

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: P879674

Luminaire Tested: **EMM2-HSN-VA7-735-U-WQ**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P879674
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-VA7-735-U-WQ
Description: EPIC MODERN SHORT HOUSING 7W 70CRI 3500K WAVESTREAM FIXTURE w/
TYPE V WIDE DISTRIBUTION OPTIC
Light Source: (1) 3500K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

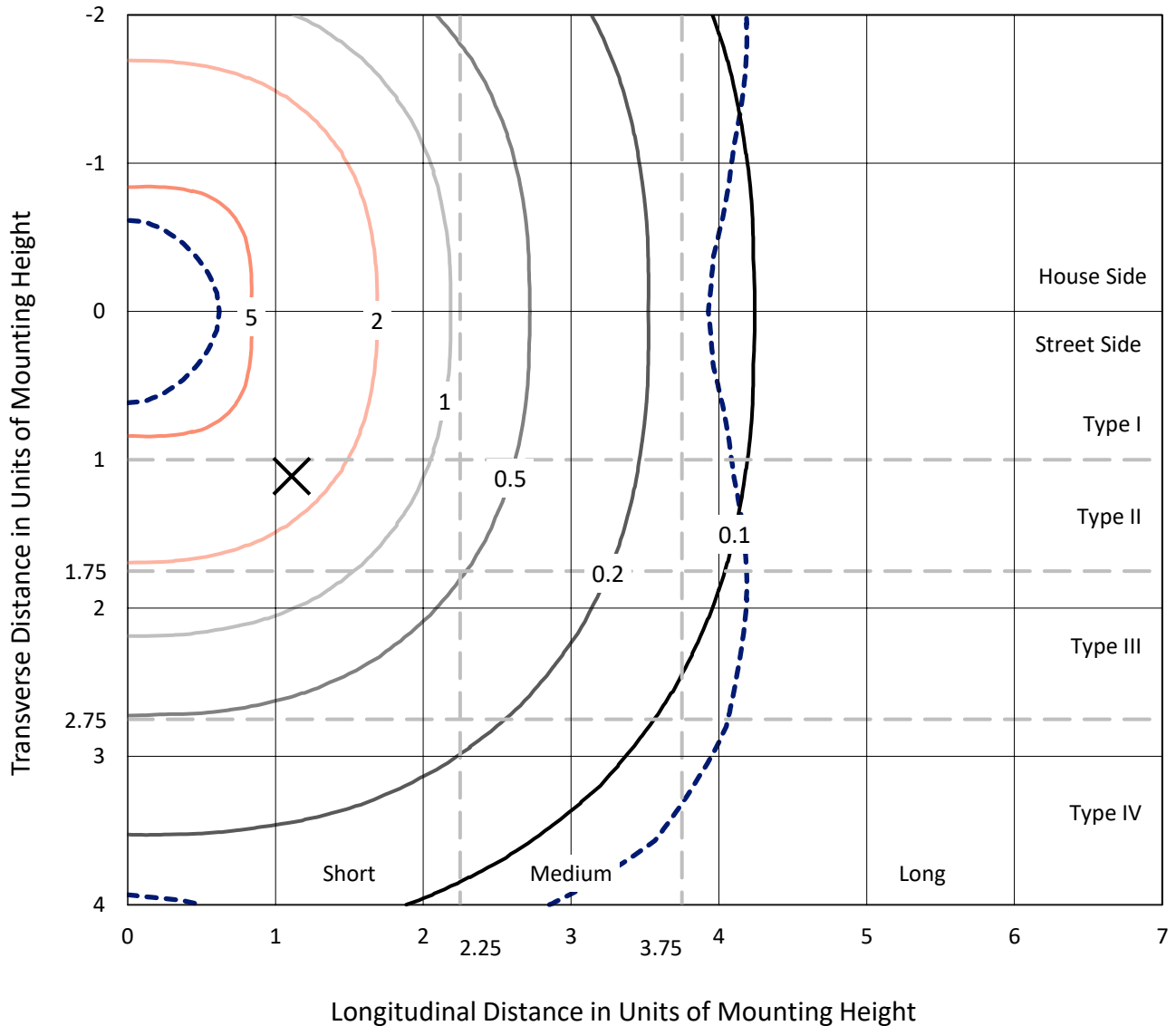
Lumens per Lamp: N/A
Luminaire Lumens: 14959.3 lumens
Efficiency: N/A
Efficacy: 115.1 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G3

