

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: P879719

Luminaire Tested: **EMM2-HSN-VA7-830-U-MQ**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P879719  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-VA7-830-U-MQ  
Description: EPIC MODERN SHORT HOUSING 7W 80CRI 3000K WAVESTREAM FIXTURE w/  
TYPE V MEDIUM DISTRIBUTION OPTIC  
Light Source: (1) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

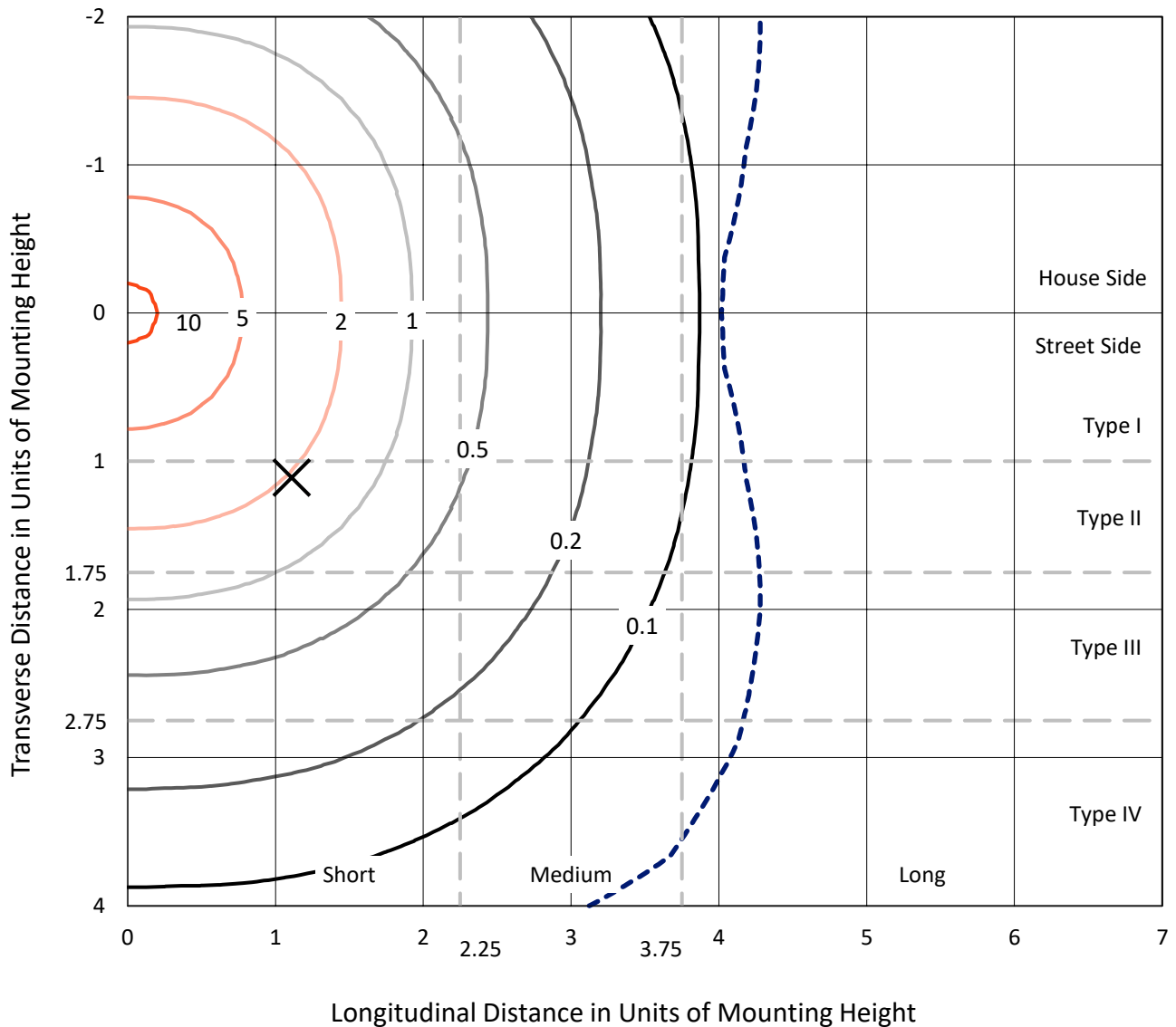
Lumens per Lamp: N/A  
Luminaire Lumens: 12292.6 lumens  
Efficiency: N/A  
Efficacy: 94.6 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B3 - U0 - G3

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: P879719  
 CATALOG NUMBER: EMM2-HSN-VA7-830-U-MQ

