

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: INVUE

Report Number: P880514

Luminaire Tested: **EMM2-HTN-VA4-AMB-U-MQ**

Issue Date: 10/02/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P880514  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/02/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HTN-VA4-AMB-U-MQ  
Description: EPIC MODERN TALL HOUSING 4W 0CRI 1554K VISUAL COMFORT FIXTURE w/  
TYPE V MEDIUM DISTRIBUTION OPTIC  
Light Source: (1) 1554K CCT, 0 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

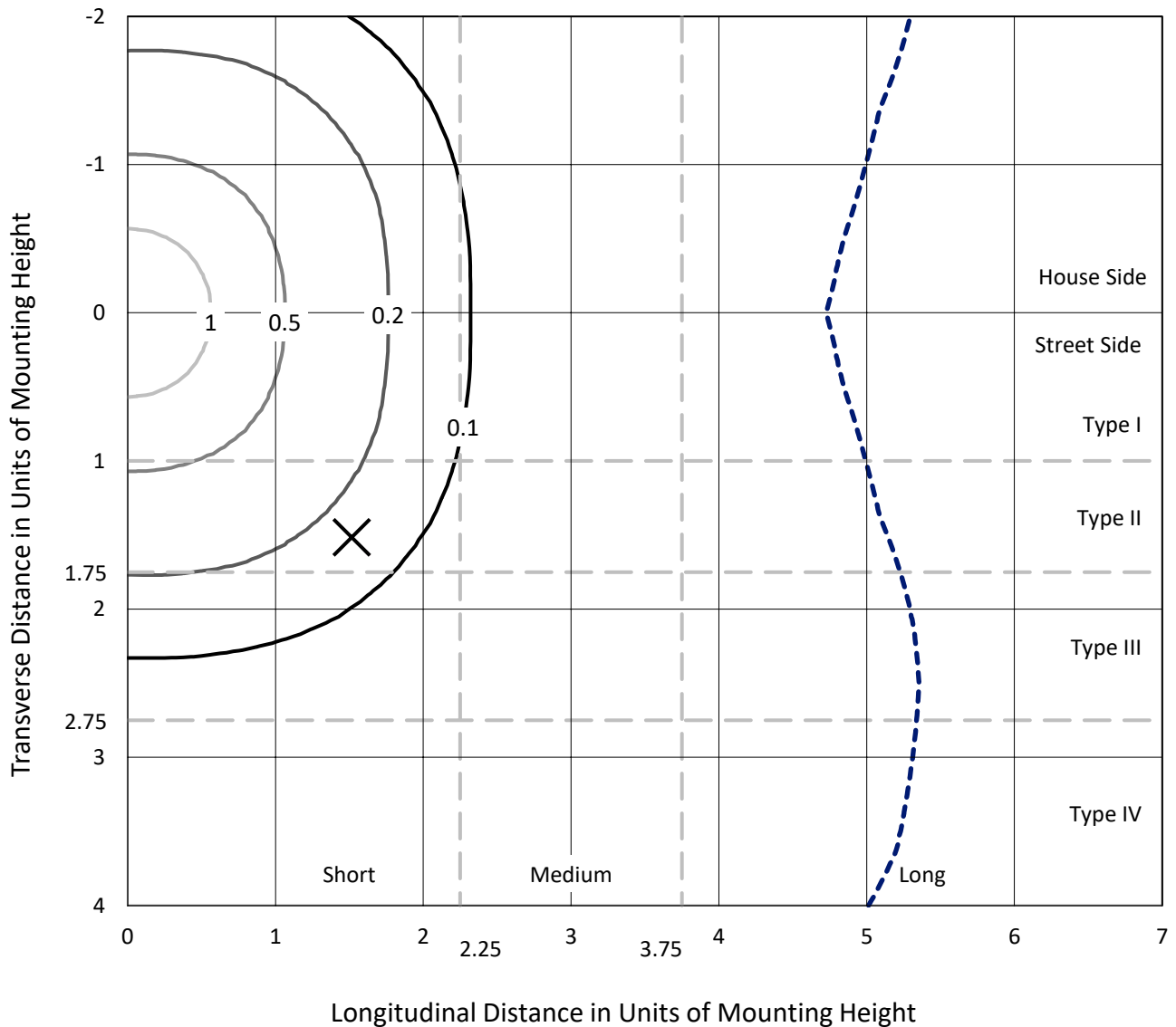
Lumens per Lamp: N/A  
Luminaire Lumens: 1992.2 lumens  
Efficiency: N/A  
Efficacy: 31.6 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B1 - U0 - G1

Input Watts (W): 63  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.98  
Total Harmonic Distortion (THDi): 16%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

REPORT NUMBER: P880514  
 CATALOG NUMBER: EMM2-HTN-VA4-AMB-U-MQ

### Iso-Footcandle Lines of Horizontal Illumination

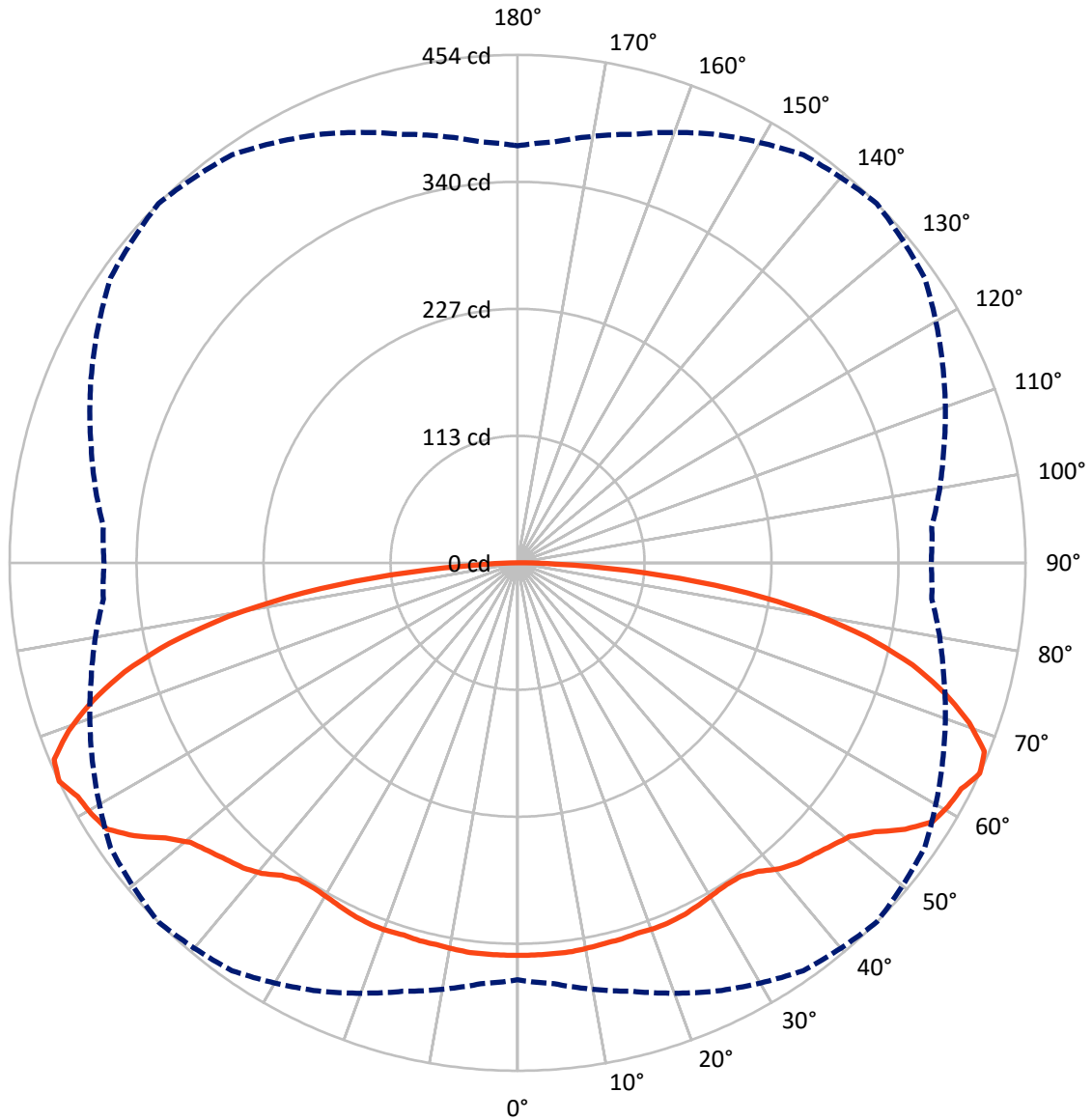
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.6 fc  
 Type V - Short - N/A

