

# VISUAL COMFORT AND COMPANY TEST REPORT

## SCOPE OF WORK

LED Performance Testing

## MODEL NUMBER

ENCY3RS-L199WDWW-UNV

## PROJECT NUMBER

G104815936

## REPORT NUMBER

104815936CHI-001

## ISSUE DATE

9/16/2021

## REVISED DATE

None

## TEST DATES

09/15/2021 through 09/16/2021.

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

104815936CHI-001

**MODEL NUMBER(s)**

ENCY3RS-L199WDWW-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	AH09132021051515-001	Bridgelux® Vesta® Series Dim-To-Warm	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-L199WDWW-UNV	1 & 2

**SAMPLE PHOTOS - TESTED CONFIGURATIONS**



## SUMMARY

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### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ENCY3RS-L199WDWW-UNV
Product Description:	19W Warm Dim Wall Wash
LED Model No.:	Bridgelux® Vesta® Series Dim-To-Warm
Driver Model No.:	ESS030W-0500-42
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	806.3	799.5
Input Power (W) @ 120VAC (Vac)	20.06	20.19
Lumen Efficacy (lm/W)	40.2	39.6
Input Power Factor ( ) @ 120VAC (Vac)	0.983	0.988

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	13.78
Correlated Color Temperature (K)	3139
Color Rendering Index - Ra ( )	93.1
Color Rendering Index - R9 ( )	70.2
Duv ( )	-0.0034
Chromaticity Coordinate (x)	0.423
Chromaticity Coordinate (y)	0.391
Chromaticity Coordinate (u')	0.247
Chromaticity Coordinate (v')	0.514

### 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	ENCY3RS-L199WDWW-UNV	NA

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

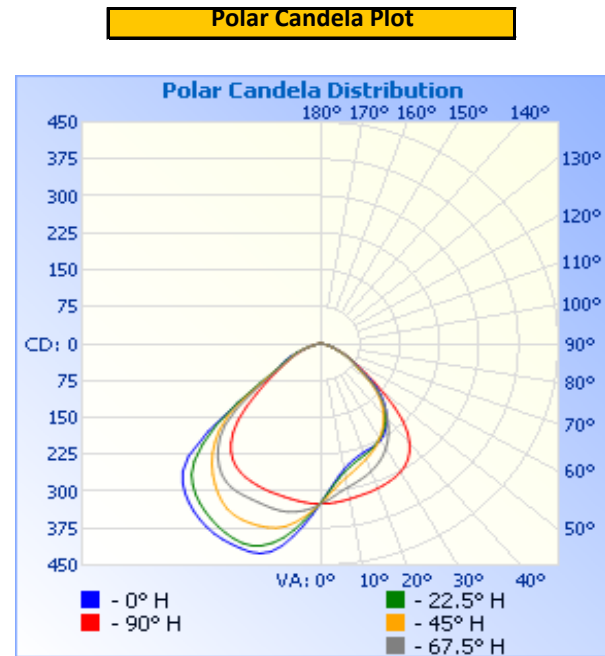
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (I)
Up	119.99	170.1	20.06	0.983

Light Output (lm)	Lumen Efficacy (lm/W)
806.3	40.2

**INTENSITY SUMMARY - CANDELA**

Angle	0	22.5	45	67.5	90
0	325	325	325	325	325
5	286	288	297	310	324
10	259	265	277	296	320
15	244	250	262	287	317
20	236	242	250	277	313
25	232	234	238	264	309
30	227	224	224	247	302
35	214	210	206	224	288
40	195	191	186	197	262
45	170	166	160	167	220
50	139	133	127	132	157
55	96	90	87	93	105
60	69	68	66	67	72
65	49	47	47	47	49
70	32	30	29	30	31
75	21	20	19	18	16
80	13	11	11	10	9
85	6	5	5	4	4
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