### Iso-Footcandle Lines of Horizontal Illumination

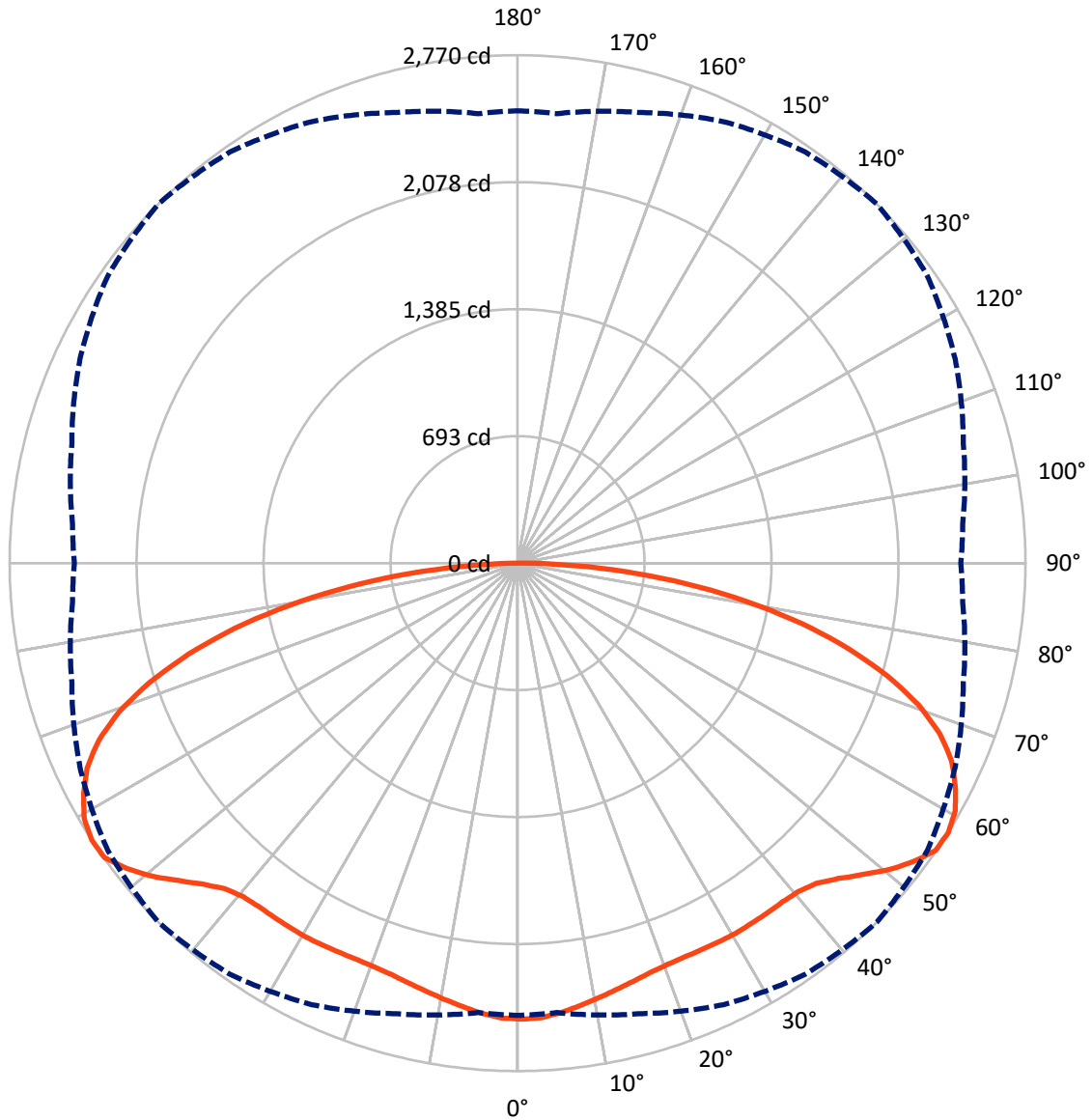
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 11.1 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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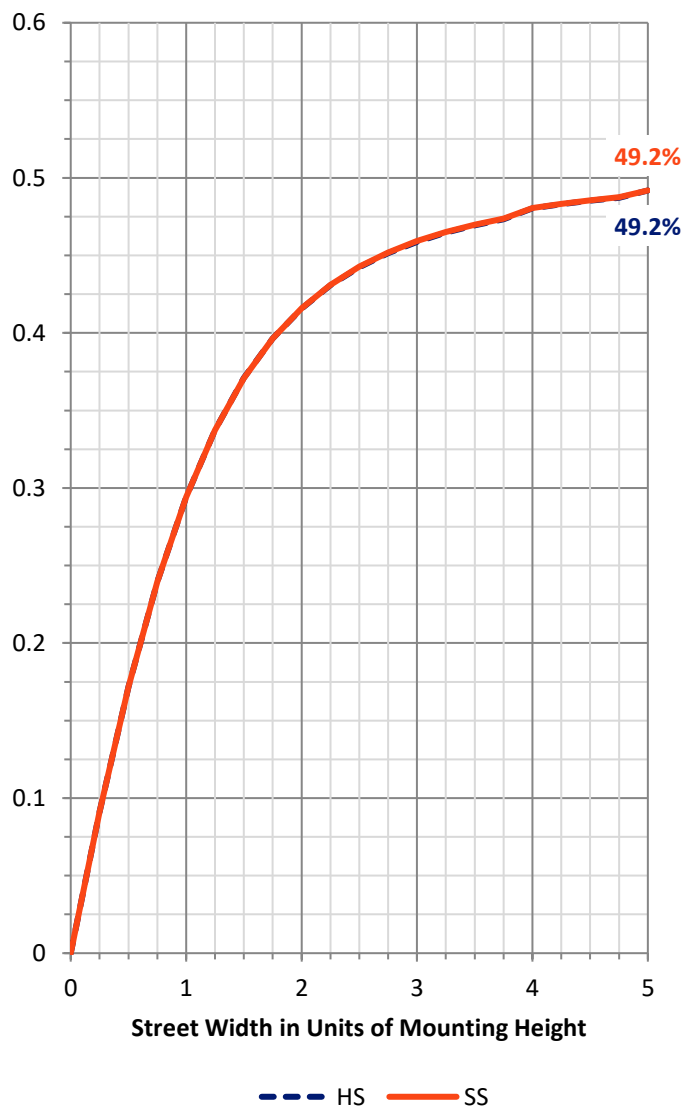
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	6146.3	0.0	6146.3
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	6146.3	0.0	6146.3
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	12292.6	0.0	12292.6
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	233.5	1.9
10°-20°	669.1	5.4
20°-30°	1075.3	8.7
30°-40°	1457.6	11.9
40°-50°	1861.6	15.1
50°-60°	2320.4	18.9
60°-70°	2364.4	19.2
70°-80°	1751.9	14.3
80°-90°	558.7	4.5
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°	12292.6	100.0
0°-180°	12292.6	100.0