REPORT NUMBER: P880514  
CATALOG NUMBER: EMM2-HTN-VA4-AMB-U-MQ

### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral    - - - Horizontal Cone Through 65-Deg Vertical

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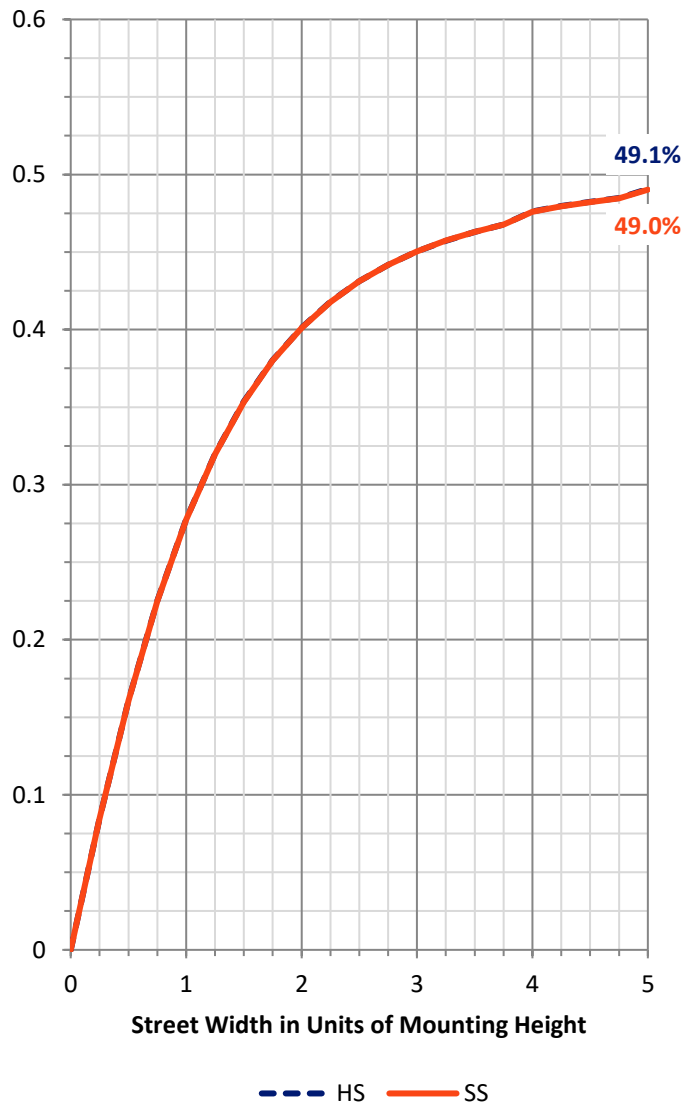
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	996.1	0.0	996.1
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	996.1	0.0	996.1
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	1992.2	0.0	1992.2
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	33.5	1.7
10°-20°	98.7	5.0
20°-30°	160.2	8.0
30°-40°	215.9	10.8
40°-50°	279.9	14.0
50°-60°	353.1	17.7
60°-70°	404.4	20.3
70°-80°	336.2	16.9
80°-90°	110.4	5.5
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	1992.2	100.0
0°-180°	1992.2	100.0

