

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: P868734

Luminaire Tested: **EMM2-HTN-SA2A-727-U-T5W**

Issue Date: 08/22/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P868734  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 08/22/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HTN-SA2A-727-U-T5W  
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 70W 70CRI 2700K  
FIXTURE w/ TYPE V SQUARE WIDE DISTRIBUTION OPTIC  
Light Source: (20) 2700K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

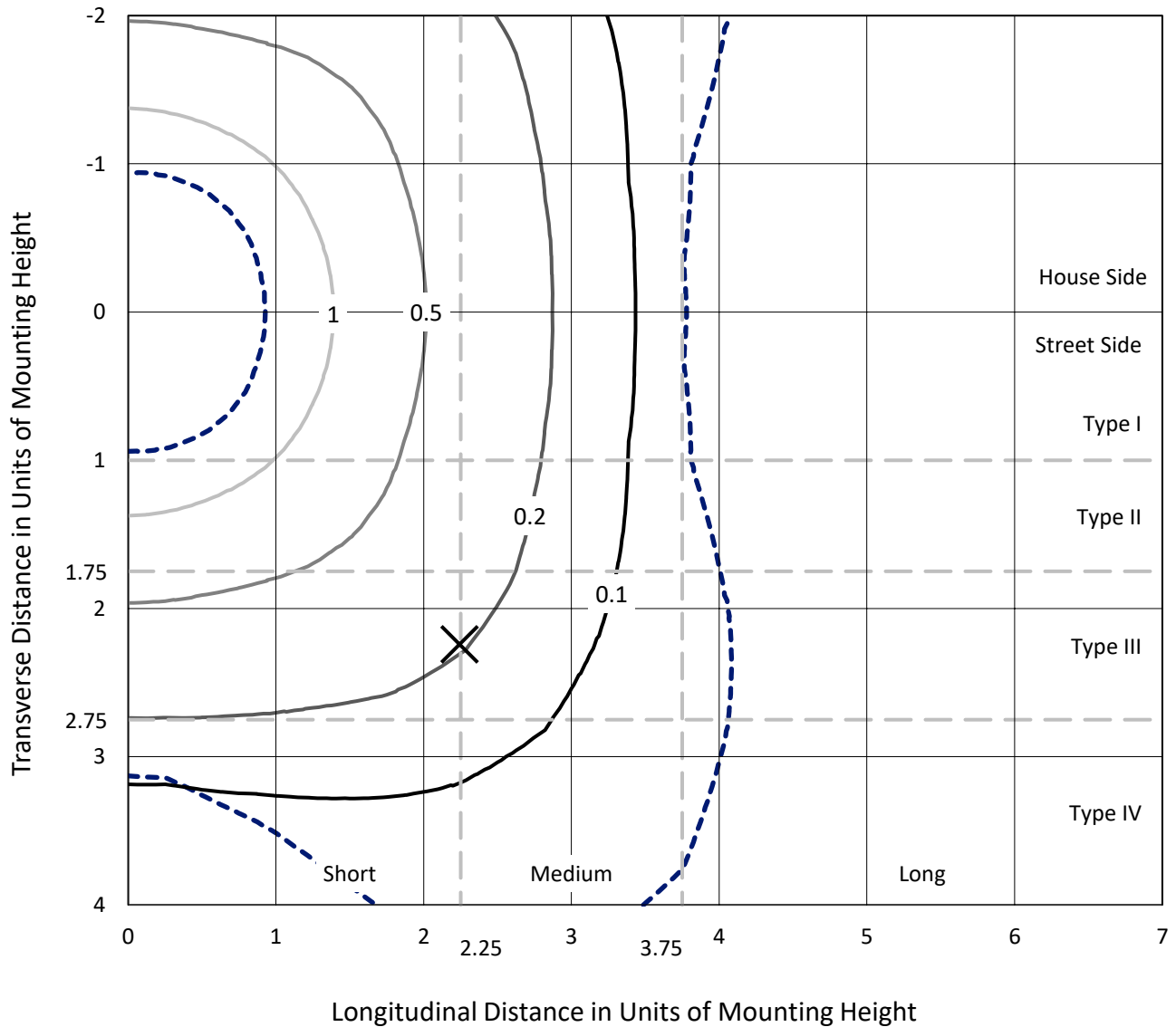
Lumens per Lamp: N/A  
Luminaire Lumens: 8907 lumens  
Efficiency: N/A  
Efficacy: 146.0 lumens/watt  
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B3 - U0 - G2

Input Watts (W): 61  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 9.89%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

REPORT NUMBER: P868734  
 CATALOG NUMBER: EMM2-HTN-SA2A-727-U-T5W

### Iso-Footcandle Lines of Horizontal Illumination

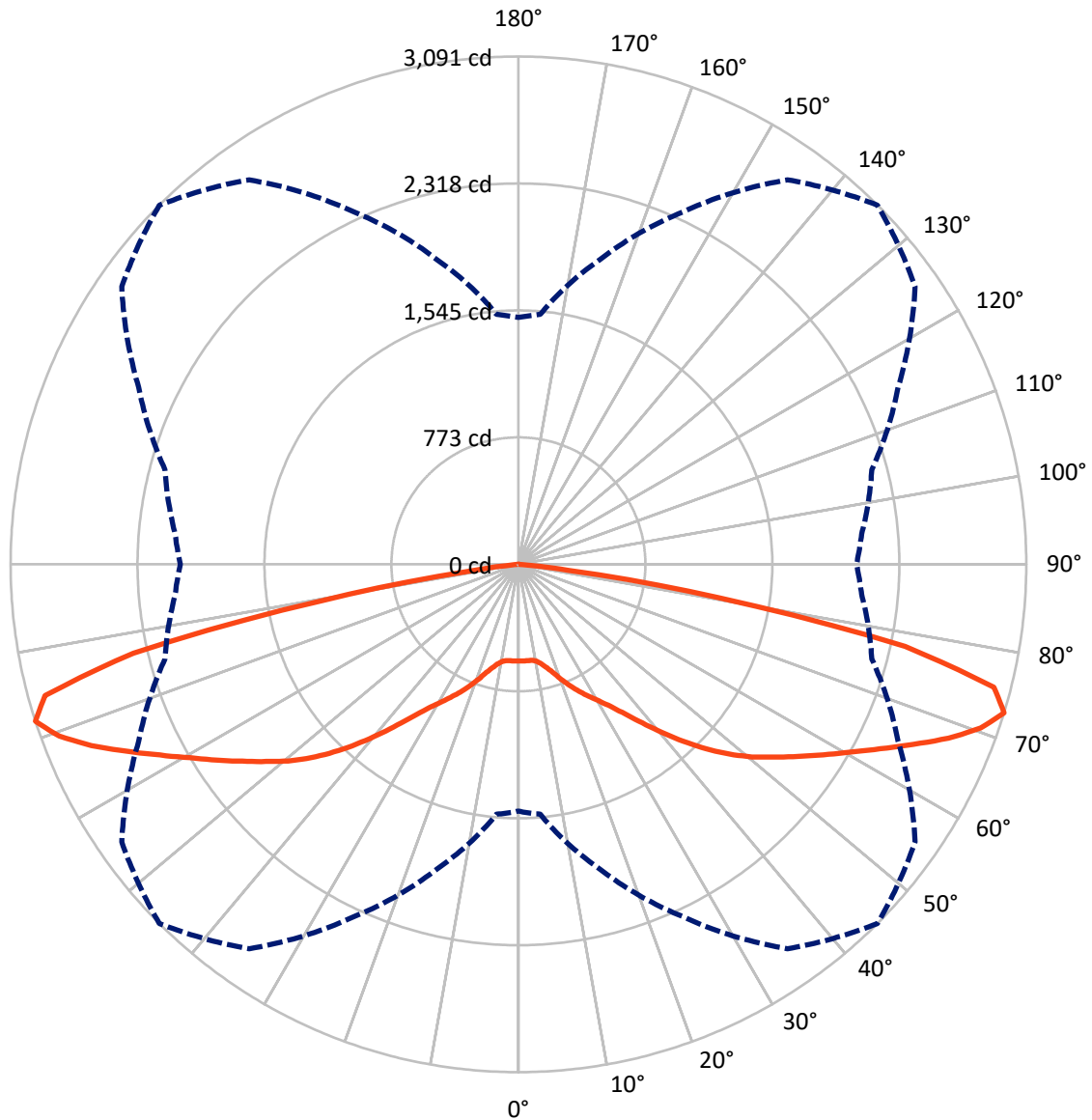
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 1.6 fc  
 Type V - Short - N/A

