

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: P880183

Luminaire Tested: **EMM2-HSN-VA6-727-U-RW**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P880183  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-VA6-727-U-RW  
Description: EPIC MODERN SHORT HOUSING 6W 70CRI 2700K VISUAL COMFORT FIXTURE w/  
RECTANGULAR WIDE DISTRIBUTION OPTIC  
Light Source: (1) 2700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

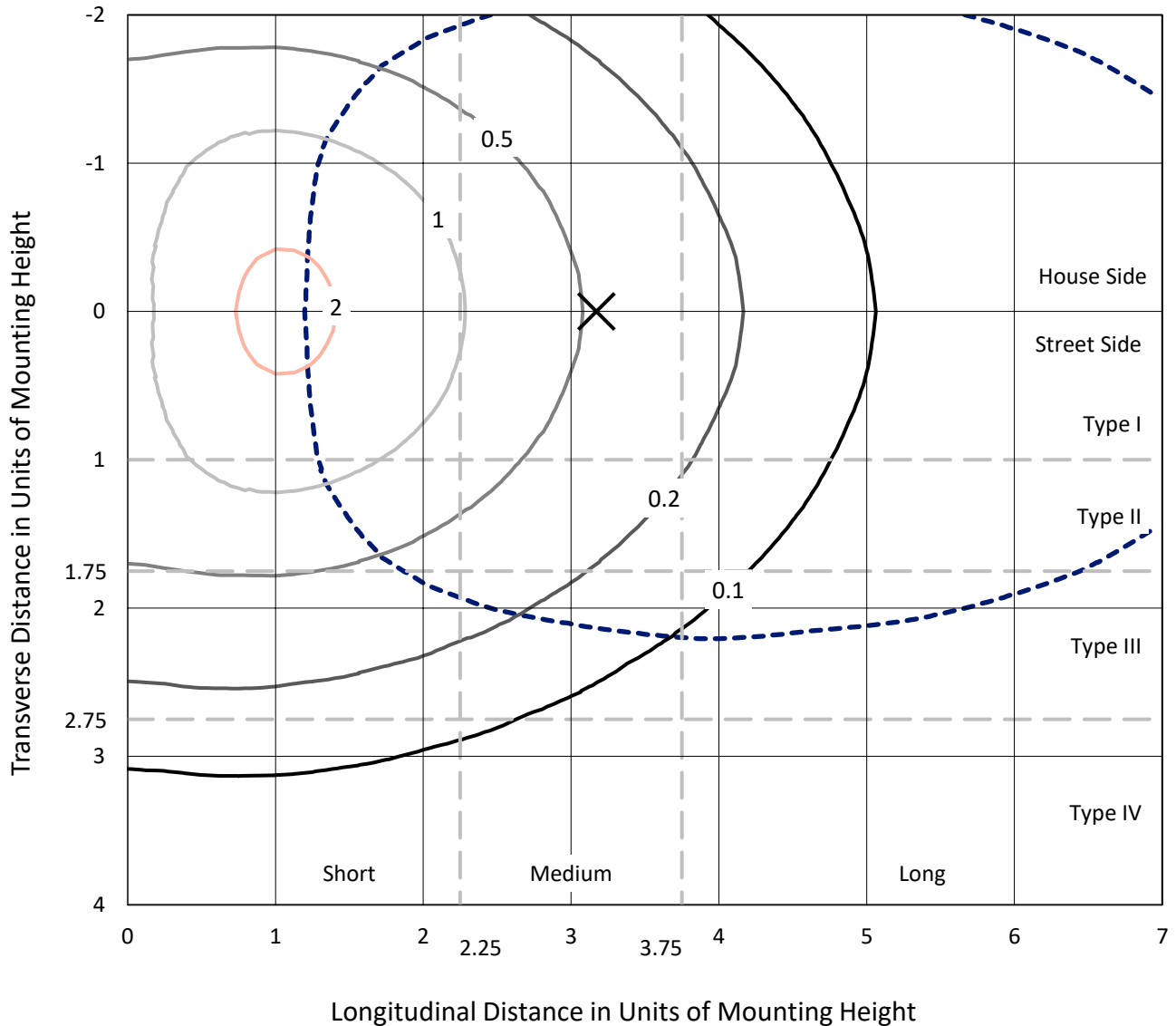
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7189.2 lumens  
Efficiency: N/A  
Efficacy: 67.8 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B3 - U0 - G3  
  
Input Watts (W): 106  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 5%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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 CATALOG NUMBER: EMM2-HSN-VA6-727-U-RW

### Iso-Footcandle Lines of Horizontal Illumination

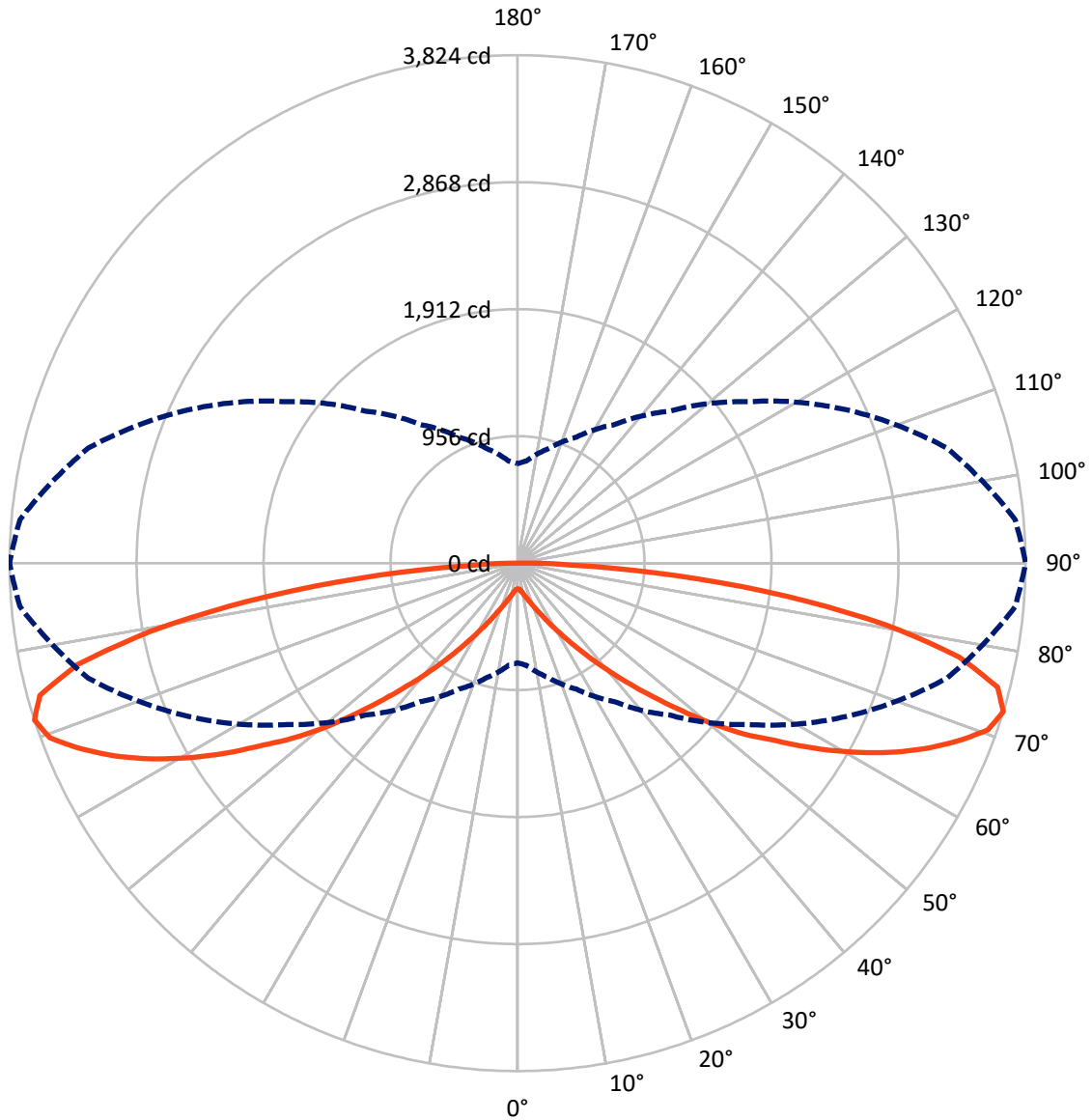
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 2.3 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral    - - - Horizontal Cone Through 72.5-Deg Vertical