REPORT NUMBER: P879719

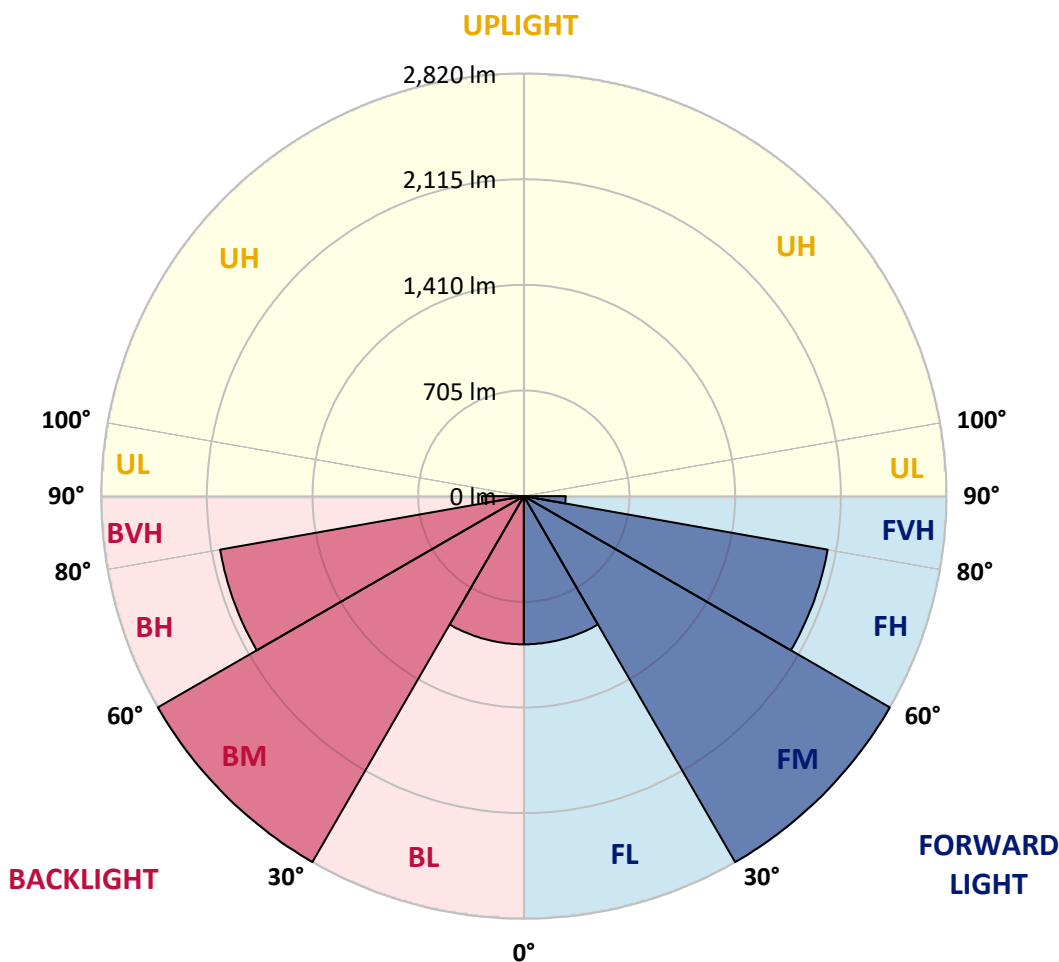
CATALOG NUMBER: EMM2-HSN-VA7-830-U-MQ

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	989.0	8.0			
FM (30°-60°)	2819.8	22.9			
FH (60°-80°)	2058.2	16.7			G2/5000
FVH (80°-90°)	279.3	2.3			G3/500
BL (0°-30°)	989.0	8.0	B2/1000		
BM (30°-60°)	2819.8	22.9	B3/5000		
BH (60°-80°)	2058.2	16.7	B3/2500		G2/5000
BVH (80°-90°)	279.3	2.3			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 V Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2486.7	2486.7	2486.7	2486.7	2486.7	2486.7	2486.7	2486.7	2486.7	2486.7	2486.7
2.5°	2482.4	2482.4	2481.8	2481.8	2481.2	2481.8	2482.4	2482.4	2481.8	2481.2	2480.6
5°	2464.7	2465.3	2465.3	2464.1	2462.9	2462.9	2462.9	2463.5	2462.2	2462.9	2462.2
7.5°	2439.0	2437.2	2439.0	2438.4	2439.0	2437.2	2440.2	2439.0	2437.2	2438.4	2438.4
10°	2410.2	2410.8	2411.5	2410.8	2412.7	2412.1	2411.5	2410.8	2409.6	2410.8	2409.0
12.5°	2383.3	2383.9	2385.8	2386.4	2388.2	2387.6	2388.2	2387.0	2386.4	2383.9	2383.3
15°	2357.6	2358.8	2361.3	2363.1	2364.9	2365.6	2364.3	2363.7	2360.7	2358.8	2357.6
17.5°	2336.2	2336.2	2339.9	2342.9	2346.0	2346.6	2346.0	2342.9	2338.6	2334.4	2335.0
20°	2321.5	2321.5	2325.8	2330.7	2335.0	2336.2	2334.4	2328.8	2322.1	2319.1	2318.4
22.5°	2314.8	2315.4	2319.7	2325.2	2331.3	2332.5	2328.8	2322.1	2314.8	2309.3	2308.7
25°	2315.4	2314.2	2317.8	2326.4	2333.1	2334.4	2331.3	2322.1	2313.5	2308.7	2306.8
27.5°	2313.5	2314.2	2318.4	2327.0	2335.6	2338.0	2333.1	2322.1	2310.5	2306.2	2305.0
30°	2312.9	2313.5	2314.8	2328.8	2338.6	2342.9	2335.6	2320.9	2311.1	2304.4	2303.8
32.5°	2310.5	2307.4	2316.0	2324.6	2336.8	2342.3	2335.0	2321.5	2305.6	2300.7	2298.3
35°	2300.7	2303.8	2311.1	2325.8	2339.9	2343.5	2335.0	2318.4	2304.4	2294.6	2294.0
37.5°	2298.9	2298.9	2310.5	2325.8	2339.9	2345.4	2338.0	2319.7	2300.1	2287.9	2287.9
40°	2296.4	2295.8	2311.1	2330.1	2348.4	2355.8	2346.0	2323.3	2299.5	2287.9	2281.7