REPORT NUMBER: P868734  
CATALOG NUMBER: EMM2-HTN-SA2A-727-U-T5W

### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral      - - - Horizontal Cone Through 72.5-Deg Vertical

REPORT NUMBER: P868734  
 CATALOG NUMBER: EMM2-HTN-SA2A-727-U-T5W

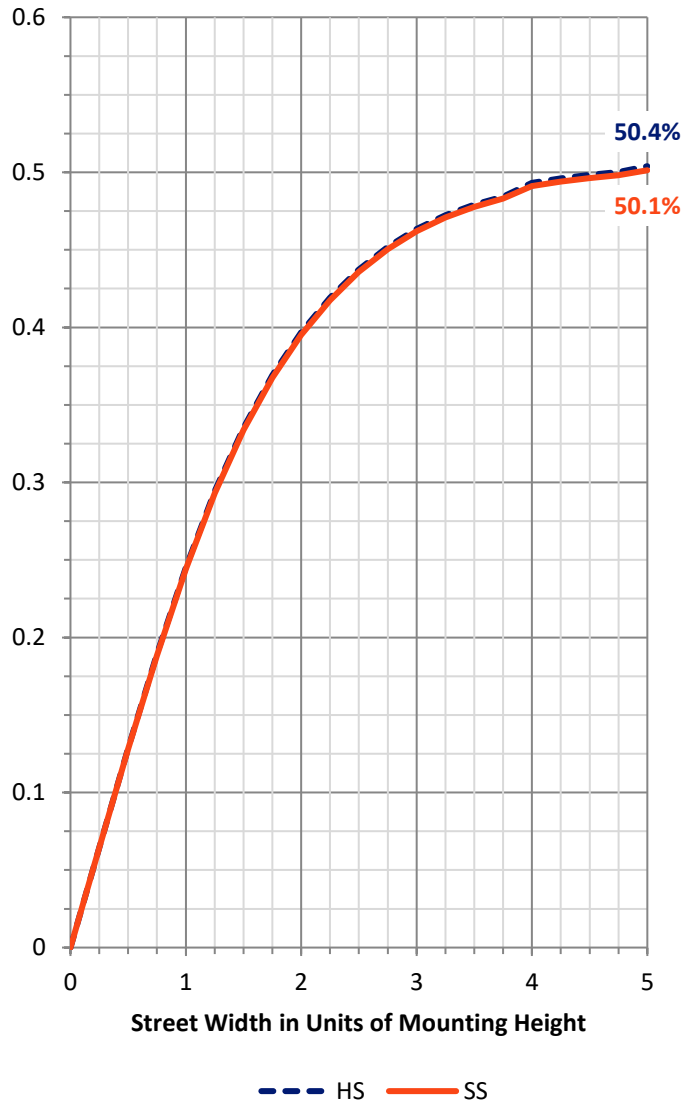
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	4453.5	0.0	4453.5
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	4453.5	0.0	4453.5
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	8907.0	0.0	8907.0
	% Fixture	100.0	0.0	100.0

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	56.4	0.6
10°-20°	188.1	2.1
20°-30°	388.1	4.4
30°-40°	714.5	8.0
40°-50°	1256.2	14.1
50°-60°	1821.9	20.5
60°-70°	2375.1	26.7
70°-80°	1974.3	22.2
80°-90°	132.6	1.5
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°	8907.0	100.0
0°-180°	8907.0	100.0

