

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: P879677

Luminaire Tested: **EMM2-HSN-VA7-740-U-WQ**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P879677  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-VA7-740-U-WQ  
Description: EPIC MODERN SHORT HOUSING 7W 70CRI 4000K WAVESTREAM FIXTURE w/  
TYPE V WIDE DISTRIBUTION OPTIC  
Light Source: (1) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

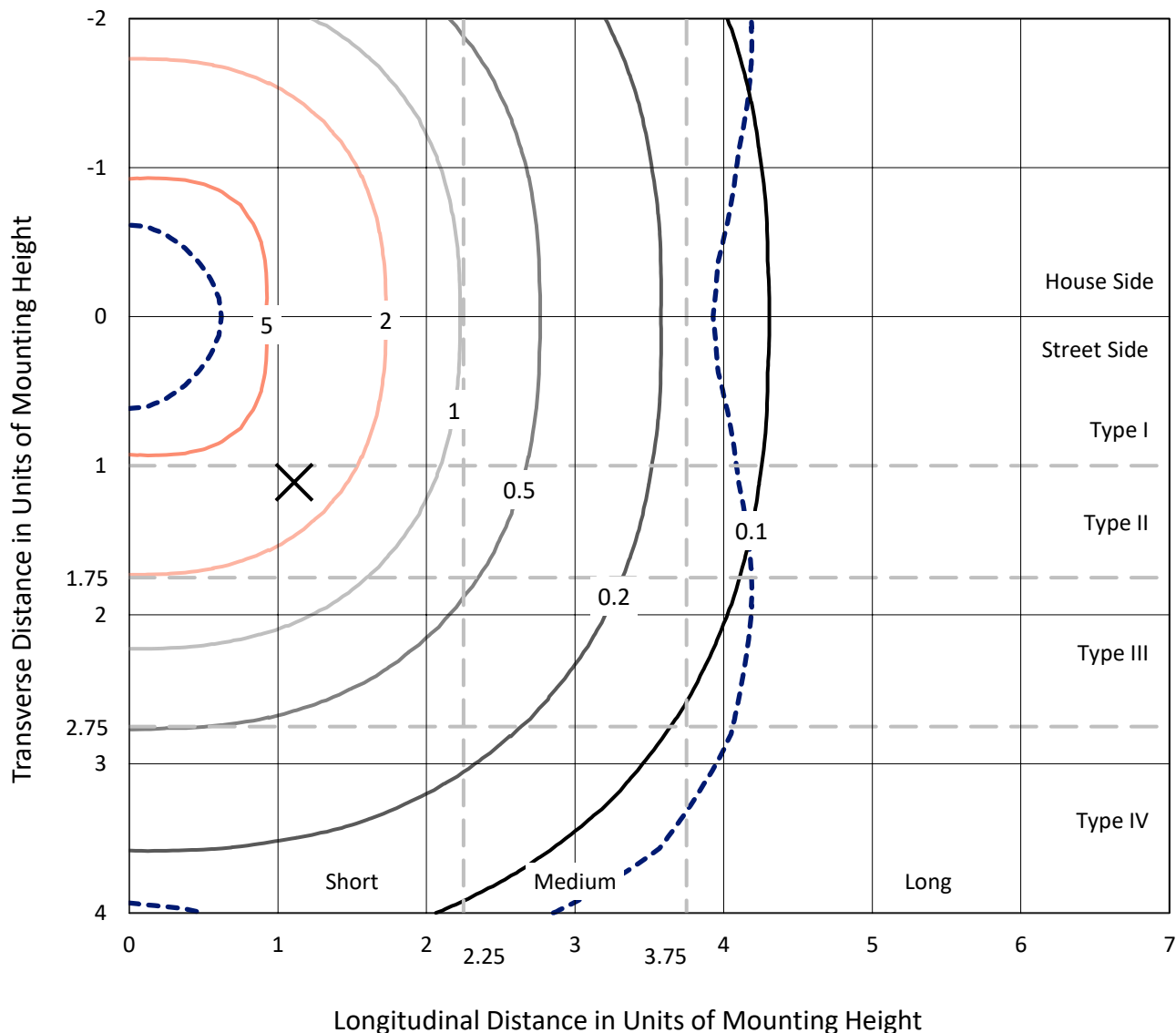
Lumens per Lamp: N/A  
Luminaire Lumens: 15819.9 lumens  
Efficiency: N/A  
Efficacy: 121.7 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B4 - U0 - G3

Input Watts (W): 130  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.995  
Total Harmonic Distortion (THDi): 8.1%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

REPORT NUMBER: P879677  
 CATALOG NUMBER: EMM2-HSN-VA7-740-U-WQ

### Iso-Footcandle Lines of Horizontal Illumination

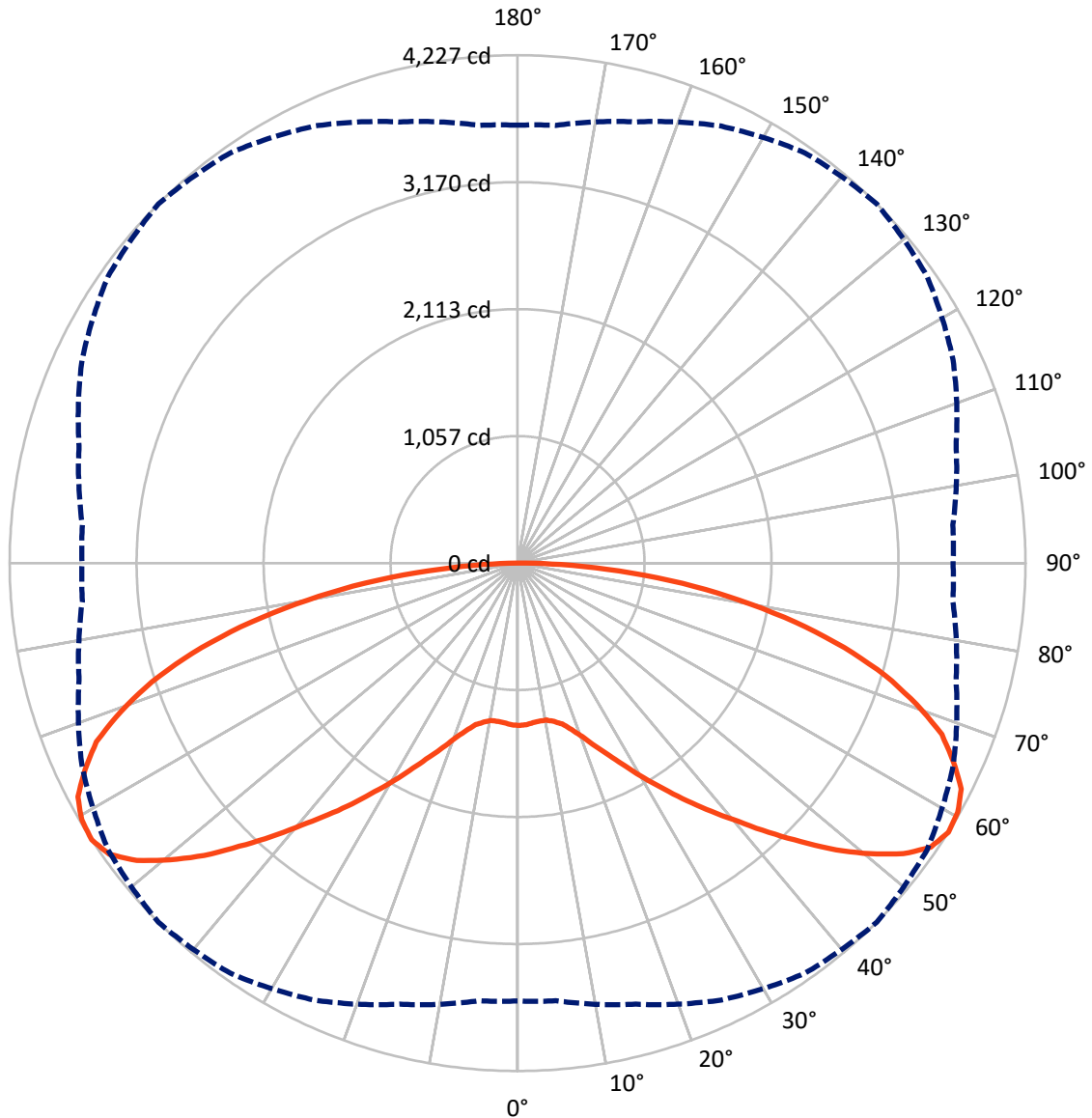
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 6 fc  
 Type V - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral    - - - Horizontal Cone Through 57.5-Deg Vertical