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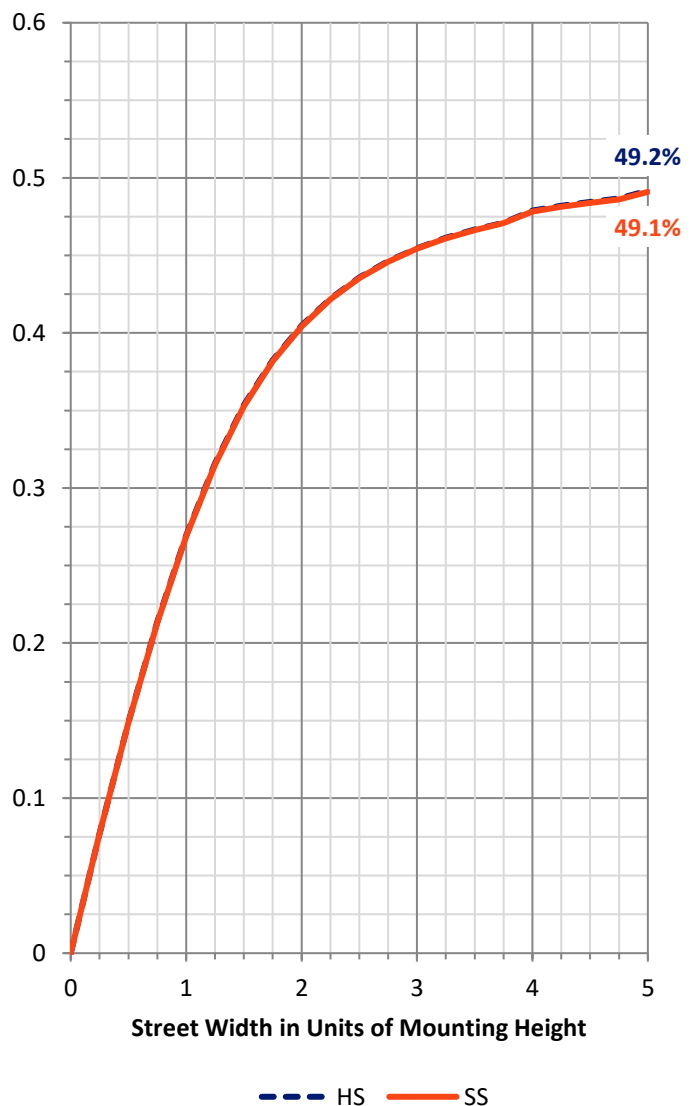
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	3594.6	0.0	3594.6
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	3594.6	0.0	3594.6
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	7189.2	0.0	7189.2
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	19.8	0.3
10°-20°	73.6	1.0
20°-30°	170.0	2.4
30°-40°	364.3	5.1
40°-50°	752.3	10.5
50°-60°	1381.8	19.2
60°-70°	1970.1	27.4
70°-80°	1832.5	25.5
80°-90°	624.8	8.7
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°	7189.2	100.0
0°-180°	7189.2	100.0