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

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Iso-Footcandle Lines of Horizontal Illumination

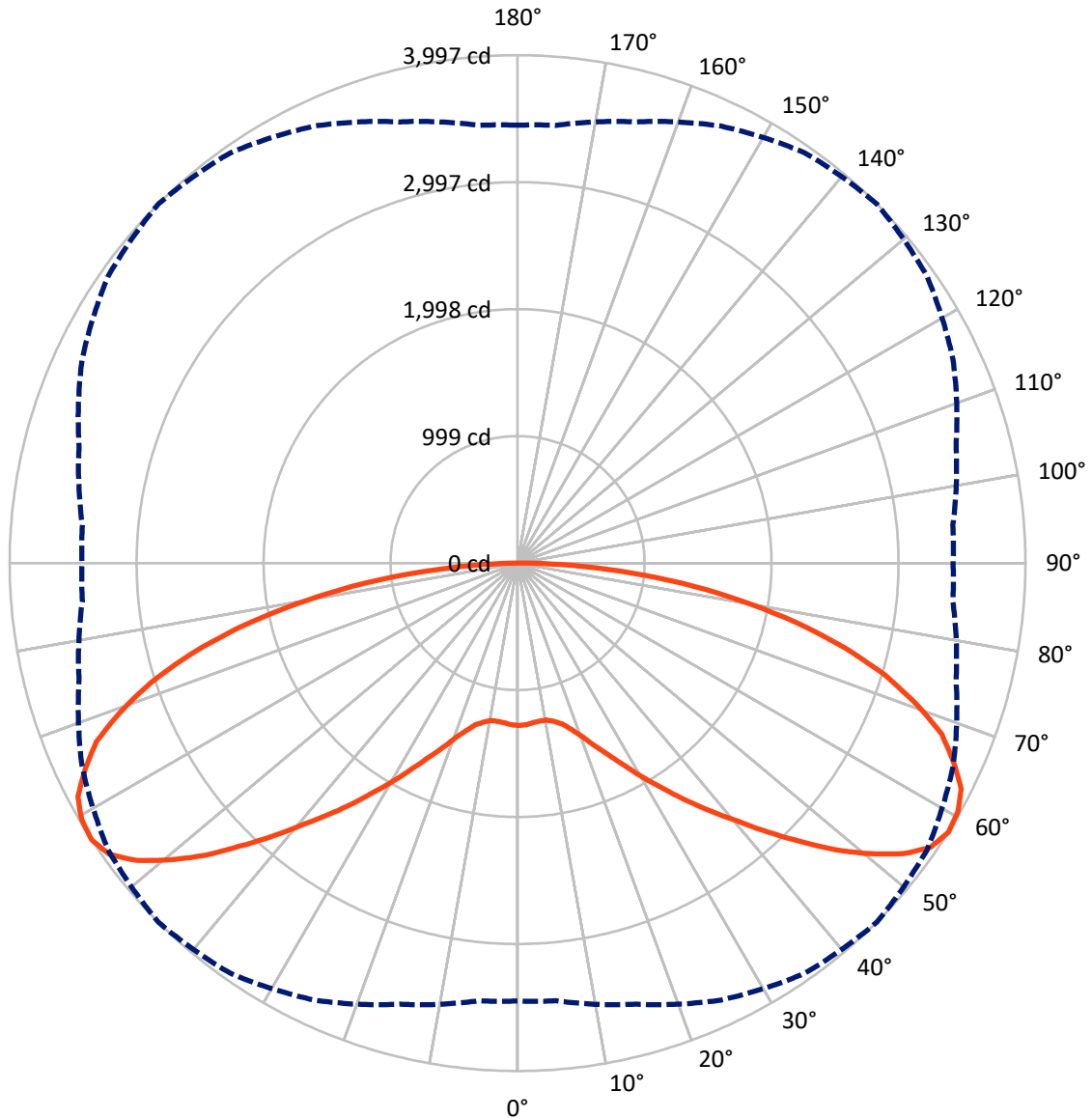
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 5.7 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

