

# VISUAL COMFORT AND COMPANY TEST REPORT

## SCOPE OF WORK

LED Performance Testing

## MODEL NUMBER

700LSSTG260NB-LED927

## PROJECT NUMBER

G105265097

## REPORT NUMBER

105265097CHI-019

## ISSUE DATE

1/6/2022

## REVISED DATE

None

## TEST DATES

12/13/2022 through 01/16/2023.

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

105265097CHI-019

**MODEL NUMBER(s)**

700LSSTG260NB-LED927

**REPORT RENDERED TO:**

VISUAL COMFORT AND COMPANY  
7400 LINDER AVE  
SKOKIE, IL 60077  
USA

**STATEMENT OF LIMITATION**

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-01297671-0.

**TEST STANDARDS**

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI/IES LM-79-19 Optical and Electrical Measurements of Solid-State Lighting Products

In Charge of Testing:



Tim Quigley  
Project Engineer  
Lighting Division

Reviewer:



Jeff Davis  
N.A Technical Lead  
Lighting Division

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**SAMPLE INFORMATION**

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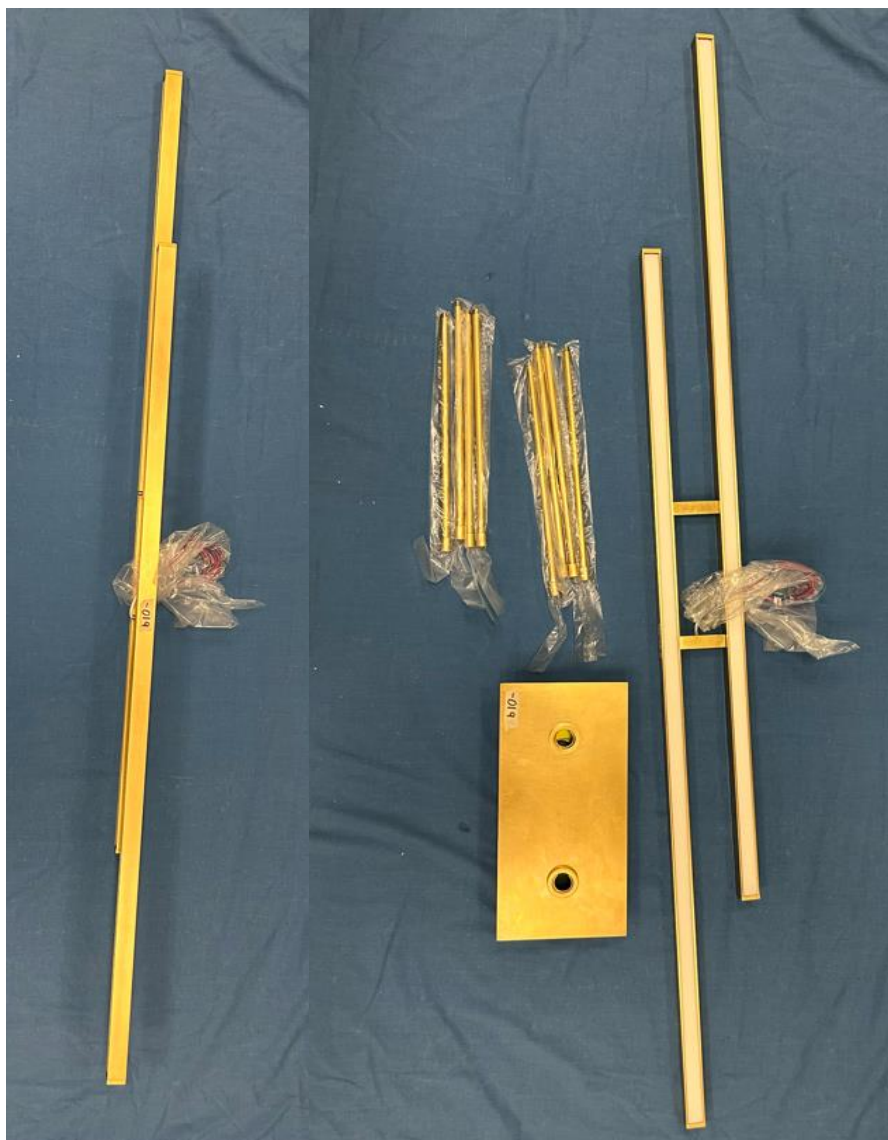
**ITEMS RECEIVED**