**Coefficient of Utilization**



REPORT NUMBER: P868734

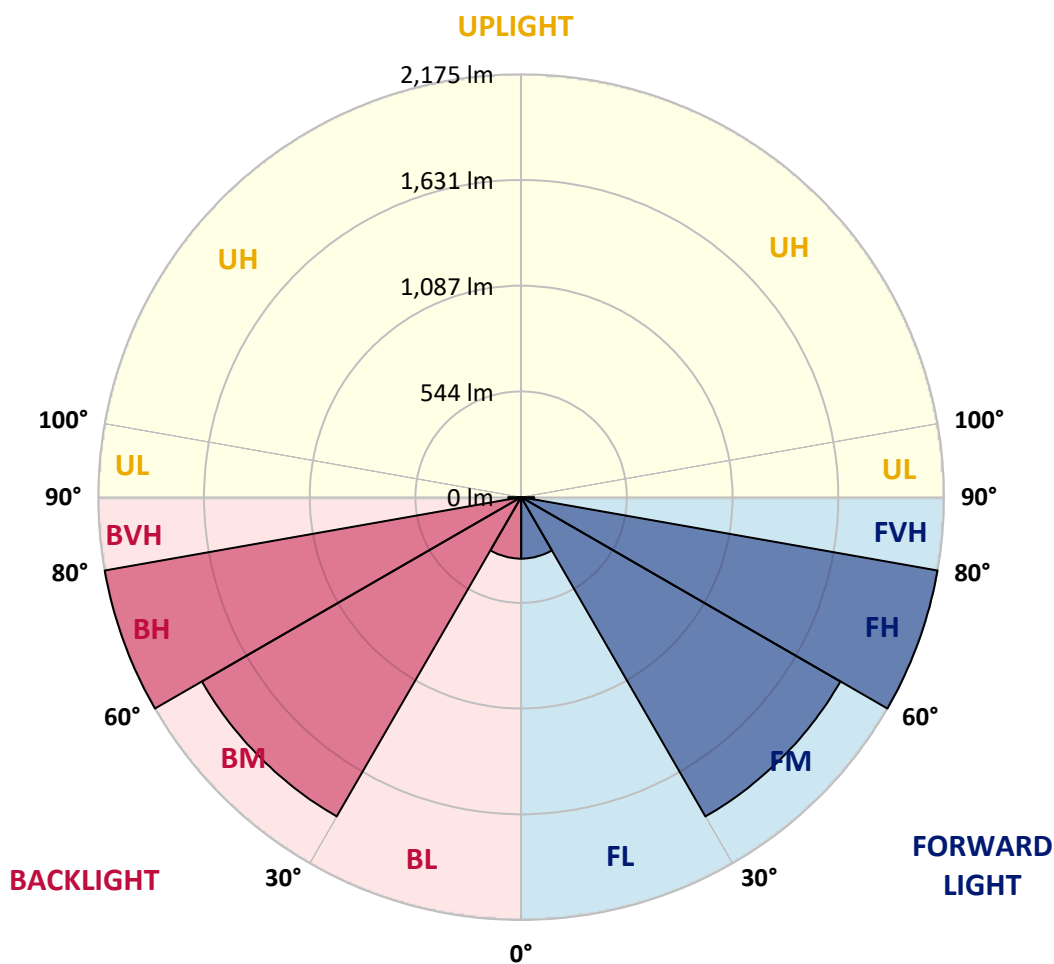
CATALOG NUMBER: EMM2-HTN-SA2A-727-U-T5W

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	316.3	3.6			
FM (30°-60°)	1896.3	21.3			
FH (60°-80°)	2174.7	24.4			G2/5000
FVH (80°-90°)	66.3	0.7			G1/100
BL (0°-30°)	316.3	3.6	B1/500		
BM (30°-60°)	1896.3	21.3	B2/2500		
BH (60°-80°)	2174.7	24.4	B3/2500		G2/5000
BVH (80°-90°)	66.3	0.7			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B3-U0-G2**

Type V Short





REPORT NUMBER: P868734

CATALOG NUMBER: EMM2-HTN-SA2A-727-U-T5W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	588.0	588.0	588.0	588.0	588.0	588.0	588.0	588.0	588.0	588.0	588.0
2.5°	586.2	587.1	587.1	587.1	588.0	588.9	589.9	590.8	592.6	593.6	593.6
5°	588.9	588.0	587.1	588.9	588.9	588.9	589.9	590.8	590.8	590.8	591.7
7.5°	586.2	587.1	586.2	586.2	588.9	589.9	588.9	588.0	588.0	588.9	588.9
10°	596.3	595.4	594.5	594.5	597.2	598.2	597.2	596.3	596.3	598.2	598.2
12.5°	619.4	621.2	615.7	615.7	619.4	621.2	618.5	617.6	618.5	620.3	620.3
15°	655.4	654.5	650.8	647.1	650.8	653.6	649.9	648.0	648.9	653.6	649.9
17.5°	695.1	696.0	692.3	688.6	691.4	695.1	689.6	684.9	685.9	687.7	685.9
20°	739.4	738.5	737.6	737.6	743.1	747.7	739.4	728.3	725.6	723.7	723.7
22.5°	771.7	774.5	775.4	783.7	796.6	801.3	790.2	775.4	764.3	758.8	755.1
25°	822.5	819.7	817.9	827.1	846.5	854.8	840.9	820.6	809.6	808.6	811.4
27.5°	868.6	868.6	872.3	881.6	900.0	908.3	896.3	876.0	870.5	870.5	867.7
30°	928.6	925.9	929.6	945.3	959.1	964.6	954.5	940.6	936.0	936.0	931.4
32.5°	998.8	999.7	1005.3	1015.4	1029.3	1030.2	1026.5	1020.0	1017.3	1014.5	1019.1
35°	1105.9	1105.9	1104.0	1111.4	1115.1	1117.0	1118.8	1116.0	1116.0	1116.0	1112.3
37.5°	1238.8	1231.4	1230.5	1224.0	1219.4	1224.0	1232.3	1241.6	1249.0	1244.3	1242.5
40°	1370.8	1367.1	1356.0	1345.9	1342.2	1344.0	1354.2	1373.6	1381.9	1381.9	1389.3
42.5°	1513.0	1505.6	1491.7	1479.7	1469.6	1472.3	1481.6	1505.6	1524.0	1532.3	1528.7
45°	1640.3	1633.9	1620.0	1609.0	1601.6	1600.7	1612.7	1628.3	1653.3	1660.7	1666.2
47.5°	1749.3	1744.7	1732.7	1721.6	1724.4	1725.3	1729.0	1742.8	1763.1	1773.3	1772.4
50°	1837.9	1834.2	1823.1	1827.7	1835.1	1842.5	1837.9	1847.1	1860.0	1864.7	1868.4
52.5°	1919.1	1913.6	1906.2	1914.5	1933.9	1948.7	1951.4	1945.0	1948.7	1951.4	1948.7
55°	1999.4	1993.0	1991.1	2005.9	2035.4	2063.1	2060.4	2041.9	2037.3	2031.7	2029.0
57.5°	2065.0	2060.4	2067.7	2092.7	2149.9	2186.8	2174.8	2132.4	2113.9	2101.0	2097.3
60°	2106.5	2105.6	2122.2	2180.4	2267.1	2318.8	2299.4	2226.5	2185.0	2173.0	2167.4
62.5°	2128.7	2129.6	2159.1	2262.5	2401.0	2471.1	2437.0	2325.3	2260.7	2248.7	2250.5
65°	2149.0	2146.2	2185.0	2331.8	2545.9	2641.0	2594.8	2444.4	2350.2	2326.2	2326.2
67.5°	2163.7	2166.5	2224.7	2401.0	2687.1	2822.8	2755.5	2570.8	2446.2	2410.2	2405.6
70°	1977.3	2004.1	2185.9	2447.1	2798.8	2983.5	2894.8	2648.4	2449.9	2347.4	2337.3
72.5°	1501.9	1526.8	1920.0	2365.0	2856.1	3090.5	2946.5	2549.6	2226.5	2096.4	2057.6
75°	990.5	1008.0	1430.8	2065.9	2697.3	2989.0	2683.5	2196.1	1753.0	1584.0	1594.2
77.5°	441.2	497.6	912.0	1611.7	2221.9	2405.6	2046.5	1498.2	1070.8	906.5	888.9
80°	184.6	202.2	344.3	859.4	1287.7	1232.3	871.4	502.2	319.4	248.3	240.0
82.5°	53.5	55.4	68.3	148.6	262.2	308.3	185.5	94.2	89.5	71.1	65.5
85°	3.7	3.7	5.5	9.2	12.9	21.2	24.0	27.7	31.4	26.8	26.8
87.5°	1.8	1.8	1.8	2.8	2.8	3.7	2.8	2.8	2.8	2.8	2.8
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: SP1-2407-157-3

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-727-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-727-U-5WQ-2



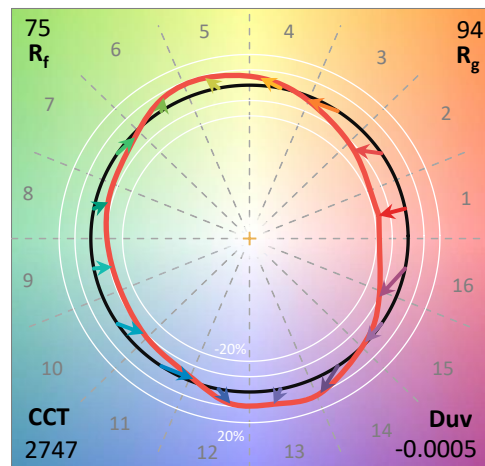
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-157-3  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 08/20/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Streetworks  
 Catalog Number: **MEM2-HTN-SA-40-727-U-5WQ-2**  
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