REPORT NUMBER: P879674

CATALOG NUMBER: EMM2-HSN-VA7-735-U-WQ

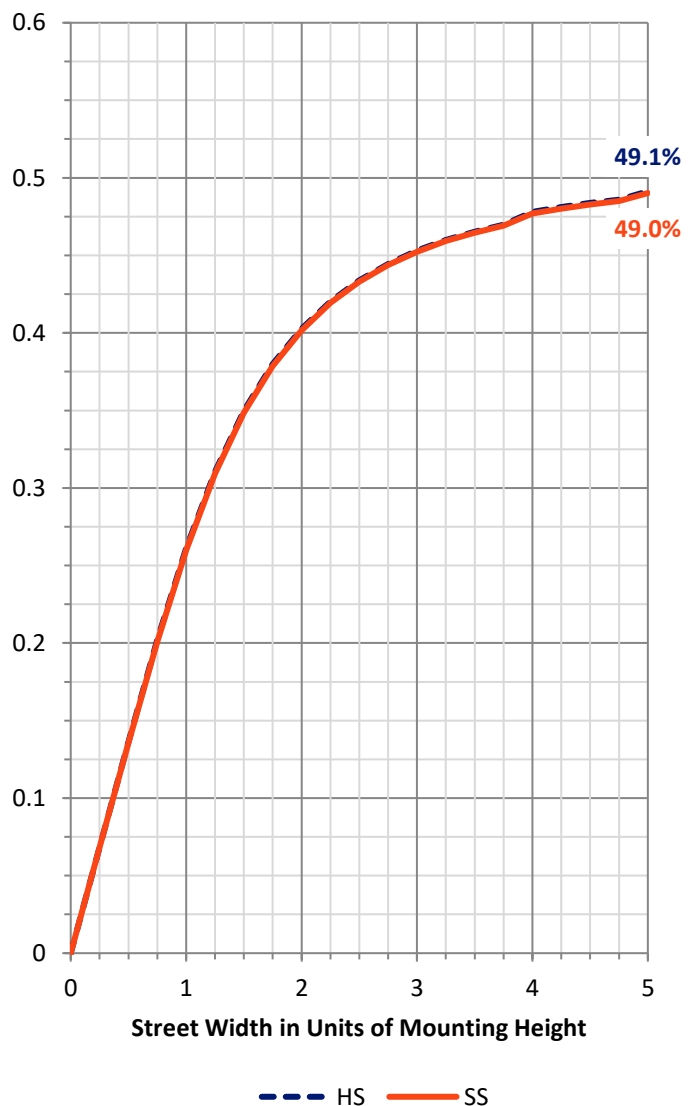
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	7479.7	0.0	7479.7
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	7479.7	0.0	7479.7
	% Fixture	50.0	0.0	50.0
Total	Lumens	14959.3	0.0	14959.3
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	120.3	0.8
10°-20°	378.2	2.5
20°-30°	777.3	5.2
30°-40°	1418.3	9.5
40°-50°	2325.9	15.5
50°-60°	3259.2	21.8
60°-70°	3409.5	22.8
70°-80°	2491.0	16.7
80°-90°	779.7	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°	14959.3	100.0
0°-180°	14959.3	100.0



