78.1

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	1133	1133	1133	1133	1133
5	1110	1174	1244	1289	1288
10	1087	1219	1323	1389	1400
15	1055	1240	1359	1443	1470
20	1010	1223	1368	1466	1503
25	950	1189	1349	1450	1485
30	874	1122	1304	1391	1415
35	781	1041	1226	1296	1309
40	672	952	1130	1177	1189
45	559	849	1026	1054	1065
50	452	753	911	939	946
55	359	674	807	834	836
60	289	604	726	740	734
65	234	538	655	654	644
70	190	483	590	580	569
75	155	428	527	516	503
80	125	385	477	460	444
85	102	352	434	411	390
90	80	311	392	372	352
95	63	258	344	337	329
100	52	239	312	314	311
105	44	230	301	302	300
110	38	221	293	299	301
115	33	207	287	296	301
120	29	206	288	292	299
125	26	195	283	302	301
130	22	186	267	300	306
135	20	170	262	294	304
140	18	150	257	281	290
145	16	124	240	283	286
150	13	101	220	266	282
155	11	72	183	242	260
160	9	45	132	199	224
165	9	37	91	133	149
170	9	17	40	67	79
175	8	6	16	26	25
180	5	5	5	5	5



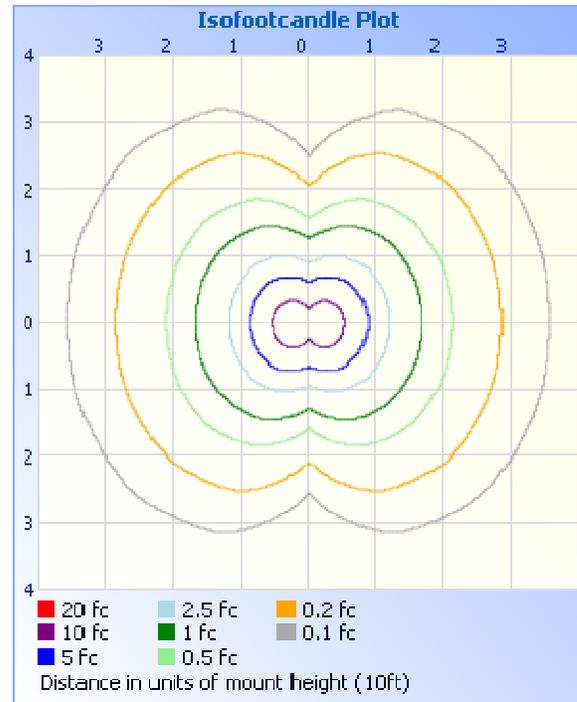
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**RESULTS OF TESTS**

**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	1086.2	17.7
0-40	1806.4	29.5
0-60	3201.6	52.3
60-90	1465.2	23.9
70-100	1209.2	19.7
90-120	840.6	13.7
0-90	4666.7	76.2
90-180	1459.5	23.8
0-180	6126.3	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	118.0	1.9
10-20	372.2	6.1
20-30	596.0	9.7
30-40	720.2	11.8
40-50	729.4	11.9
50-60	665.8	10.9
60-70	578.9	9.4
70-80	486.2	7.9
80-90	400.1	6.5
90-100	322.9	5.3
100-110	273.5	4.5
110-120	244.2	4.0
120-130	214.7	3.5
130-140	175.2	2.9
140-150	127.7	2.1
150-160	74.2	1.2
160-170	24.6	0.4
170-180	2.5	0.0

