

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: P880327

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

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P880327
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-WQ
Description: EPIC MODERN SHORT HOUSING 6W 70CRI 2700K VISUAL COMFORT FIXTURE w/
TYPE V WIDE DISTRIBUTION OPTIC
Light Source: (1) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

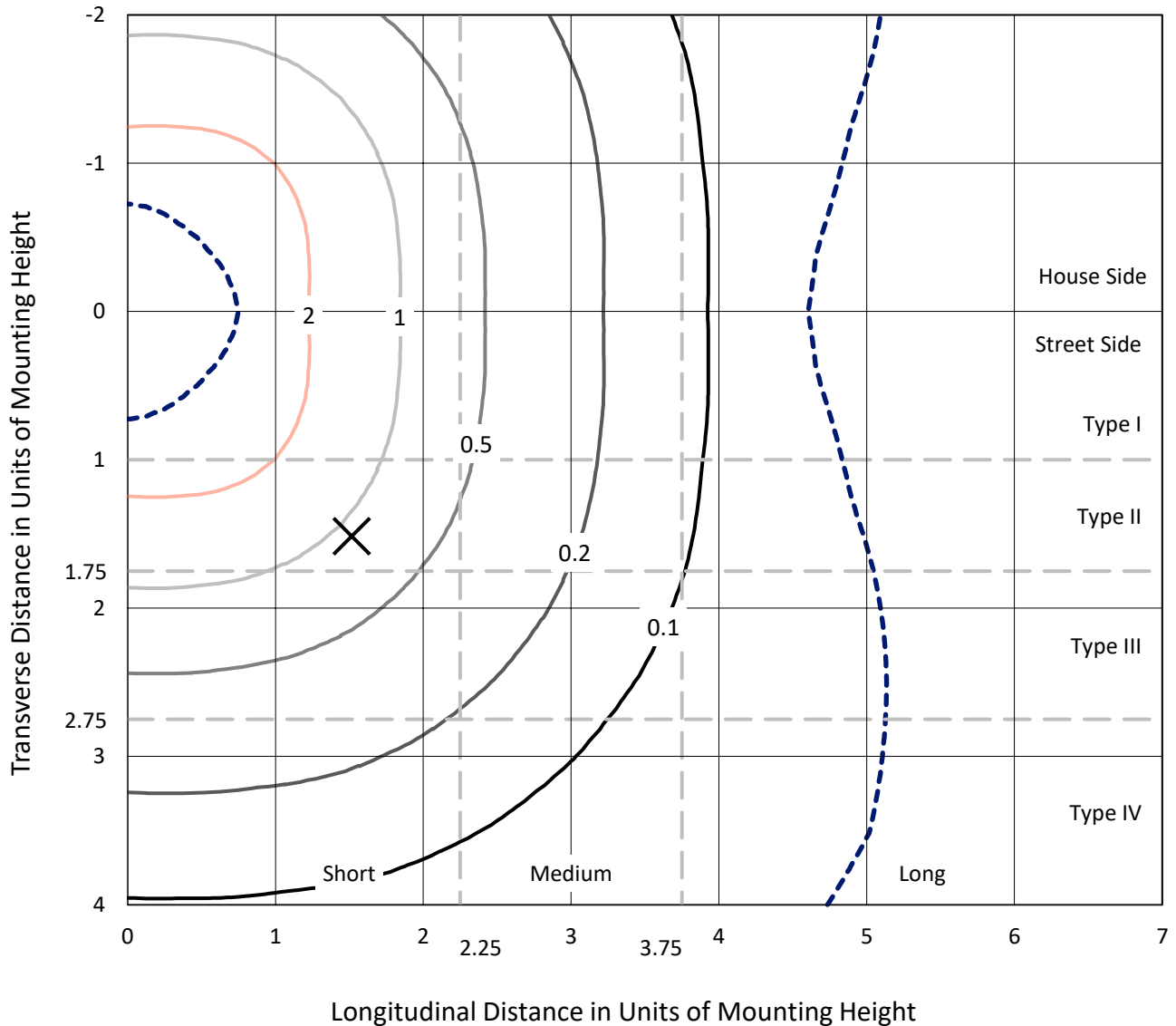
Lumens per Lamp: N/A
Luminaire Lumens: 9734.3 lumens
Efficiency: N/A
Efficacy: 91.8 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G3

