

VISUAL COMFORT & COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700NYR28B-LED930

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-038

ISSUE DATE

10/27/2020

REVISED DATE

None

TEST DATES

10/19/2020 through 10/27/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-038

MODEL NUMBER(s)

700NYR28B-LED930

REPORT RENDERED TO:

VISUAL COMFORT & 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-01080748-3.

TEST STANDARDS

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

ANSI NEMA ANSLG C78.377: 2017: Specifications for the Chromaticity of Solid State Lighting (SSL) Products

In Charge of Testing:



Ian Smith
Engineer
Lighting Division

Reviewer:



Jeff Davis
NA Technical Lead
Lighting Division

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SAMPLE INFORMATION

REPORT NO. 104349704CHI-038

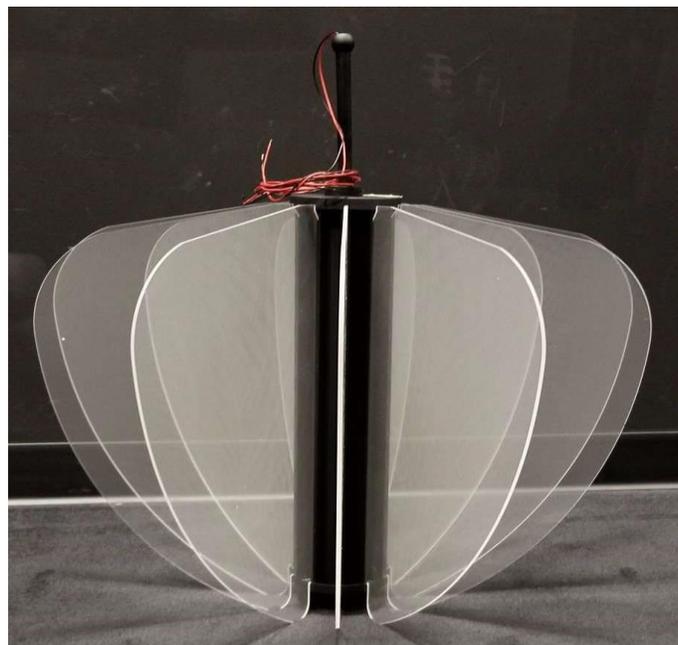
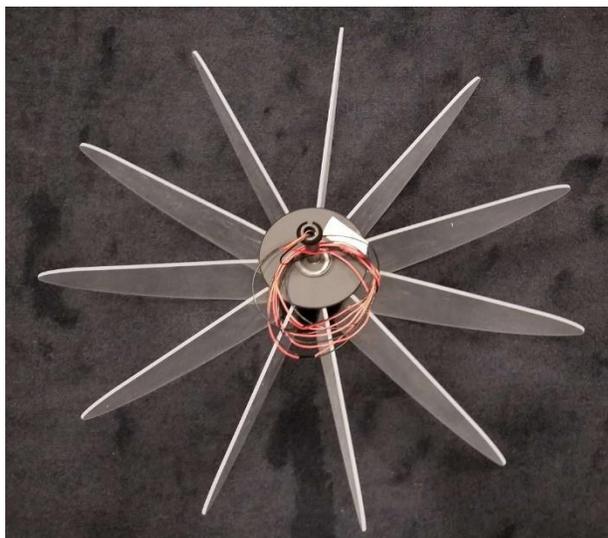
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH10142020032432	700NYR28B-LED930	NYRA 28 CHANDELIER	Production	10/14/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700NYR28B-LED930	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700NYR28B-LED930
Product Description:	NYRA 28 CHANDELIER
LED Model No.:	SAMSUN SPWMH1228FD5WWS2
Driver Model No.:	Macron GBLD001
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	6647.4	6982.4
Input Power (W) @ 120VAC (Vac)	75.48	75.41
Lumen Efficacy (lm/W)	88.1	92.6
Input Power Factor (I) @ 120VAC (Vac)	0.991	0.991

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	6.70
Correlated Color Temperature (K)	2993
Color Rendering Index - Ra (I)	93.4
Color Rendering Index - R9 (I)	61.5
Duv (I)	-0.0020
Chromaticity Coordinate (x)	0.435
Chromaticity Coordinate (y)	0.398
Chromaticity Coordinate (u')	0.252
Chromaticity Coordinate (v')	0.519