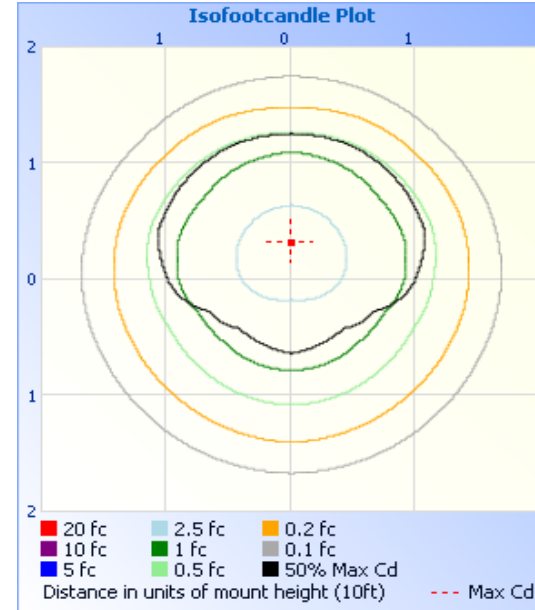
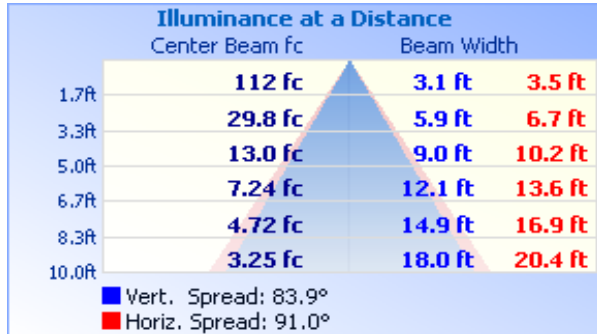
Entire luminous intensity matrix found in .IES file



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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	269.3	33.4%
0-40	449.6	55.8%
0-60	729.8	90.5%
60-90	75.2	9.3%
70-100	24.2	3.0%
90-120	0.3	0.0%
0-90	805.0	99.8%
90-180	1.3	0.2%
0-180	806.3	100.0%

Zone	Lumens	Total	Zone	Lumens	Total
0-10	31.1	3.9%	90-100	0.0	0.0%
10-20	92.4	11.5%	100-110	0.0	0.0%
20-30	145.7	18.1%	110-120	0.0	0.0%
30-40	180.2	22.4%	120-130	0.0	0.0%
40-50	177.0	22.0%	130-140	0.0	0.0%
50-60	103.2	12.8%	140-150	0.0	0.0%
60-70	51.1	6.3%	150-160	0.0	0.0%
70-80	19.7	2.4%	160-170	0.0	0.0%
80-90	4.4	0.5%	170-180	0.0	0.0%