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

REPORT NUMBER: P880327
 CATALOG NUMBER: EMM2-HSN-VA6-727-U-WQ

Iso-Footcandle Lines of Horizontal Illumination

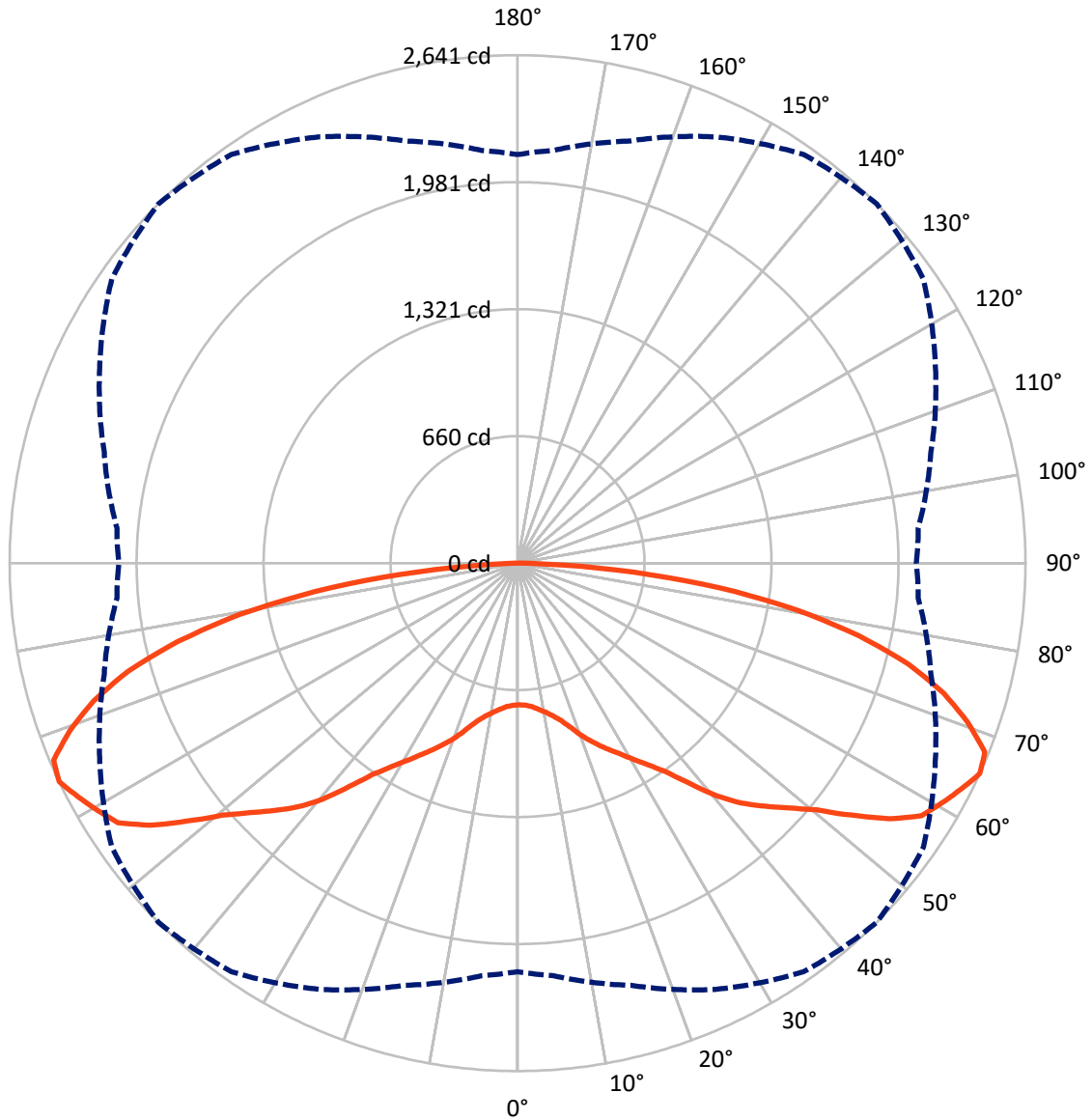
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 3.5 fc
 Type V - Short - N/A

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Luminous Intensity Polar Plot



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

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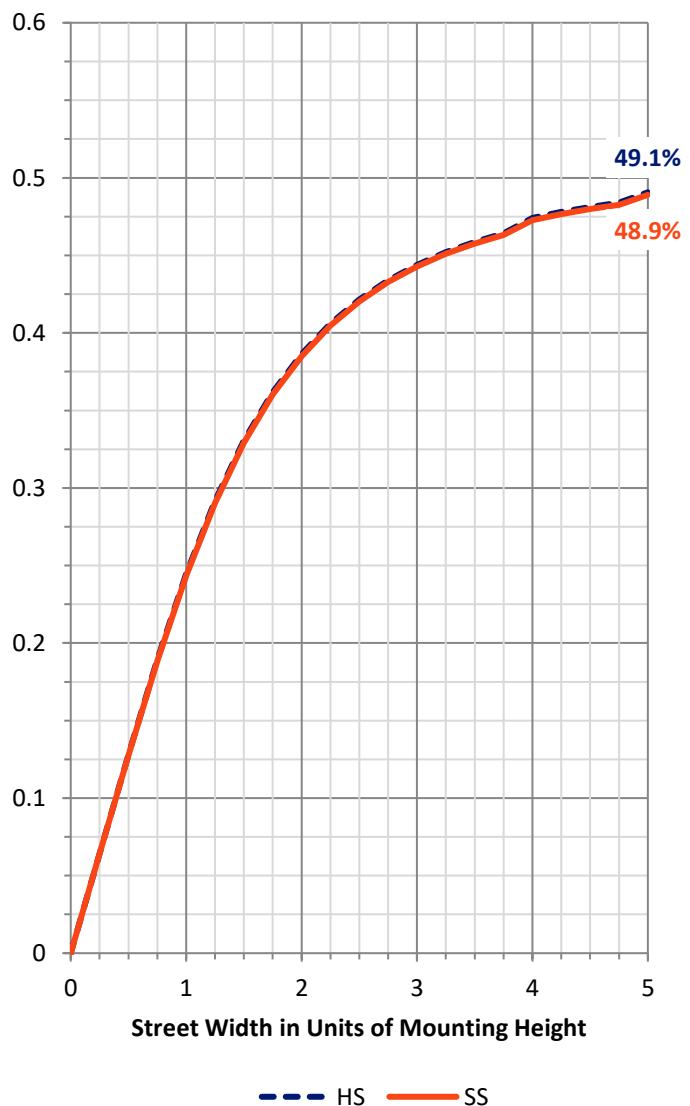
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	4867.2	0.0	4867.2
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	4867.2	0.0	4867.2
	% Fixture	50.0	0.0	50.0
Total	Lumens	9734.3	0.0	9734.3
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	72.8	0.7
10°-20°	244.9	2.5
20°-30°	492.1	5.1
30°-40°	833.0	8.6
40°-50°	1331.6	13.7
50°-60°	1923.3	19.8
60°-70°	2316.0	23.8
70°-80°	1918.7	19.7
80°-90°	602.0	6.2
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°	9734.3	100.0
0°-180°	9734.3	100.0



