

# VISUAL COMFORT AND COMPANY TEST REPORT

## SCOPE OF WORK

LED Performance Testing

## MODEL NUMBER

ENCY3RS-L19835WW-UNV

## PROJECT NUMBER

G104815936

## REPORT NUMBER

104815936CHI-002

## ISSUE DATE

9/16/2021

## REVISED DATE

None

## TEST DATES

09/15/2021.

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

104815936CHI-002

**MODEL NUMBER(s)**

ENCY3RS-L19835WW-UNV

**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-01166088-0.

**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

IES TM-30-18: IES Method for Evaluating Light Source Color Rendition

In Charge of Testing:



Xin Hui  
Engineering Team Lead  
Lighting Division

Reviewer:



Jeff Davis  
NA 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	AH09132021051515-003	Bridgelux® Gen 8 V10 Array Series	LED	Production	9/13/2021
2	AH09132021051515-002	ESS030W-0500-42	Driver	Production	9/13/2021

**TESTED SAMPLE CONFIGURATIONS**

Config No.	Tested Model No.	Item Nos. Utilized
1	ENCY3RS-L19835WW-UNV	1 & 2

**SAMPLE PHOTOS - TESTED CONFIGURATIONS**



## SUMMARY

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### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ENCY3RS-L19835WW-UNV
Product Description:	19W 3500K 80 CRI Wall Wash
LED Model No.:	Bridgelux® Gen 8 V10 Array Series
Driver Model No.:	ESS030W-0500-42
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	1293.8	1274.6
Input Power (W) @ 120VAC (Vac)	18.25	18.25
Lumen Efficacy (lm/W)	70.9	69.9
Input Power Factor ( ) @ 120VAC (Vac)	0.981	0.986

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	14.37
Correlated Color Temperature (K)	3519
Color Rendering Index - Ra ( )	81.4
Color Rendering Index - R9 ( )	6.7
Duv ( )	-0.0001
Chromaticity Coordinate (x)	0.404
Chromaticity Coordinate (y)	0.390
Chromaticity Coordinate (u')	0.235
Chromaticity Coordinate (v')	0.511

## 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. 104815936CHI-002**

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ENCY3RS-L19835WW-UNV	NA

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

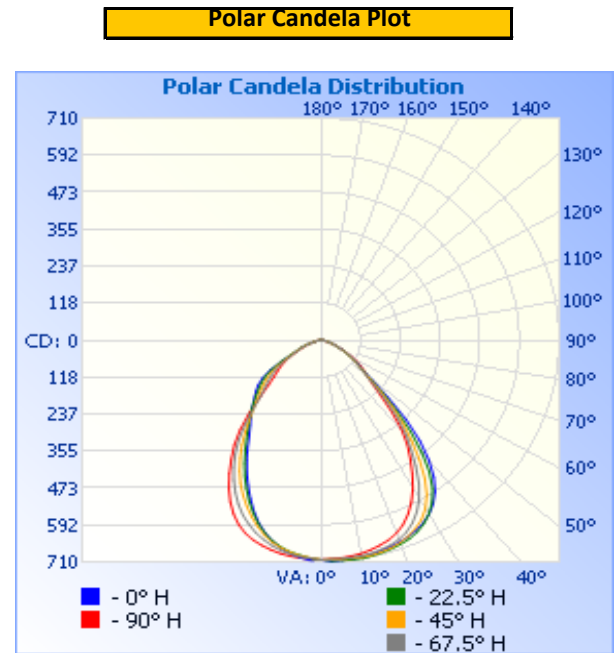
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	120.01	155.0	18.25	0.981

Light Output (lm)	Lumen Efficacy (lm/W)
1293.8	70.9

**INTENSITY SUMMARY - CANDELA**

Angle	0	22.5	45	67.5	90
0	702	702	702	702	702
5	707	707	703	702	700
10	705	709	704	701	693
15	697	704	701	693	679
20	687	694	689	678	657
25	671	678	665	645	614
30	644	643	622	586	548
35	592	579	540	493	465
40	499	467	420	394	374
45	358	320	302	278	254
50	200	192	187	176	182
55	136	133	131	132	145
60	102	99	99	98	106
65	67	64	66	66	68
70	43	40	39	40	42
75	28	26	25	23	22
80	17	15	15	13	12
85	8	7	6	6	5
90	0	0	0	0	0
95	0	0	0	0	0
100	0	0	0	0	0
105	0	0	0	0	0
110	0	0	0	0	0
115	0	0	0	0	0
120	0	0	0	0	0
125	0	0	0	0	0
130	0	0	0	0	0
135	0	0	0	0	0
140	0	0	0	0	0
145	0	0	0	0	0
150	0	0	0	0	0
155	0	0	0	0	0
160	0	0	0	0	0
165	0	0	0	0	0
170	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0