Item No.	Control No.	Model No.	Description	Type	Received
1	AH11232022041052-019	700LSSTG260NB-LED927	Stagger 2 60 Linear Suspension	Production	11/23/2022

**TESTED SAMPLE CONFIGURATIONS**

Config No.	Tested Model No.	Item Nos. Utilized
1	700LSSTG260NB-LED927	1

**SAMPLE PHOTOS - TESTED CONFIGURATIONS**



## SUMMARY

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### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700LSSTG260NB-LED927
Product Description:	Stagger 2 60 Linear Suspension
LED Model No.:	WW-FLS102T23WW240B-24(WCP)-UR-3S/WW-FLS102T23WW120B-24(WCP)-UR-3S(PAM12)
Driver Model No.:	MDR-608-24-60-LD
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	2961.2	2993.8
Input Power (W) @ 120VAC (Vac)	62.24	62.32
Lumen Efficacy (lm/W)	47.6	48.0
Input Power Factor () @ 120VAC (Vac)	0.995	0.995

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	7.52
Correlated Color Temperature (K)	2569
Color Rendering Index - Ra ()	93.7
Color Rendering Index - R9 ()	69.4
Duv ()	-0.0004
Chromaticity Coordinate (x)	0.470
Chromaticity Coordinate (y)	0.411
Chromaticity Coordinate (u')	0.269
Chromaticity Coordinate (v')	0.529

### TEST METHODS

#### SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with IESNA LM-79.

#### INTEGRATING SPHERE TESTING

A spectroradiometer and integrating sphere were used to measure the spectral distribution for each EUT resulting in photometric and colorimetric data. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position inside the sphere and stabilization procedures to LM-79 were followed.

#### TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the EUT. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position near the EUT at equal height and stabilization procedures to LM-79 were followed.

**TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING**

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700LSSTG260NB-LED927	NA

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

Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up/Down	120.06	521.2	62.24	0.995

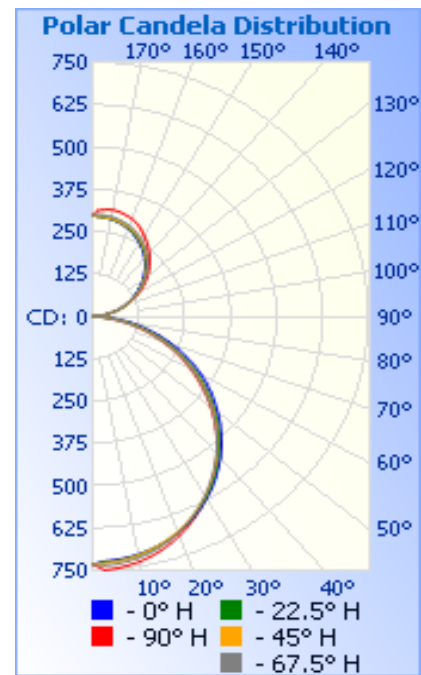
Light Output (lm)	Lumen Efficacy (lm/W)
2961.2	47.6