42.5°	2303.1	2306.8	2324.6	2352.1	2375.4	2387.6	2373.5	2348.4	2320.3	2298.3	2297.6
45°	2335.0	2342.9	2361.3	2407.8	2439.0	2453.7	2437.2	2393.7	2349.7	2320.3	2318.4
47.5°	2384.5	2382.1	2425.5	2474.5	2520.4	2536.3	2512.4	2461.6	2398.0	2362.5	2353.3
50°	2418.8	2424.9	2469.6	2540.6	2609.1	2627.4	2592.6	2527.1	2458.0	2409.0	2400.4
52.5°	2465.3	2466.5	2523.4	2613.4	2683.7	2703.9	2670.3	2588.9	2495.9	2434.7	2430.4
55°	2470.8	2491.0	2560.1	2658.0	2742.5	2766.3	2724.7	2637.9	2529.5	2453.7	2446.3
57.5°	2466.5	2460.4	2544.2	2656.8	2736.4	2770.0	2729.0	2633.0	2516.7	2436.5	2417.0
60°	2378.4	2404.1	2496.5	2606.6	2708.8	2742.5	2694.8	2596.9	2469.6	2381.5	2373.5
62.5°	2318.4	2329.5	2413.9	2562.0	2645.8	2679.5	2642.7	2527.7	2391.9	2300.1	2289.1
65°	2224.8	2233.4	2332.5	2454.3	2571.2	2601.1	2554.0	2457.3	2311.7	2210.8	2190.6
67.5°	2075.5	2098.8	2196.7	2351.5	2432.3	2483.7	2441.4	2305.6	2173.4	2074.3	2059.6
70°	1901.7	1933.0	2033.9	2160.6	2295.2	2320.9	2262.8	2170.4	2022.3	1916.4	1890.7
72.5°	1734.1	1736.5	1830.8	1979.5	2064.5	2112.2	2079.2	1957.4	1812.4	1722.5	1706.6
75°	1499.7	1500.4	1603.8	1725.5	1833.2	1864.4	1811.8	1726.1	1597.0	1496.1	1486.3
77.5°	1228.1	1244.6	1336.4	1453.8	1538.9	1584.2	1546.9	1450.2	1329.6	1243.4	1233.6
80°	963.1	983.9	1048.8	1154.0	1227.4	1267.2	1226.8	1142.4	1050.6	966.2	967.4
82.5°	679.8	695.1	756.3	827.9	899.5	928.8	911.7	849.3	765.5	691.4	671.2
85°	379.4	399.0	439.9	503.0	550.7	588.6	567.2	518.3	445.5	399.0	397.7
87.5°	111.4	120.5	137.1	179.3	224.6	241.1	236.2	224.0	196.4	176.2	163.4
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: SP1-2407-176-11

Test Date: 09/26/2024

Luminaire Tested: MEM2-HTN-VA-130-830-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-830-U-RW



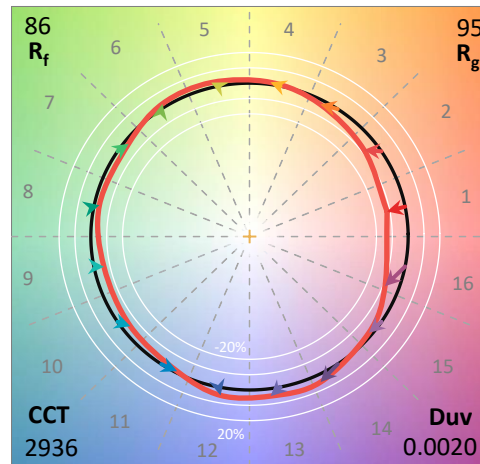
**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-11  
 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-130-830-U-RW**  
 Description: EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