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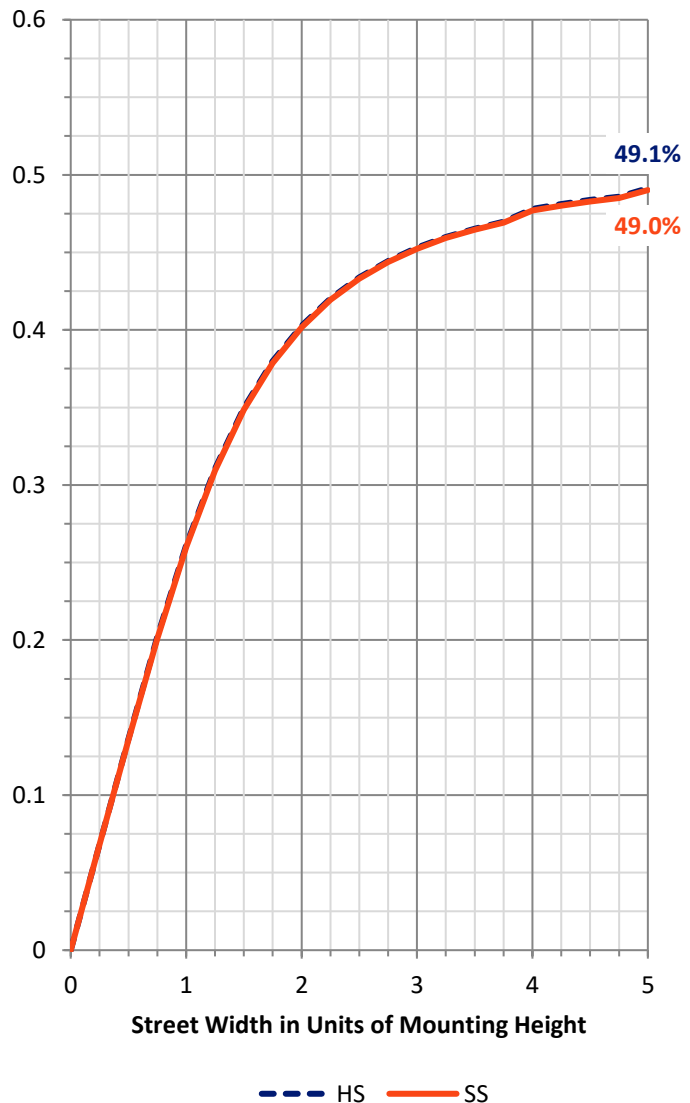
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	7910.0	0.0	7910.0
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	7910.0	0.0	7910.0
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	15819.9	0.0	15819.9
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	127.2	0.8
10°-20°	399.9	2.5
20°-30°	822.0	5.2
30°-40°	1499.9	9.5
40°-50°	2459.7	15.5
50°-60°	3446.6	21.8
60°-70°	3605.6	22.8
70°-80°	2634.3	16.7
80°-90°	824.6	5.2
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°	15819.9	100.0
0°-180°	15819.9	100.0



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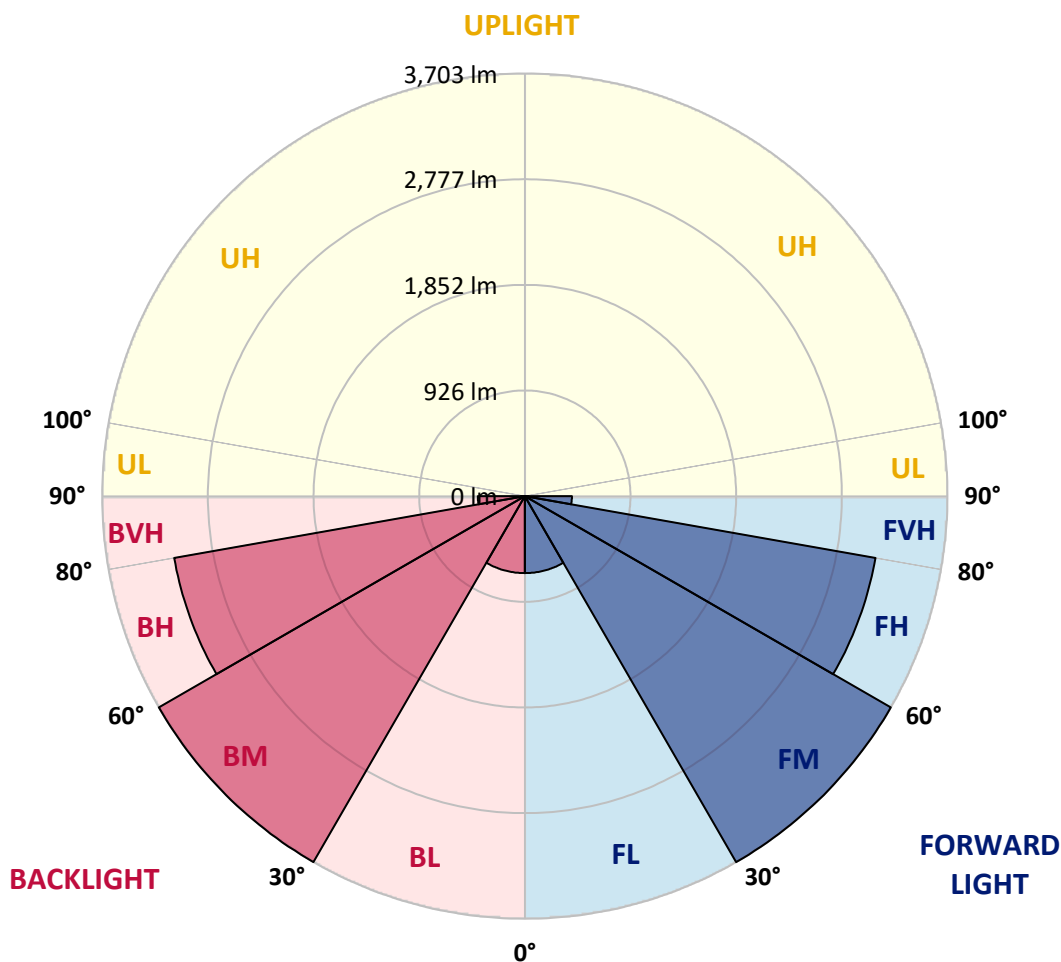
CATALOG NUMBER: EMM2-HSN-VA7-740-U-WQ