**INTENSITY SUMMARY - CANDELA**

Angle	0	22.5	45	67.5	90
0	728	728	728	728	728
5	718	721	723	731	743
10	710	712	712	720	732
15	696	697	696	702	713
20	676	675	673	677	686
25	649	648	644	645	653
30	618	614	609	608	615
35	580	574	569	567	572
40	538	530	524	521	524
45	492	482	476	473	472
50	442	431	425	421	418
55	391	377	370	366	362
60	338	322	313	310	305
65	279	264	256	251	247
70	220	206	197	191	189
75	161	148	139	133	130
80	102	91	82	75	72
85	46	35	26	21	19
90	2	1	1	2	2
95	19	20	17	15	16
100	42	45	43	41	42
105	66	71	68	68	70
110	89	94	93	92	96
115	113	117	117	118	122
120	136	140	142	142	148
125	158	162	164	166	173
130	180	185	186	189	196
135	200	205	207	210	217
140	219	223	226	230	238
145	236	239	243	247	258
150	251	254	257	262	277
155	264	267	270	275	294
160	275	277	279	284	306
165	284	285	287	292	313
170	290	290	291	297	318
175	293	293	294	299	314
180	297	297	297	297	297

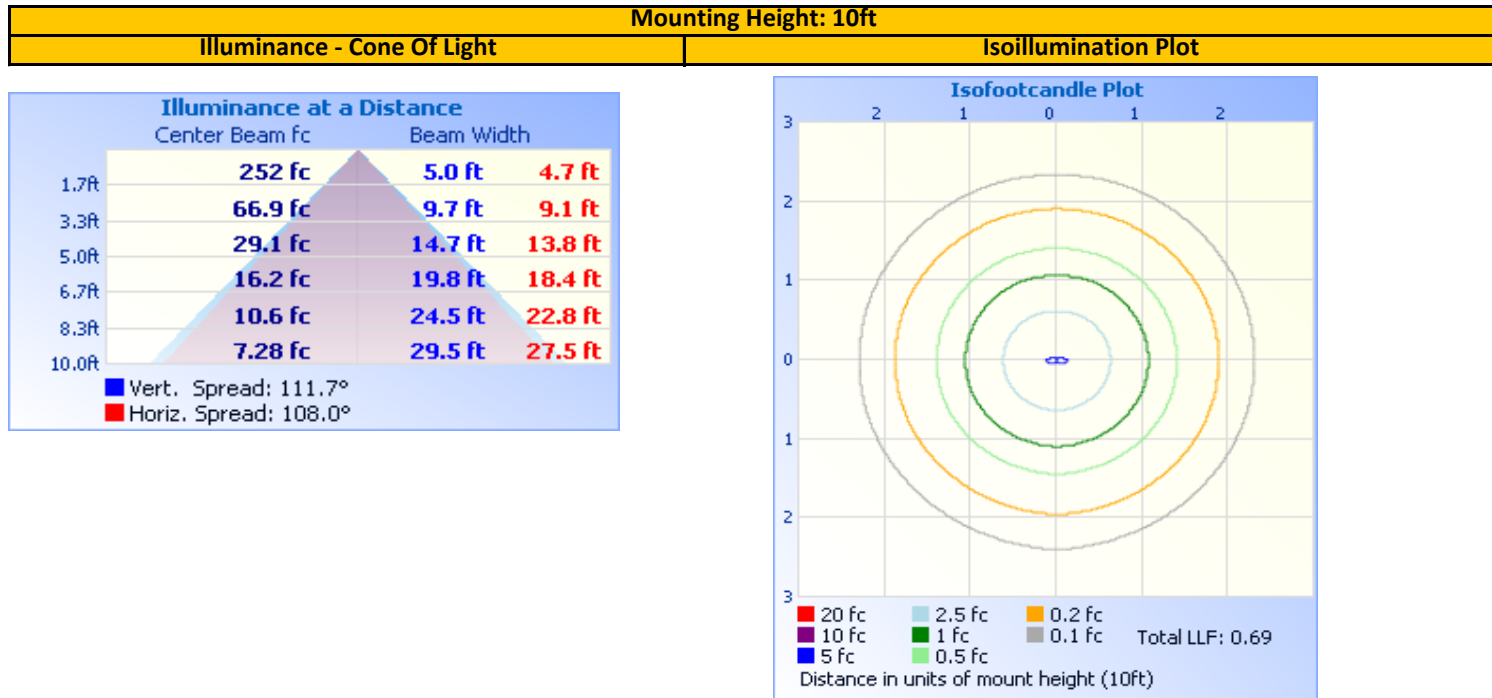
Entire luminous intensity matrix found in .IES file