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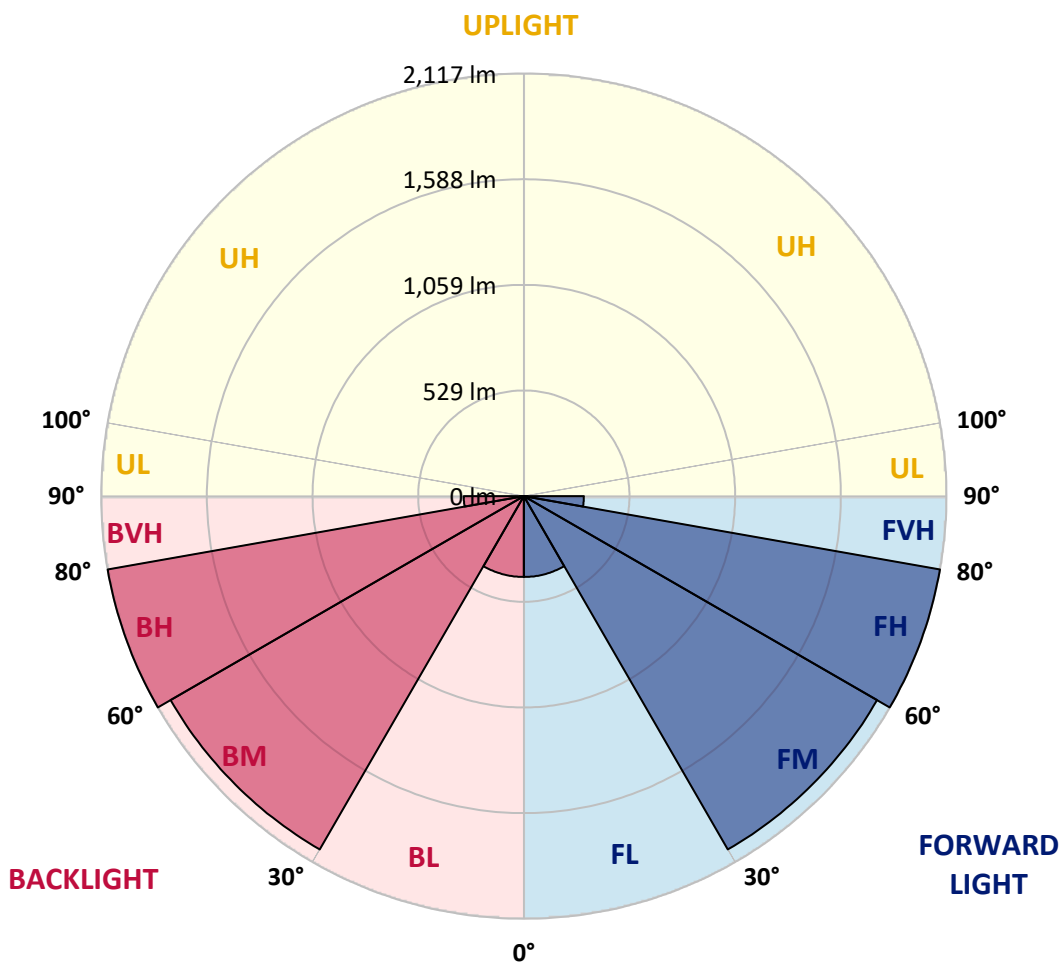
CATALOG NUMBER: EMM2-HSN-VA6-727-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	404.9	4.2			
FM (30°-60°)	2043.9	21.0			
FH (60°-80°)	2117.3	21.8			G2/5000
FVH (80°-90°)	301.0	3.1			G3/500
BL (0°-30°)	404.9	4.2	B1/500		
BM (30°-60°)	2043.9	21.0	B2/2500		
BH (60°-80°)	2117.3	21.8	B3/2500		G2/5000
BVH (80°-90°)	301.0	3.1			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 V Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	736.7	736.7	736.7	736.7	736.7	736.7	736.7	736.7	736.7	736.7	736.7
2.5°	739.7	739.7	739.7	739.7	739.7	739.7	739.7	739.7	739.7	739.7	739.7
5°	751.6	751.6	751.6	748.6	748.6	748.6	751.6	751.6	751.6	751.6	751.6
7.5°	766.5	766.5	766.5	766.5	766.5	766.5	763.5	763.5	763.5	763.5	766.5
10°	787.3	790.2	790.2	787.3	787.3	787.3	784.3	784.3	787.3	787.3	784.3
12.5°	817.0	817.0	817.0	817.0	814.0	814.0	814.0	814.0	814.0	814.0	814.0
15°	849.6	849.6	849.6	849.6	849.6	849.6	849.6	849.6	846.7	843.7	843.7
17.5°	891.2	888.3	894.2	891.2	897.2	900.1	894.2	891.2	888.3	885.3	882.3
20°	941.7	944.7	950.6	953.6	956.6	959.6	950.6	947.7	941.7	938.8	935.8
22.5°	1001.1	1001.1	1007.1	1007.1	1013.0	1013.0	1010.1	1001.1	995.2	995.2	992.2
25°	1051.6	1054.6	1060.6	1060.6	1066.5	1066.5	1063.5	1057.6	1048.7	1042.7	1039.8
27.5°	1105.1	1105.1	1108.1	1117.0	1120.0	1120.0	1117.0	1108.1	1096.2	1090.3	1090.3
30°	1155.6	1158.6	1161.6	1173.4	1179.4	1182.4	1170.5	1161.6	1146.7	1140.8	1140.8
32.5°	1215.0	1215.0	1221.0	1238.8	1247.7	1250.7	1238.8	1224.0	1206.1	1194.2	1194.2
35°	1280.4	1277.4	1295.3	1313.1	1333.9	1333.9	1325.0	1301.2	1274.5	1259.6	1256.6
37.5°	1366.5	1369.5	1387.3	1420.0	1452.7	1452.7	1443.8	1402.2	1372.5	1345.8	1339.8
40°	1467.6	1470.5	1503.2	1541.8	1577.5	1589.4	1571.5	1529.9	1479.4	1440.8	1437.8
42.5°	1553.7	1565.6	1598.3	1651.7	1687.4	1705.2	1678.5	1630.9	1574.5	1529.9	1521.0
45°	1636.9	1648.8	1690.4	1746.8	1791.4	1803.3	1779.5	1723.0	1657.7	1610.2	1604.2
47.5°	1714.1	1726.0	1767.6	1841.9	1889.4	1901.3	1880.5	1815.1	1734.9	1687.4	1681.4
50°	1785.4	1812.2	1862.7	1942.9	2011.2	2017.1	1987.4	1910.2	1827.0	1761.7	1752.7
52.5°	1883.5	1895.3	1966.6	2073.6	2150.8	2177.6	2130.0	2046.9	1925.1	1847.8	1833.0
55°	2002.3	2008.2	2085.5	2210.2	2311.3	2346.9	2287.5	2180.5	2040.9	1963.7	1951.8
57.5°	2070.6	2097.4	2186.5	2320.2	2430.1	2477.6	2421.2	2281.5	2144.9	2046.9	2020.1
60°	2100.3	2127.1	2225.1	2385.5	2504.3	2534.1	2492.5	2355.8	2177.6	2067.6	2049.8
62.5°	2130.0	2156.8	2254.8	2430.1	2545.9	2587.5	2522.2	2400.4	2207.3	2100.3	2076.6
65°	2124.1	2153.8	2272.6	2444.9	2593.5	2641.0	2575.6	2397.4	2225.1	2091.4	2073.6
67.5°	2064.7	2091.4	2216.2	2406.3	2569.7	2620.2	2548.9	2364.7	2171.6	2035.0	2014.2
70°	1945.8	1978.5	2100.3	2308.3	2459.8	2483.6	2430.1	2263.7	2061.7	1916.1	1889.4
72.5°	1785.4	1818.1	1942.9	2156.8	2275.6	2317.2	2257.8	2115.2	1910.2	1761.7	1737.9
75°	1595.3	1616.1	1732.0	1934.0	2061.7	2100.3	2055.8	1901.3	1693.3	1574.5	1547.8
77.5°	1372.5	1402.2	1506.2	1675.5	1776.5	1812.2	1770.6	1660.7	1467.6	1366.5	1345.8
80°	1078.4	1114.0	1209.1	1336.8	1443.8	1470.5	1434.9	1316.0	1194.2	1084.3	1060.6
82.5°	778.3	787.3	873.4	965.5	1045.7	1060.6	1033.8	968.5	840.7	766.5	733.8
85°	407.0	418.9	481.3	549.6	600.1	609.0	597.1	525.8	484.2	415.9	389.2
87.5°	92.1	95.1	112.9	124.8	151.5	148.5	157.5	124.8	118.8	98.0	86.2
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
1121 Highway 74 South
Peachtree City, GA 30269