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	674.6	4.3			
FM (30°-60°)	3703.1	23.4			
FH (60°-80°)	3120.0	19.7			G2/5000
FVH (80°-90°)	412.3	2.6			G3/500
BL (0°-30°)	674.6	4.3	B2/1000		
BM (30°-60°)	3703.1	23.4	B3/5000		
BH (60°-80°)	3120.0	19.7	B4/5000		G2/5000
BVH (80°-90°)	412.3	2.6			G3/500
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B4-U0-G3**

Type V Short





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CATALOG NUMBER: EMM2-HSN-VA7-740-U-WQ

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1350.7	1350.7	1350.7	1350.7	1350.7	1350.7	1350.7	1350.7	1350.7	1350.7	1350.7
2.5°	1345.8	1347.7	1346.7	1346.7	1345.8	1346.7	1348.7	1349.7	1348.7	1349.7	1348.7
5°	1336.8	1336.8	1335.8	1334.8	1334.8	1334.8	1334.8	1334.8	1335.8	1335.8	1336.8
7.5°	1325.9	1325.9	1325.9	1327.9	1326.9	1327.9	1327.9	1326.9	1325.9	1325.9	1326.9
10°	1327.9	1326.9	1325.9	1327.9	1326.9	1327.9	1327.9	1325.9	1326.9	1327.9	1328.9
12.5°	1344.8	1342.8	1345.8	1348.7	1350.7	1352.7	1351.7	1350.7	1347.7	1344.8	1344.8
15°	1381.4	1379.4	1382.4	1386.4	1387.4	1388.4	1391.3	1387.4	1386.4	1381.4	1380.4
17.5°	1433.9	1433.0	1438.9	1446.8	1450.8	1455.7	1450.8	1446.8	1435.9	1433.9	1436.9
20°	1509.3	1506.3	1518.2	1531.1	1535.0	1541.0	1537.0	1529.1	1518.2	1506.3	1506.3
22.5°	1605.4	1612.3	1618.3	1628.2	1644.0	1653.9	1641.1	1627.2	1611.3	1604.4	1599.4
25°	1730.3	1729.3	1735.2	1755.0	1764.9	1771.9	1769.9	1751.1	1737.2	1727.3	1726.3
27.5°	1850.2	1862.1	1873.9	1886.8	1911.6	1914.6	1911.6	1888.8	1867.0	1859.1	1856.1
30°	2009.7	2007.7	2018.6	2049.3	2074.1	2076.1	2068.2	2040.4	2015.7	2000.8	2002.8
32.5°	2165.3	2149.4	2178.2	2199.0	2219.8	2241.6	2220.8	2199.0	2178.2	2146.5	2156.4
35°	2307.0	2319.9	2335.7	2378.4	2421.0	2429.9	2416.0	2371.4	2330.8	2315.9	2299.1
37.5°	2480.4	2480.4	2507.2	2569.6	2608.3	2622.1	2602.3	2557.7	2501.2	2479.4	2471.5
40°	2654.8	2654.8	2695.5	2748.0	2805.5	2825.3	2803.5	2745.0	2698.4	2642.0	2650.9
42.5°	2824.3	2838.2	2891.7	2956.1	3036.4	3063.1	3032.4	2954.1	2886.7	2833.2	2825.3
45°	3011.6	3033.4	3091.9	3197.9	3266.3	3304.9	3262.3	3194.9	3076.0	3024.5	2996.7
47.5°	3215.7	3230.6	3314.8	3415.9	3526.9	3567.5	3517.0	3407.0	3305.9	3214.7	3210.8
50°	3393.1	3390.1	3498.2	3637.9	3763.7	3802.4	3761.8	3642.8	3478.3	3377.3	3387.2
52.5°	3525.9	3542.8	3656.7	3829.1	3962.9	4019.4	3953.0	3810.3	3638.9	3533.8	3502.1
55°	3612.1	3639.9	3772.7	3959.0	4111.6	4172.0	4106.6	3942.1	3754.8	3619.1	3600.2
57.5°	3643.8	3655.7	3800.4	4011.5	4167.1	4226.5	4159.1	3998.6	3777.6	3635.9	3624.0
60°	3595.3	3607.2	3763.7	3979.8	4158.2	4208.7	4155.2	3966.9	3741.9	3597.3	3577.4
62.5°	3476.4	3509.1	3682.5	3896.5	4100.7	4143.3	4087.8	3881.7	3673.6	3499.1	3470.4
65°	3333.7	3368.3	3516.0	3754.8	3940.1	3985.7	3942.1	3743.9	3517.0	3349.5	3321.8
67.5°	3134.5	3140.4	3313.8	3555.6	3751.8	3807.3	3732.0	3551.7	3304.9	3146.4	3124.6
70°	2885.7	2889.7	3074.0	3298.0	3478.3	3523.9	3474.4	3282.1	3061.1	2888.7	2873.8
72.5°	2566.6	2603.3	2755.9	2977.9	3146.4	3199.9	3135.5	2971.9	2767.8	2597.4	2563.7
75°	2227.7	2250.5	2383.3	2598.3	2743.0	2809.4	2756.9	2598.3	2383.3	2242.6	2212.9
77.5°	1831.3	1862.1	1991.9	2173.2	2293.1	2364.5	2307.0	2166.3	1991.9	1863.0	1862.1
80°	1446.8	1438.9	1556.8	1713.4	1832.3	1873.9	1838.3	1701.5	1544.9	1444.8	1431.0
82.5°	1003.9	1001.9	1129.7	1234.8	1334.8	1382.4	1327.9	1239.7	1118.8	1029.6	1000.9
85°	570.8	583.7	667.9	733.3	818.5	847.3	828.5	745.2	637.2	558.9	554.0
87.5°	198.2	216.0	231.9	279.5	335.0	359.7	333.0	320.1	284.4	246.8	248.7
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: SP1-2407-176-9

Test Date: 09/25/2024

Luminaire Tested: MEM2-HTN-VA-130-740-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-740-U-RW



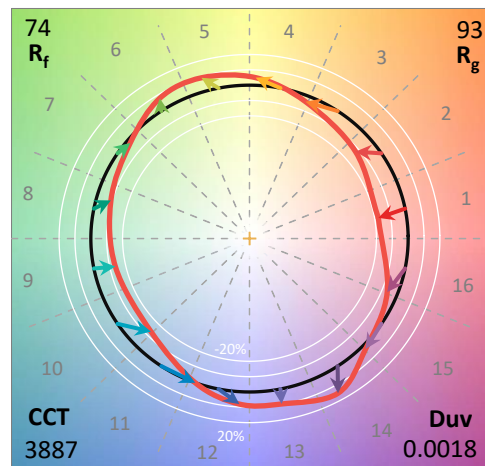
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-9  
 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-130-740-U-RW**  
 Description: EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