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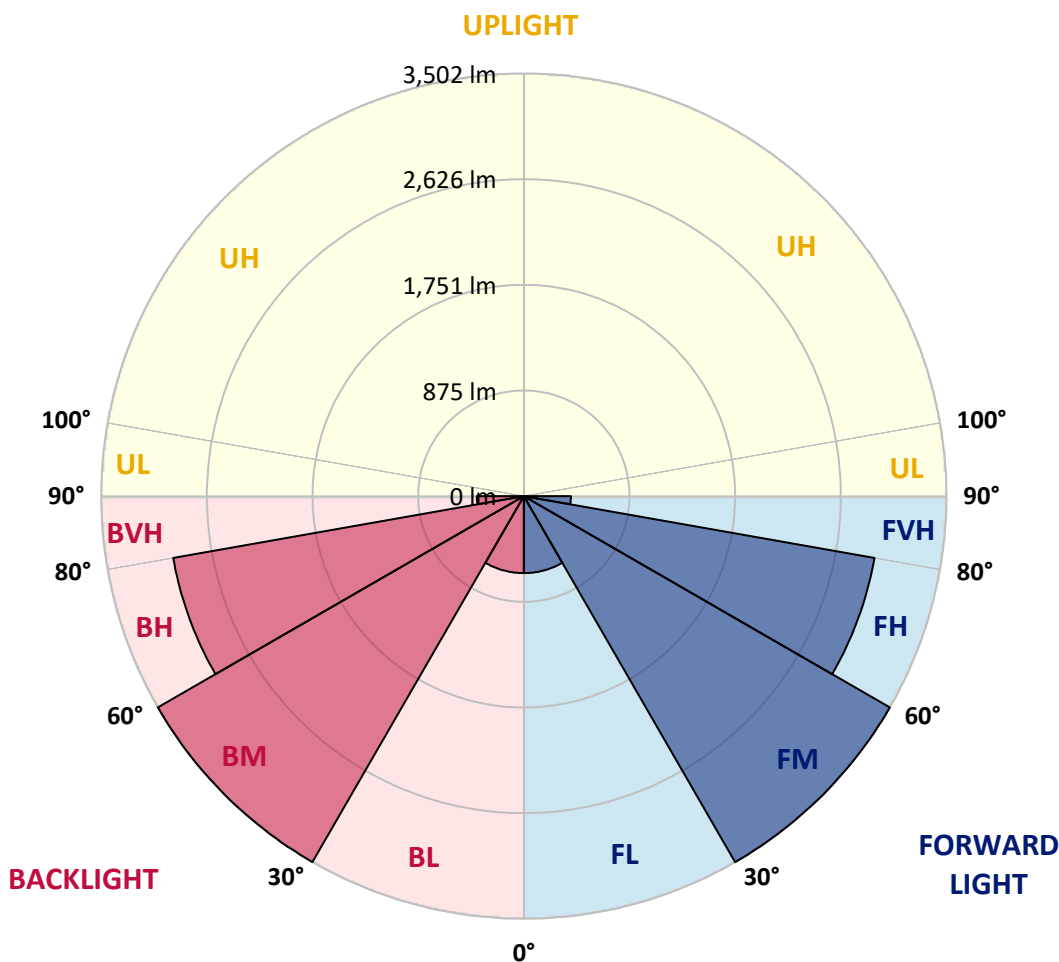
CATALOG NUMBER: EMM2-HSN-VA7-735-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	637.9	4.3			
FM (30°-60°)	3501.7	23.4			
FH (60°-80°)	2950.3	19.7			G2/5000
FVH (80°-90°)	389.9	2.6			G3/500
BL (0°-30°)	637.9	4.3	B2/1000		
BM (30°-60°)	3501.7	23.4	B3/5000		
BH (60°-80°)	2950.3	19.7	B4/5000		G2/5000
BVH (80°-90°)	389.9	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-VA7-735-U-WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1277.2	1277.2	1277.2	1277.2	1277.2	1277.2	1277.2	1277.2	1277.2	1277.2	1277.2
2.5°	1272.5	1274.4	1273.5	1273.5	1272.5	1273.5	1275.4	1276.3	1275.4	1276.3	1275.4
5°	1264.1	1264.1	1263.2	1262.2	1262.2	1262.2	1262.2	1262.2	1263.2	1263.2	1264.1
7.5°	1253.8	1253.8	1253.8	1255.7	1254.7	1255.7	1255.7	1254.7	1253.8	1253.8	1254.7
10°	1255.7	1254.7	1253.8	1255.7	1254.7	1255.7	1255.7	1253.8	1254.7	1255.7	1256.6
12.5°	1271.6	1269.7	1272.5	1275.4	1277.2	1279.1	1278.2	1277.2	1274.4	1271.6	1271.6
15°	1306.3	1304.4	1307.2	1311.0	1311.9	1312.8	1315.6	1311.9	1311.0	1306.3	1305.3
17.5°	1355.9	1355.0	1360.6	1368.1	1371.9	1376.6	1371.9	1368.1	1357.8	1355.9	1358.8
20°	1427.2	1424.3	1435.6	1447.8	1451.5	1457.1	1453.4	1445.9	1435.6	1424.3	1424.3
22.5°	1518.1	1524.6	1530.2	1539.6	1554.6	1564.0	1551.8	1538.7	1523.7	1517.1	1512.4
25°	1636.1	1635.2	1640.8	1659.6	1668.9	1675.5	1673.6	1655.8	1642.7	1633.3	1632.4
27.5°	1749.5	1760.8	1772.0	1784.2	1807.6	1810.4	1807.6	1786.1	1765.4	1757.9	1755.1
30°	1900.4	1898.5	1908.8	1937.9	1961.3	1963.2	1955.7	1929.4	1906.0	1891.9	1893.8
32.5°	2047.5	2032.5	2059.7	2079.4	2099.0	2119.7	2100.0	2079.4	2059.7	2029.7	2039.1
35°	2181.5	2193.7	2208.7	2249.0	2289.3	2297.7	2284.6	2242.4	2204.0	2189.9	2174.0