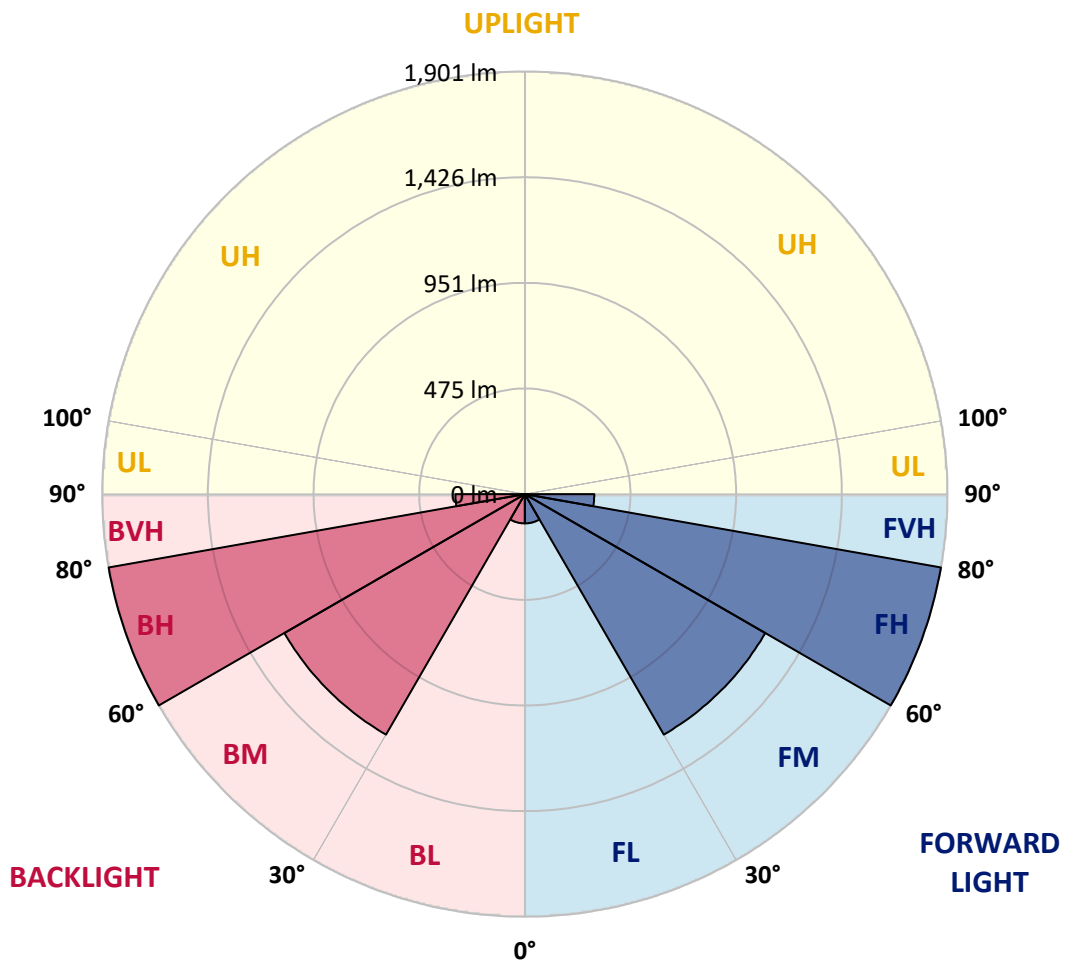
REPORT NUMBER: P880183  
 CATALOG NUMBER: EMM2-HSN-VA6-727-U-RW

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	131.7	1.8			
FM (30°-60°)	1249.2	17.4			
FH (60°-80°)	1901.3	26.4			G2/5000
FVH (80°-90°)	312.4	4.3			G3/500
BL (0°-30°)	131.7	1.8	B1/500		
BM (30°-60°)	1249.2	17.4	B2/2500		
BH (60°-80°)	1901.3	26.4	B3/2500		G3/2500
BVH (80°-90°)	312.4	4.3			G3/500
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B3-U0-G3**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5	193.5
2.5°	194.4	194.4	194.4	194.4	195.3	195.3	195.3	195.3	195.3	195.3	195.3
5°	197.1	197.1	197.1	198.1	199.9	200.8	201.7	201.7	202.6	202.6	202.6
7.5°	201.7	201.7	202.6	205.4	207.2	209.9	212.7	213.6	216.3	216.3	216.3
10°	208.1	208.1	209.9	212.7	217.2	222.7	227.3	230.9	232.7	233.7	234.6
12.5°	216.3	216.3	219.0	223.6	230.9	237.3	244.6	249.2	253.7	255.6	255.6
15°	226.3	226.3	230.0	236.4	244.6	253.7	263.8	272.0	278.4	281.1	282.0
17.5°	236.4	237.3	241.9	250.1	261.0	272.9	285.7	296.6	306.7	310.3	312.1
20°	249.2	249.2	254.6	265.6	279.3	295.7	313.1	327.7	340.4	347.7	348.7
22.5°	263.8	264.7	270.2	283.8	301.2	322.2	345.0	365.1	383.3	392.5	391.5
25°	278.4	279.3	287.5	303.9	325.8	355.0	384.2	410.7	435.4	446.3	446.3
27.5°	295.7	296.6	306.7	325.8	355.0	391.5	429.9	468.2	492.9	509.3	514.8
30°	316.7	317.6	329.5	354.1	387.9	433.5	484.6	533.9	566.8	590.5	591.4
32.5°	339.5	341.3	356.0	384.2	428.1	485.6	549.4	610.6	656.2	686.3	685.4
35°	370.6	372.4	392.5	424.4	477.3	545.8	623.4	706.4	759.4	794.0	797.7
37.5°	402.5	406.2	429.0	471.0	534.8	617.0	714.6	807.7	886.2	918.2	927.3
40°	439.9	443.6	471.9	523.0	596.9	701.9	822.3	936.4	1026.8	1070.6	1077.0
42.5°	482.8	489.2	522.1	581.4	674.5	795.9	936.4	1077.0	1191.1	1248.6	1244.9
45°	544.0	549.4	591.4	658.1	763.0	902.7	1073.3	1249.5	1372.7	1439.3	1438.4
47.5°	602.4	609.7	659.9	743.8	865.2	1027.7	1228.5	1429.3	1570.8	1644.7	1657.5
50°	662.6	672.7	736.5	830.6	974.8	1173.7	1399.2	1614.6	1786.2	1877.4	1899.3
52.5°	764.8	774.0	841.5	940.1	1094.3	1314.3	1573.5	1815.4	2005.2	2101.9	2137.5
55°	834.2	848.8	934.6	1057.8	1233.1	1465.8	1750.6	2029.8	2244.3	2339.2	2359.3
57.5°	857.0	872.5	975.7	1128.1	1345.3	1625.5	1935.8	2235.2	2467.9	2596.6	2628.6
60°	857.9	877.1	988.5	1153.7	1400.1	1737.8	2101.0	2456.1	2719.8	2861.3	2888.7
62.5°	887.1	909.0	1027.7	1181.9	1427.5	1789.8	2213.3	2643.2	2966.3	3109.6	3139.7
65°	920.0	945.6	1071.5	1243.1	1489.5	1845.5	2284.5	2778.3	3188.1	3355.1	3369.7
67.5°	886.2	908.1	1040.5	1218.5	1474.9	1856.4	2334.7	2862.2	3321.3	3563.2	3575.0
70°	830.6	853.4	979.3	1141.8	1393.7	1773.4	2277.2	2862.2	3399.8	3703.7	3758.5
72.5°	749.3	772.1	891.7	1046.9	1273.2	1617.3	2117.5	2730.8	3346.0	3760.3	3824.2
75°	649.8	670.8	781.3	922.7	1120.8	1432.0	1885.6	2480.7	3136.0	3655.4	3732.0
77.5°	542.1	561.3	655.3	769.4	937.3	1213.9	1602.7	2141.2	2769.1	3301.2	3400.7
80°	426.2	445.4	517.5	606.9	742.0	953.8	1276.0	1722.3	2265.3	2710.7	2808.4
82.5°	319.4	328.6	379.7	444.5	531.2	688.2	925.5	1273.2	1679.4	1998.8	2042.6
85°	200.8	209.0	243.7	288.4	340.4	422.6	570.4	779.4	1014.9	1194.7	1197.5
87.5°	62.1	72.1	83.1	109.5	125.0	150.6	180.7	254.6	335.0	422.6	397.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-2

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-727-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-727-U-WQ



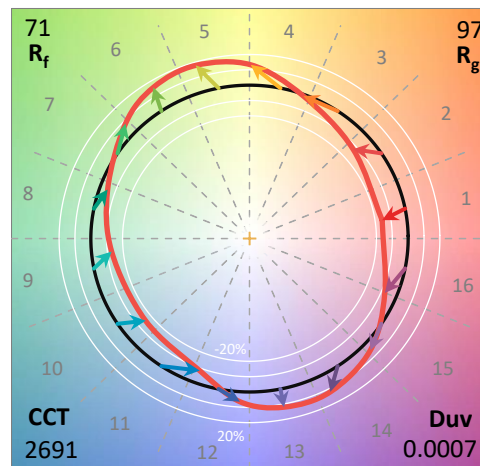
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-2  
 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-30-727-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

**Spectral Parameters**

CCT (K): 2691  
 CIE u': 0.2627  
 CIE v': 0.5285  
 Duv: 0.0007  
 CIE x: 0.4618  
 CIE y: 0.4129  
 CIE z: 0.1254  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 584  
 Purity: 62.54863  
 R<sub>f</sub>: 70.6  
 R<sub>g</sub>: 97.2