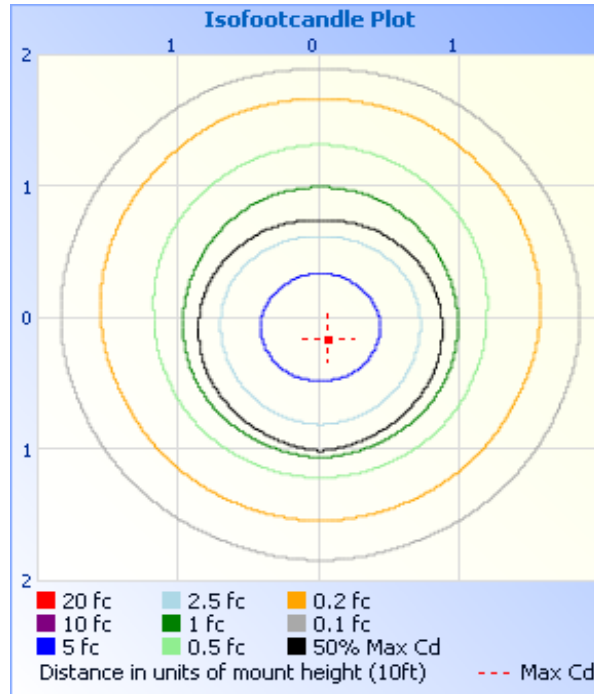
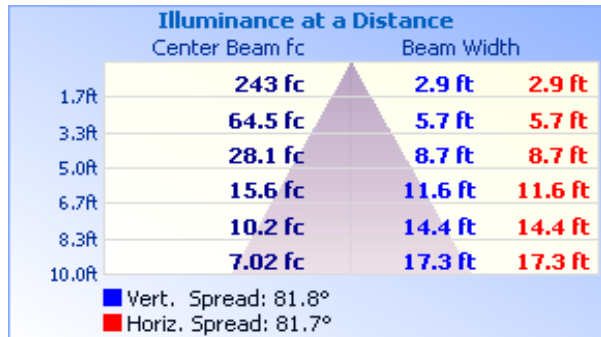
Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY

Mounting Height: 10ft	
Illuminance - Cone Of Light	Isoillumination Plot



ZONAL LUMENS

Zonal Lumen Summary					
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Zone	Lumens	Luminaire
0-30	534.0	41.3%
0-40	828.1	64.0%
0-60	1,189.6	91.9%
60-90	104.2	8.1%
70-100	32.9	2.5%
90-120	0.0	0.0%
0-90	1,293.8	100.0%
90-180	0.0	0.0%
0-180	1,293.8	100.0%

Zone	Lumens	Total	Zone	Lumens	Total
0-10	66.5	5.1%	90-100	0.0	0.0%
10-20	189.9	14.7%	100-110	0.0	0.0%
20-30	277.6	21.5%	110-120	0.0	0.0%
30-40	294.1	22.7%	120-130	0.0	0.0%
40-50	221.2	17.1%	130-140	0.0	0.0%
50-60	140.3	10.8%	140-150	0.0	0.0%
60-70	71.3	5.5%	150-160	0.0	0.0%
70-80	27.0	2.1%	160-170	0.0	0.0%
80-90	5.9	0.5%	170-180	0.0	0.0%