37.5°	2345.5	2345.5	2370.8	2429.8	2466.4	2479.5	2460.7	2418.6	2365.2	2344.6	2337.1
40°	2510.4	2510.4	2548.8	2598.5	2652.8	2671.6	2651.0	2595.7	2551.6	2498.2	2506.7
42.5°	2670.7	2683.8	2734.4	2795.3	2871.2	2896.5	2867.4	2793.4	2729.7	2679.1	2671.6
45°	2847.8	2868.4	2923.7	3023.9	3088.6	3125.1	3084.8	3021.1	2908.7	2859.9	2833.7
47.5°	3040.8	3054.8	3134.5	3230.1	3335.0	3373.5	3325.7	3221.6	3126.1	3039.9	3036.1
50°	3208.5	3205.7	3307.9	3440.0	3559.0	3595.5	3557.1	3444.7	3289.1	3193.5	3202.9
52.5°	3334.1	3350.0	3457.8	3620.8	3747.3	3800.8	3738.0	3603.0	3440.9	3341.6	3311.6
55°	3415.6	3441.9	3567.4	3743.6	3887.9	3945.1	3883.2	3727.7	3550.6	3422.2	3404.4
57.5°	3445.6	3456.9	3593.7	3793.3	3940.4	3996.6	3932.9	3781.1	3572.1	3438.1	3426.9
60°	3399.7	3410.9	3559.0	3763.3	3931.9	3979.7	3929.1	3751.1	3538.4	3401.6	3382.8
62.5°	3287.2	3318.2	3482.2	3684.6	3877.6	3917.9	3865.4	3670.5	3473.7	3308.8	3281.6
65°	3152.3	3185.1	3324.7	3550.6	3725.8	3768.9	3727.7	3540.3	3325.7	3167.3	3141.1
67.5°	2964.0	2969.6	3133.6	3362.2	3547.7	3600.2	3529.0	3358.5	3125.1	2975.2	2954.6
70°	2728.7	2732.5	2906.8	3118.6	3289.1	3332.2	3285.4	3103.6	2894.6	2731.6	2717.5
72.5°	2427.0	2461.7	2606.0	2815.9	2975.2	3025.8	2964.9	2810.3	2617.2	2456.1	2424.2
75°	2106.5	2128.1	2253.7	2457.0	2593.8	2656.6	2606.9	2457.0	2253.7	2120.6	2092.5
77.5°	1731.7	1760.8	1883.5	2055.0	2168.4	2235.8	2181.5	2048.4	1883.5	1761.7	1760.8
80°	1368.1	1360.6	1472.1	1620.2	1732.6	1772.0	1738.3	1608.9	1460.9	1366.2	1353.1
82.5°	949.3	947.4	1068.3	1167.6	1262.2	1307.2	1255.7	1172.3	1058.0	973.6	946.4
85°	539.8	551.9	631.6	693.4	774.0	801.2	783.4	704.7	602.5	528.5	523.8
87.5°	187.4	204.3	219.3	264.3	316.7	340.2	314.9	302.7	268.9	233.3	235.2
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: SP1-2407-176-8