**Spectral Parameters**

CCT (K): 2747  
 CIE u': 0.2606  
 CIE v': 0.5257  
 Duv: -0.0005  
 CIE x: 0.4552  
 CIE y: 0.4082  
 CIE z: 0.1366  
 Peak Wavelength (nm): 597  
 Dominant Wavelength (nm): 584  
 Purity: 59.16856  
 Rf: 75.5  
 Rg: 93.6

CRI (Ra):	71.7		
R1:	68.1	R9:	-35.3
R2:	83.9	R10:	64.2
R3:	94.7	R11:	61.7
R4:	66.3	R12:	53.9
R5:	67.4	R13:	71.2
R6:	78.7	R14:	97.6
R7:	75.0	R15:	59.3
R8:	39.4		



**Test Conditions**

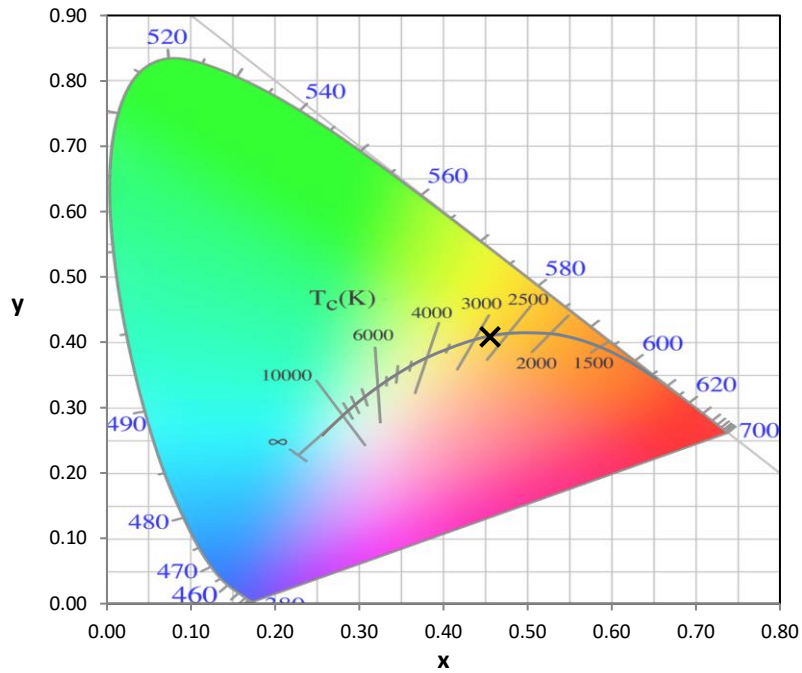
Stabilization Time: 22M  
 Operation Time: 1H 22M  
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-3

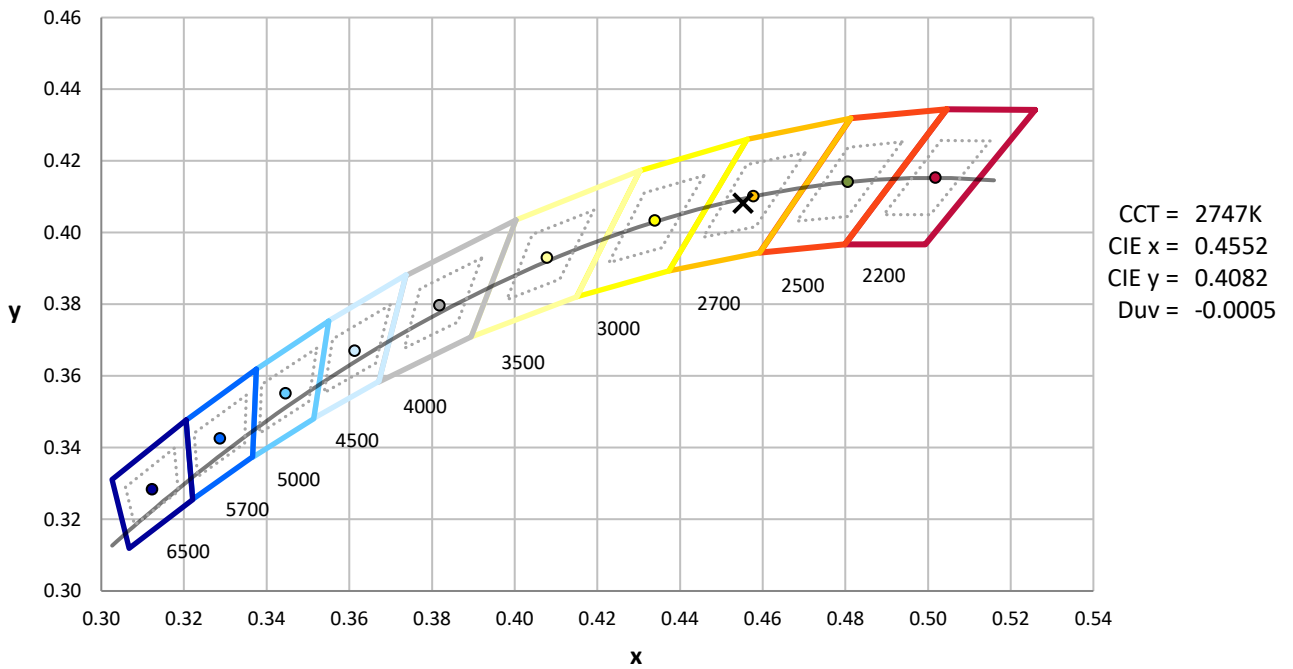
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2407-157-3

**CIE 1931 Chromaticity Diagram**



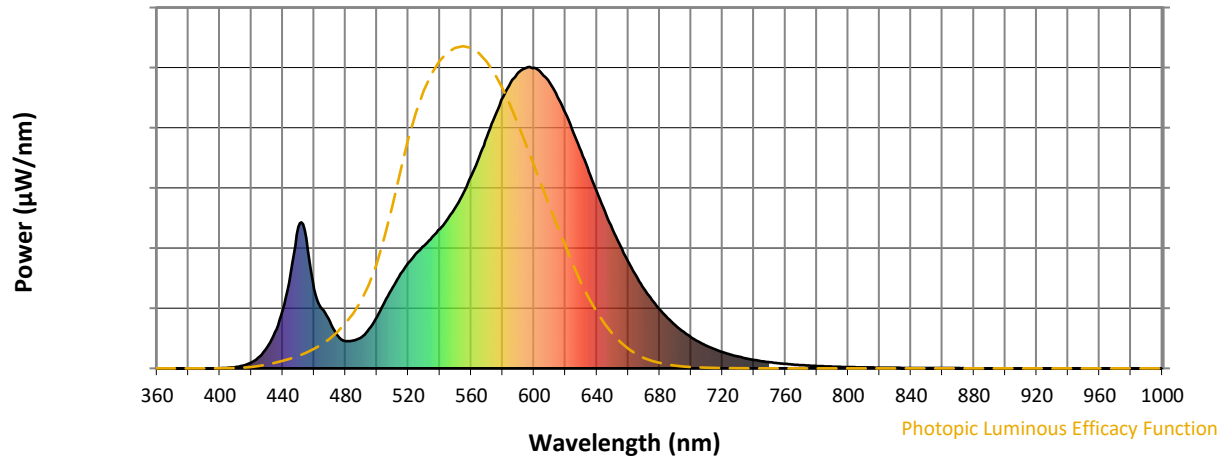
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-3