CRI (Ra):	70.6		
R1:	67.7	R9:	-27.1
R2:	79.8	R10:	53.1
R3:	90.6	R11:	61.9
R4:	67.7	R12:	42.2
R5:	65.3	R13:	69.4
R6:	71.1	R14:	94.1
R7:	78.1	R15:	60.4
R8:	44.7		



**Test Conditions**

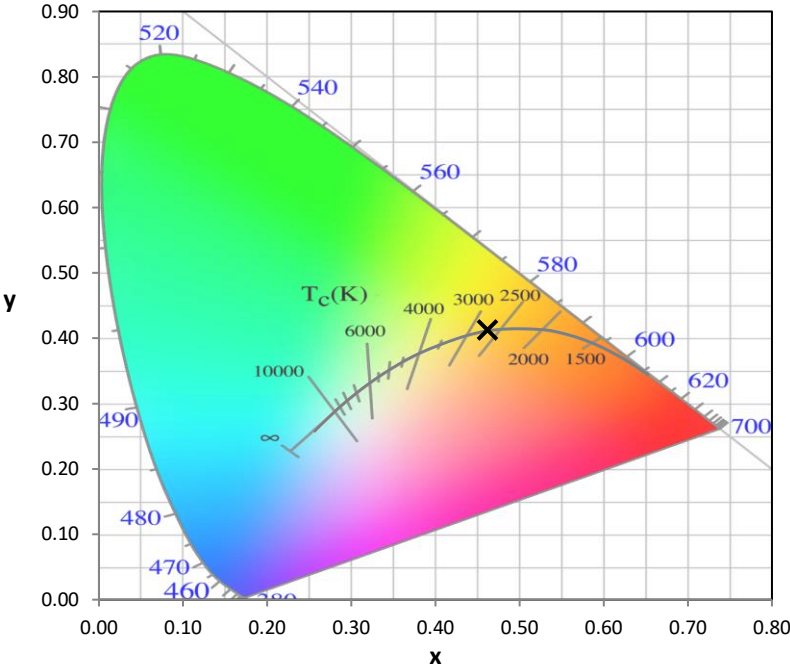
Stabilization Time: 28M  
 Operation Time: 1H 28M  
 Sphere Temperature (°C): 25.2

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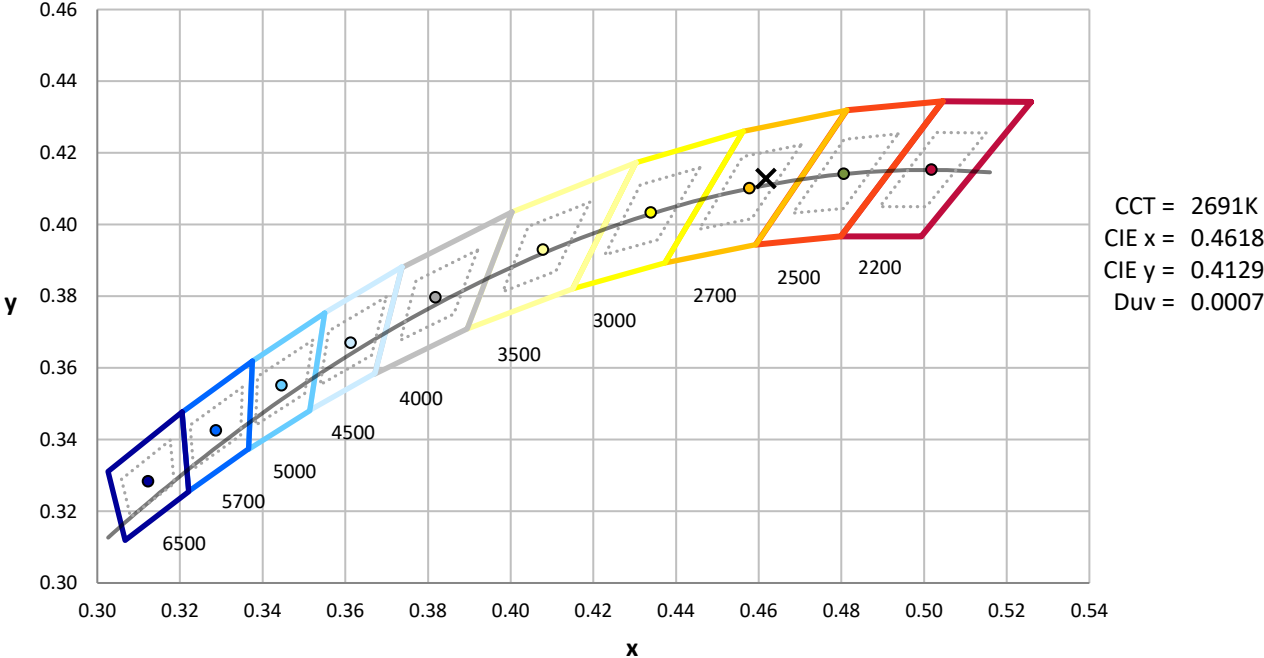
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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**CIE 1931 Chromaticity Diagram**



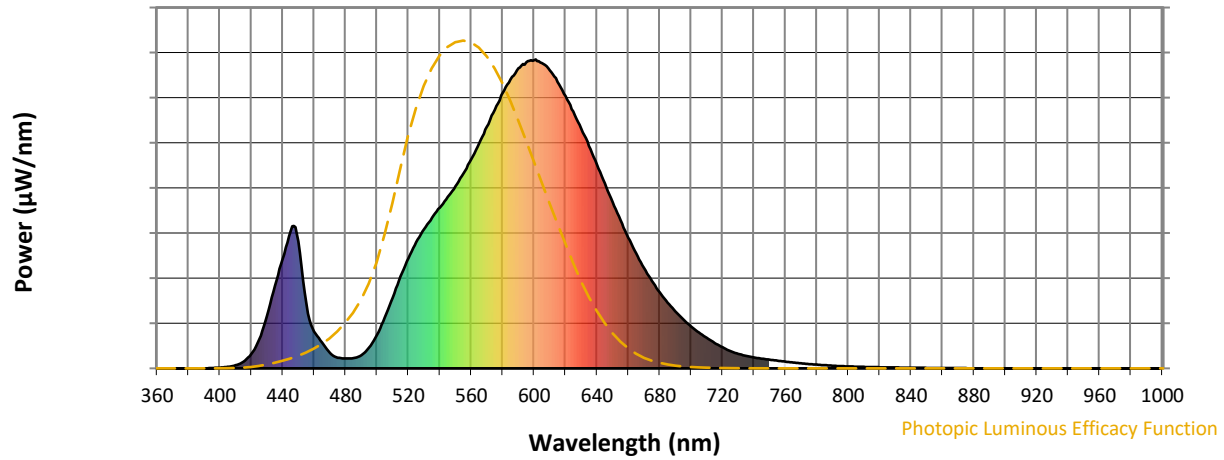
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

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**Photopic Flux vs. Wavelength**