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

REPORT NO. 104349704CHI-038

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700NYR28B-LED930	NA

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

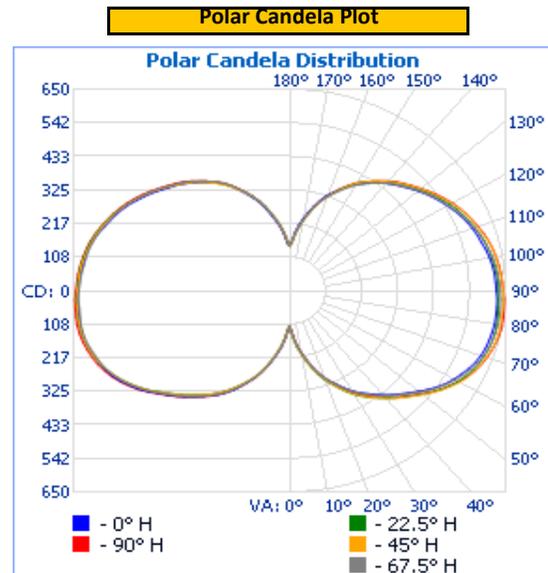
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Horizontal	120.0	634.5	75.48	0.991

Light Output (lm)	Lumen Efficacy (lm/W)
6647.4	88.1

INTENSITY SUMMARY - CANDELA

Angle	0	22.5	45	67.5	90
0	114	114	114	114	114
5	157	164	161	159	156
10	205	210	208	205	203
15	251	260	257	251	251
20	297	305	302	296	298
25	334	346	344	335	338
30	374	386	385	374	380
35	406	420	420	408	415
40	440	453	454	441	449
45	472	486	487	474	483
50	506	520	522	509	518
55	542	556	558	545	556
60	572	586	591	576	588
65	595	608	614	602	614
70	613	622	630	621	632
75	621	631	642	631	644
80	626	634	645	637	649
85	626	631	644	637	648
90	622	629	643	634	643
95	619	626	638	630	638
100	611	618	630	621	631
105	598	609	619	607	620
110	586	593	602	592	604
115	569	577	585	573	586
120	548	557	564	550	565
125	526	534	538	528	541
130	502	509	512	503	514
135	476	485	487	478	488
140	452	458	459	452	462
145	424	430	431	423	431
150	396	400	400	392	401
155	361	360	361	355	363
160	326	320	320	319	324
165	283	276	275	276	279
170	236	228	229	229	232
175	188	181	181	182	184
180	143	143	143	143	143

Entire luminous intensity matrix found in .IES file



ILLUMINANCE SUMMARY

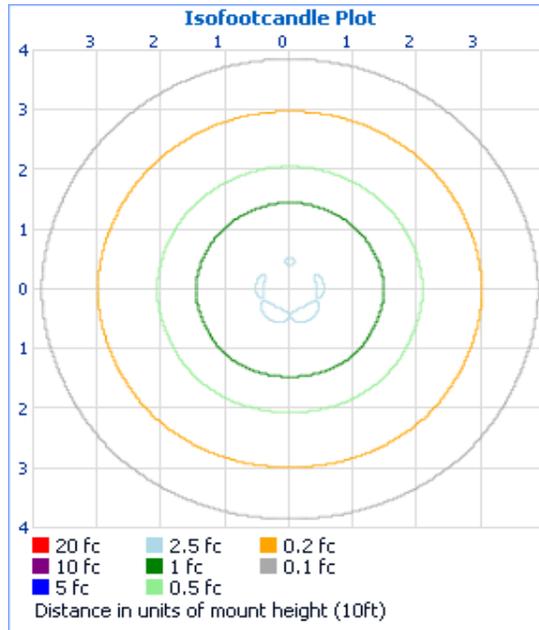
Mounting Height: 10ft

Illuminance - Cone Of Light Isoillumination Plot

Illuminance at a Distance

	Center Beam fc	Beam Width	
1.7ft	39.3 fc	3.4 ft	1.8 ft
3.3ft	10.4 fc	6.6 ft	3.6 ft
5.0ft	4.54 fc	10.0 ft	5.4 ft
6.7ft	2.53 fc	13.4 ft	7.2 ft
8.3ft	1.65 fc	16.6 ft	9.0 ft
10.0ft	1.14 fc	20.0 ft	10.8 ft