**Spectral Parameters**

CCT (K): 3887  
 CIE u': 0.2262  
 CIE v': 0.5060  
 Duv: 0.0018  
 CIE x: 0.3870  
 CIE y: 0.3847  
 CIE z: 0.2283  
 Peak Wavelength (nm): 583  
 Dominant Wavelength (nm): 578  
 Purity: 31.59626  
 Rf: 74.5  
 Rg: 93.5

CRI (Ra):	71.4		
R1:	67.6	R9:	-36.8
R2:	78.8	R10:	50.4
R3:	88.2	R11:	65.0
R4:	69.8	R12:	44.4
R5:	67.7	R13:	69.4
R6:	70.3	R14:	93.3
R7:	80.1	R15:	59.9
R8:	49.0		



**Test Conditions**

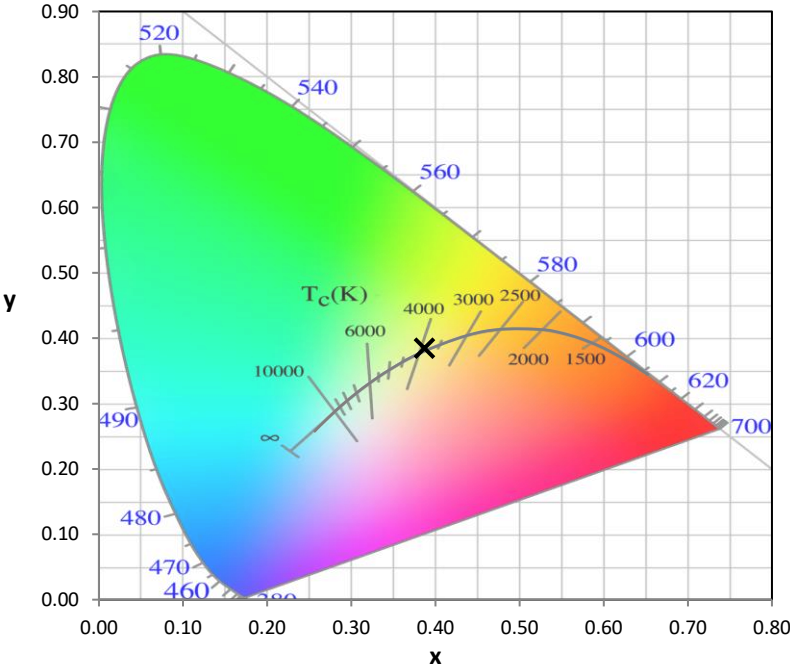
Stabilization Time: 50M  
 Operation Time: 1H 50M  
 Sphere Temperature (°C): 25.2

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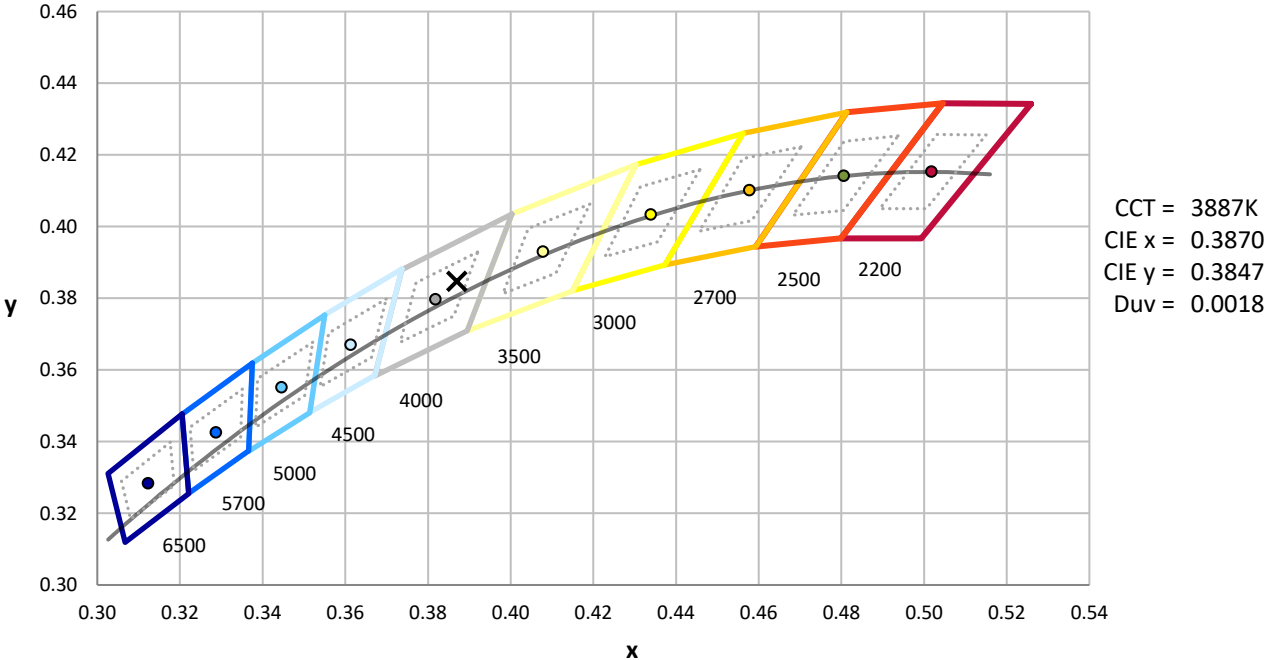
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

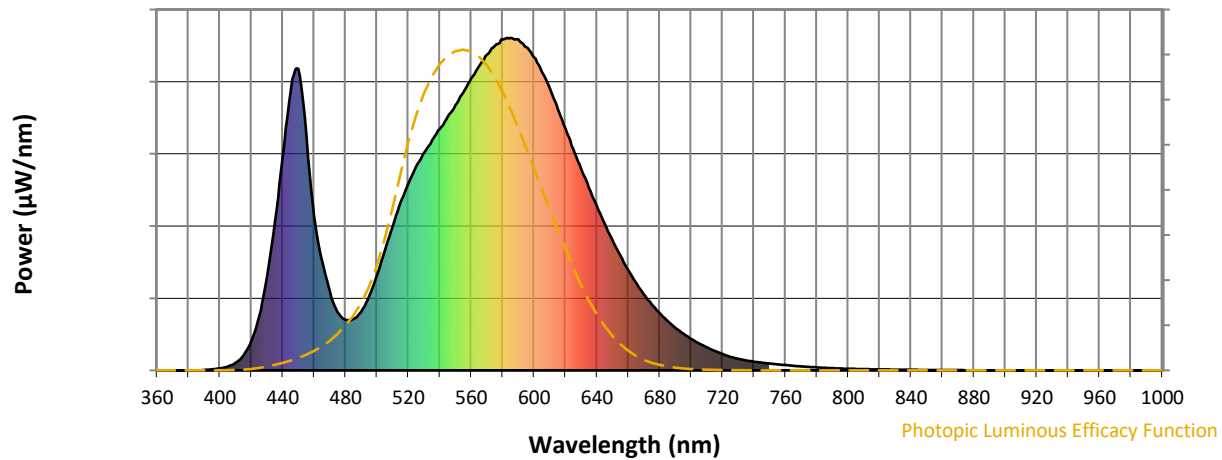


CCT = 3887K  
 CIE x = 0.3870  
 CIE y = 0.3847  
 Duv = 0.0018

Point lies inside the ANSI 4000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**