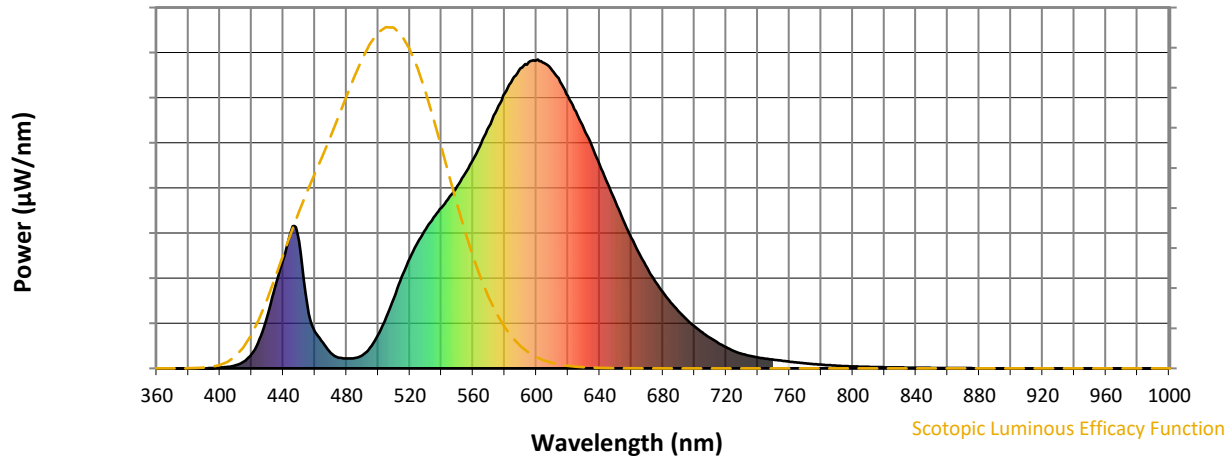


**Photopic Lumens: NR**

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	43	NR	620	881	NR	750	28	NR	880	0	NR
365	0	NR	495	67	NR	625	832	NR	755	25	NR	885	0	NR
370	0	NR	500	108	NR	630	776	NR	760	22	NR	890	0	NR
375	0	NR	505	165	NR	635	720	NR	765	19	NR	895	0	NR
380	0	NR	510	229	NR	640	660	NR	770	16	NR	900	0	NR
385	0	NR	515	297	NR	645	599	NR	775	14	NR	905	0	NR
390	0	NR	520	357	NR	650	538	NR	780	12	NR	910	0	NR
395	1	NR	525	408	NR	655	480	NR	785	10	NR	915	0	NR
400	3	NR	530	451	NR	660	423	NR	790	9	NR	920	0	NR
405	5	NR	535	488	NR	665	372	NR	795	7	NR	925	0	NR
410	10	NR	540	521	NR	670	325	NR	800	6	NR	930	0	NR
415	21	NR	545	555	NR	675	282	NR	805	5	NR	935	0	NR
420	46	NR	550	590	NR	680	246	NR	810	5	NR	940	0	NR
425	94	NR	555	631	NR	685	213	NR	815	4	NR	945	0	NR
430	169	NR	560	677	NR	690	185	NR	820	4	NR	950	0	NR
435	268	NR	565	728	NR	695	158	NR	825	3	NR	955	0	NR
440	354	NR	570	782	NR	700	136	NR	830	3	NR	960	0	NR
445	445	NR	575	838	NR	705	116	NR	835	2	NR	965	0	NR
450	411	NR	580	891	NR	710	98	NR	840	2	NR	970	0	NR
455	210	NR	585	935	NR	715	82	NR	845	2	NR	975	0	NR
460	119	NR	590	972	NR	720	68	NR	850	2	NR	980	0	NR
465	84	NR	595	991	NR	725	56	NR	855	1	NR	985	0	NR
470	50	NR	600	997	NR	730	47	NR	860	1	NR	990	0	NR
475	35	NR	605	988	NR	735	40	NR	865	1	NR	995	0	NR
480	32	NR	610	965	NR	740	35	NR	870	1	NR	1000	0	NR
485	33	NR	615	927	NR	745	31	NR	875	1	NR			

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**Scotopic Flux vs. Wavelength**



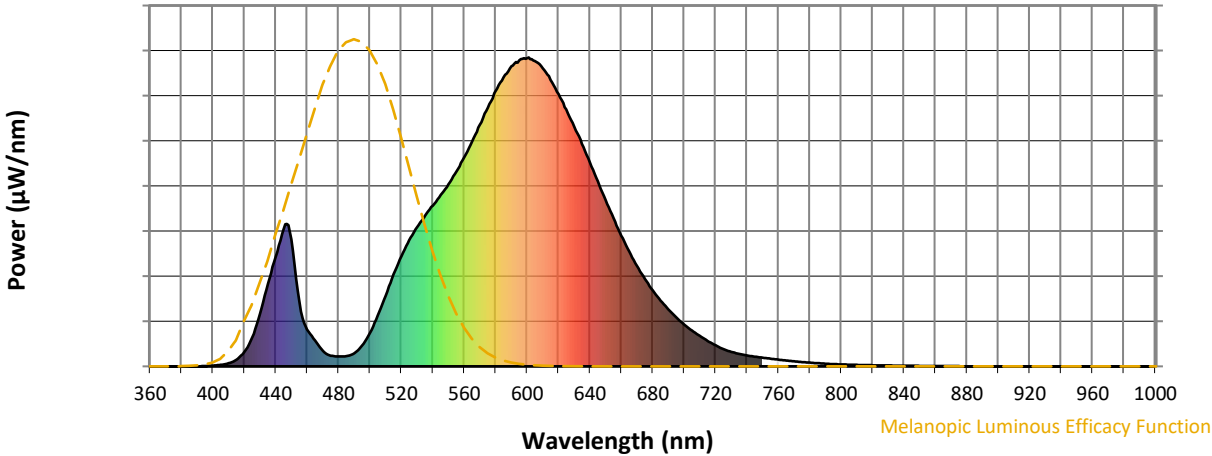
**Scotopic Lumens: NR**

**S/P: 1.03**

$\lambda$ (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	43	NR	620	881	NR	750	28	NR	880	0	NR
365	0	NR	495	67	NR	625	832	NR	755	25	NR	885	0	NR
370	0	NR	500	108	NR	630	776	NR	760	22	NR	890	0	NR
375	0	NR	505	165	NR	635	720	NR	765	19	NR	895	0	NR
380	0	NR	510	229	NR	640	660	NR	770	16	NR	900	0	NR
385	0	NR	515	297	NR	645	599	NR	775	14	NR	905	0	NR
390	0	NR	520	357	NR	650	538	NR	780	12	NR	910	0	NR
395	1	NR	525	408	NR	655	480	NR	785	10	NR	915	0	NR
400	3	NR	530	451	NR	660	423	NR	790	9	NR	920	0	NR
405	5	NR	535	488	NR	665	372	NR	795	7	NR	925	0	NR
410	10	NR	540	521	NR	670	325	NR	800	6	NR	930	0	NR
415	21	NR	545	555	NR	675	282	NR	805	5	NR	935	0	NR
420	46	NR	550	590	NR	680	246	NR	810	5	NR	940	0	NR
425	94	NR	555	631	NR	685	213	NR	815	4	NR	945	0	NR
430	169	NR	560	677	NR	690	185	NR	820	4	NR	950	0	NR
435	268	NR	565	728	NR	695	158	NR	825	3	NR	955	0	NR
440	354	NR	570	782	NR	700	136	NR	830	3	NR	960	0	NR
445	445	NR	575	838	NR	705	116	NR	835	2	NR	965	0	NR
450	411	NR	580	891	NR	710	98	NR	840	2	NR	970	0	NR
455	210	NR	585	935	NR	715	82	NR	845	2	NR	975	0	NR
460	119	NR	590	972	NR	720	68	NR	850	2	NR	980	0	NR
465	84	NR	595	991	NR	725	56	NR	855	1	NR	985	0	NR
470	50	NR	600	997	NR	730	47	NR	860	1	NR	990	0	NR
475	35	NR	605	988	NR	735	40	NR	865	1	NR	995	0	NR
480	32	NR	610	965	NR	740	35	NR	870	1	NR	1000	0	NR
485	33	NR	615	927	NR	745	31	NR	875	1	NR			