■ Vert. Spread: 90.0°
■ Horiz. Spread: 56.7°



ZONAL LUMENS

Zonal Lumen Summary

Zone	Lumens	Luminaire
0-30	246.8	3.7%
0-40	506.8	7.6%
0-60	1,373.2	20.7%
60-90	1,969.8	29.6%
70-100	2,056.9	30.9%
90-120	1,912.5	28.8%
0-90	3,343.0	50.3%
90-180	3,304.4	49.7%
0-180	6,647.4	100.0%

Zone	Lumens	Total	Zone	Lumens	Total
0-10	16.5	0.2%	90-100	688.8	10.4%
10-20	72.7	1.1%	100-110	648.2	9.8%
20-30	157.6	2.4%	110-120	575.5	8.7%
30-40	260.1	3.9%	120-130	480.1	7.2%
40-50	372.2	5.6%	130-140	374.9	5.6%
50-60	494.1	7.4%	140-150	269.7	4.1%
60-70	601.7	9.1%	150-160	167.9	2.5%
70-80	671.1	10.1%	160-170	80.1	1.2%
80-90	697.1	10.5%	170-180	19.2	0.3%

INTEGRATING SPHERE TESTING

REPORT NO. 104349704CHI-038

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700NYR28B-LED930	NA

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

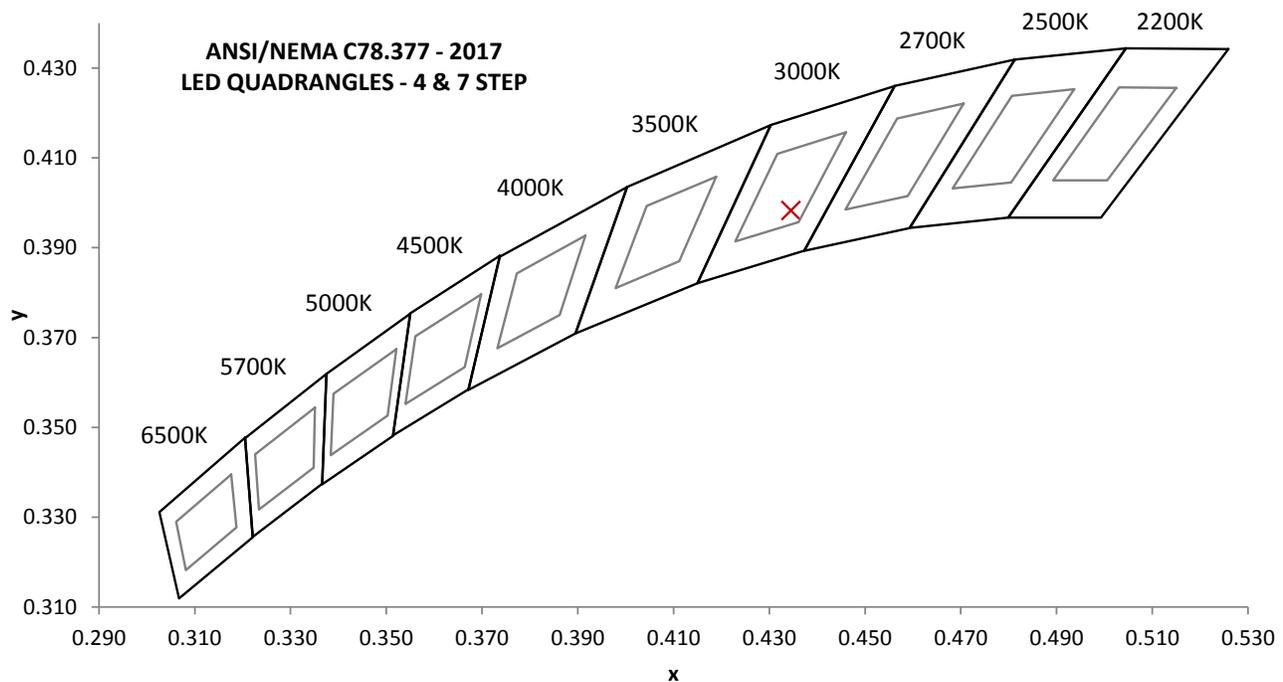
Base Orientation
Horizontal

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.00	634.4	75.41	0.991	6.70

Measured at 120(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
6982.4	92.6	2993	93.4	61.5