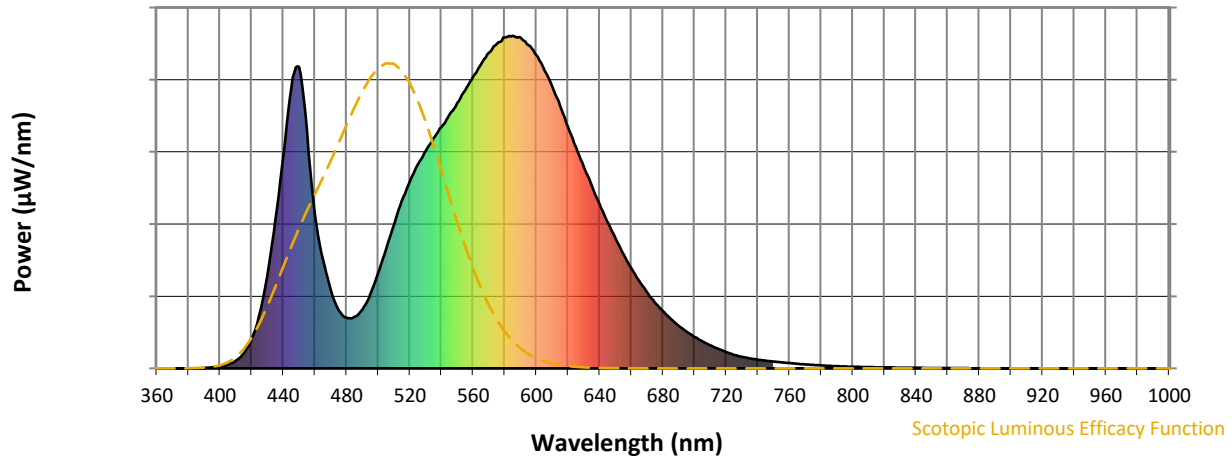


**Photopic Lumens: NR**

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	177	NR	620	727	NR	750	21	NR	880	0	NR
365	0	NR	495	222	NR	625	666	NR	755	18	NR	885	0	NR
370	0	NR	500	286	NR	630	606	NR	760	16	NR	890	0	NR
375	0	NR	505	359	NR	635	549	NR	765	14	NR	895	0	NR
380	0	NR	510	433	NR	640	493	NR	770	12	NR	900	0	NR
385	0	NR	515	505	NR	645	440	NR	775	10	NR	905	0	NR
390	1	NR	520	562	NR	650	390	NR	780	9	NR	910	0	NR
395	3	NR	525	613	NR	655	344	NR	785	8	NR	915	0	NR
400	6	NR	530	654	NR	660	301	NR	790	7	NR	920	0	NR
405	11	NR	535	692	NR	665	263	NR	795	6	NR	925	0	NR
410	23	NR	540	726	NR	670	228	NR	800	5	NR	930	0	NR
415	45	NR	545	763	NR	675	198	NR	805	4	NR	935	0	NR
420	88	NR	550	798	NR	680	172	NR	810	4	NR	940	0	NR
425	164	NR	555	837	NR	685	148	NR	815	3	NR	945	0	NR
430	281	NR	560	878	NR	690	128	NR	820	3	NR	950	0	NR
435	447	NR	565	915	NR	695	110	NR	825	2	NR	955	0	NR
440	642	NR	570	948	NR	700	95	NR	830	2	NR	960	0	NR
445	838	NR	575	976	NR	705	81	NR	835	2	NR	965	0	NR
450	907	NR	580	995	NR	710	69	NR	840	2	NR	970	0	NR
455	710	NR	585	1000	NR	715	58	NR	845	1	NR	975	0	NR
460	465	NR	590	995	NR	720	49	NR	850	1	NR	980	0	NR
465	330	NR	595	972	NR	725	41	NR	855	1	NR	985	0	NR
470	236	NR	600	941	NR	730	35	NR	860	1	NR	990	0	NR
475	174	NR	605	898	NR	735	30	NR	865	1	NR	995	0	NR
480	152	NR	610	848	NR	740	26	NR	870	1	NR	1000	0	NR
485	155	NR	615	788	NR	745	23	NR	875	0	NR			

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**Scotopic Flux vs. Wavelength**