**INTEGRATING SPHERE TESTING**

**REPORT NO. 104815936CHI-002**

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ENCY3RS-L19835WW-UNV	NA

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

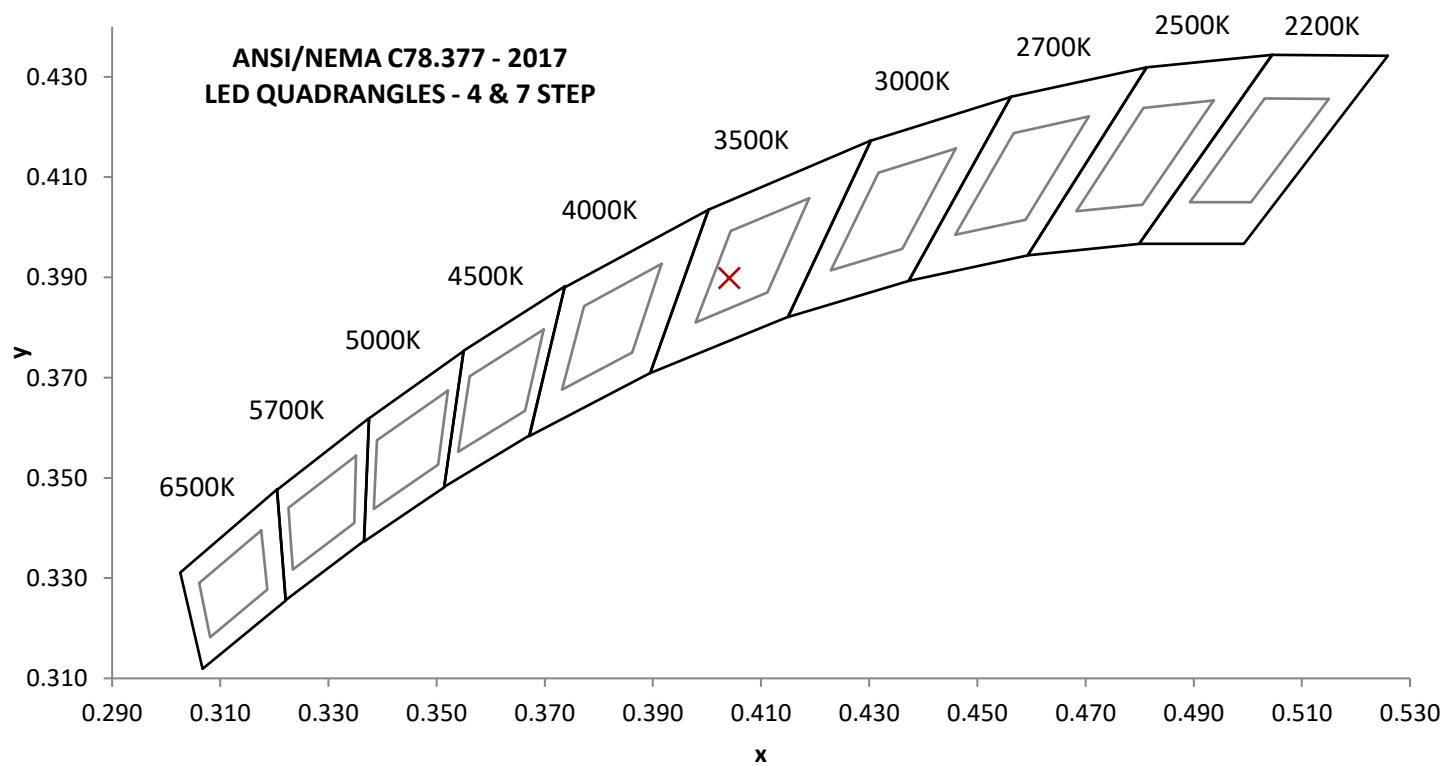
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.00	154.2	18.25	0.986	14.37

**Measured at 120(Vac)**

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
1274.6	69.9	3519	81.4	6.7

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0001	0.404	0.390	0.235	0.511