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

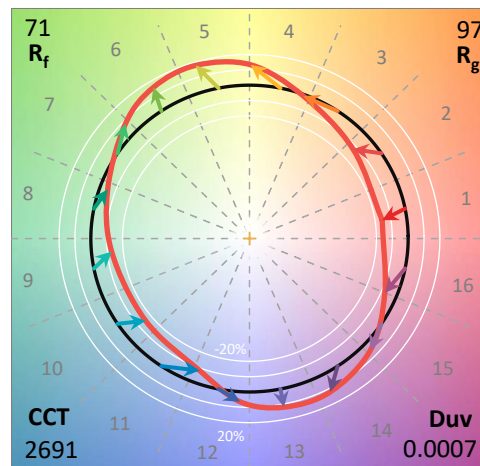
Test Information

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_f: 70.6
 R_g: 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

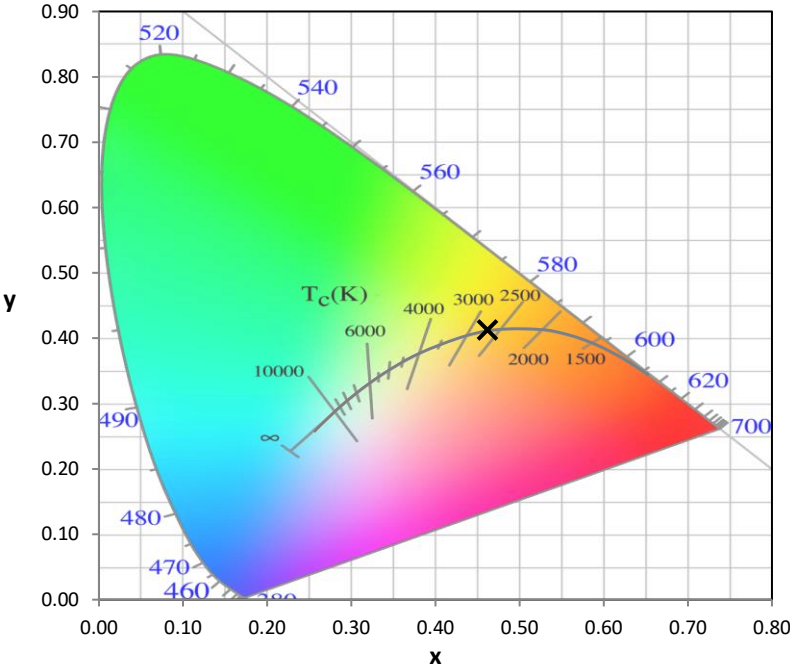
Stabilization Time: 28M
 Operation Time: 1H 28M
 Sphere Temperature (°C): 25.2