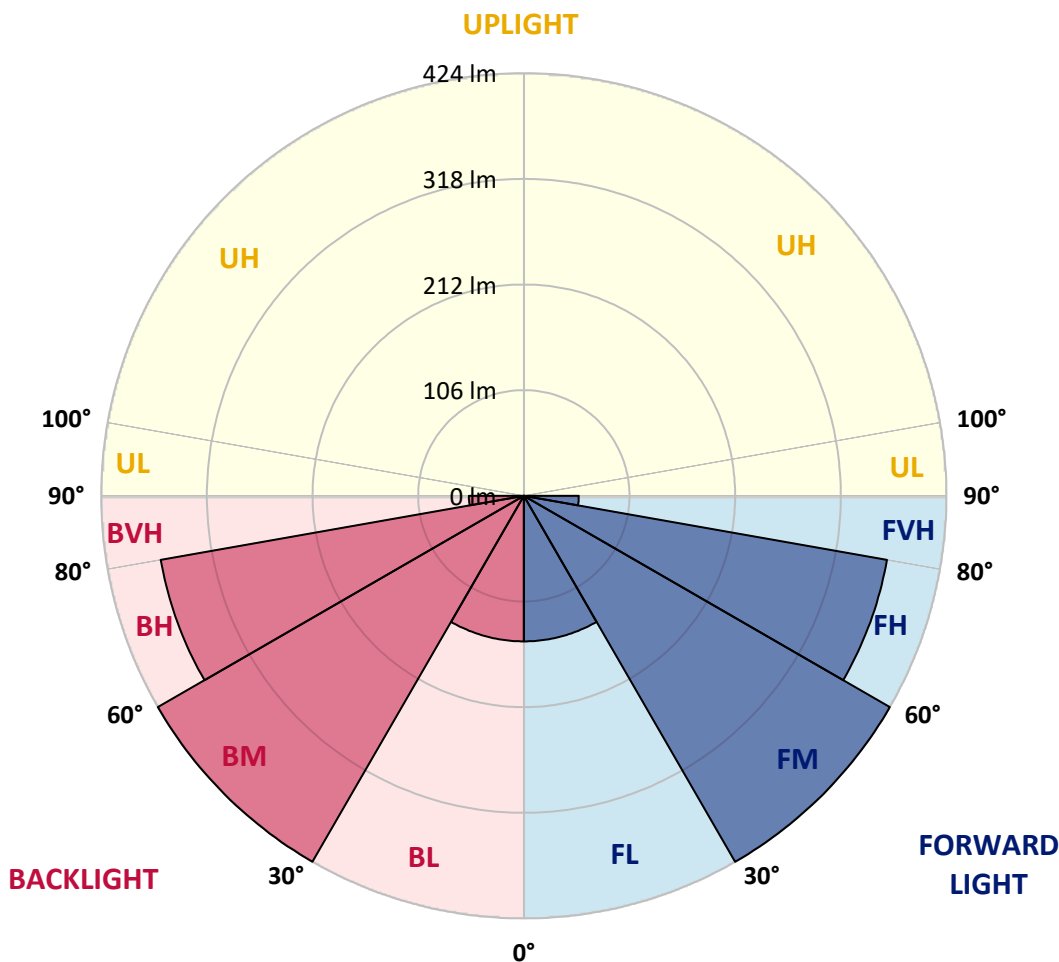


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	146.2	7.3			
FM (30°-60°)	424.4	21.3			
FH (60°-80°)	370.3	18.6			G0/660
FVH (80°-90°)	55.2	2.8			G1/100
BL (0°-30°)	146.2	7.3	B1/500		
BM (30°-60°)	424.4	21.3	B1/1000		
BH (60°-80°)	370.3	18.6	B1/500		G0/660
BVH (80°-90°)	55.2	2.8			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B1-U0-G1**  
 Type V Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8
2.5°	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8
5°	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8
7.5°	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8	350.8
10°	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8	349.8
12.5°	348.8	348.8	348.8	348.8	348.8	348.8	348.8	348.8	348.8	348.8	348.8
15°	347.8	347.8	348.8	347.8	347.8	348.8	347.8	347.8	347.8	347.8	347.8
17.5°	346.8	346.8	346.8	346.8	347.8	347.8	347.8	347.8	346.8	346.8	346.8
20°	346.8	346.8	347.8	347.8	348.8	348.8	348.8	347.8	347.8	346.8	346.8
22.5°	347.8	347.8	347.8	348.8	348.8	348.8	348.8	347.8	347.8	347.8	346.8
25°	345.9	345.9	346.8	346.8	347.8	347.8	347.8	346.8	345.9	345.9	345.9
27.5°	343.9	343.9	344.9	344.9	345.9	345.9	345.9	344.9	343.9	343.9	343.9
30°	341.9	341.9	341.9	342.9	343.9	343.9	342.9	341.9	340.9	340.9	340.9
32.5°	338.9	339.9	339.9	341.9	342.9	342.9	341.9	340.9	338.9	337.9	337.9
35°	337.9	338.9	339.9	341.9	343.9	343.9	342.9	340.9	338.9	336.9	335.9
37.5°	339.9	340.9	342.9	346.8	349.8	349.8	348.8	345.9	341.9	338.9	337.9
40°	344.9	345.9	349.8	354.8	359.7	359.7	358.7	353.8	347.8	343.9	342.9
42.5°	347.8	348.8	353.8	360.7	364.7	366.7	364.7	358.7	351.8	346.8	345.9
45°	349.8	351.8	357.7	364.7	369.6	371.6	369.6	362.7	354.8	348.8	347.8
47.5°	352.8	353.8	359.7	368.6	374.6	377.6	374.6	366.7	356.8	350.8	349.8
50°	354.8	356.8	363.7	374.6	382.5	384.5	381.5	371.6	361.7	353.8	351.8
52.5°	360.7	361.7	371.6	385.5	395.4	399.4	394.4	383.5	369.6	358.7	357.7
55°	370.6	373.6	384.5	401.4	414.2	420.2	412.3	399.4	380.5	370.6	368.6
57.5°	376.6	381.5	393.4	413.2	431.1	437.0	429.1	409.3	391.4	377.6	374.6
60°	376.6	380.5	396.4	420.2	437.0	442.0	438.0	418.2	393.4	376.6	373.6
62.5°	377.6	380.5	396.4	423.2	440.0	445.0	438.0	422.2	393.4	377.6	373.6
65°	372.6	377.6	396.4	422.2	445.0	453.9	444.0	419.2	394.4	371.6	369.6
67.5°	361.7	364.7	385.5	414.2	442.0	449.9	439.0	411.3	381.5	360.7	357.7
70°	340.9	344.9	364.7	397.4	424.1	428.1	421.2	393.4	362.7	340.9	336.9
72.5°	311.2	317.1	337.9	373.6	394.4	399.4	393.4	368.6	335.9	312.2	309.2
75°	279.5	283.4	303.2	336.9	358.7	364.7	357.7	335.9	300.3	281.4	276.5
77.5°	241.8	244.8	264.6	294.3	313.2	319.1	312.2	293.3	259.6	242.8	236.8
80°	192.3	195.2	214.1	239.8	257.7	262.6	254.7	236.8	212.1	193.2	190.3
82.5°	136.8	139.7	155.6	176.4	190.3	193.2	187.3	171.4	156.6	139.7	136.8
85°	74.3	77.3	88.2	101.1	112.0	114.0	110.0	100.1	86.2	75.3	71.4
87.5°	18.8	17.8	21.8	28.7	33.7	33.7	34.7	30.7	26.8	20.8	21.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-1

Test Date: 09/23/2024

Luminaire Tested: MEM2-HTN-VA-60-AMB-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-60-AMB-U-WQ



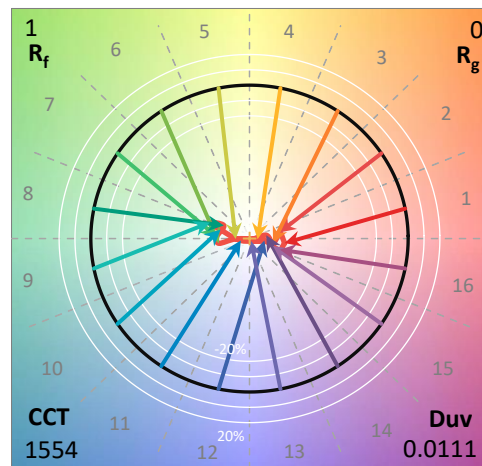
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-1  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 09/27/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Streetworks  
 Catalog Number: **MEM2-HTN-VA-60-AMB-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 60W AMBER WAVESTREAM WIDE