TEST REPORT

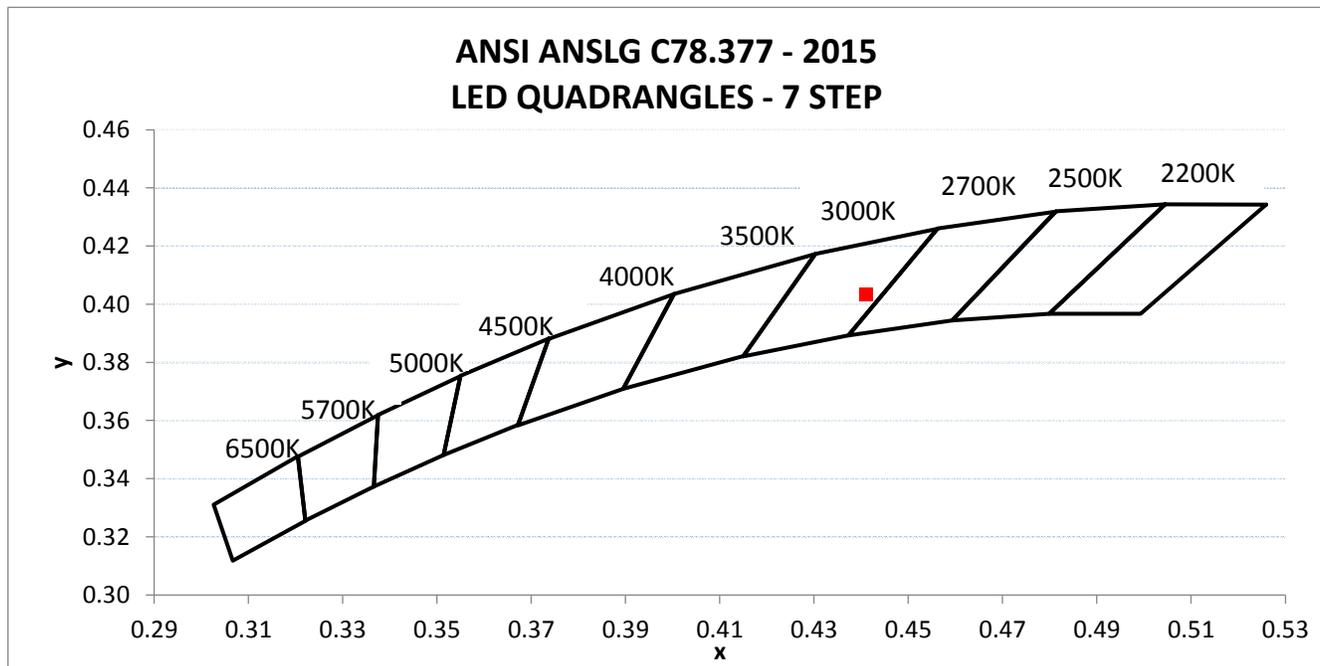
RESULTS OF TESTS

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 (%)
AH01102020125804-009	Base Up	120.05	659.40	78.98	0.998	2.75

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
6313.2	79.9	2926	93.6	64.9	-0.0008

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.441	0.403	0.254	0.522



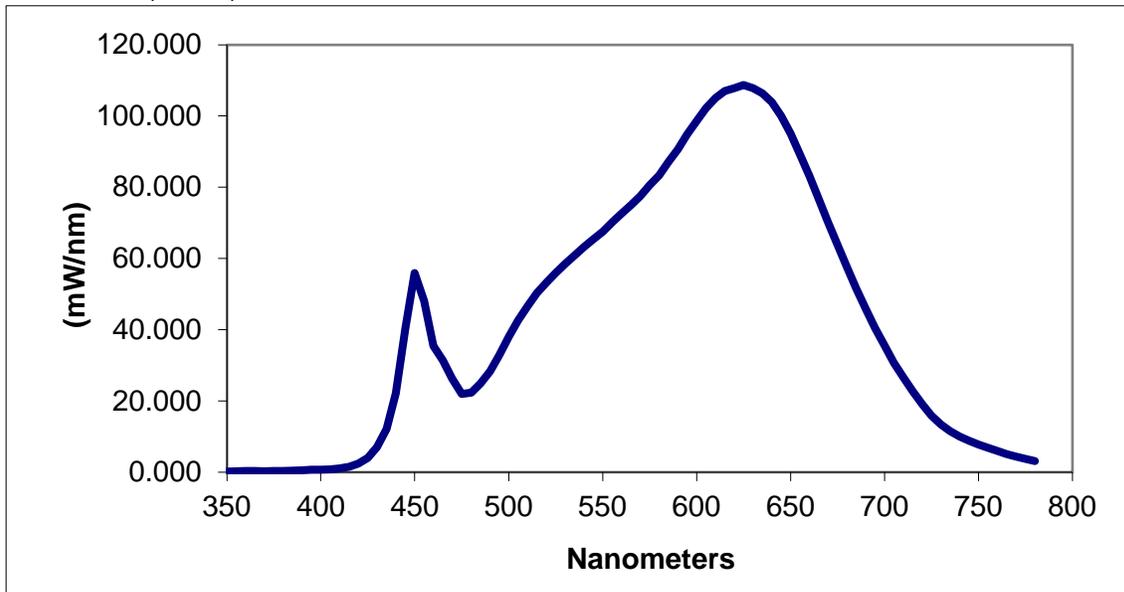
**TEST REPORT**

**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	0.227	460	35.451	570	77.484	680	57.488
355	0.269	465	31.346	575	80.527	685	51.557
360	0.348	470	26.219	580	83.311	690	45.812
365	0.342	475	21.975	585	87.018	695	40.485
370	0.235	480	22.325	590	90.619	700	35.496
375	0.339	485	24.878	595	94.821	705	30.742
380	0.322	490	28.292	600	98.589	710	26.624
385	0.458	495	32.878	605	102.162	715	22.746
390	0.522	500	38.065	610	104.970	720	19.072
395	0.673	505	42.557	615	106.979	725	15.904
400	0.745	510	46.582	620	107.798	730	13.358
405	0.835	515	50.293	625	108.723	735	11.499
410	1.090	520	53.212	630	107.812	740	10.020
415	1.521	525	55.863	635	106.335	745	8.861
420	2.399	530	58.474	640	103.857	750	7.789
425	4.029	535	60.779	645	100.002	755	6.884
430	7.052	540	63.196	650	94.976	760	5.952
435	12.122	545	65.399	655	89.243	765	5.113
440	22.104	550	67.524	660	83.114	770	4.359
445	40.337	555	70.066	665	76.727	775	3.716
450	55.866	560	72.548	670	69.974	780	3.138
455	48.064	565	74.885	675	63.873		

\*Without correction of sample absorption.

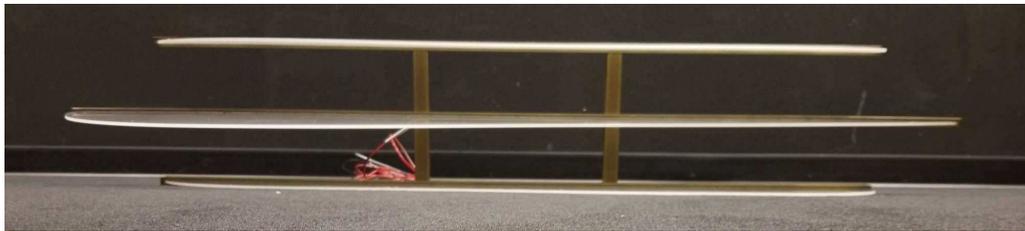


**End Of Test Results**

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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:

*Ian Smith*

Ian Smith  
Engineer  
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				