**INTEGRATING SPHERE TESTING**

**REPORT NO. 104815936CHI-001**

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ENCY3RS-L199WDWW-UNV	NA

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

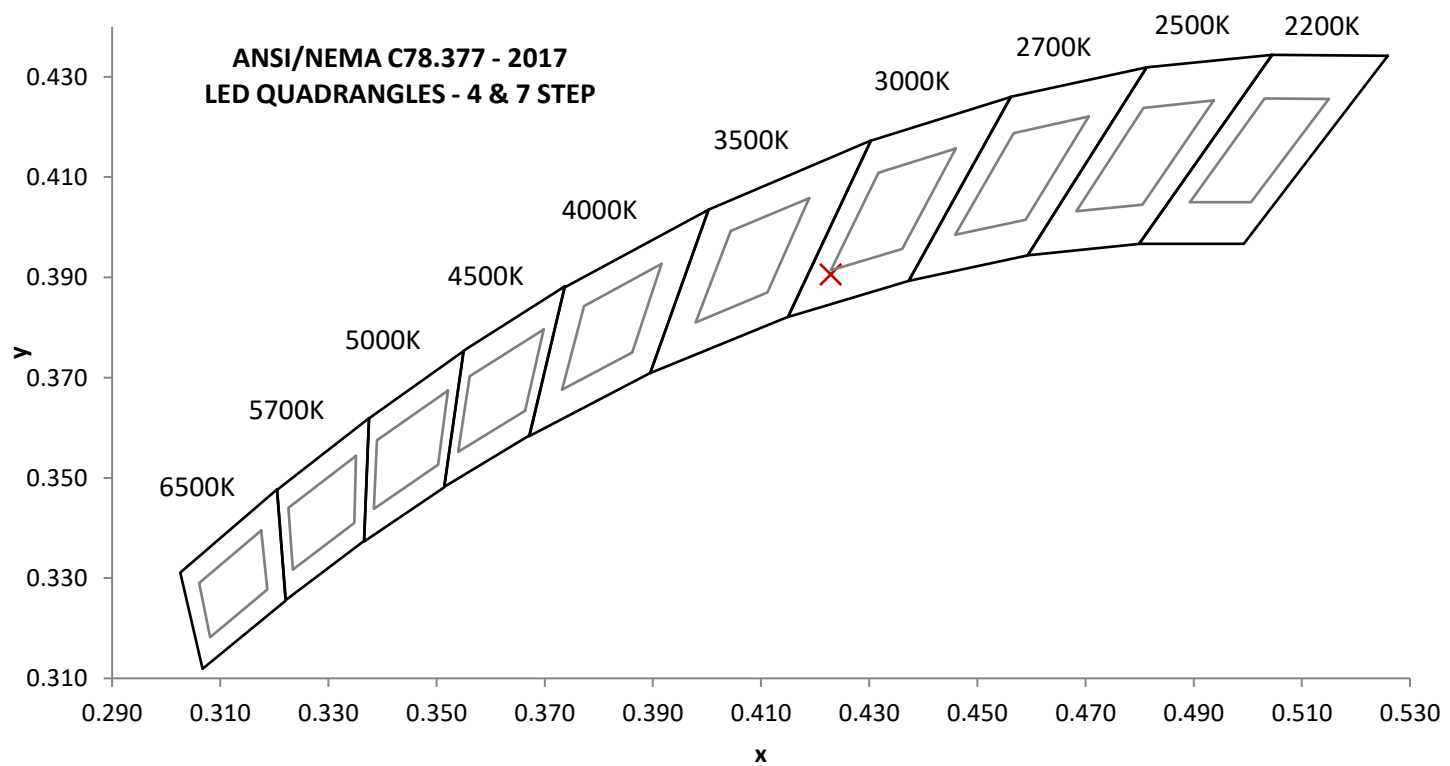
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor (l)	Input ATHD (%)
120.00	170.3	20.19	0.988	13.78

**Measured at 120(Vac)**

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra (l)	CRI - R9 (l)
799.5	39.6	3139	93.1	70.2

Duv (l)	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0034	0.423	0.391	0.247	0.514