**Spectral Parameters**

CCT (K): 1554  
 CIE u': 0.3509  
 CIE v': 0.5472  
 Duv: 0.0111  
 CIE x: 0.5903  
 CIE y: 0.4091  
 CIE z: 0.0006  
 Peak Wavelength (nm): 596  
 Dominant Wavelength (nm): 592  
 Purity: 99.98723  
 R<sub>f</sub>: 1.1  
 R<sub>g</sub>: 0

CRI (Ra): -22.5  
 R1: -35.4  
 R2: 51.6  
 R3: 17.0  
 R4: -69.3  
 R5: -41.7  
 R6: 40.2  
 R7: -7.3  
 R8: -135.2  
 R9: -390.1  
 R10: 27.7  
 R11: -96.9  
 R12: -12.7  
 R13: -16.6  
 R14: 45.8  
 R15: -68.6



**Test Conditions**

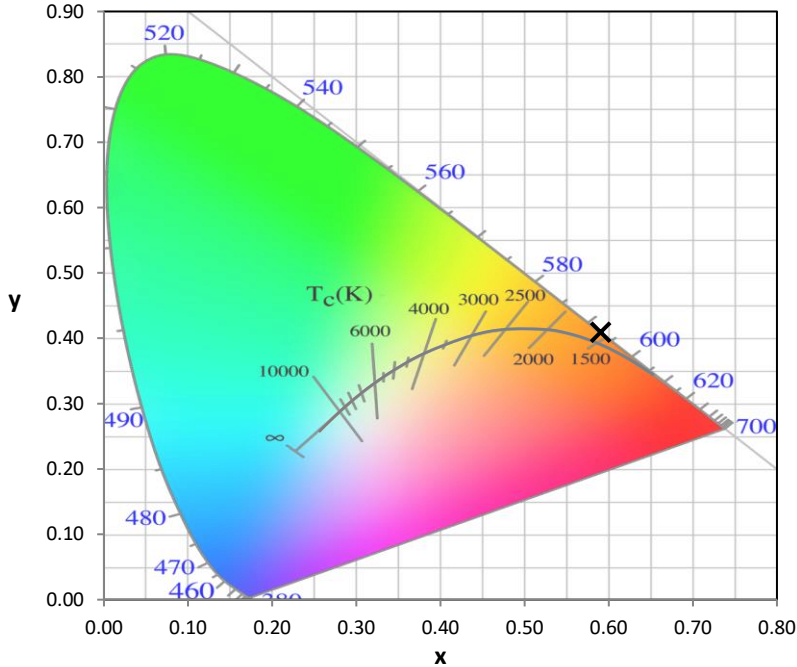
Stabilization Time: 98M  
 Operation Time: 2H 38M  
 Sphere Temperature (°C): 25.2

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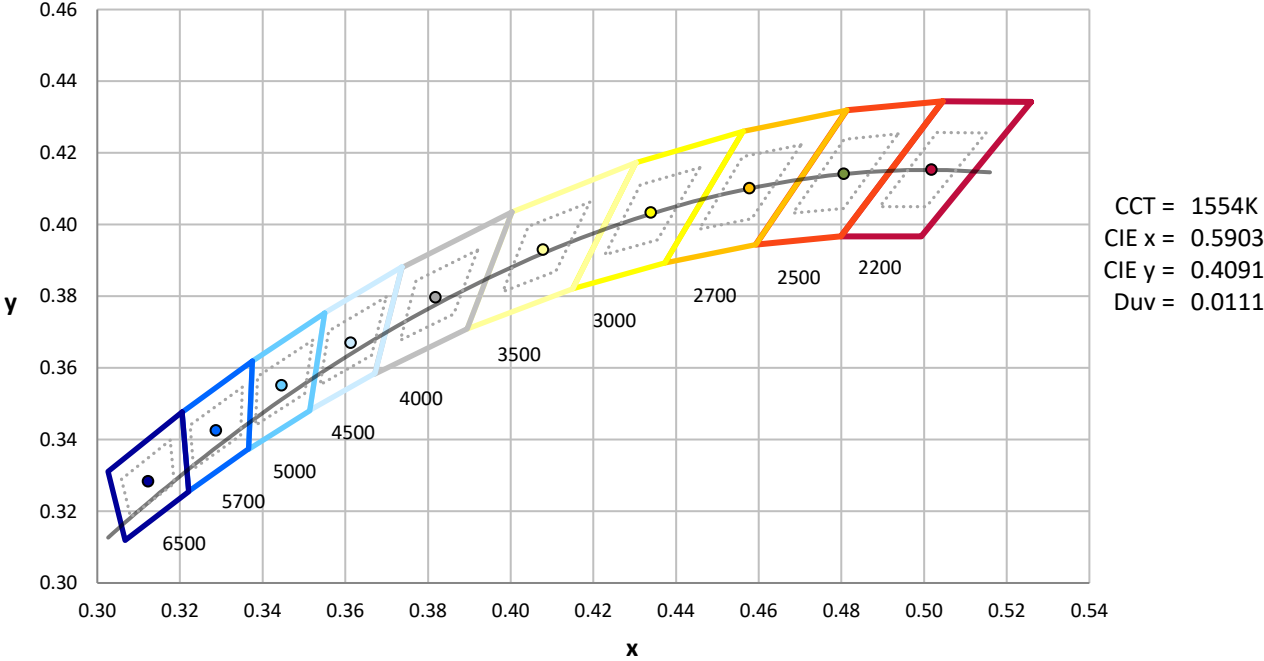
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

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CIE 1931 Chromaticity Diagram



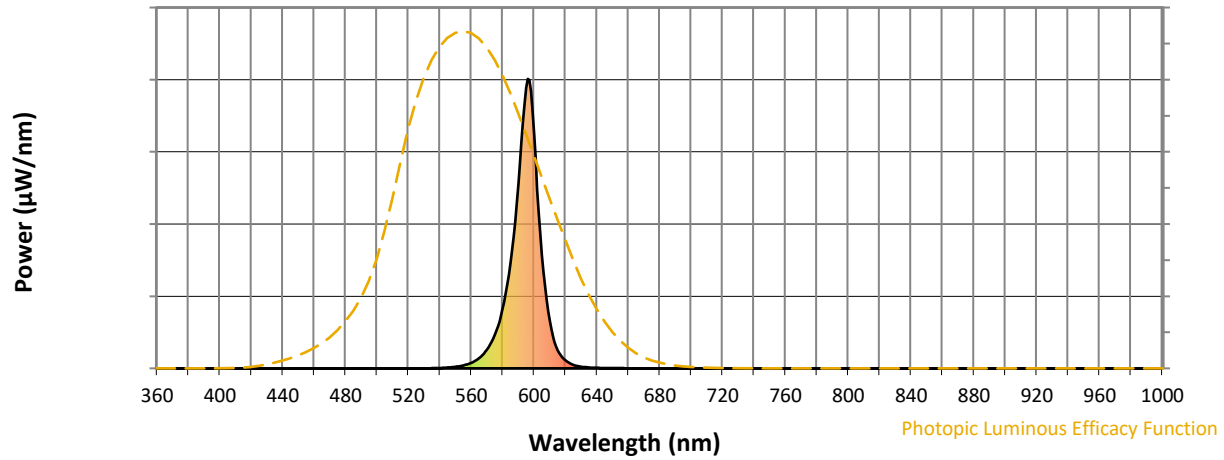
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies outside the range