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Melanopic Flux vs. Wavelength



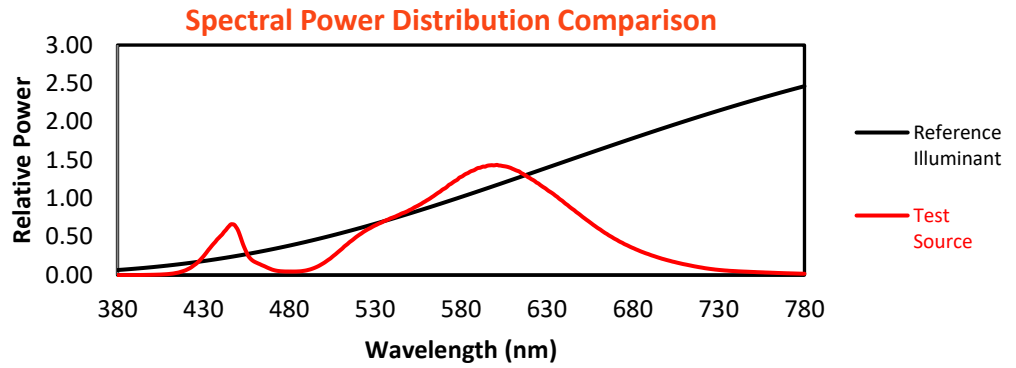
Melanopic Lumens: NR

M/P: 1.73

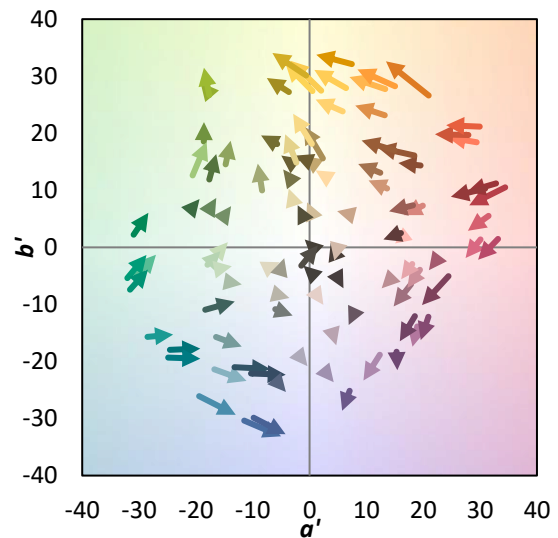
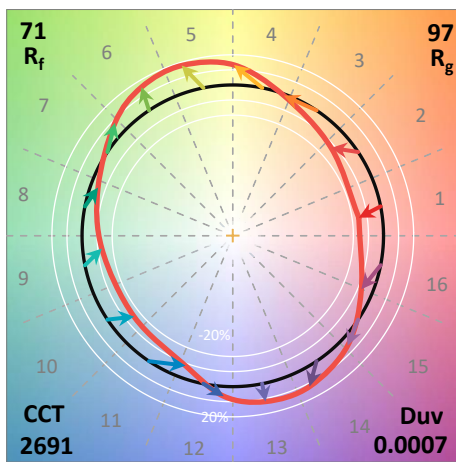
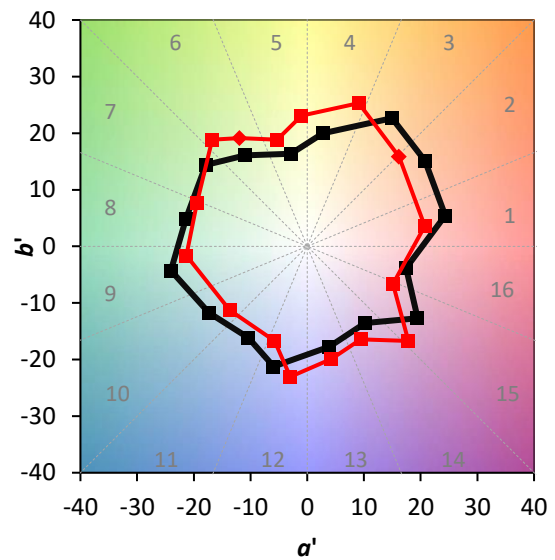
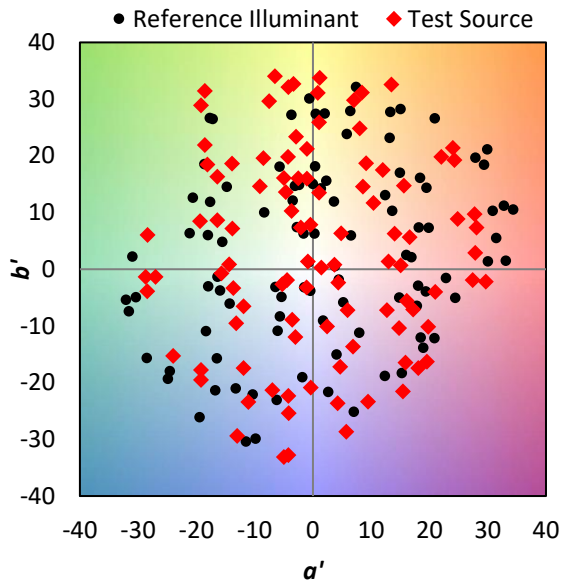
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	43	NR	620	881	NR	750	28	NR	880	0	NR
365	0	NR	495	67	NR	625	832	NR	755	25	NR	885	0	NR
370	0	NR	500	108	NR	630	776	NR	760	22	NR	890	0	NR
375	0	NR	505	165	NR	635	720	NR	765	19	NR	895	0	NR
380	0	NR	510	229	NR	640	660	NR	770	16	NR	900	0	NR
385	0	NR	515	297	NR	645	599	NR	775	14	NR	905	0	NR
390	0	NR	520	357	NR	650	538	NR	780	12	NR	910	0	NR
395	1	NR	525	408	NR	655	480	NR	785	10	NR	915	0	NR
400	3	NR	530	451	NR	660	423	NR	790	9	NR	920	0	NR
405	5	NR	535	488	NR	665	372	NR	795	7	NR	925	0	NR
410	10	NR	540	521	NR	670	325	NR	800	6	NR	930	0	NR
415	21	NR	545	555	NR	675	282	NR	805	5	NR	935	0	NR
420	46	NR	550	590	NR	680	246	NR	810	5	NR	940	0	NR
425	94	NR	555	631	NR	685	213	NR	815	4	NR	945	0	NR
430	169	NR	560	677	NR	690	185	NR	820	4	NR	950	0	NR
435	268	NR	565	728	NR	695	158	NR	825	3	NR	955	0	NR
440	354	NR	570	782	NR	700	136	NR	830	3	NR	960	0	NR
445	445	NR	575	838	NR	705	116	NR	835	2	NR	965	0	NR
450	411	NR	580	891	NR	710	98	NR	840	2	NR	970	0	NR
455	210	NR	585	935	NR	715	82	NR	845	2	NR	975	0	NR
460	119	NR	590	972	NR	720	68	NR	850	2	NR	980	0	NR
465	84	NR	595	991	NR	725	56	NR	855	1	NR	985	0	NR
470	50	NR	600	997	NR	730	47	NR	860	1	NR	990	0	NR
475	35	NR	605	988	NR	735	40	NR	865	1	NR	995	0	NR
480	32	NR	610	965	NR	740	35	NR	870	1	NR	1000	0	NR
485	33	NR	615	927	NR	745	31	NR	875	1	NR			