Test Date: 09/25/2024

Luminaire Tested: MEM2-HTN-VA-130-735-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-735-U-RW

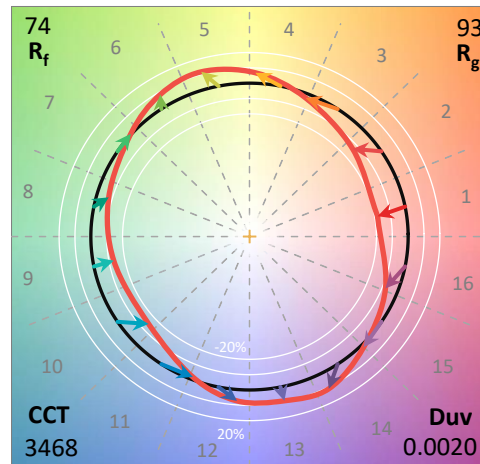
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-8
 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-130-735-U-RW**
 Description: EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K): 3468
 CIE u': 0.2356
 CIE v': 0.5145
 Duv: 0.0020
 CIE x: 0.4092
 CIE y: 0.3972
 CIE z: 0.1936
 Peak Wavelength (nm): 590
 Dominant Wavelength (nm): 580
 Purity: 42.03411
 Rf: 74.1
 Rg: 93.4

CRI (Ra):	70.6		
R1:	66.2	R9:	-41.3
R2:	79.1	R10:	52.2
R3:	90.8	R11:	63.6
R4:	68.4	R12:	47.5
R5:	66.3	R13:	68.3
R6:	71.1	R14:	94.8
R7:	78.4	R15:	57.6
R8:	44.5		