**Photopic Flux vs. Wavelength**

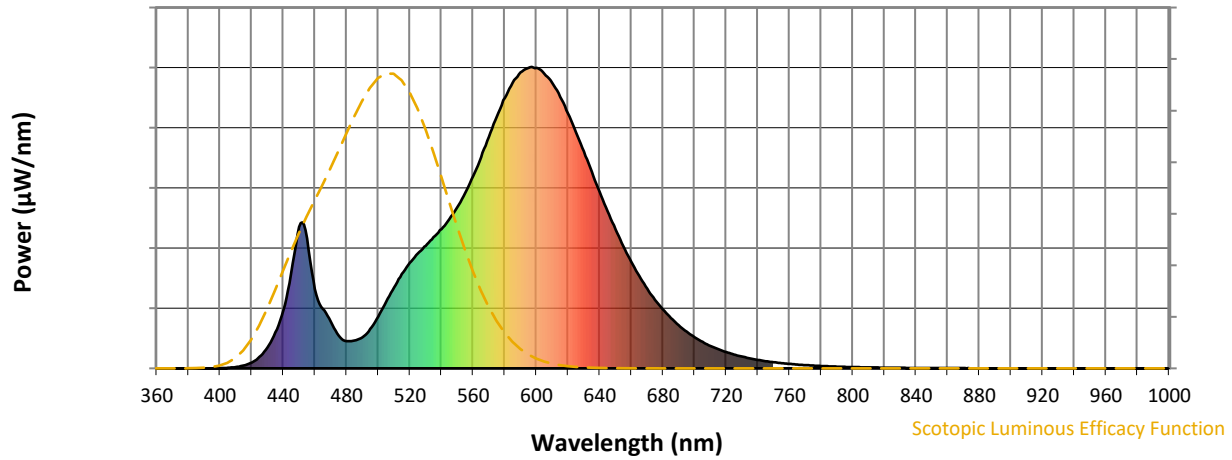


**Photopic Lumens: NR**

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	103	NR	620	846	NR	750	20	NR	880	0	NR
365	0	NR	495	130	NR	625	784	NR	755	17	NR	885	1	NR
370	0	NR	500	171	NR	630	720	NR	760	15	NR	890	0	NR
375	0	NR	505	221	NR	635	652	NR	765	13	NR	895	0	NR
380	0	NR	510	268	NR	640	587	NR	770	11	NR	900	0	NR
385	0	NR	515	313	NR	645	521	NR	775	9	NR	905	0	NR
390	0	NR	520	350	NR	650	461	NR	780	8	NR	910	0	NR
395	0	NR	525	381	NR	655	406	NR	785	7	NR	915	0	NR
400	0	NR	530	407	NR	660	353	NR	790	6	NR	920	0	NR
405	2	NR	535	435	NR	665	307	NR	795	5	NR	925	0	NR
410	4	NR	540	462	NR	670	264	NR	800	4	NR	930	0	NR
415	9	NR	545	496	NR	675	227	NR	805	4	NR	935	0	NR
420	20	NR	550	534	NR	680	196	NR	810	3	NR	940	0	NR
425	38	NR	555	582	NR	685	167	NR	815	3	NR	945	0	NR
430	69	NR	560	638	NR	690	144	NR	820	2	NR	950	0	NR
435	120	NR	565	700	NR	695	122	NR	825	2	NR	955	0	NR
440	193	NR	570	767	NR	700	103	NR	830	2	NR	960	0	NR
445	316	NR	575	836	NR	705	88	NR	835	2	NR	965	0	NR
450	469	NR	580	898	NR	710	74	NR	840	1	NR	970	0	NR
455	431	NR	585	947	NR	715	63	NR	845	1	NR	975	0	NR
460	264	NR	590	982	NR	720	54	NR	850	1	NR	980	0	NR
465	197	NR	595	997	NR	725	46	NR	855	1	NR	985	0	NR
470	155	NR	600	997	NR	730	39	NR	860	1	NR	990	0	NR
475	108	NR	605	978	NR	735	33	NR	865	1	NR	995	0	NR
480	90	NR	610	947	NR	740	28	NR	870	1	NR	1000	0	NR
485	92	NR	615	900	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-3