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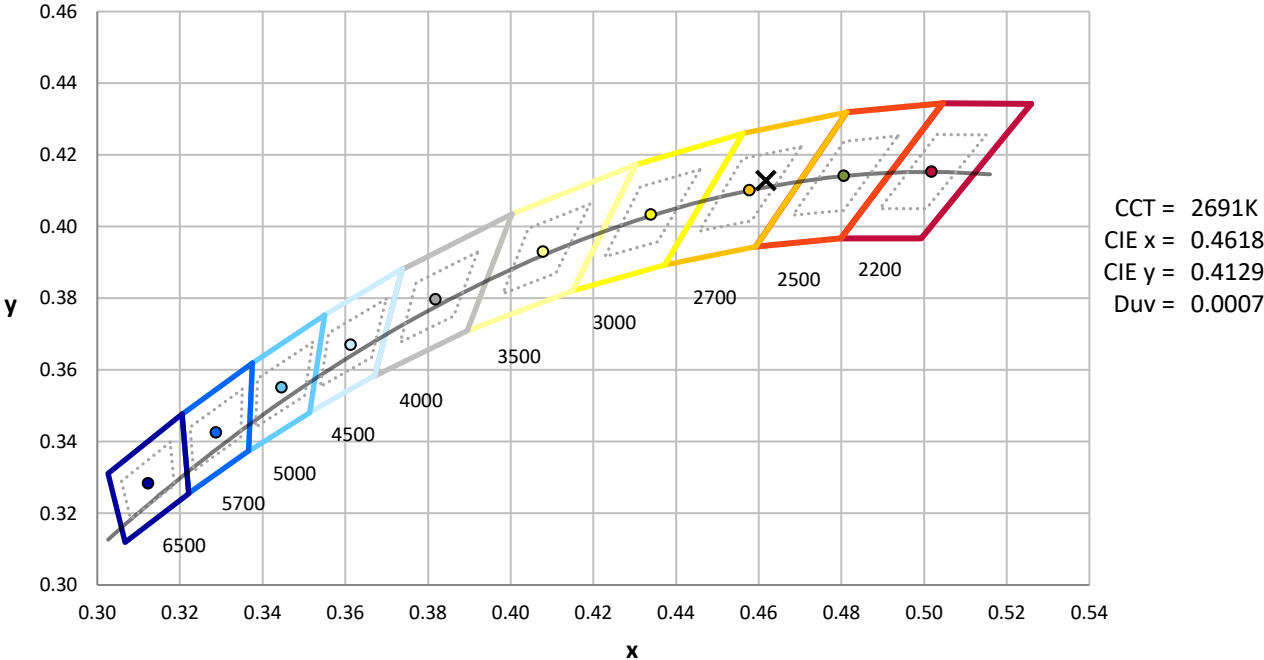
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



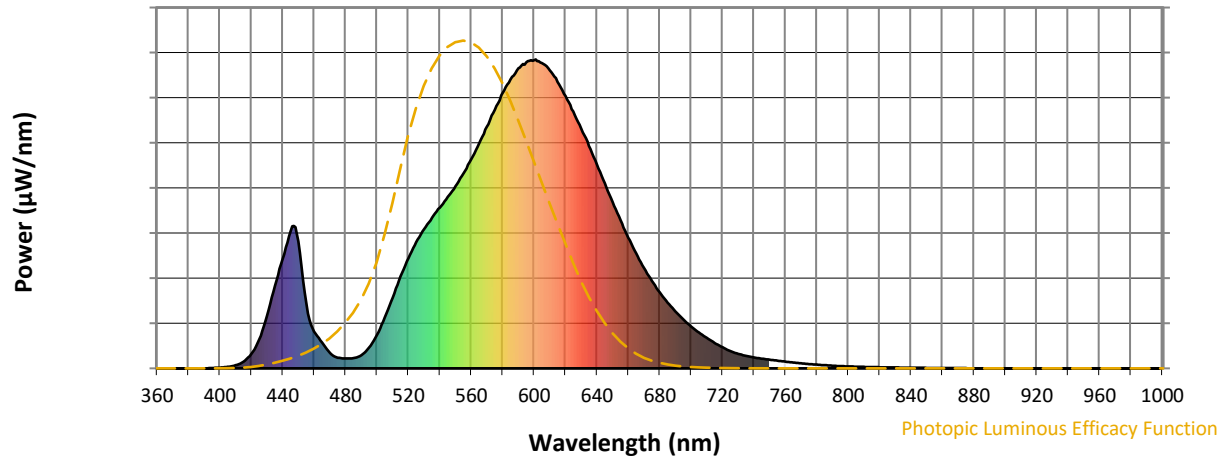
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength

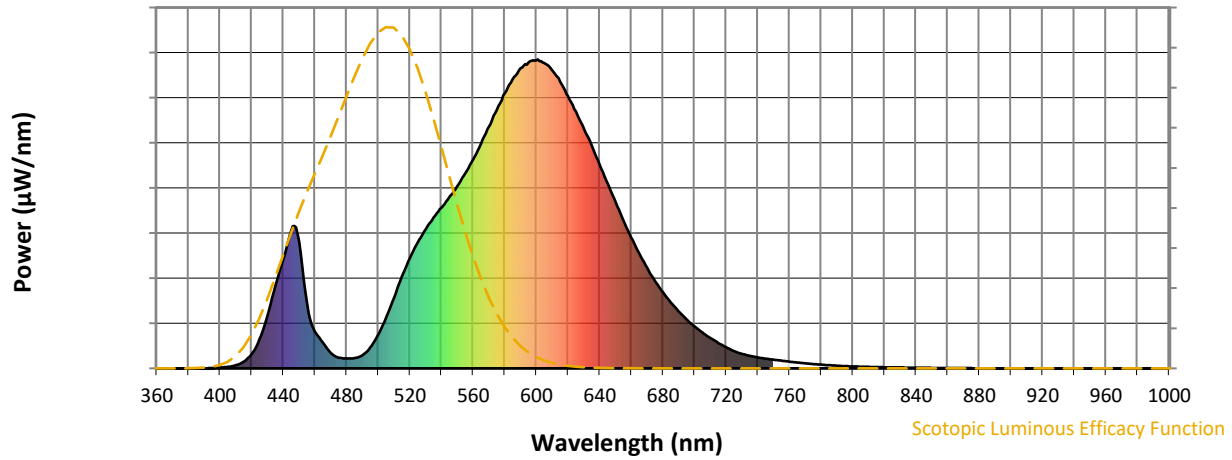


Photopic Lumens: NR

λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /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