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**Photopic Flux vs. Wavelength**

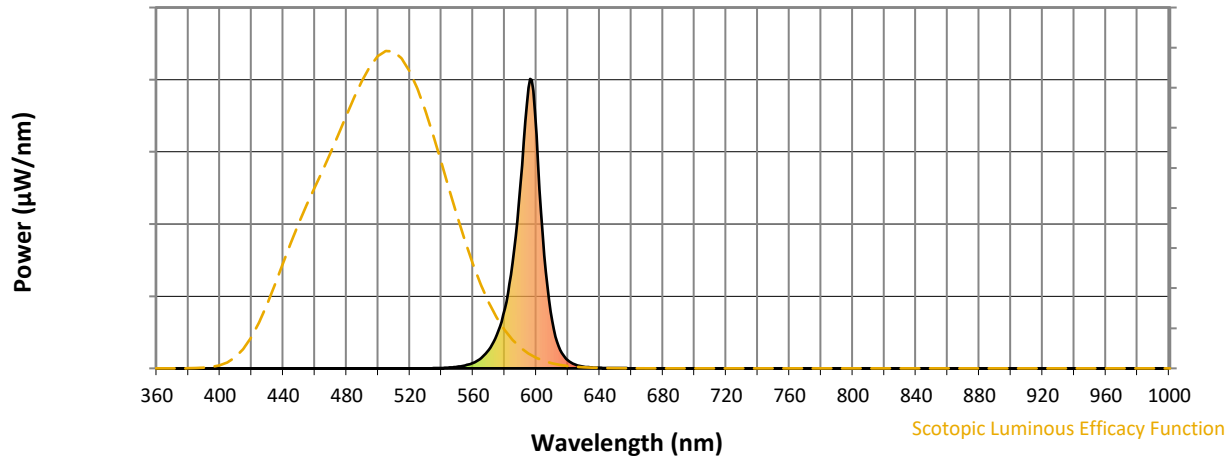


**Photopic Lumens: NR**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	0	NR	620	27	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	12	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	6	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	3	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	2	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	1	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	1	NR	780	0	NR	910	0	NR
395	0	NR	525	0	NR	655	1	NR	785	0	NR	915	0	NR
400	0	NR	530	0	NR	660	1	NR	790	0	NR	920	0	NR
405	0	NR	535	1	NR	665	0	NR	795	0	NR	925	0	NR
410	0	NR	540	1	NR	670	0	NR	800	0	NR	930	0	NR
415	0	NR	545	3	NR	675	0	NR	805	0	NR	935	0	NR
420	0	NR	550	5	NR	680	0	NR	810	0	NR	940	0	NR
425	0	NR	555	10	NR	685	0	NR	815	0	NR	945	0	NR
430	0	NR	560	19	NR	690	0	NR	820	0	NR	950	0	NR
435	0	NR	565	35	NR	695	0	NR	825	0	NR	955	0	NR
440	0	NR	570	64	NR	700	0	NR	830	0	NR	960	0	NR
445	0	NR	575	116	NR	705	0	NR	835	0	NR	965	0	NR
450	0	NR	580	206	NR	710	0	NR	840	0	NR	970	0	NR
455	0	NR	585	364	NR	715	0	NR	845	0	NR	975	0	NR
460	0	NR	590	639	NR	720	0	NR	850	0	NR	980	0	NR
465	0	NR	595	970	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	808	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	391	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	164	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	63	NR	745	0	NR	875	0	NR			

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**Scotopic Flux vs. Wavelength**



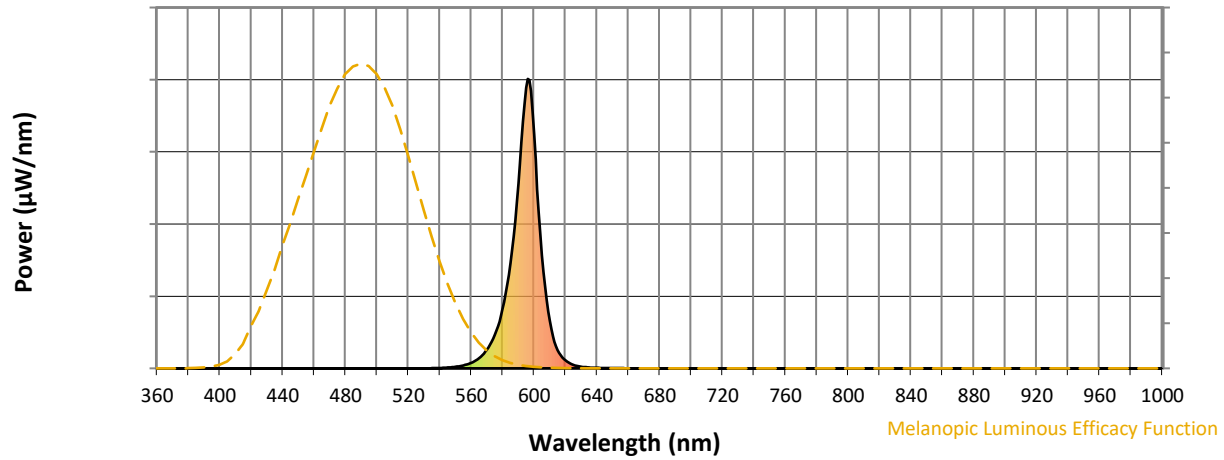
**Scotopic Lumens: NR**

**S/P: 0.22**

$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)
360	0	NR	490	0	NR	620	27	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	12	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	6	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	3	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	2	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	1	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	1	NR	780	0	NR	910	0	NR
395	0	NR	525	0	NR	655	1	NR	785	0	NR	915	0	NR
400	0	NR	530	0	NR	660	1	NR	790	0	NR	920	0	NR
405	0	NR	535	1	NR	665	0	NR	795	0	NR	925	0	NR
410	0	NR	540	1	NR	670	0	NR	800	0	NR	930	0	NR
415	0	NR	545	3	NR	675	0	NR	805	0	NR	935	0	NR
420	0	NR	550	5	NR	680	0	NR	810	0	NR	940	0	NR
425	0	NR	555	10	NR	685	0	NR	815	0	NR	945	0	NR
430	0	NR	560	19	NR	690	0	NR	820	0	NR	950	0	NR
435	0	NR	565	35	NR	695	0	NR	825	0	NR	955	0	NR
440	0	NR	570	64	NR	700	0	NR	830	0	NR	960	0	NR
445	0	NR	575	116	NR	705	0	NR	835	0	NR	965	0	NR
450	0	NR	580	206	NR	710	0	NR	840	0	NR	970	0	NR
455	0	NR	585	364	NR	715	0	NR	845	0	NR	975	0	NR
460	0	NR	590	639	NR	720	0	NR	850	0	NR	980	0	NR
465	0	NR	595	970	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	808	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	391	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	164	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	63	NR	745	0	NR	875	0	NR			