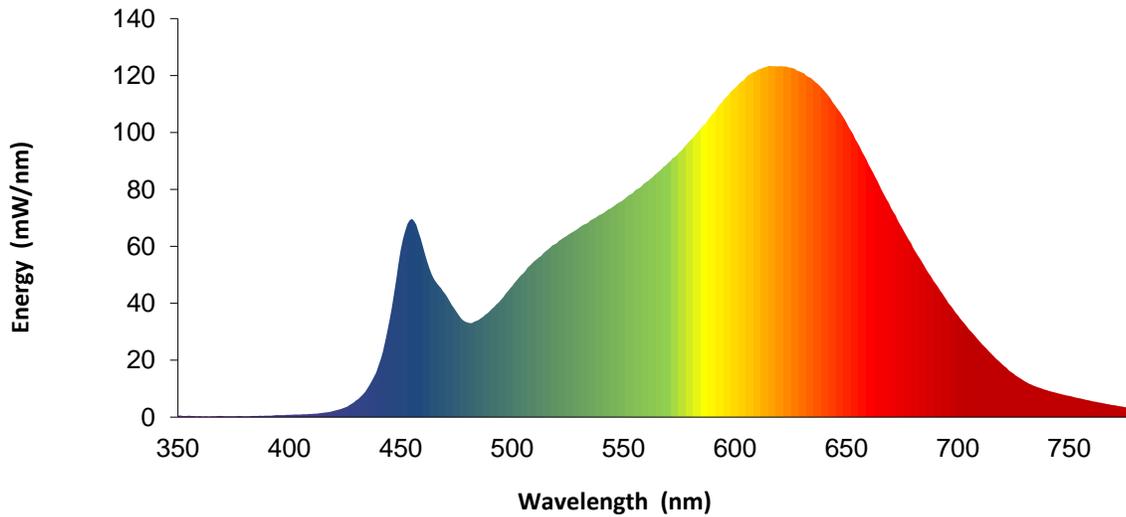
Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0020	0.435	0.398	0.252	0.519



SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.4	460	59.8	570	89.3	680	59.5
355	0.5	465	48.5	575	93.0	685	53.0
360	0.4	470	43.2	580	97.2	690	47.0
365	0.3	475	37.0	585	101.9	695	41.2
370	0.4	480	33.2	590	106.6	700	35.9
375	0.3	485	34.2	595	111.5	705	30.9
380	0.3	490	37.3	600	115.6	710	26.5
385	0.4	495	41.2	605	119.4	715	22.3
390	0.5	500	46.0	610	121.9	720	18.5
395	0.7	505	50.6	615	123.4	725	15.3
400	0.8	510	54.8	620	123.3	730	12.6
405	0.9	515	58.2	625	122.8	735	10.8
410	1.1	520	61.1	630	121.1	740	9.5
415	1.5	525	64.0	635	118.5	745	8.4
420	2.2	530	66.4	640	114.7	750	7.4
425	3.4	535	69.0	645	109.6	755	6.6
430	5.9	540	71.3	650	103.5	760	5.7
435	10.0	545	73.8	655	96.4	765	4.9
440	18.2	550	76.3	660	88.8	770	4.2
445	34.2	555	79.5	665	81.3	775	3.5
450	58.6	560	82.5	670	73.5	780	3.0
455	69.6	565	85.6	675	66.6	---	---

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

REPORT NO. 104349704CHI-038

#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Yokogawa Power Meter	WT210	146919	7/1/2020	7/1/2021
2	Omega Thermometer	DPI8-C24	146920	10/1/2020	10/1/2021
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
5	Pacific AC Power Supply	118-ACX	CHI0153	VBU	VBU
6	Sorenson DC Power Supply	XHR 150-7	146922	VBU	VBU
7	Multi Channel Spectroradiometer	OL770	CHI0092	VBU	VBU
8	Newport Humidity Recorder	iServer	146961	9/3/2020	9/3/2021
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	4/6/2020	4/6/2021
14	Extech K Temperature Meter	421502	CHI0476	10/1/2020	10/1/2021
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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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ANNEX A - TM-30 CALCULATIONS