**Summary**

$R_f = 70.6$   
 $R_g = 97.2$   
 CIE  $R_a = 70.6$   
 $R_9 = -27.1$

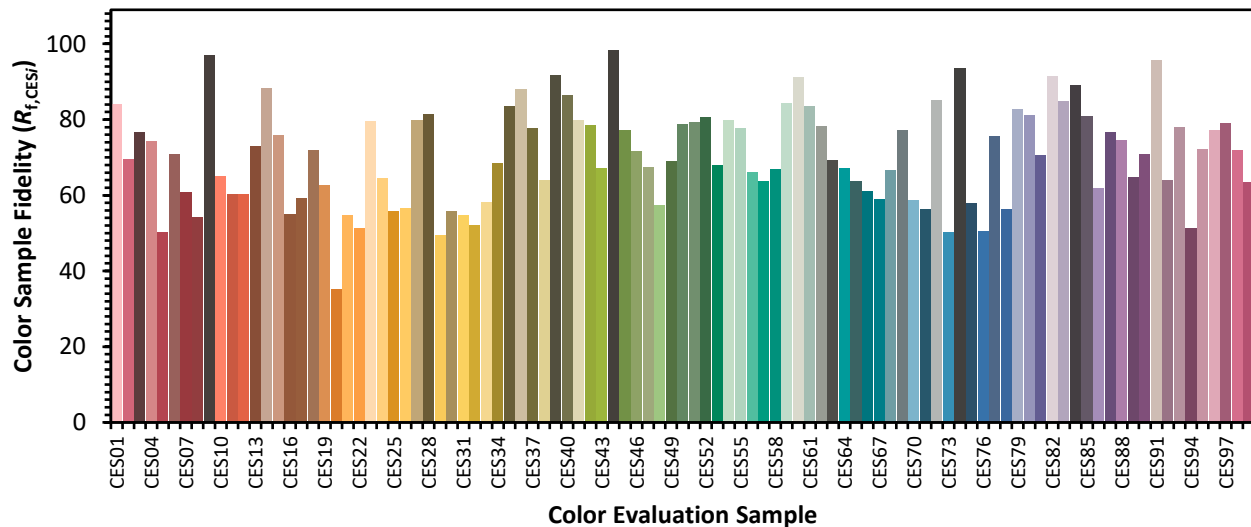


**Color Vector Graphics**



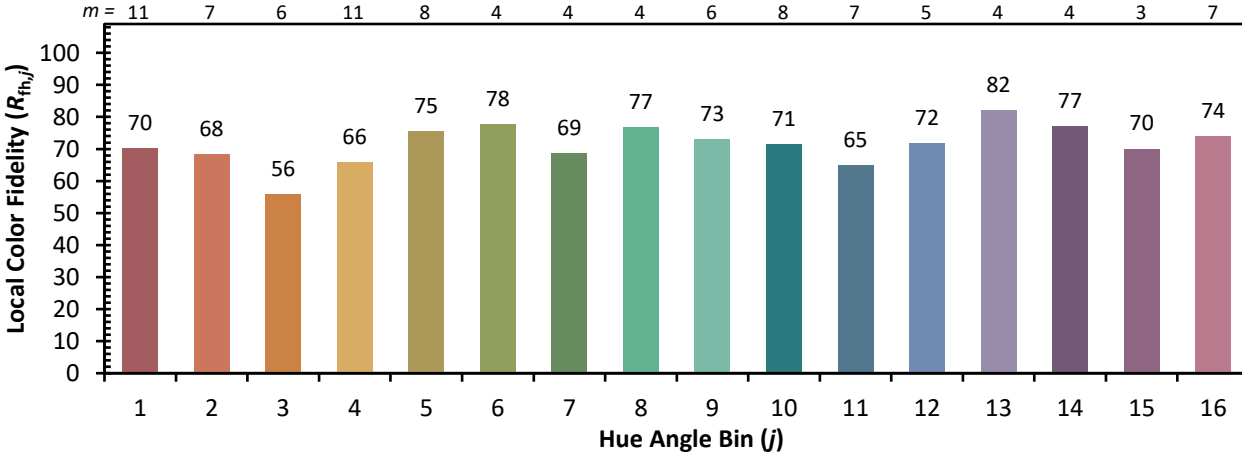
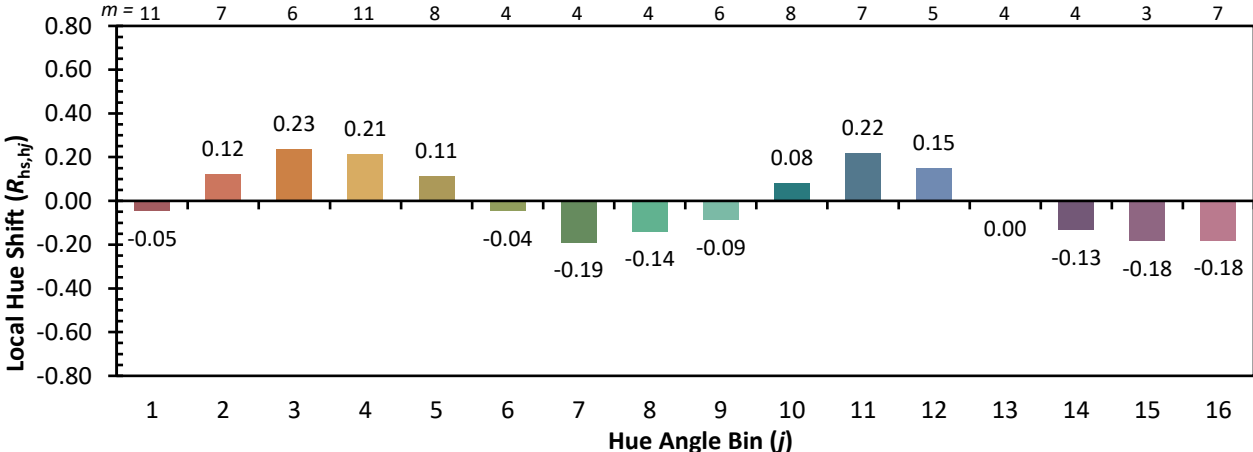
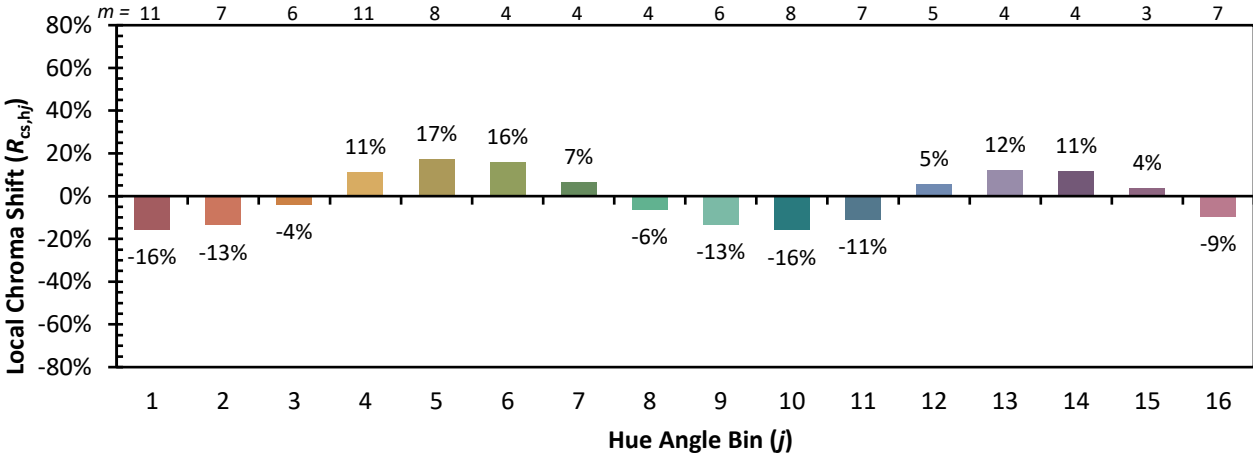
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 86	CES26 = 57	CES51 = 79	CES76 = 50
CES02 = 63	CES27 = 80	CES52 = 81	CES77 = 76
CES03 = 31	CES28 = 81	CES53 = 68	CES78 = 56
CES04 = 71	CES29 = 49	CES54 = 80	CES79 = 83
CES05 = 50	CES30 = 56	CES55 = 78	CES80 = 81
CES06 = 52	CES31 = 55	CES56 = 66	CES81 = 71
CES07 = 42	CES32 = 52	CES57 = 64	CES82 = 92
CES08 = 41	CES33 = 58	CES58 = 67	CES83 = 85
CES09 = 29	CES34 = 69	CES59 = 84	CES84 = 89
CES10 = 77	CES35 = 84	CES60 = 91	CES85 = 81