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**Melanopic Flux vs. Wavelength**



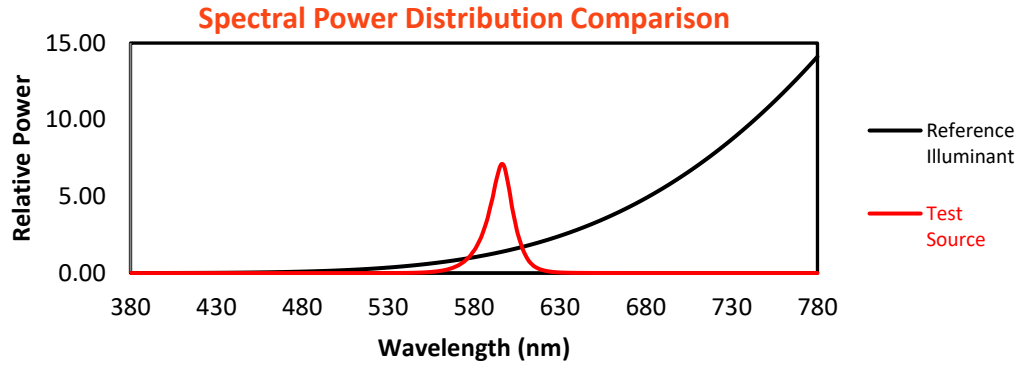
**Melanopic Lumens: NR**

**M/P: 0.12**

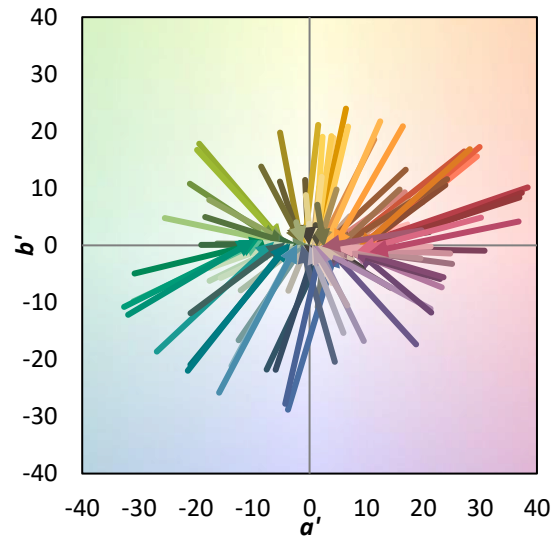
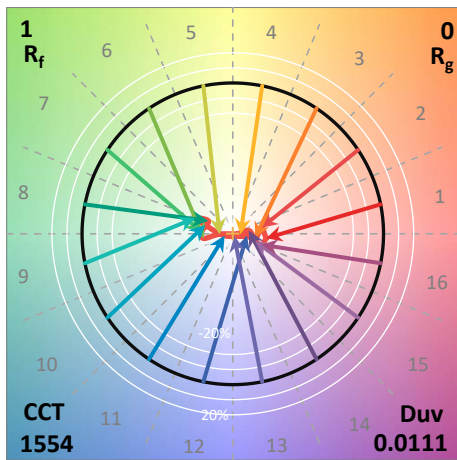
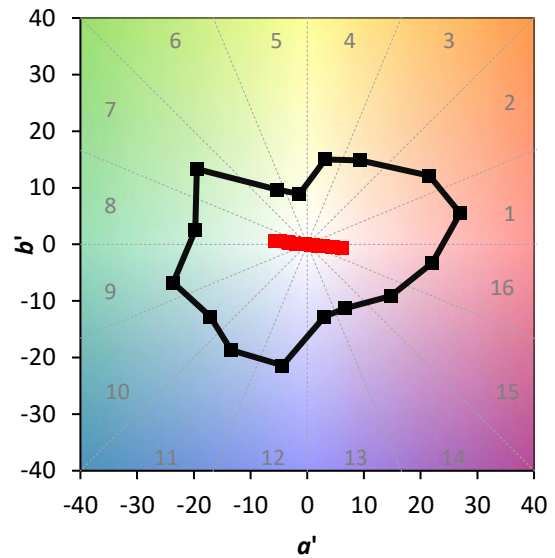
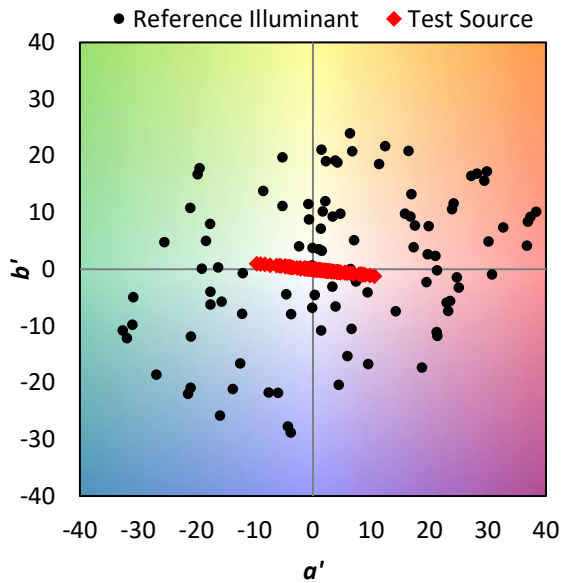
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	0	NR	620	27	NR	750	0	NR	880	0	NR
365	0	NR	495	0	NR	625	12	NR	755	0	NR	885	0	NR
370	0	NR	500	0	NR	630	6	NR	760	0	NR	890	0	NR
375	0	NR	505	0	NR	635	3	NR	765	0	NR	895	0	NR
380	0	NR	510	0	NR	640	2	NR	770	0	NR	900	0	NR
385	0	NR	515	0	NR	645	1	NR	775	0	NR	905	0	NR
390	0	NR	520	0	NR	650	1	NR	780	0	NR	910	0	NR
395	0	NR	525	0	NR	655	1	NR	785	0	NR	915	0	NR
400	0	NR	530	0	NR	660	1	NR	790	0	NR	920	0	NR
405	0	NR	535	1	NR	665	0	NR	795	0	NR	925	0	NR
410	0	NR	540	1	NR	670	0	NR	800	0	NR	930	0	NR
415	0	NR	545	3	NR	675	0	NR	805	0	NR	935	0	NR
420	0	NR	550	5	NR	680	0	NR	810	0	NR	940	0	NR
425	0	NR	555	10	NR	685	0	NR	815	0	NR	945	0	NR
430	0	NR	560	19	NR	690	0	NR	820	0	NR	950	0	NR
435	0	NR	565	35	NR	695	0	NR	825	0	NR	955	0	NR
440	0	NR	570	64	NR	700	0	NR	830	0	NR	960	0	NR
445	0	NR	575	116	NR	705	0	NR	835	0	NR	965	0	NR
450	0	NR	580	206	NR	710	0	NR	840	0	NR	970	0	NR
455	0	NR	585	364	NR	715	0	NR	845	0	NR	975	0	NR
460	0	NR	590	639	NR	720	0	NR	850	0	NR	980	0	NR
465	0	NR	595	970	NR	725	0	NR	855	0	NR	985	0	NR
470	0	NR	600	808	NR	730	0	NR	860	0	NR	990	0	NR
475	0	NR	605	391	NR	735	0	NR	865	0	NR	995	0	NR
480	0	NR	610	164	NR	740	0	NR	870	0	NR	1000	0	NR
485	0	NR	615	63	NR	745	0	NR	875	0	NR			