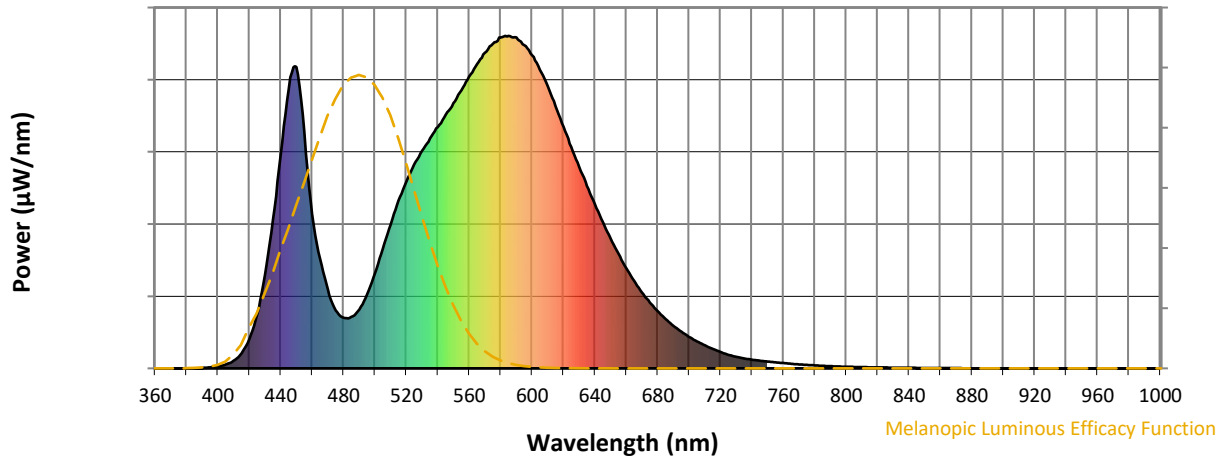
**Scotopic Lumens: NR**

**S/P: 1.49**

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	177	NR	620	727	NR	750	21	NR	880	0	NR
365	0	NR	495	222	NR	625	666	NR	755	18	NR	885	0	NR
370	0	NR	500	286	NR	630	606	NR	760	16	NR	890	0	NR
375	0	NR	505	359	NR	635	549	NR	765	14	NR	895	0	NR
380	0	NR	510	433	NR	640	493	NR	770	12	NR	900	0	NR
385	0	NR	515	505	NR	645	440	NR	775	10	NR	905	0	NR
390	1	NR	520	562	NR	650	390	NR	780	9	NR	910	0	NR
395	3	NR	525	613	NR	655	344	NR	785	8	NR	915	0	NR
400	6	NR	530	654	NR	660	301	NR	790	7	NR	920	0	NR
405	11	NR	535	692	NR	665	263	NR	795	6	NR	925	0	NR
410	23	NR	540	726	NR	670	228	NR	800	5	NR	930	0	NR
415	45	NR	545	763	NR	675	198	NR	805	4	NR	935	0	NR
420	88	NR	550	798	NR	680	172	NR	810	4	NR	940	0	NR
425	164	NR	555	837	NR	685	148	NR	815	3	NR	945	0	NR
430	281	NR	560	878	NR	690	128	NR	820	3	NR	950	0	NR
435	447	NR	565	915	NR	695	110	NR	825	2	NR	955	0	NR
440	642	NR	570	948	NR	700	95	NR	830	2	NR	960	0	NR
445	838	NR	575	976	NR	705	81	NR	835	2	NR	965	0	NR
450	907	NR	580	995	NR	710	69	NR	840	2	NR	970	0	NR
455	710	NR	585	1000	NR	715	58	NR	845	1	NR	975	0	NR
460	465	NR	590	995	NR	720	49	NR	850	1	NR	980	0	NR
465	330	NR	595	972	NR	725	41	NR	855	1	NR	985	0	NR
470	236	NR	600	941	NR	730	35	NR	860	1	NR	990	0	NR
475	174	NR	605	898	NR	735	30	NR	865	1	NR	995	0	NR
480	152	NR	610	848	NR	740	26	NR	870	1	NR	1000	0	NR
485	155	NR	615	788	NR	745	23	NR	875	0	NR			

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**Melanopic Flux vs. Wavelength**



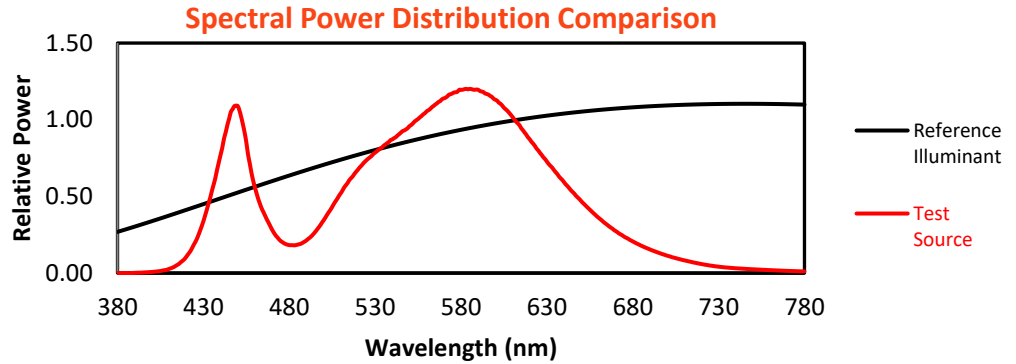
**Melanopic Lumens: NR**

**M/P: 2.89**

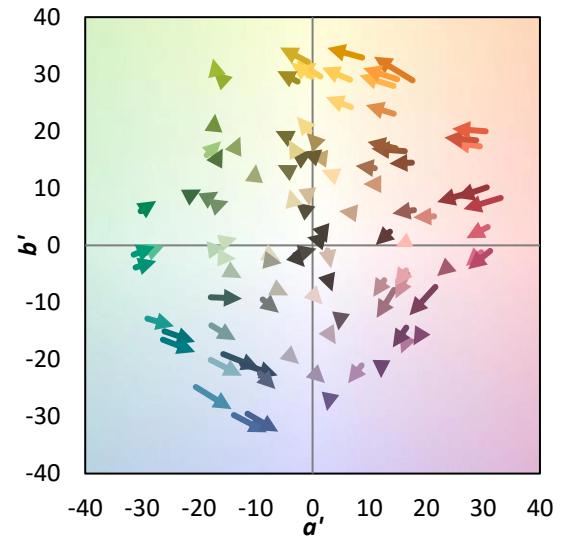
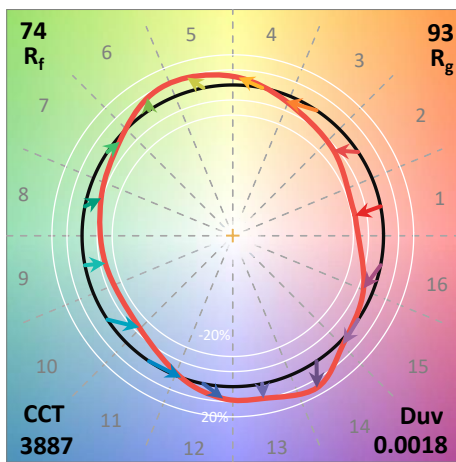
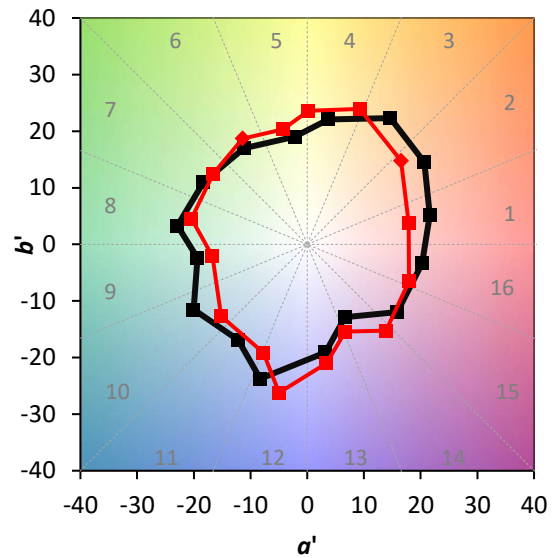
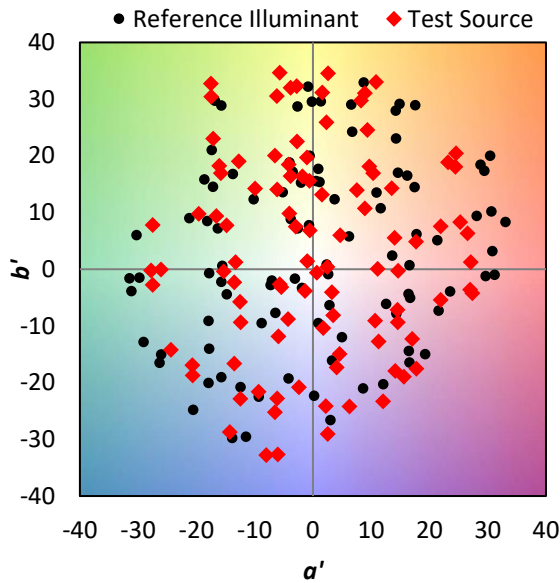
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	177	NR	620	727	NR	750	21	NR	880	0	NR
365	0	NR	495	222	NR	625	666	NR	755	18	NR	885	0	NR
370	0	NR	500	286	NR	630	606	NR	760	16	NR	890	0	NR
375	0	NR	505	359	NR	635	549	NR	765	14	NR	895	0	NR
380	0	NR	510	433	NR	640	493	NR	770	12	NR	900	0	NR
385	0	NR	515	505	NR	645	440	NR	775	10	NR	905	0	NR
390	1	NR	520	562	NR	650	390	NR	780	9	NR	910	0	NR
395	3	NR	525	613	NR	655	344	NR	785	8	NR	915	0	NR
400	6	NR	530	654	NR	660	301	NR	790	7	NR	920	0	NR
405	11	NR	535	692	NR	665	263	NR	795	6	NR	925	0	NR
410	23	NR	540	726	NR	670	228	NR	800	5	NR	930	0	NR
415	45	NR	545	763	NR	675	198	NR	805	4	NR	935	0	NR
420	88	NR	550	798	NR	680	172	NR	810	4	NR	940	0	NR
425	164	NR	555	837	NR	685	148	NR	815	3	NR	945	0	NR
430	281	NR	560	878	NR	690	128	NR	820	3	NR	950	0	NR
435	447	NR	565	915	NR	695	110	NR	825	2	NR	955	0	NR
440	642	NR	570	948	NR	700	95	NR	830	2	NR	960	0	NR
445	838	NR	575	976	NR	705	81	NR	835	2	NR	965	0	NR
450	907	NR	580	995	NR	710	69	NR	840	2	NR	970	0	NR
455	710	NR	585	1000	NR	715	58	NR	845	1	NR	975	0	NR
460	465	NR	590	995	NR	720	49	NR	850	1	NR	980	0	NR
465	330	NR	595	972	NR	725	41	NR	855	1	NR	985	0	NR
470	236	NR	600	941	NR	730	35	NR	860	1	NR	990	0	NR
475	174	NR	605	898	NR	735	30	NR	865	1	NR	995	0	NR
480	152	NR	610	848	NR	740	26	NR	870	1	NR	1000	0	NR
485	155	NR	615	788	NR	745	23	NR	875	0	NR			