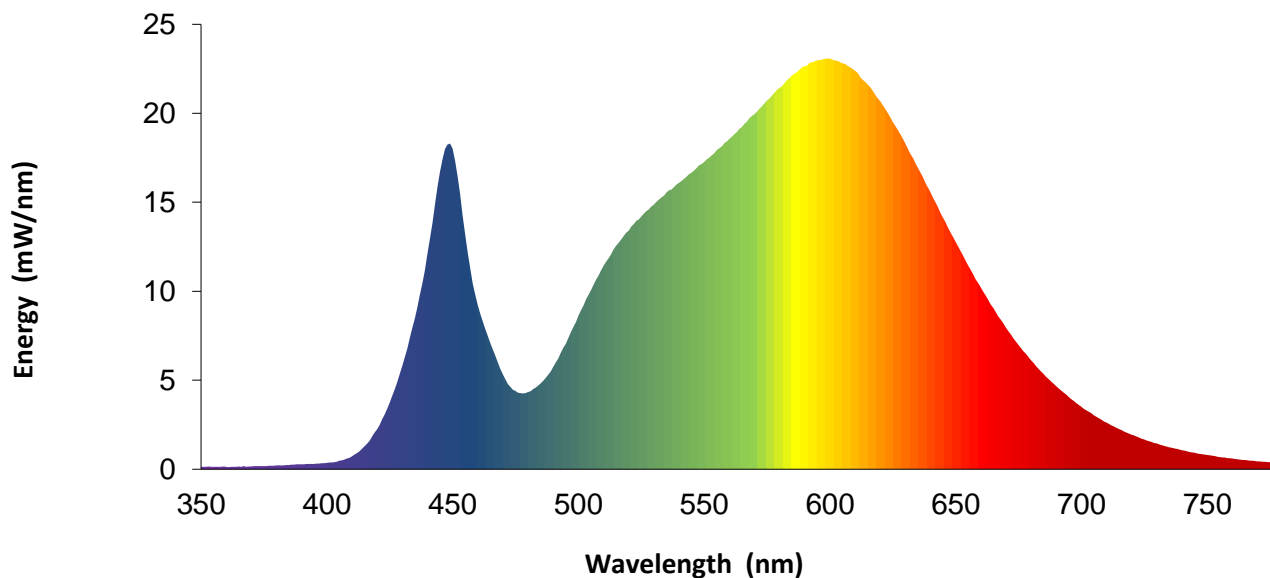


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	9.2		570	20.0		680	6.1
355	0.1		465	7.1		575	20.7		685	5.4
360	0.1		470	5.3		580	21.4		690	4.7
365	0.2		475	4.4		585	22.2		695	4.0
370	0.2		480	4.3		590	22.7		700	3.5
375	0.2		485	4.8		595	23.0		705	3.0
380	0.2		490	5.8		600	23.1		710	2.6
385	0.2		495	7.1		605	22.8		715	2.3
390	0.3		500	8.6		610	22.4		720	1.9
395	0.3		505	10.1		615	21.6		725	1.7
400	0.4		510	11.4		620	20.7		730	1.4
405	0.5		515	12.6		625	19.5		735	1.2
410	0.7		520	13.4		630	18.3		740	1.1
415	1.3		525	14.2		635	16.9		745	0.9
420	2.2		530	14.9		640	15.5		750	0.8
425	3.7		535	15.5		645	14.1		755	0.7
430	5.8		540	16.1		650	12.8		760	0.6
435	8.5		545	16.7		655	11.5		765	0.5
440	12.1		550	17.3		660	10.2		770	0.4
445	16.7		555	17.9		665	9.1		775	0.4
450	18.0		560	18.6		670	7.9		780	0.3
455	13.2		565	19.2		675	7.0		---	---

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. 104815936CHI-002**

#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Yokogawa Power Meter	WT210	146919	7/1/2021	7/1/2022
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	146379	4/13/2021	4/13/2022
5	Chroma Power Supply	61604	CHI0371	VBU	VBU
7	Multi Channel Spectroradiometer	OL770	CHI0092	VBU	VBU
8	Newport Humidity Recorder	iServer	CHI0451	1/29/2021	1/29/2022
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	146767	4/8/2021	4/8/2022
17	Omega thermometer	USB TC08	EQAH002615	4/6/2021	4/6/2022
26	Xitron Power Analyzer	XT2640	CHI0611	6/9/2021	6/9/2022
27					
28					
29					
30					