**Spectral Parameters**

CCT (K): 2936  
 CIE u': 0.2522  
 CIE v': 0.5255  
 Duv: 0.0020  
 CIE x: 0.4446  
 CIE y: 0.4117  
 CIE z: 0.1436  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 582  
 Purity: 57.05514  
 Rf: 85.6  
 Rg: 95.3

CRI (Ra):	82.0		
R1:	79.9	R9:	1.5
R2:	90.0	R10:	78.0
R3:	96.9	R11:	80.9
R4:	80.9	R12:	73.9
R5:	80.4	R13:	82.1
R6:	88.8	R14:	98.8
R7:	82.7	R15:	71.1
R8:	56.8		



**Test Conditions**

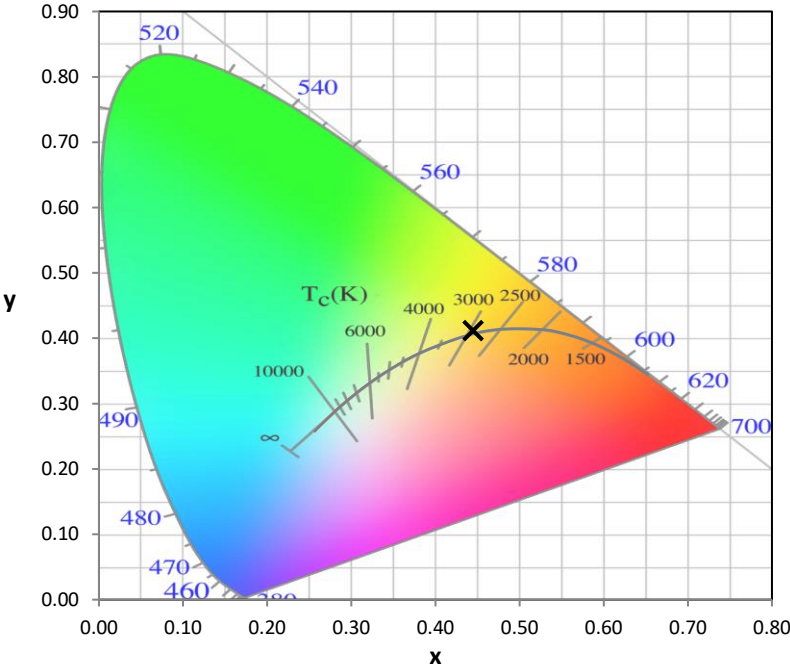
Stabilization Time: 54M  
 Operation Time: 1H 54M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-11

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 3000K 7-step quadrangle

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**Photopic Flux vs. Wavelength**

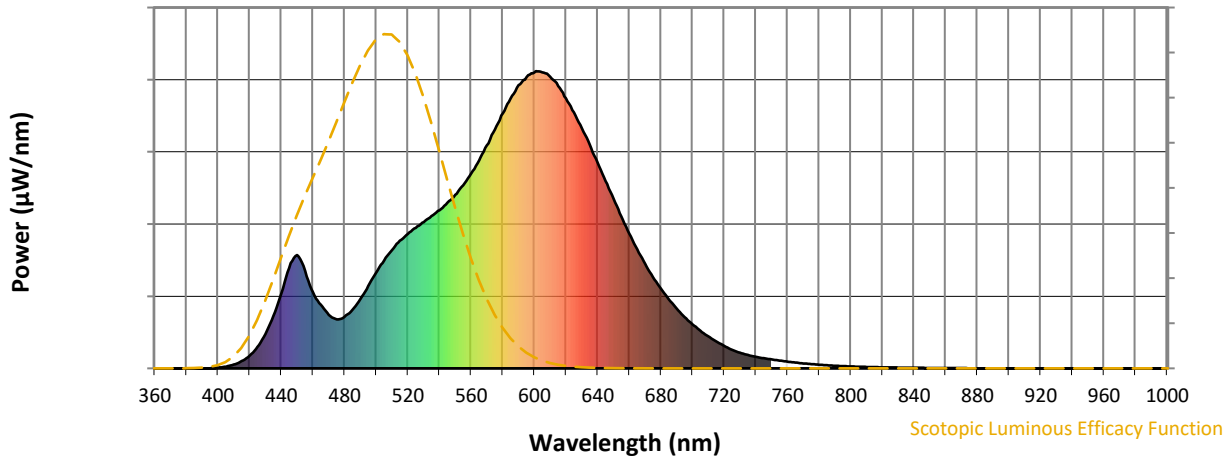


**Photopic Lumens: NR**

$\lambda$ (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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

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**Scotopic Flux vs. Wavelength**