**Summary**

$R_f = 1.1$   
 $R_g = 0$   
 $CIE R_a = -22.5$   
 $R_g = -390.1$

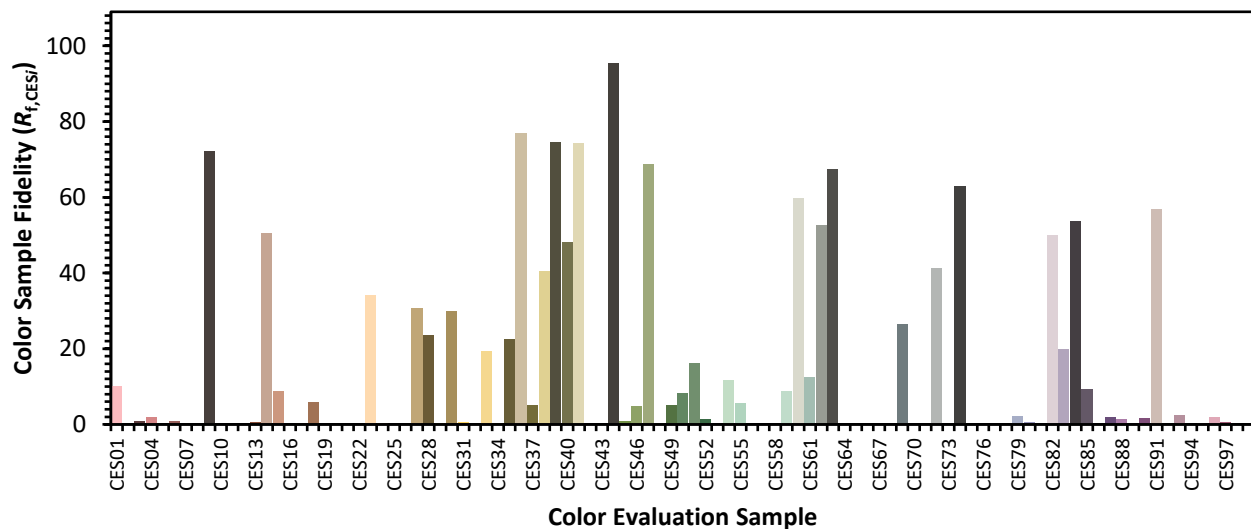


**Color Vector Graphics**



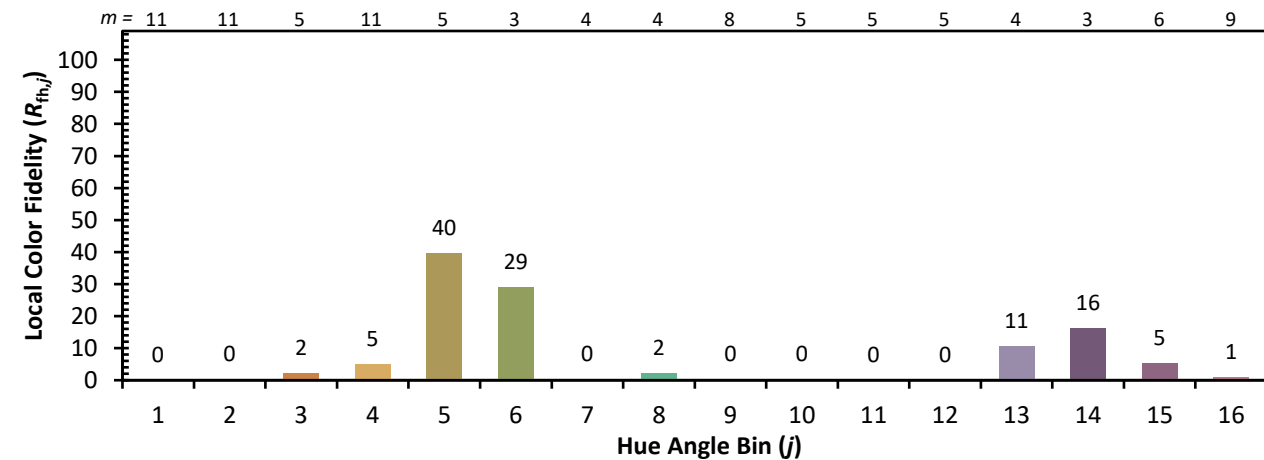
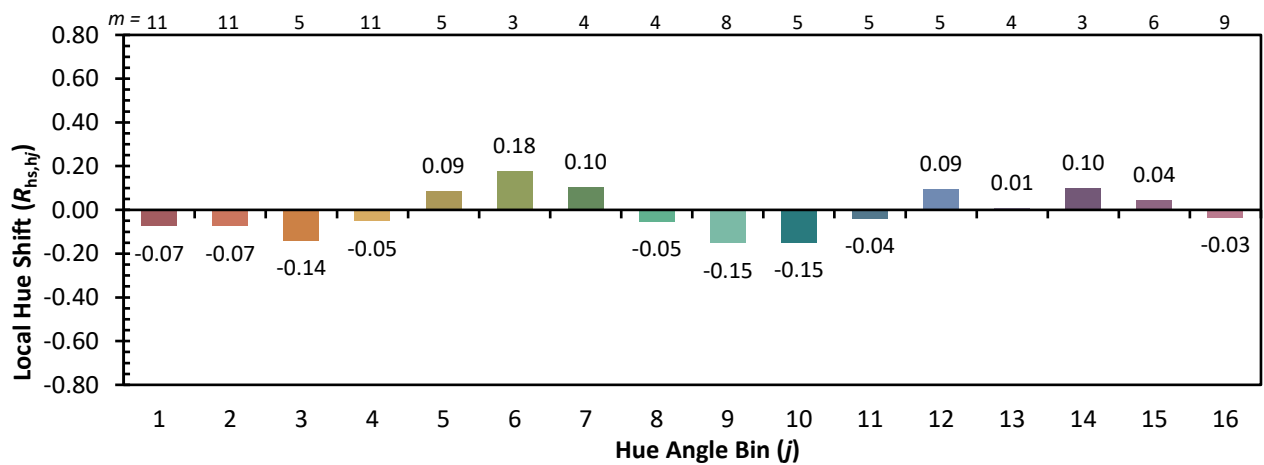
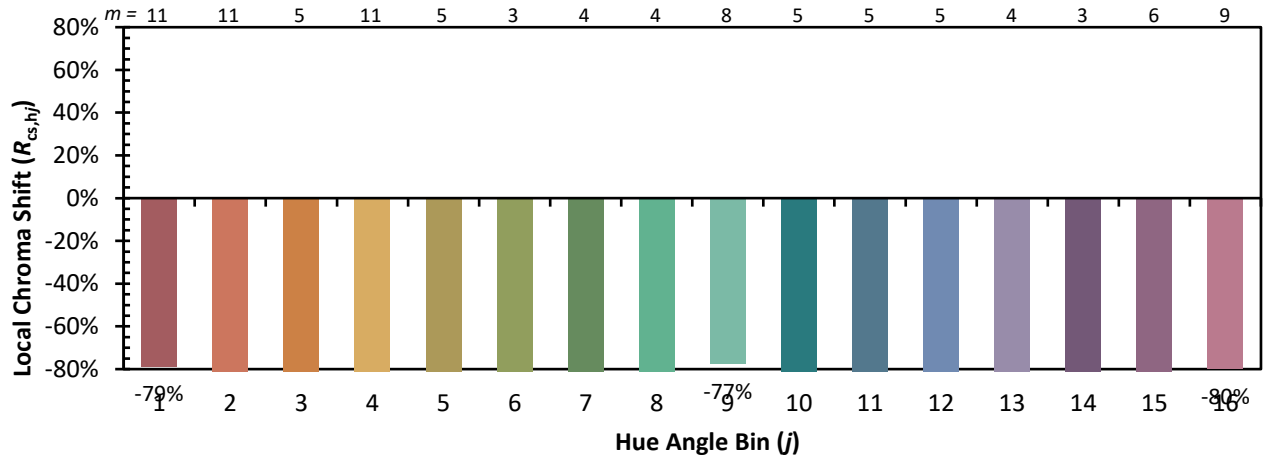
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 90	CES26 = 0	CES51 = 16	CES76 = 0
CES02 = 69	CES27 = 31	CES52 = 2	CES77 = 0
CES03 = 31	CES28 = 24	CES53 = 0	CES78 = 0
CES04 = 77	CES29 = 0	CES54 = 12	CES79 = 2
CES05 = 52	CES30 = 30	CES55 = 6	CES80 = 1
CES06 = 56	CES31 = 1	CES56 = 0	CES81 = 0
CES07 = 41	CES32 = 0	CES57 = 0	CES82 = 50
CES08 = 38	CES33 = 19	CES58 = 0	CES83 = 20
CES09 = 29	CES34 = 0	CES59 = 9	CES84 = 54
CES10 = 87	CES35 = 22	CES60 = 60	CES85 = 9