**Summary**

$R_f = 74.5$   
 $R_g = 93.5$   
 CIE  $R_a = 71.4$   
 $R_g = -36.8$

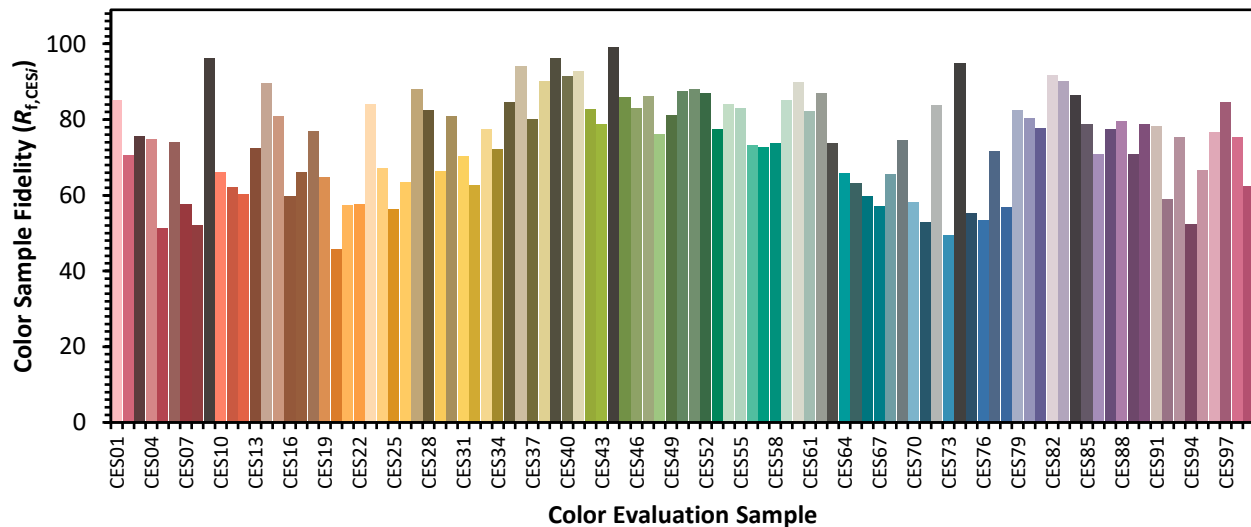


**Color Vector Graphics**



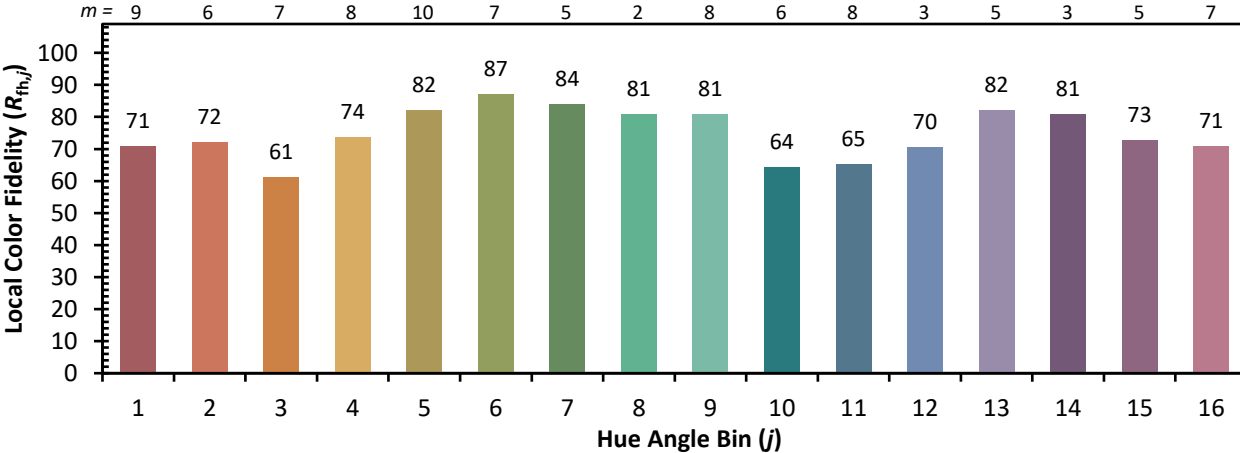
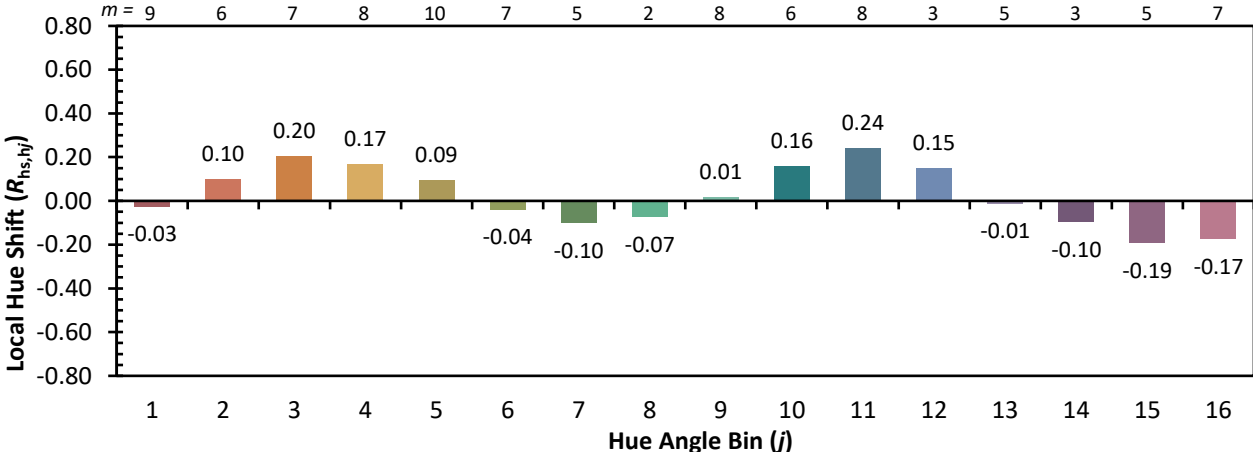
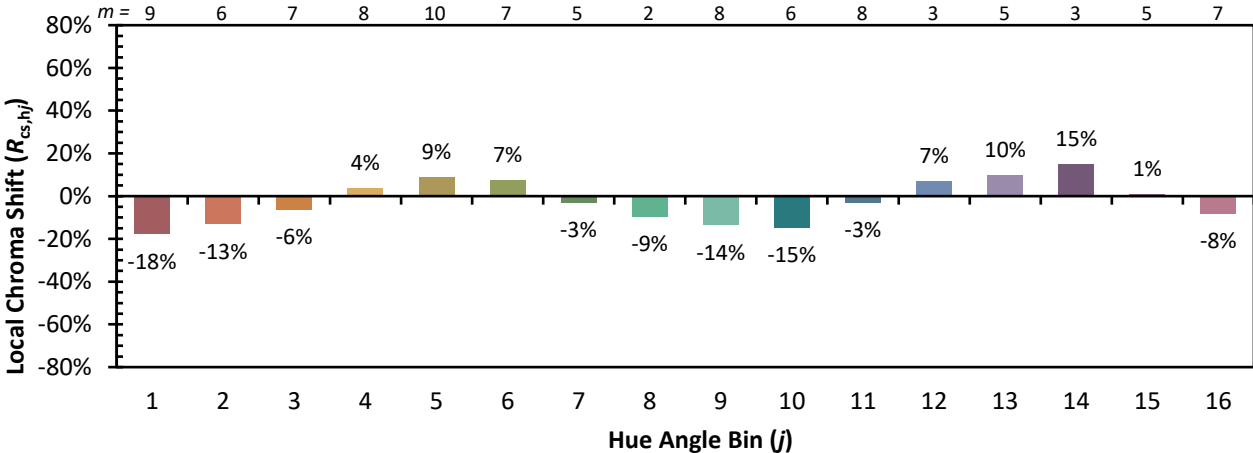
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 85	CES26 = 63	CES51 = 88	CES76 = 54
CES02 = 61	CES27 = 88	CES52 = 87	CES77 = 72
CES03 = 30	CES28 = 82	CES53 = 77	CES78 = 57
CES04 = 70	CES29 = 66	CES54 = 84	CES79 = 83
CES05 = 47	CES30 = 81	CES55 = 83	CES80 = 80
CES06 = 50	CES31 = 70	CES56 = 73	CES81 = 78
CES07 = 40	CES32 = 63	CES57 = 73	CES82 = 92
CES08 = 39	CES33 = 77	CES58 = 74	CES83 = 90
CES09 = 29	CES34 = 72	CES59 = 85	CES84 = 87
CES10 = 74	CES35 = 85	CES60 = 90	CES85 = 79