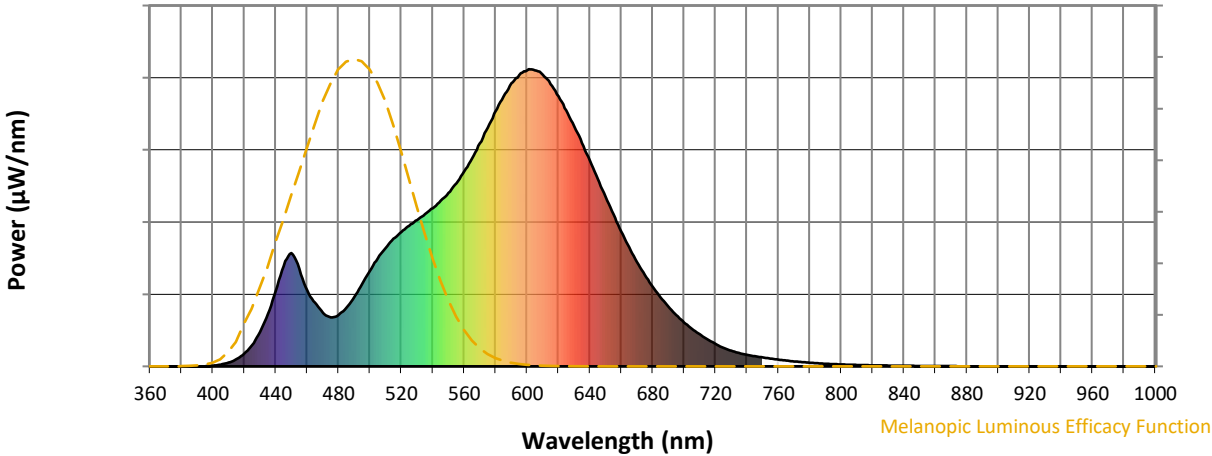
**Scotopic Lumens: NR**

**S/P: 1.3**

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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-11

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.46

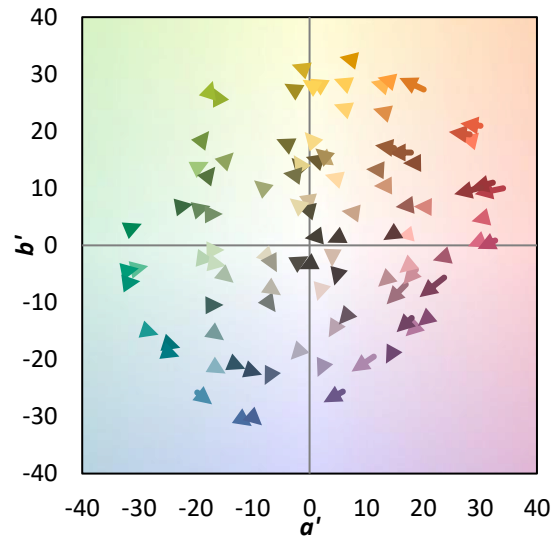
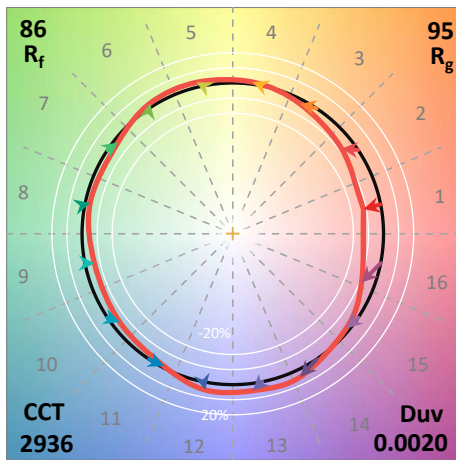
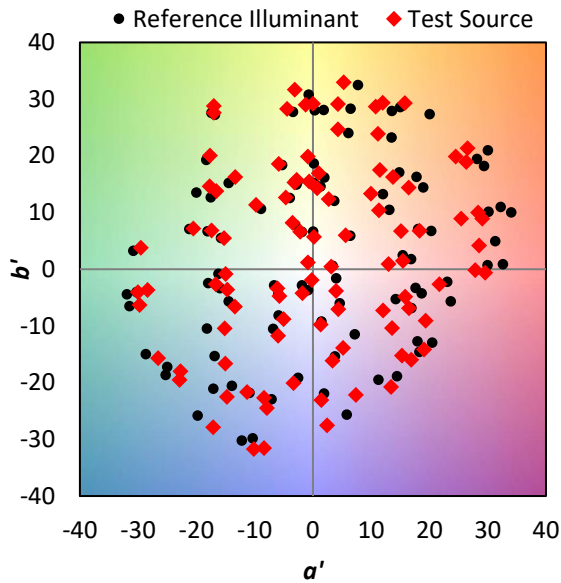
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