REPORT NO. 104349704CHI-038

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700NYR28B-LED930	NA

TM-30 REPORT

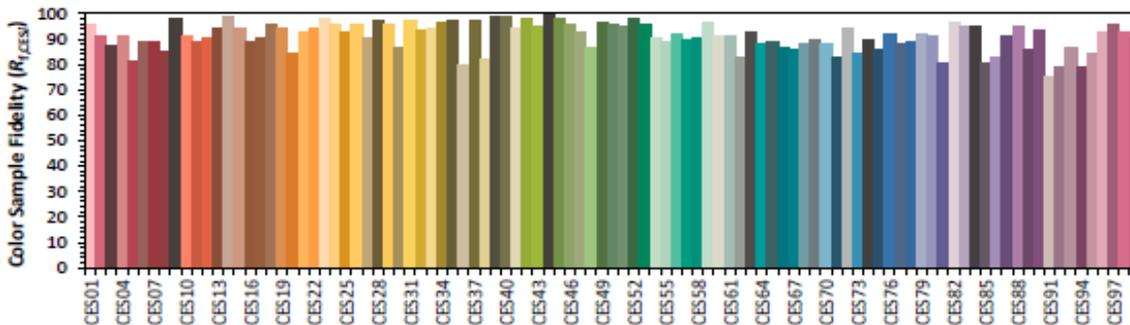
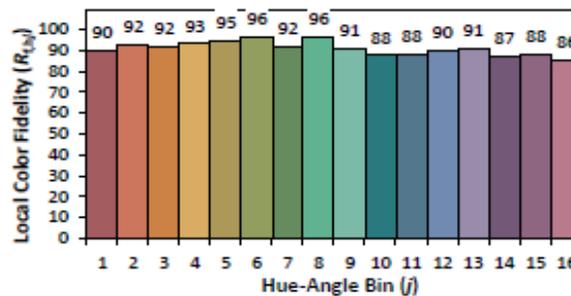
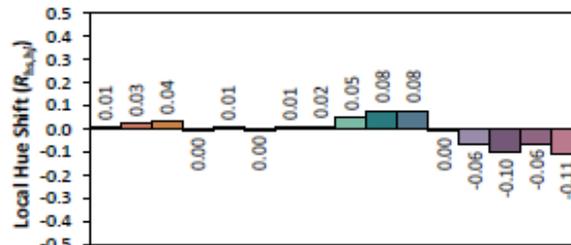
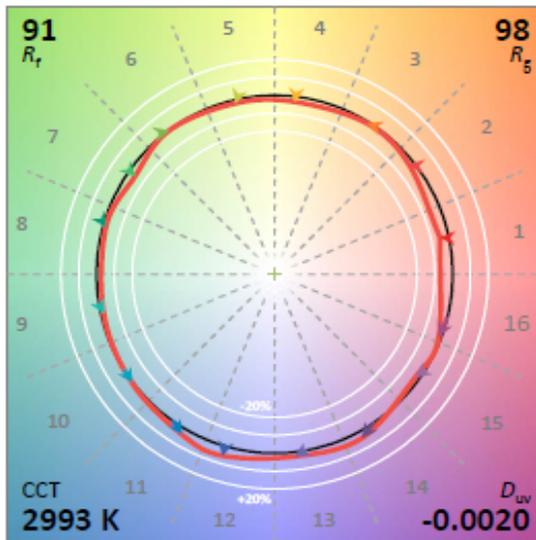
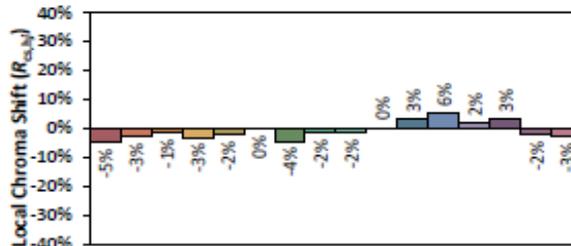
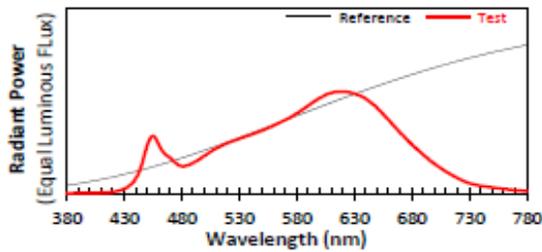
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Date: 10/17/2020

Manufacturer: Generation Brands, LLC

Model: 700NYR28B-LED930



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

x 0.4346
 y 0.3983
 u' 0.2515
 v' 0.5187

Colors are for visual orientation purposes only. Created with the IES TM-30-18 Calculator Version 2.00.