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	ENCY3RS-L19835WW-UNV	NA

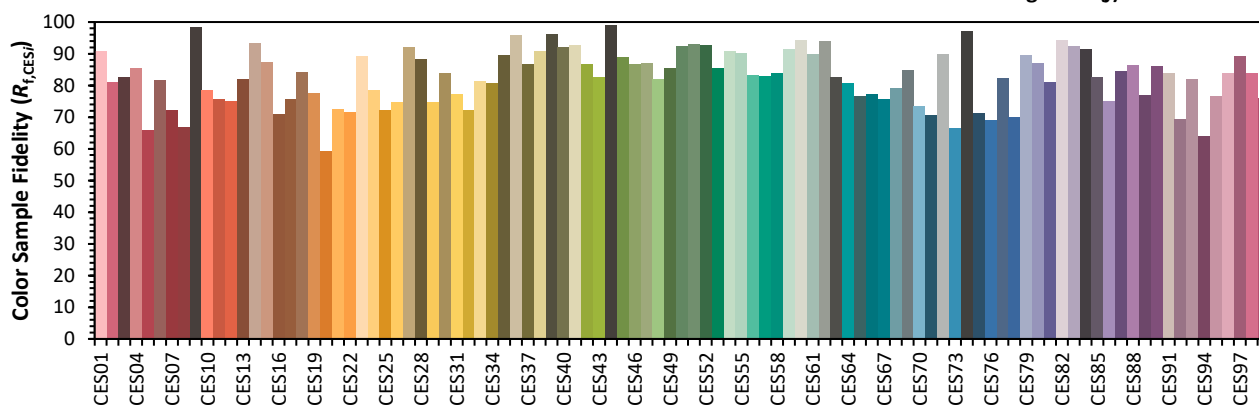
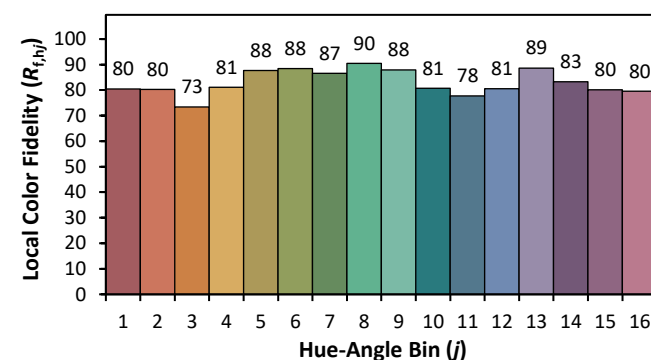
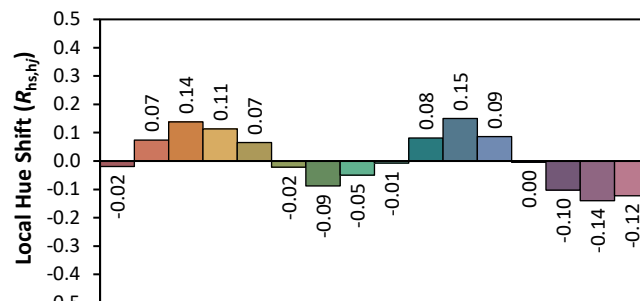
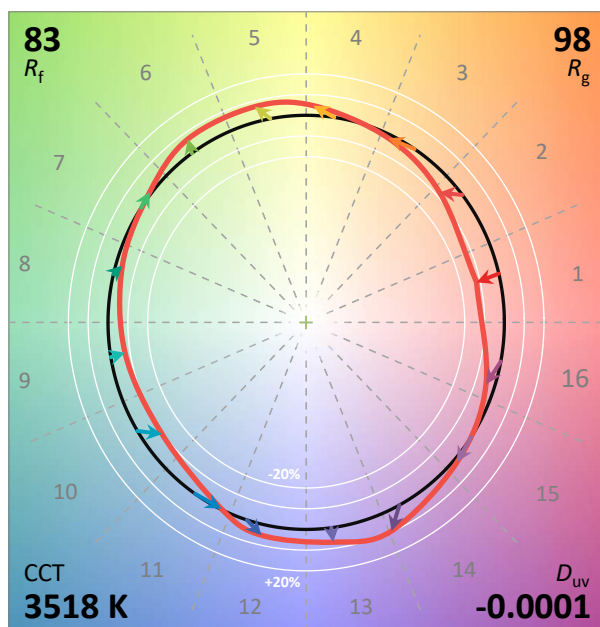
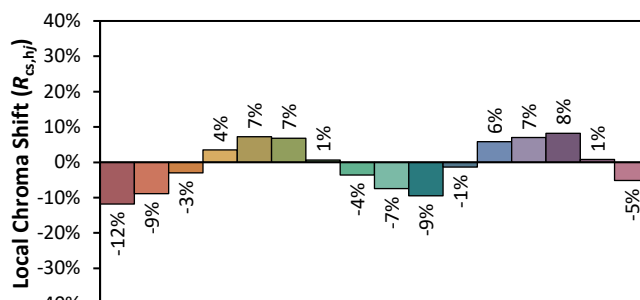
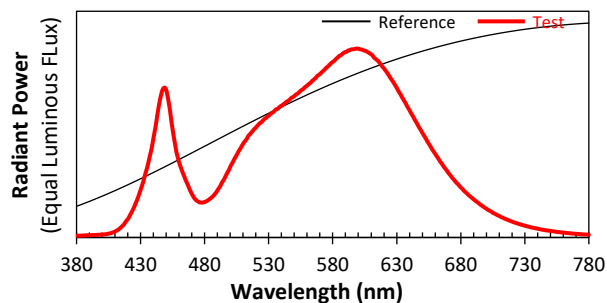
## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 9/15/2021

Model: ENCY3RS-L19835WW-UNV



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

x 0.4041

y 0.3898

u' 0.2353

v' 0.5107