**Scotopic Flux vs. Wavelength**



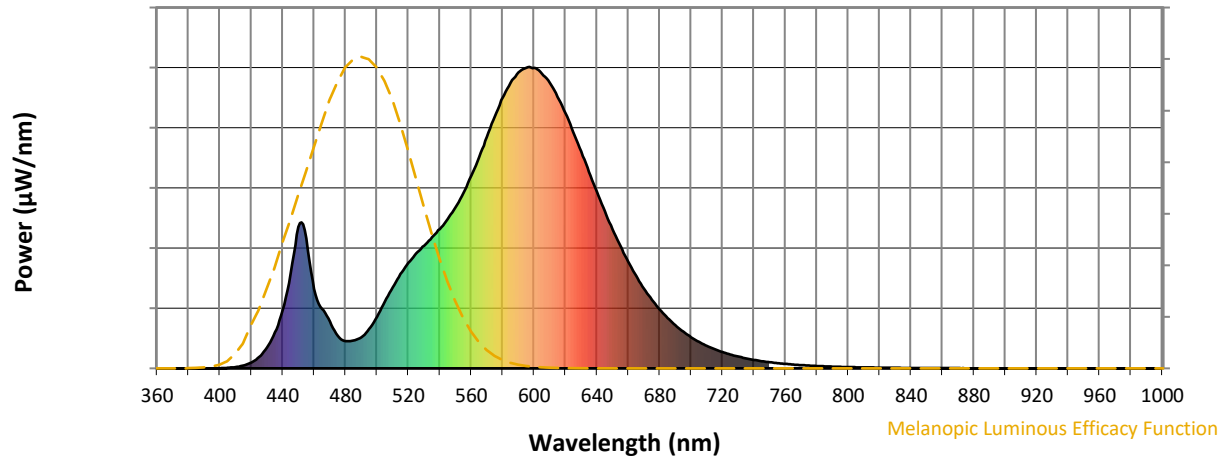
**Scotopic Lumens: NR**

**S/P: 1.13**

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	103	NR	620	846	NR	750	20	NR	880	0	NR
365	0	NR	495	130	NR	625	784	NR	755	17	NR	885	1	NR
370	0	NR	500	171	NR	630	720	NR	760	15	NR	890	0	NR
375	0	NR	505	221	NR	635	652	NR	765	13	NR	895	0	NR
380	0	NR	510	268	NR	640	587	NR	770	11	NR	900	0	NR
385	0	NR	515	313	NR	645	521	NR	775	9	NR	905	0	NR
390	0	NR	520	350	NR	650	461	NR	780	8	NR	910	0	NR
395	0	NR	525	381	NR	655	406	NR	785	7	NR	915	0	NR
400	0	NR	530	407	NR	660	353	NR	790	6	NR	920	0	NR
405	2	NR	535	435	NR	665	307	NR	795	5	NR	925	0	NR
410	4	NR	540	462	NR	670	264	NR	800	4	NR	930	0	NR
415	9	NR	545	496	NR	675	227	NR	805	4	NR	935	0	NR
420	20	NR	550	534	NR	680	196	NR	810	3	NR	940	0	NR
425	38	NR	555	582	NR	685	167	NR	815	3	NR	945	0	NR
430	69	NR	560	638	NR	690	144	NR	820	2	NR	950	0	NR
435	120	NR	565	700	NR	695	122	NR	825	2	NR	955	0	NR
440	193	NR	570	767	NR	700	103	NR	830	2	NR	960	0	NR
445	316	NR	575	836	NR	705	88	NR	835	2	NR	965	0	NR
450	469	NR	580	898	NR	710	74	NR	840	1	NR	970	0	NR
455	431	NR	585	947	NR	715	63	NR	845	1	NR	975	0	NR
460	264	NR	590	982	NR	720	54	NR	850	1	NR	980	0	NR
465	197	NR	595	997	NR	725	46	NR	855	1	NR	985	0	NR
470	155	NR	600	997	NR	730	39	NR	860	1	NR	990	0	NR
475	108	NR	605	978	NR	735	33	NR	865	1	NR	995	0	NR
480	90	NR	610	947	NR	740	28	NR	870	1	NR	1000	0	NR
485	92	NR	615	900	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-3

**Melanopic Flux vs. Wavelength**



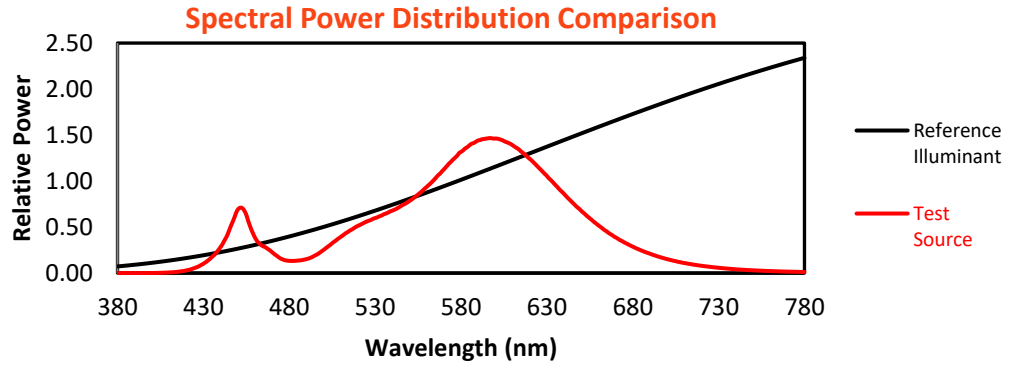
**Melanopic Lumens: NR**

**M/P: 2.04**

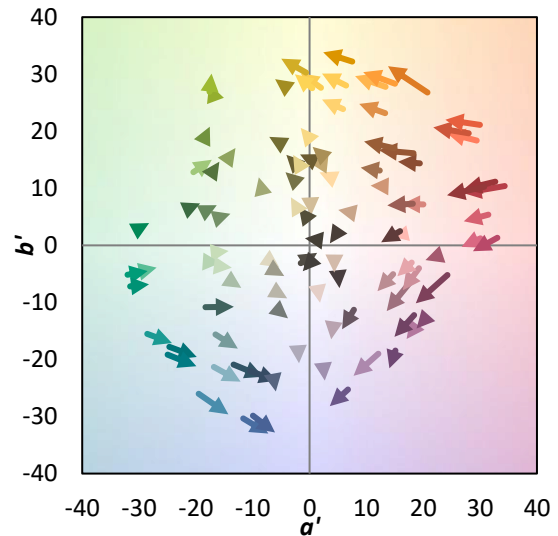
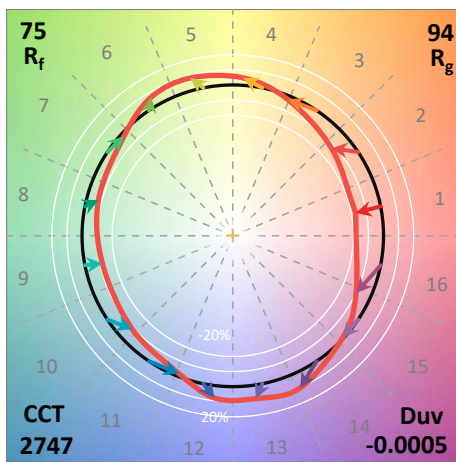
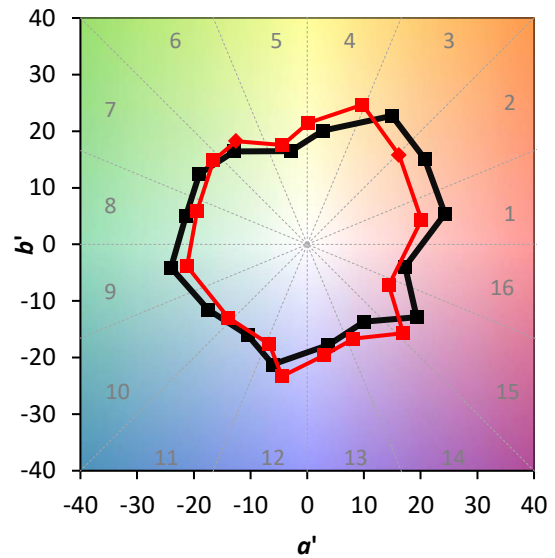
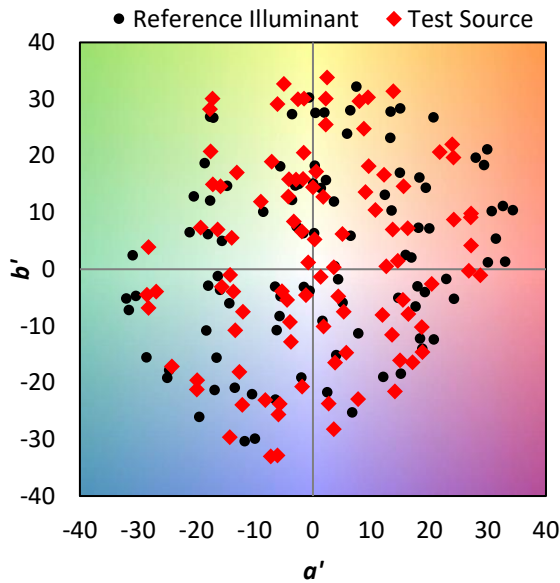
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	103	NR	620	846	NR	750	20	NR	880	0	NR
365	0	NR	495	130	NR	625	784	NR	755	17	NR	885	1	NR
370	0	NR	500	171	NR	630	720	NR	760	15	NR	890	0	NR
375	0	NR	505	221	NR	635	652	NR	765	13	NR	895	0	NR
380	0	NR	510	268	NR	640	587	NR	770	11	NR	900	0	NR
385	0	NR	515	313	NR	645	521	NR	775	9	NR	905	0	NR
390	0	NR	520	350	NR	650	461	NR	780	8	NR	910	0	NR
395	0	NR	525	381	NR	655	406	NR	785	7	NR	915	0	NR
400	0	NR	530	407	NR	660	353	NR	790	6	NR	920	0	NR
405	2	NR	535	435	NR	665	307	NR	795	5	NR	925	0	NR
410	4	NR	540	462	NR	670	264	NR	800	4	NR	930	0	NR
415	9	NR	545	496	NR	675	227	NR	805	4	NR	935	0	NR
420	20	NR	550	534	NR	680	196	NR	810	3	NR	940	0	NR
425	38	NR	555	582	NR	685	167	NR	815	3	NR	945	0	NR
430	69	NR	560	638	NR	690	144	NR	820	2	NR	950	0	NR
435	120	NR	565	700	NR	695	122	NR	825	2	NR	955	0	NR
440	193	NR	570	767	NR	700	103	NR	830	2	NR	960	0	NR
445	316	NR	575	836	NR	705	88	NR	835	2	NR	965	0	NR
450	469	NR	580	898	NR	710	74	NR	840	1	NR	970	0	NR
455	431	NR	585	947	NR	715	63	NR	845	1	NR	975	0	NR
460	264	NR	590	982	NR	720	54	NR	850	1	NR	980	0	NR
465	197	NR	595	997	NR	725	46	NR	855	1	NR	985	0	NR
470	155	NR	600	997	NR	730	39	NR	860	1	NR	990	0	NR
475	108	NR	605	978	NR	735	33	NR	865	1	NR	995	0	NR
480	90	NR	610	947	NR	740	28	NR	870	1	NR	1000	0	NR
485	92	NR	615	900	NR	745	24	NR	875	1	NR			