CES11 = 70	CES36 = 77	CES61 = 12	CES86 = 0
CES12 = 75	CES37 = 5	CES62 = 53	CES87 = 2
CES13 = 47	CES38 = 40	CES63 = 67	CES88 = 1
CES14 = 76	CES39 = 75	CES64 = 0	CES89 = 0
CES15 = 74	CES40 = 48	CES65 = 0	CES90 = 2
CES16 = 49	CES41 = 74	CES66 = 0	CES91 = 57
CES17 = 56	CES42 = 0	CES67 = 0	CES92 = 0
CES18 = 59	CES43 = 0	CES68 = 0	CES93 = 2
CES19 = 80	CES44 = 95	CES69 = 26	CES94 = 0
CES20 = 71	CES45 = 1	CES70 = 0	CES95 = 0
CES21 = 94	CES46 = 5	CES71 = 0	CES96 = 2
CES22 = 87	CES47 = 69	CES72 = 41	CES97 = 1
CES23 = 94	CES48 = 0	CES73 = 0	CES98 = 0
CES24 = 95	CES49 = 5	CES74 = 63	CES99 = 0
CES25 = 79	CES50 = 8	CES75 = 0	

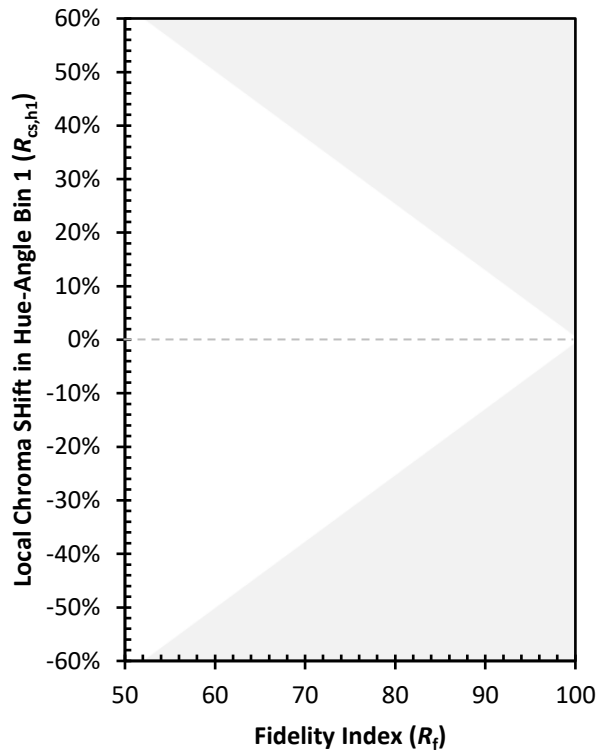
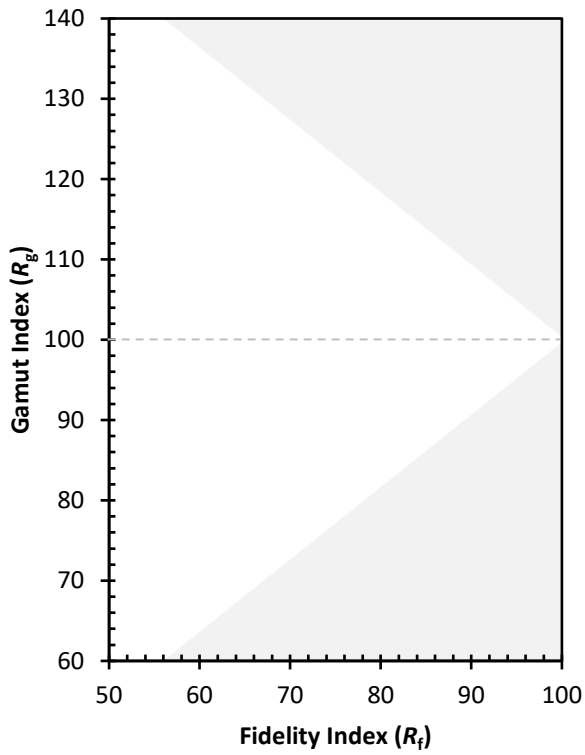




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)