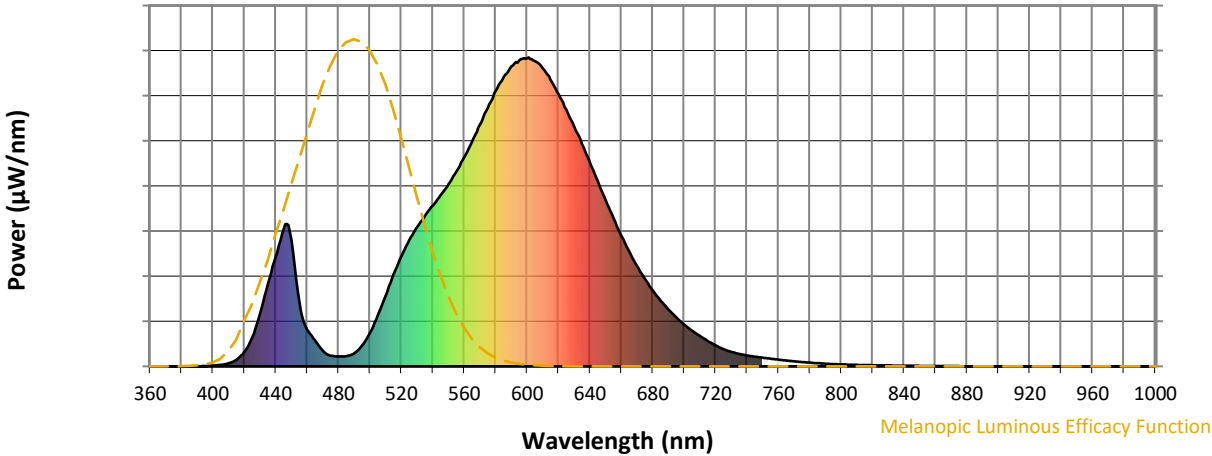
Scotopic Lumens: NR

S/P: 1.03

λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /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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Melanopic Flux vs. Wavelength



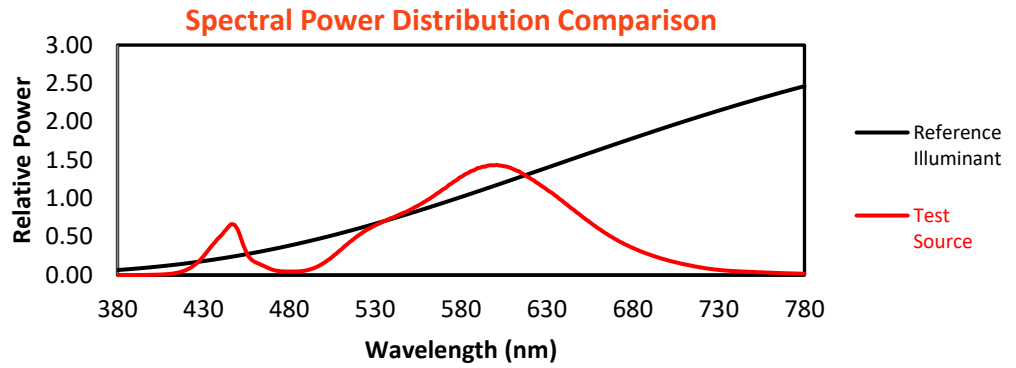
Melanopic Lumens: NR

M/P: 1.73

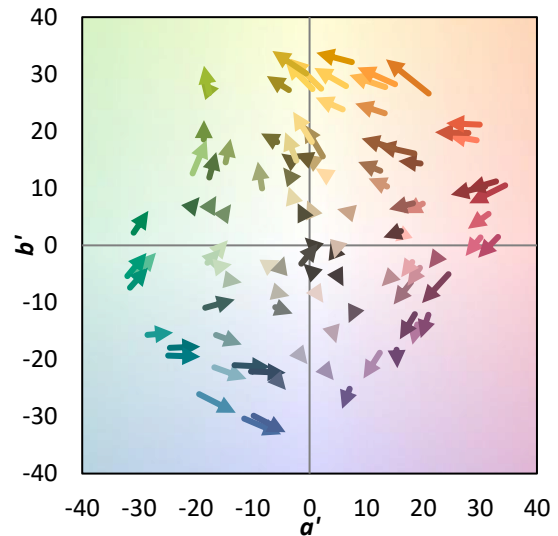
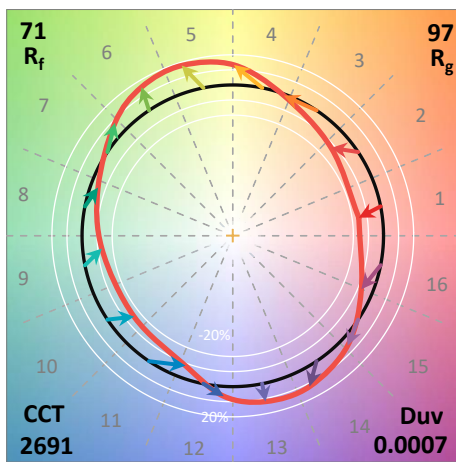
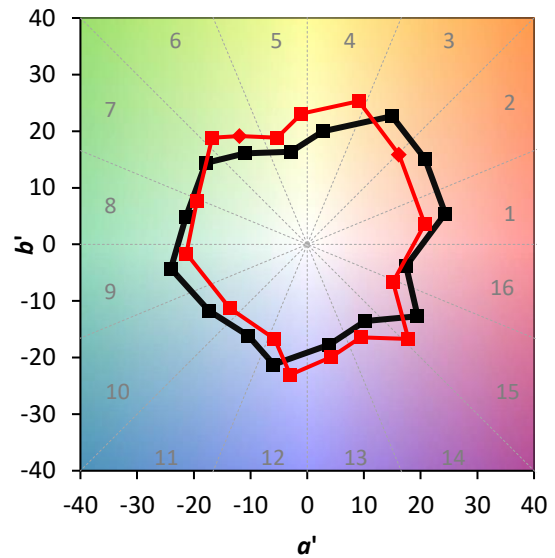
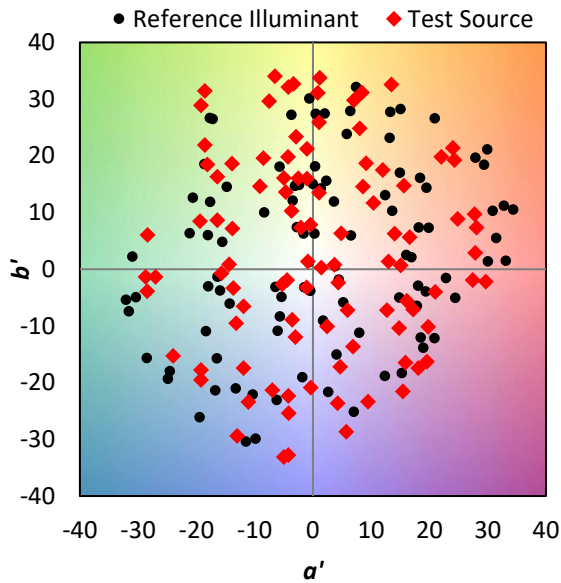
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	43	NR	620	881	NR	750	28	NR	880	0	NR
365	0	NR	495	67	NR	625	832	NR	755	25	NR	885	0	NR
370	0	NR	500	108	NR	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 $R_a = 70.6$
 $R_9 = -27.1$