**Polar Candela Plot**



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	563.4	19.0%	0-10	69.0	2.3%
0-40	919.9	31.1%	10-20	197.1	6.7%
0-60	1,619.2	54.7%	20-30	297.3	10.0%
60-90	438.2	14.8%	30-40	356.5	12.0%
70-100	205.2	6.9%	40-50	367.7	12.4%
90-120	208.9	7.1%	50-60	331.6	11.2%
0-90	2,057.4	69.5%	60-70	254.2	8.6%
90-180	903.8	30.5%	70-80	147.9	5.0%
0-180	2,961.2	100.0%	80-90	36.1	1.2%
			90-100	21.2	0.7%
			100-110	71.9	2.4%
			110-120	115.8	3.9%
			120-130	146.8	5.0%
			130-140	159.8	5.4%
			140-150	152.5	5.1%
			150-160	125.5	4.2%
			160-170	82.0	2.8%
			170-180	28.3	1.0%

**INTEGRATING SPHERE TESTING**

**REPORT NO. 105265097CHI-019**

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700LSSTG260NB-LED927	NA

PHOTOMETRIC, COLORIMETRIC, AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

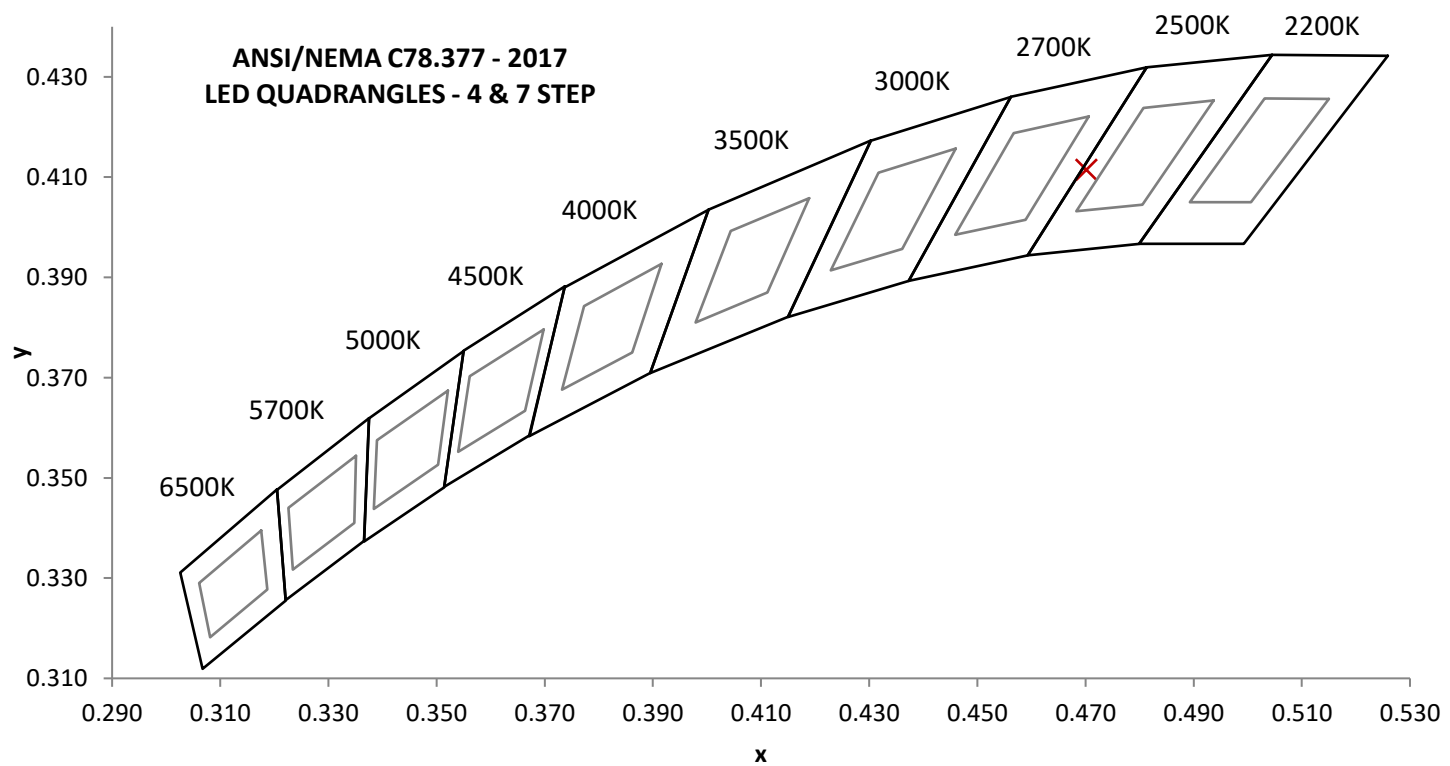
Base Orientation
Up/Down

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.00	521.9	62.32	0.995	7.52

**Measured at 120(Vac)**

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
2993.8	48.0	2569	93.7	69.4

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0004	0.470	0.411	0.269	0.529