**Summary**

$R_f = 85.6$   
 $R_g = 95.3$   
 CIE  $R_a = 82.0$   
 $R_9 = 1.5$

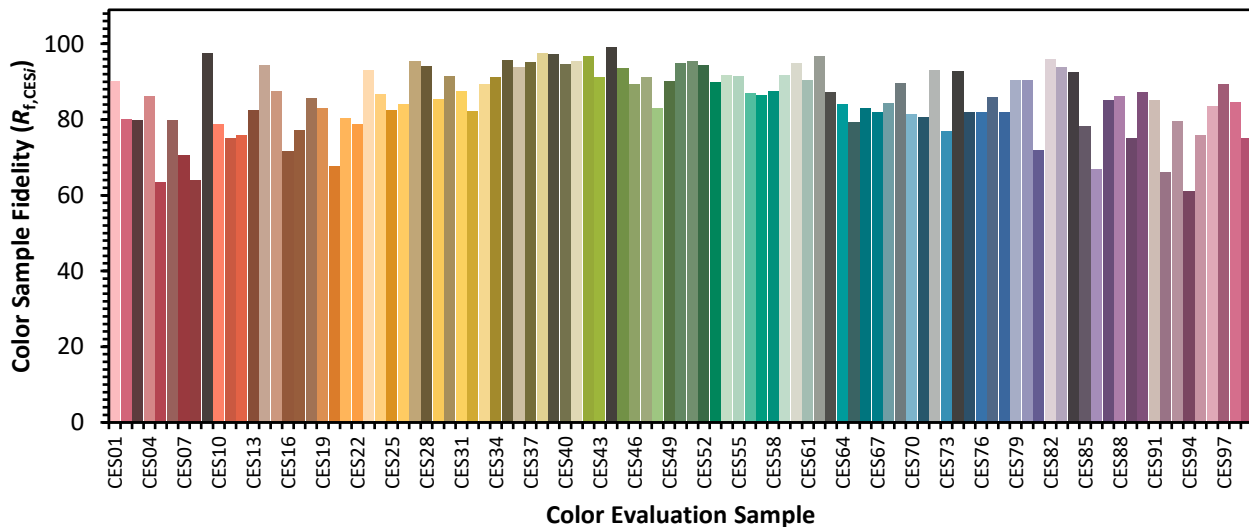


**Color Vector Graphics**



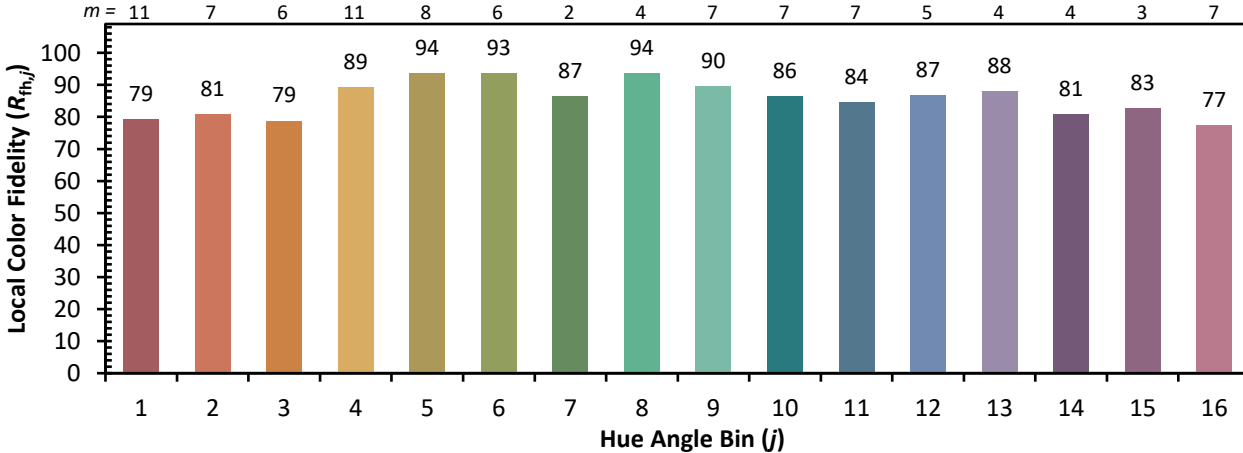
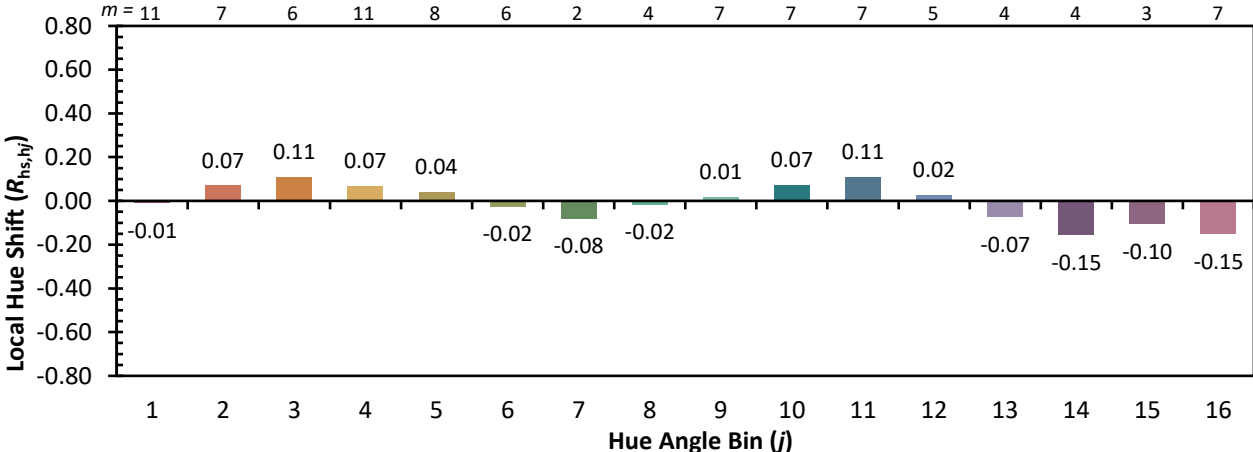
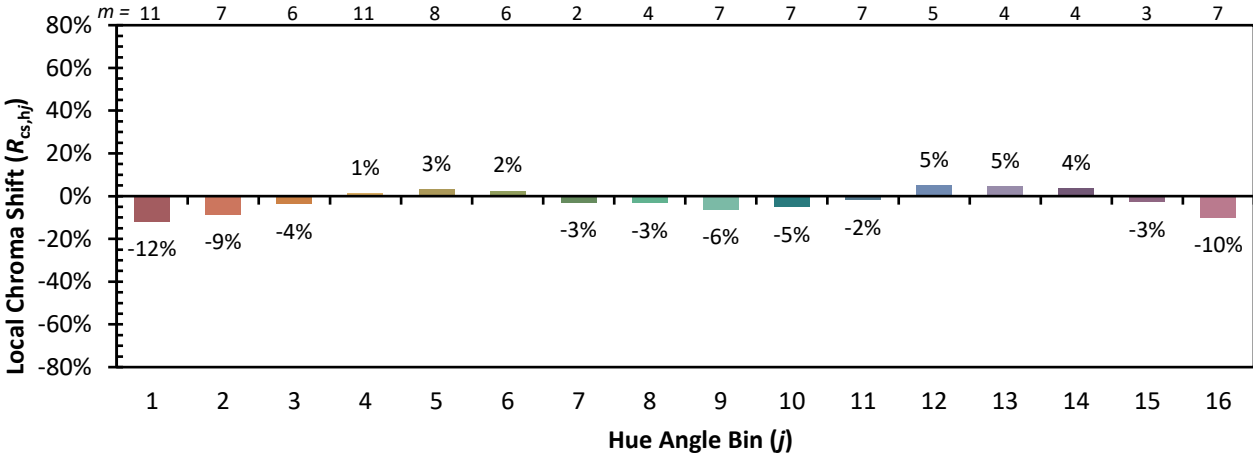
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 86	CES26 = 84	CES51 = 95	CES76 = 82
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 94	CES53 = 90	CES78 = 82
CES04 = 71	CES29 = 85	CES54 = 92	CES79 = 90
CES05 = 50	CES30 = 91	CES55 = 92	CES80 = 90
CES06 = 51	CES31 = 87	CES56 = 87	CES81 = 72
CES07 = 42	CES32 = 82	CES57 = 87	CES82 = 96
CES08 = 41	CES33 = 89	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 91	CES59 = 92	CES84 = 93
CES10 = 76	CES35 = 96	CES60 = 95	CES85 = 78
CES11 = 59	CES36 = 94	CES61 = 90	CES86 = 67
CES12 = 65	CES37 = 95	CES62 = 97	CES87 = 85
CES13 = 44	CES38 = 98	CES63 = 87	CES88 = 86
CES14 = 74	CES39 = 97	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 79	CES90 = 87
CES16 = 48	CES41 = 95	CES66 = 83	CES91 = 85
CES17 = 50	CES42 = 97	CES67 = 82	CES92 = 66
CES18 = 57	CES43 = 91	CES68 = 84	CES93 = 80
CES19 = 72	CES44 = 99	CES69 = 90	CES94 = 61
CES20 = 67	CES45 = 93	CES70 = 81	CES95 = 76
CES21 = 87	CES46 = 89	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 91	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 85
CES24 = 91	CES49 = 90	CES74 = 93	CES99 = 75
CES25 = 72	CES50 = 95	CES75 = 82	