CES11 = 60	CES36 = 88	CES61 = 84	CES86 = 62
CES12 = 66	CES37 = 78	CES62 = 78	CES87 = 77
CES13 = 44	CES38 = 64	CES63 = 69	CES88 = 75
CES14 = 74	CES39 = 92	CES64 = 67	CES89 = 65
CES15 = 72	CES40 = 86	CES65 = 64	CES90 = 71
CES16 = 48	CES41 = 80	CES66 = 61	CES91 = 96
CES17 = 51	CES42 = 79	CES67 = 59	CES92 = 64
CES18 = 57	CES43 = 67	CES68 = 67	CES93 = 78
CES19 = 73	CES44 = 98	CES69 = 77	CES94 = 51
CES20 = 67	CES45 = 77	CES70 = 59	CES95 = 72
CES21 = 88	CES46 = 72	CES71 = 56	CES96 = 77
CES22 = 80	CES47 = 67	CES72 = 85	CES97 = 79
CES23 = 92	CES48 = 57	CES73 = 50	CES98 = 72
CES24 = 92	CES49 = 69	CES74 = 94	CES99 = 63
CES25 = 73	CES50 = 79	CES75 = 58	

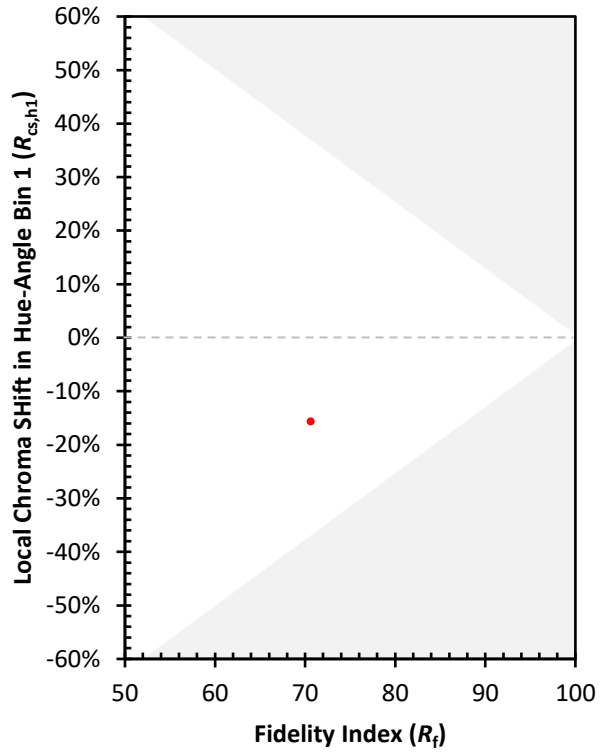
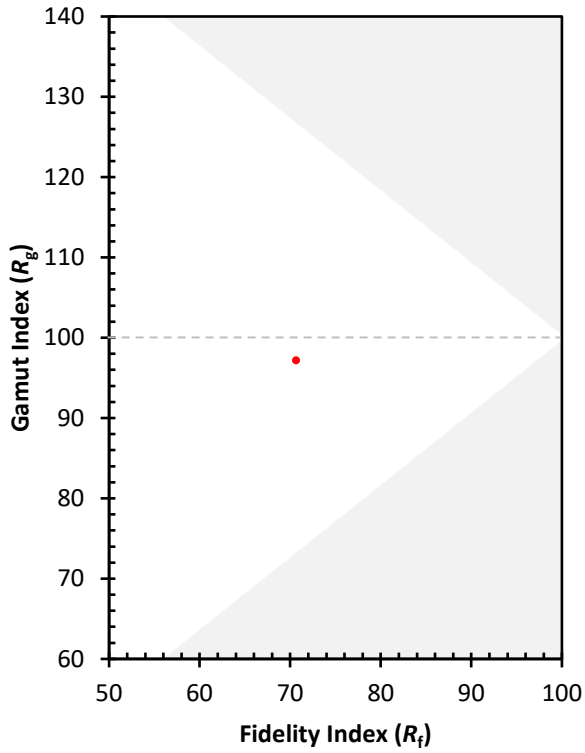




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)