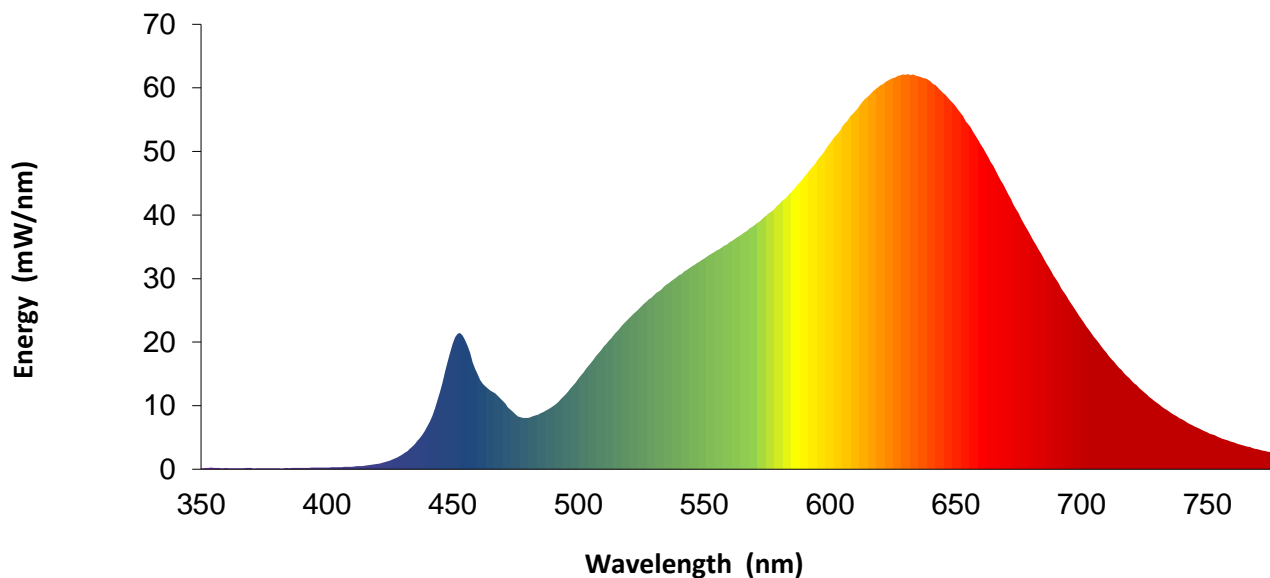


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	14.9		570	38.4		680	36.6
355	0.2		465	12.4		575	40.0		685	33.2
360	0.2		470	10.7		580	41.8		690	29.8
365	0.2		475	8.7		585	43.8		695	26.6
370	0.2		480	8.1		590	46.2		700	23.6
375	0.2		485	8.8		595	48.7		705	20.8
380	0.2		490	9.9		600	51.3		710	18.3
385	0.2		495	11.8		605	54.0		715	16.0
390	0.2		500	14.3		610	56.3		720	13.9
395	0.2		505	16.7		615	58.6		725	12.1
400	0.3		510	19.3		620	60.4		730	10.5
405	0.3		515	21.5		625	61.5		735	9.0
410	0.4		520	23.7		630	62.1		740	7.8
415	0.6		525	25.6		635	61.8		745	6.7
420	0.8		530	27.4		640	61.0		750	5.8
425	1.4		535	29.0		645	59.2		755	5.0
430	2.3		540	30.5		650	57.1		760	4.3
435	3.9		545	31.9		655	54.3		765	3.7
440	6.8		550	33.1		660	51.1		770	3.2
445	12.2		555	34.4		665	47.8		775	2.7
450	19.7		560	35.7		670	44.0		780	2.3
455	20.3		565	37.0		675	40.3		---	---

Without correction of sample absorption.



Portrayed color in graphic is estimated by wavelength (nm) and may not be exact - it is a visual representation only



## EQUIPMENT LIST

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#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Yokogawa Power Meter	WT310E	CHI0664	3/30/2022	3/30/2023
2	Omega Thermometer	DPI8-C24	146920	10/4/2022	10/4/2023
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	CHI0452	2/3/2022	2/3/2023
5	Chroma Power Supply	61604	CHI0371	VBU	VBU
8	Newport Humidity Recorder	iServer	146379	5/11/2022	5/11/2023
9	Labsphere Spectroradiometer	CDS2600	CHI0539	VBU	VBU
10	3 Meter Sphere	SPR600	CHI0088	VBU	VBU
11	Elgar AC Power Supply	CW1251	146112	VBU	VBU
12	Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
13	Yokogawa Power Meter	WT1600	146769	4/5/2022	4/5/2023
17	Omega thermometer	USB TC08	EQA002615	4/5/2022	4/5/2023
26	Xitron Power Analyzer	XT-2640	CHI0611	7/6/2022	7/6/2023

Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

## REVISION HISTORY

#	Revision Date	Updated By	Reviewed By	Description of Change
---	None	---	---	---
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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700LSSTG260NB-LED927	NA