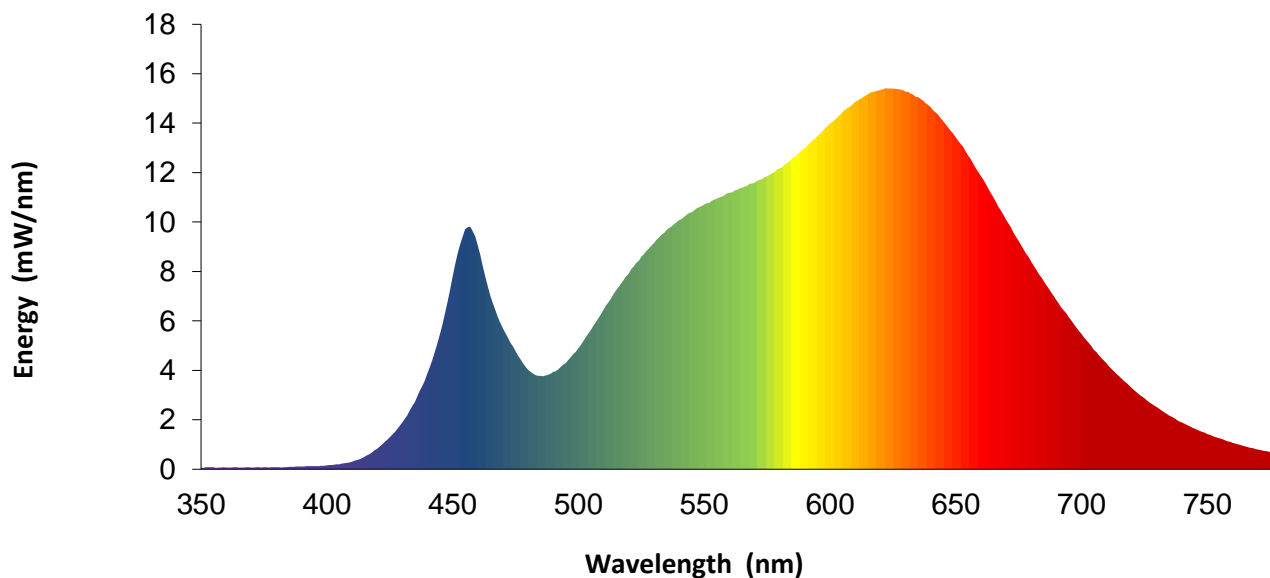


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	9.1		570	11.6		680	8.4
355	0.1		465	7.0		575	11.9		685	7.6
360	0.1		470	5.7		580	12.2		690	6.8
365	0.1		475	4.8		585	12.6		695	6.1
370	0.1		480	4.0		590	13.0		700	5.5
375	0.1		485	3.8		595	13.5		705	4.8
380	0.1		490	3.9		600	14.0		710	4.3
385	0.1		495	4.3		605	14.5		715	3.8
390	0.1		500	4.9		610	14.9		720	3.3
395	0.1		505	5.6		615	15.2		725	2.9
400	0.2		510	6.4		620	15.4		730	2.5
405	0.2		515	7.2		625	15.4		735	2.2
410	0.3		520	7.9		630	15.3		740	1.9
415	0.5		525	8.6		635	15.1		745	1.6
420	0.8		530	9.1		640	14.7		750	1.4
425	1.3		535	9.7		645	14.1		755	1.2
430	1.9		540	10.1		650	13.4		760	1.1
435	2.7		545	10.4		655	12.7		765	0.9
440	3.9		550	10.7		660	11.9		770	0.8
445	5.5		555	11.0		665	11.0		775	0.7
450	7.8		560	11.2		670	10.1		780	0.6
455	9.7		565	11.4		675	9.3		---	---

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	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	VBV	VBV
4	Newport Thermohygrometer	iServer	146379	4/13/2021	4/13/2022
5	Chroma Power Supply	61604	CHI0371	VBV	VBV
8	Newport Humidity Recorder	iServer	CHI0451	1/29/2021	1/29/2022
9	Labsphere Spectroradiometer	CDS2600	CHI0539	VBV	VBV
10	3 Meter Sphere	SPR600	CHI0088	VBV	VBV
11	Elgar AC Power Supply	CW1251	146112	VBV	VBV
12	Sorenson DC Power Supply	XFR150-8	146846	VBV	VBV
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-L199WDWW-UNV	NA