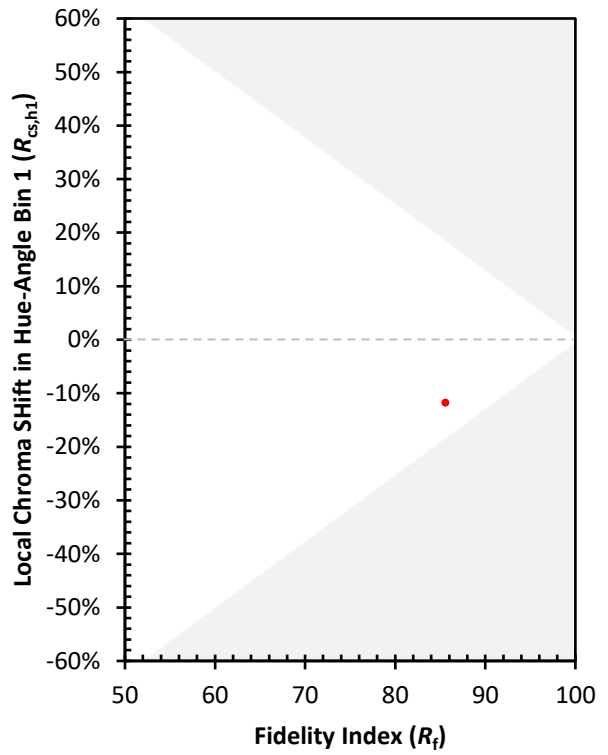
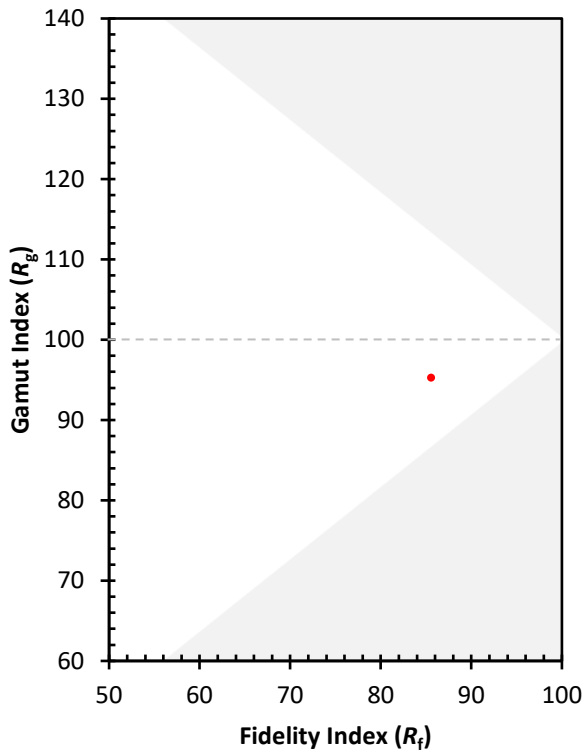




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)