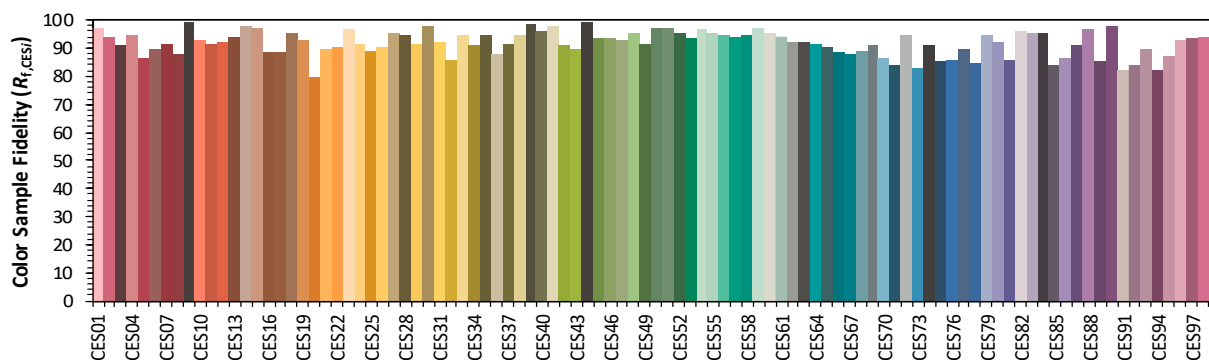
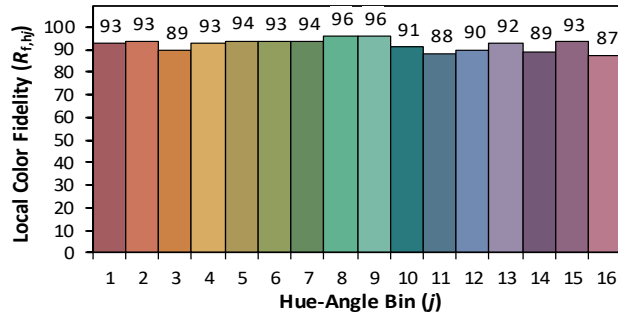
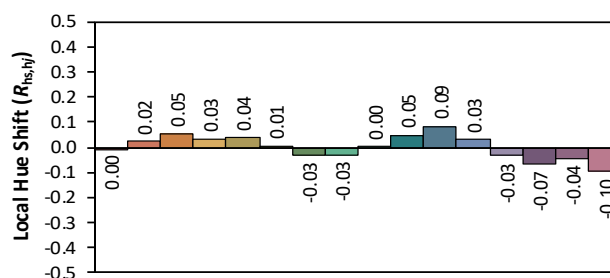
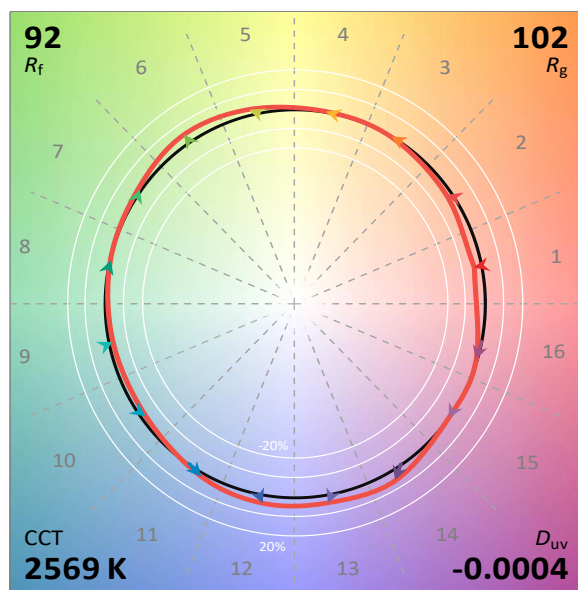
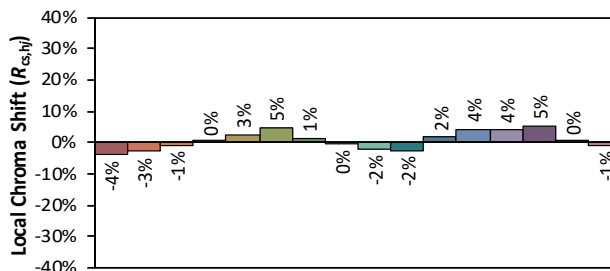
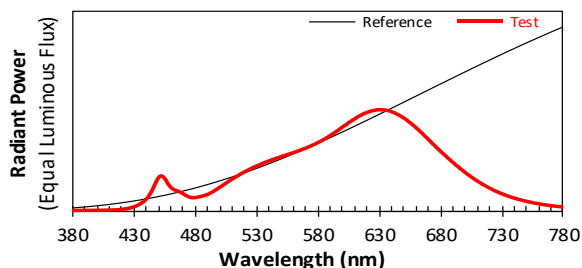
## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 12/13/2022

Model: 700LSSTG260NB-LED927



**Notes:** This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4701

y 0.4115

 $u'$  0.2688 $v'$  0.5292CIE 13.3-1995  
(CRI) $R_a$  94 $R_g$  70