**Summary**

$R_f = 75.5$   
 $R_g = 93.6$   
 $CIE R_a = 71.7$   
 $R_9 = -35.3$

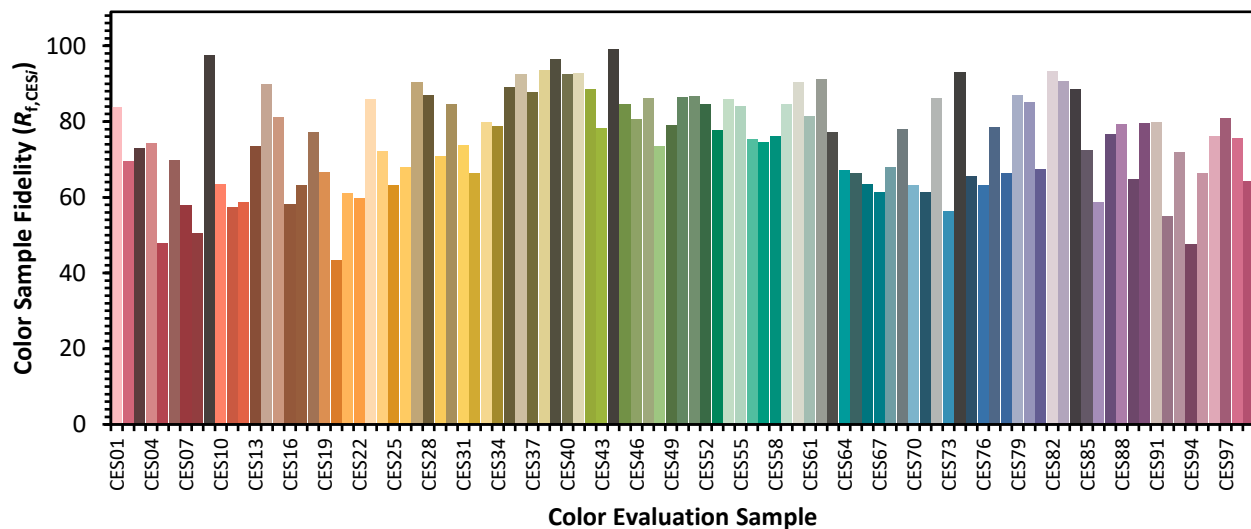


**Color Vector Graphics**



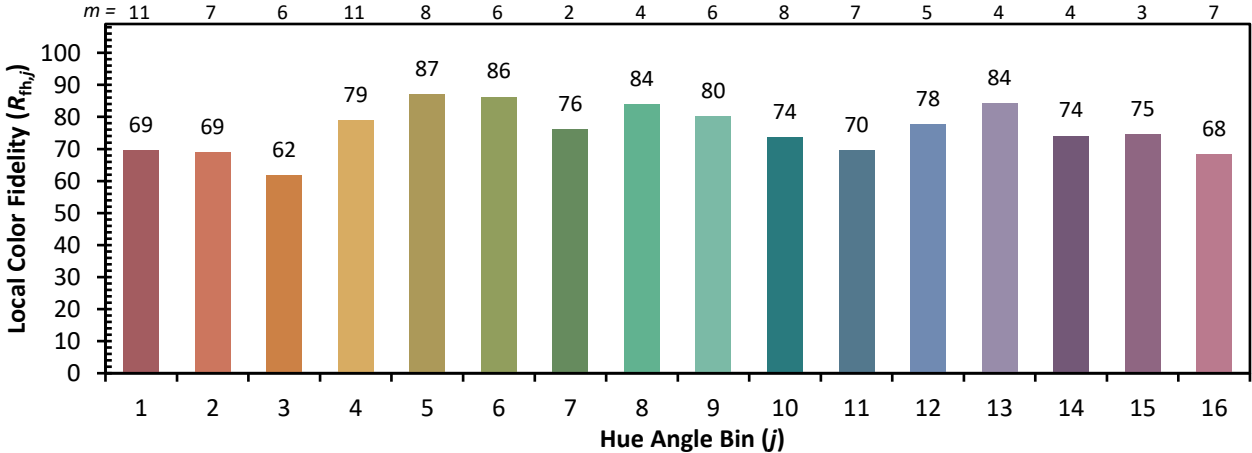
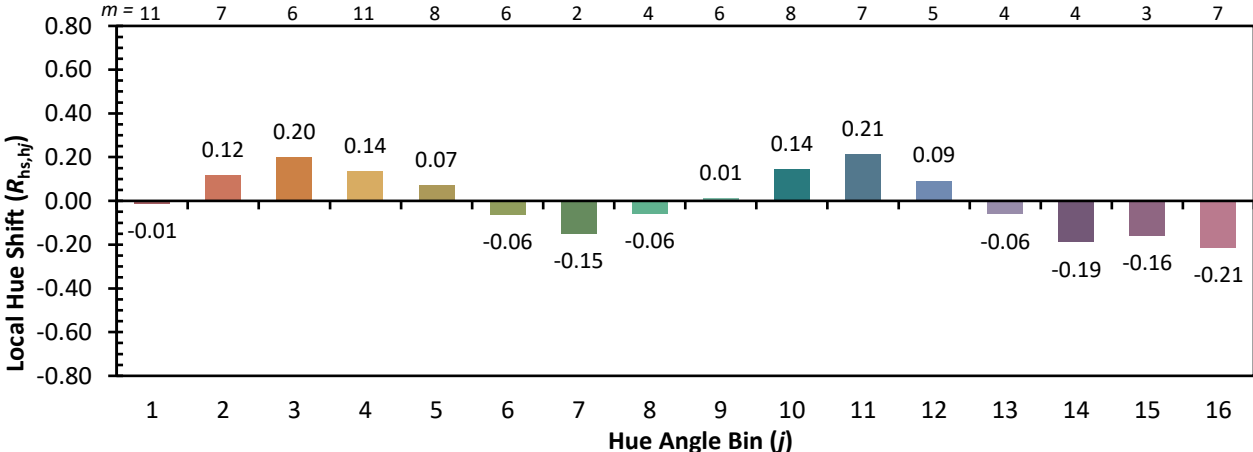
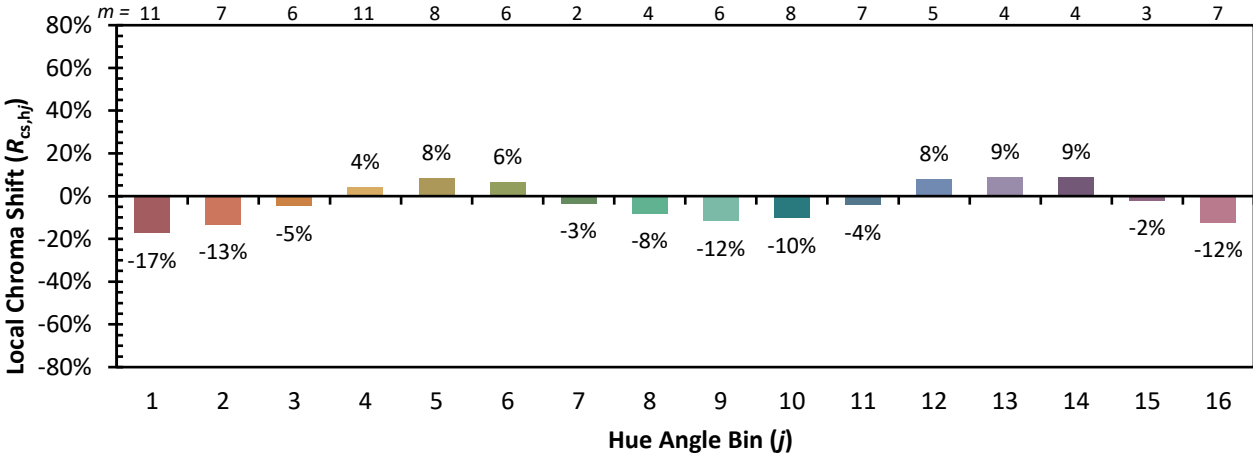
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 86	CES26 = 68	CES51 = 87	CES76 = 63
CES02 = 63	CES27 = 90	CES52 = 85	CES77 = 79
CES03 = 31	CES28 = 87	CES53 = 78	CES78 = 66
CES04 = 71	CES29 = 71	CES54 = 86	CES79 = 87
CES05 = 50	CES30 = 85	CES55 = 84	CES80 = 85
CES06 = 52	CES31 = 74	CES56 = 75	CES81 = 67
CES07 = 42	CES32 = 66	CES57 = 75	CES82 = 93
CES08 = 41	CES33 = 80	CES58 = 76	CES83 = 91
CES09 = 29	CES34 = 79	CES59 = 85	CES84 = 89
CES10 = 77	CES35 = 89	CES60 = 90	CES85 = 72