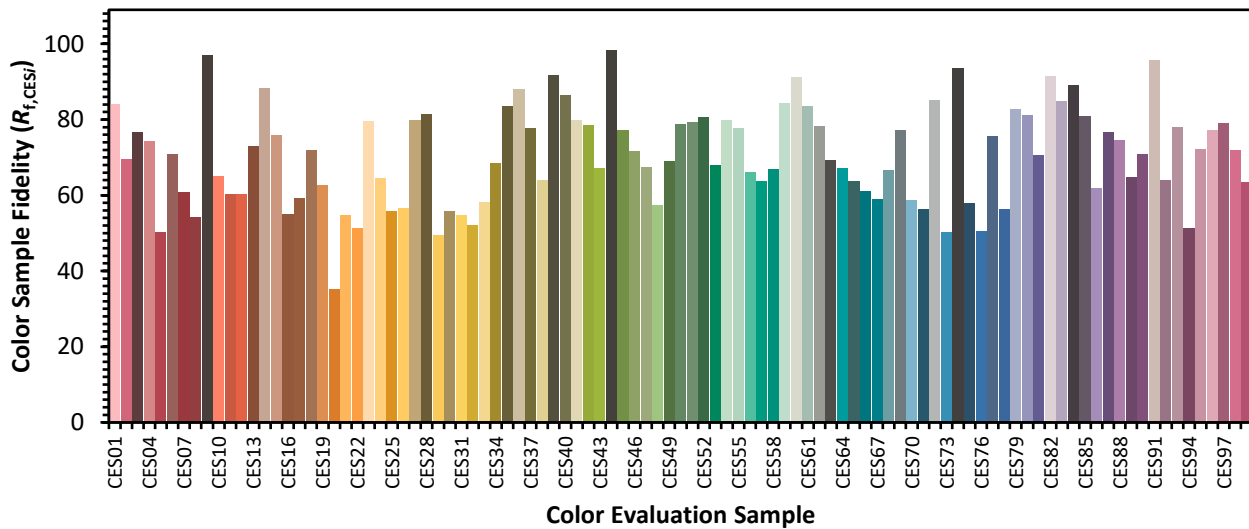


Color Vector Graphics

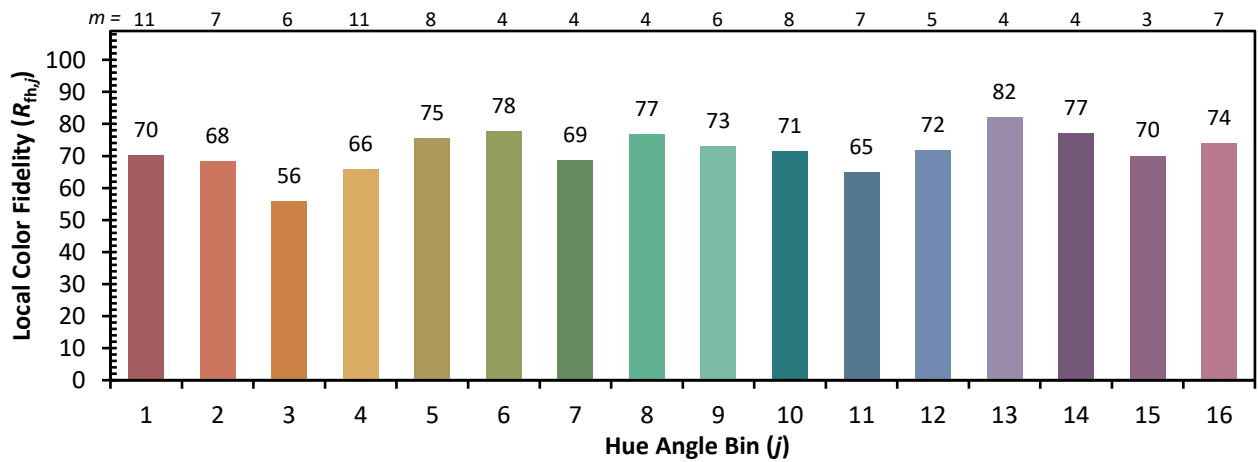
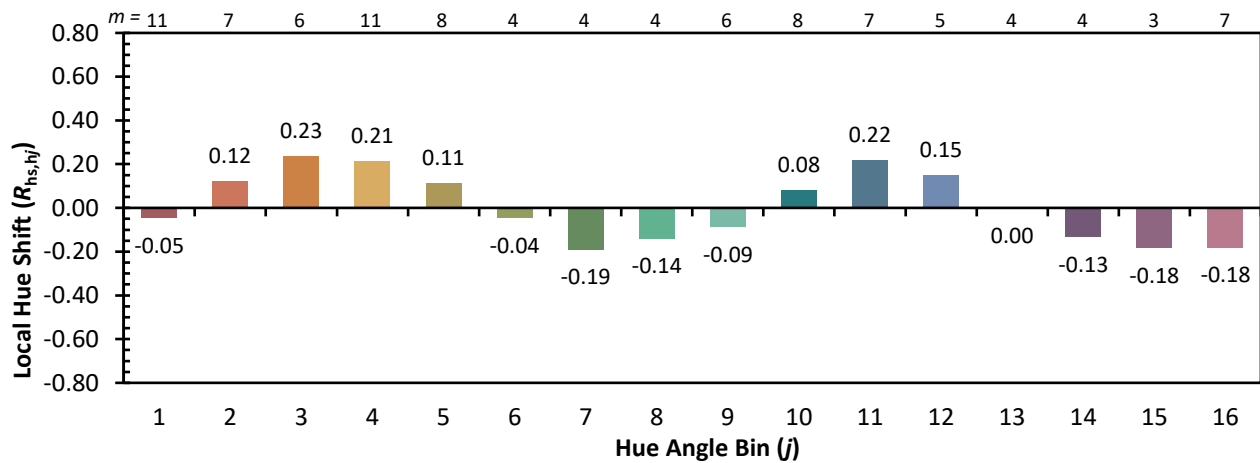
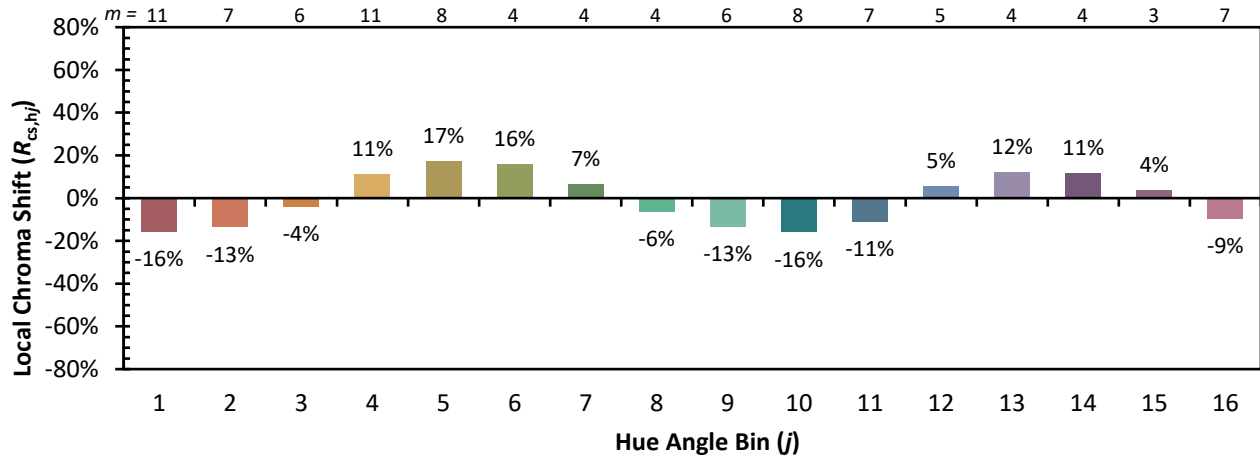