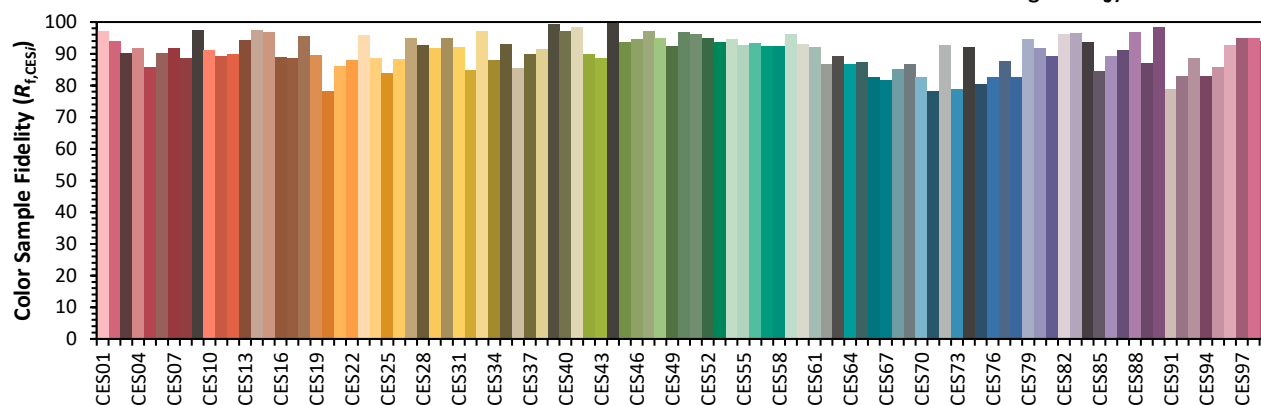
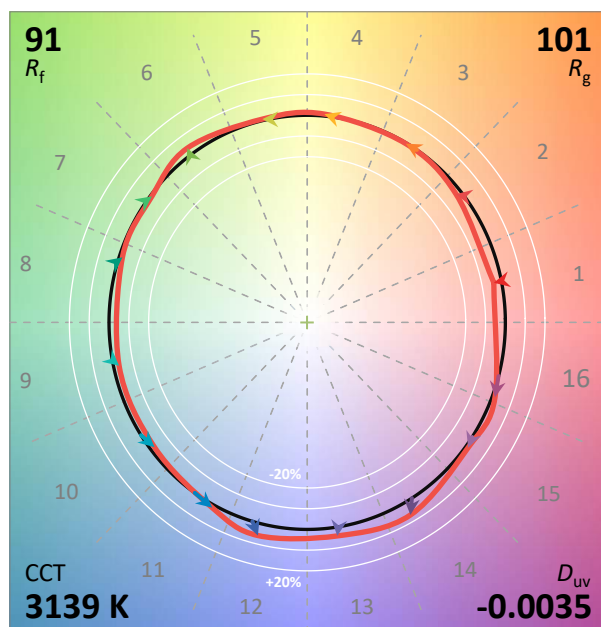
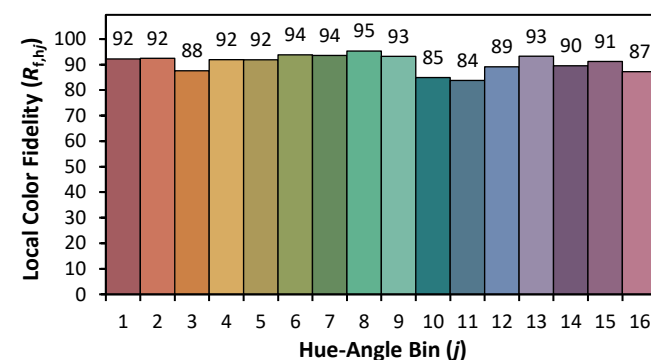
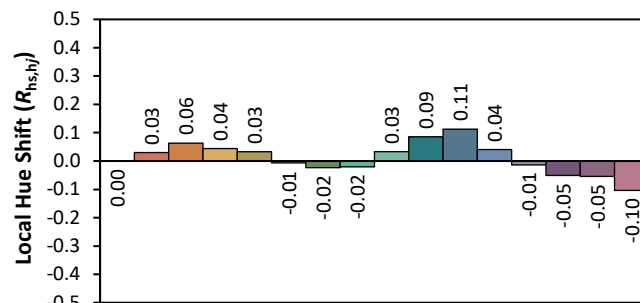
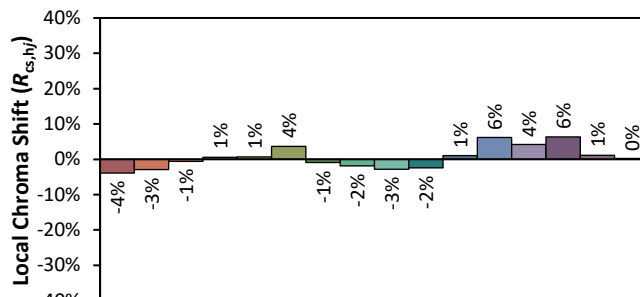
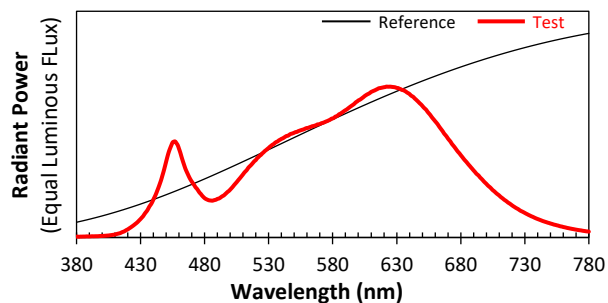
## ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: VISUAL COMFORT AND COMPANY

Date: 9/16/2021

Model: ENCY3RS-L199WDWW-UNV



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

 $x$  0.4229 $y$  0.3905 $u'$  0.2473 $v'$  0.5138