CES11 = 60	CES36 = 93	CES61 = 81	CES86 = 59
CES12 = 66	CES37 = 88	CES62 = 91	CES87 = 77
CES13 = 43	CES38 = 93	CES63 = 77	CES88 = 79
CES14 = 74	CES39 = 97	CES64 = 67	CES89 = 65
CES15 = 72	CES40 = 93	CES65 = 66	CES90 = 80
CES16 = 48	CES41 = 93	CES66 = 63	CES91 = 80
CES17 = 51	CES42 = 89	CES67 = 61	CES92 = 55
CES18 = 57	CES43 = 78	CES68 = 68	CES93 = 72
CES19 = 73	CES44 = 99	CES69 = 78	CES94 = 48
CES20 = 67	CES45 = 85	CES70 = 63	CES95 = 66
CES21 = 88	CES46 = 81	CES71 = 61	CES96 = 76
CES22 = 80	CES47 = 86	CES72 = 86	CES97 = 81
CES23 = 92	CES48 = 74	CES73 = 56	CES98 = 76
CES24 = 91	CES49 = 79	CES74 = 93	CES99 = 64
CES25 = 73	CES50 = 86	CES75 = 66	

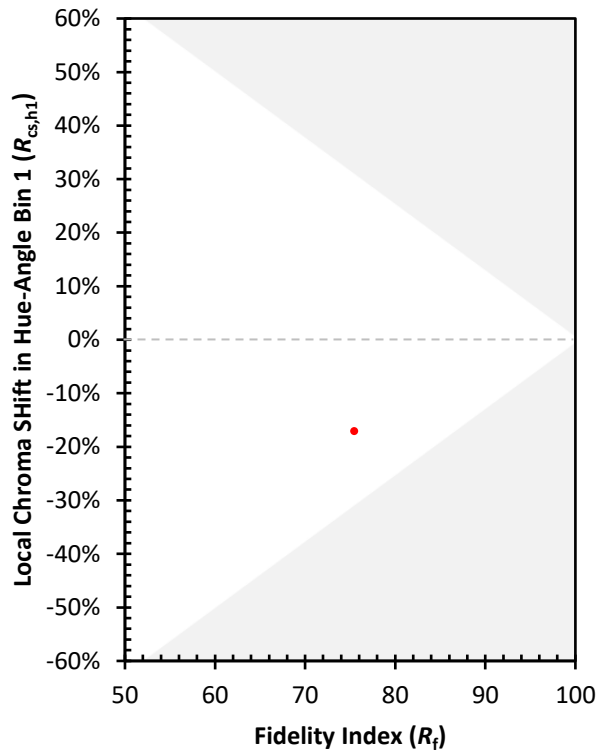
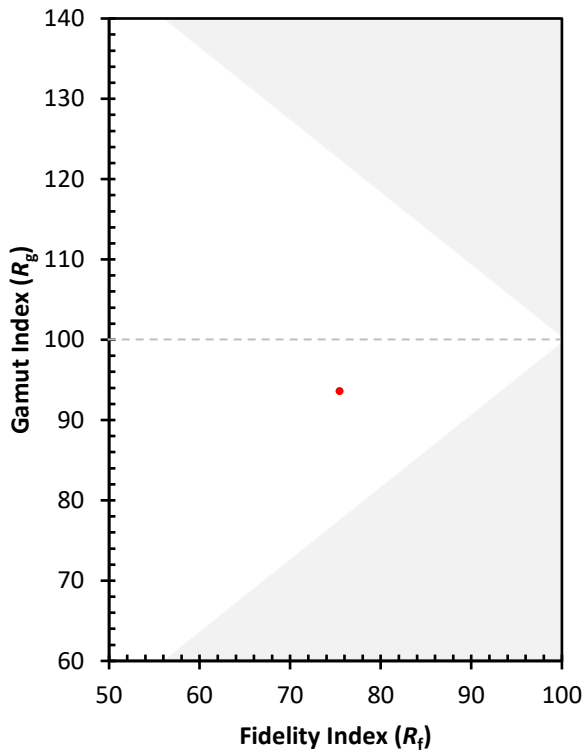




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)