Individual Sample Fidelity Index ($R_{f,i}$)

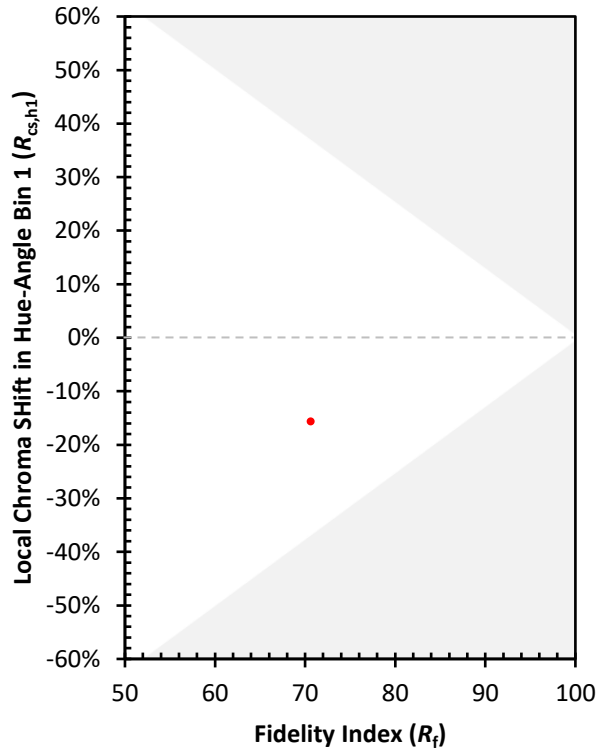
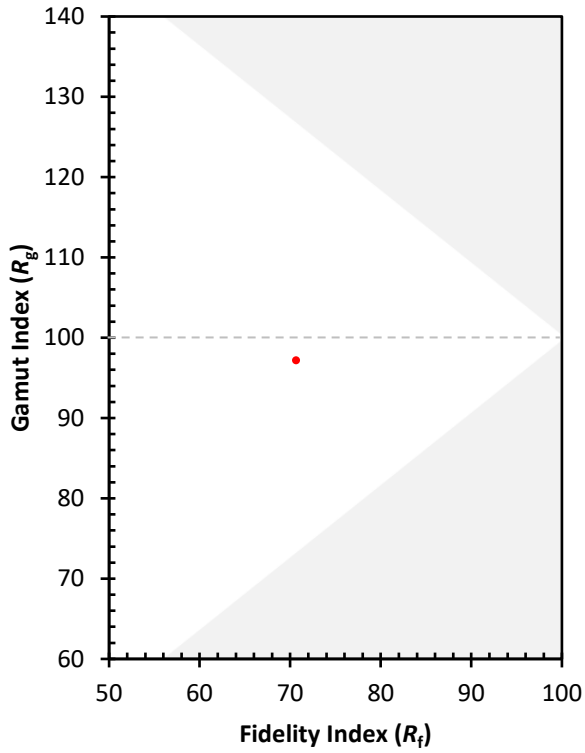
CES01 = 86	CES26 = 57	CES51 = 79	CES76 = 50
CES02 = 63	CES27 = 80	CES52 = 81	CES77 = 76
CES03 = 31	CES28 = 81	CES53 = 68	CES78 = 56
CES04 = 71	CES29 = 49	CES54 = 80	CES79 = 83
CES05 = 50	CES30 = 56	CES55 = 78	CES80 = 81
CES06 = 52	CES31 = 55	CES56 = 66	CES81 = 71
CES07 = 42	CES32 = 52	CES57 = 64	CES82 = 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)