CES11 = 57	CES36 = 94	CES61 = 82	CES86 = 71
CES12 = 63	CES37 = 80	CES62 = 87	CES87 = 77
CES13 = 42	CES38 = 90	CES63 = 74	CES88 = 80
CES14 = 74	CES39 = 96	CES64 = 66	CES89 = 71
CES15 = 71	CES40 = 92	CES65 = 63	CES90 = 79
CES16 = 46	CES41 = 93	CES66 = 60	CES91 = 78
CES17 = 49	CES42 = 83	CES67 = 57	CES92 = 59
CES18 = 56	CES43 = 79	CES68 = 65	CES93 = 75
CES19 = 72	CES44 = 99	CES69 = 74	CES94 = 52
CES20 = 65	CES45 = 86	CES70 = 58	CES95 = 67
CES21 = 86	CES46 = 83	CES71 = 53	CES96 = 77
CES22 = 78	CES47 = 86	CES72 = 84	CES97 = 85
CES23 = 92	CES48 = 76	CES73 = 49	CES98 = 75
CES24 = 91	CES49 = 81	CES74 = 95	CES99 = 62
CES25 = 72	CES50 = 88	CES75 = 55	

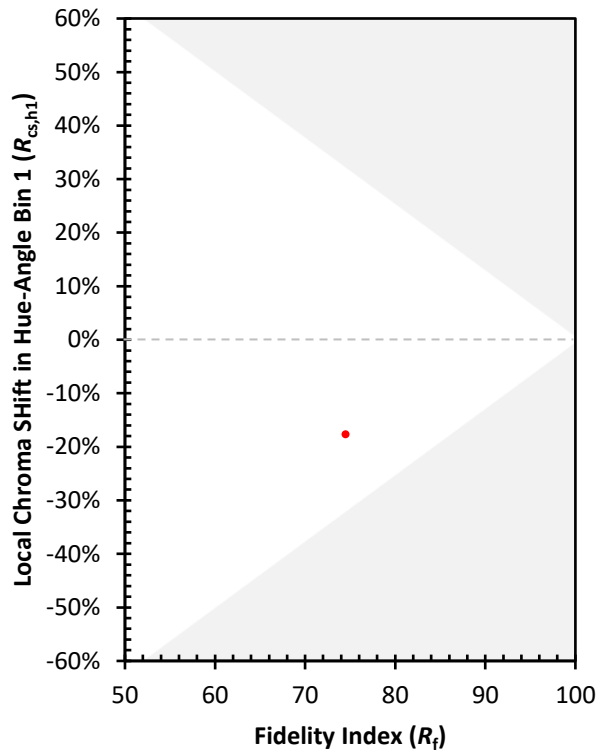
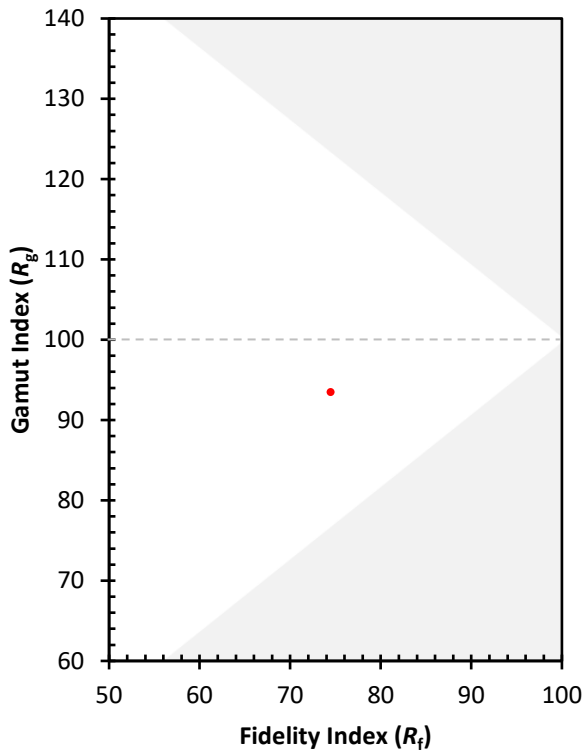




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)