Test Conditions

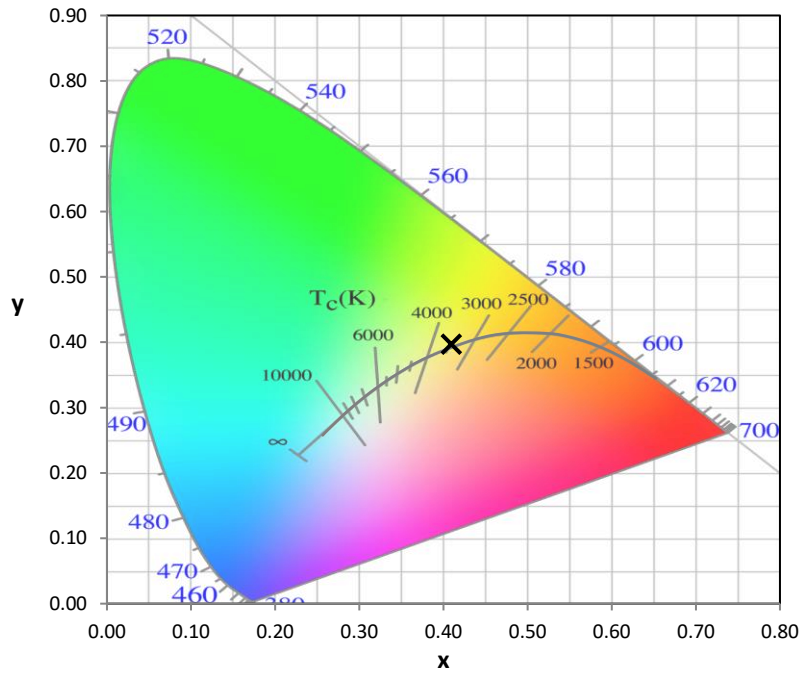
Stabilization Time: 46M
 Operation Time: 1H 46M
 Sphere Temperature (°C): 25.2

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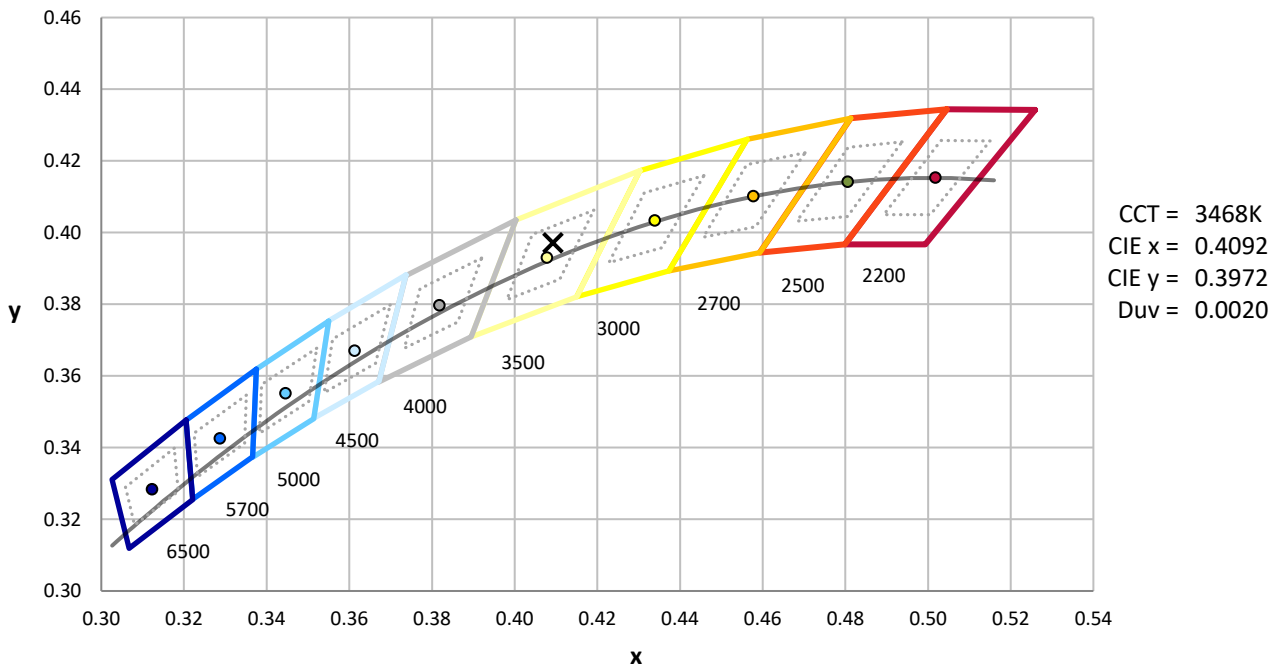
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



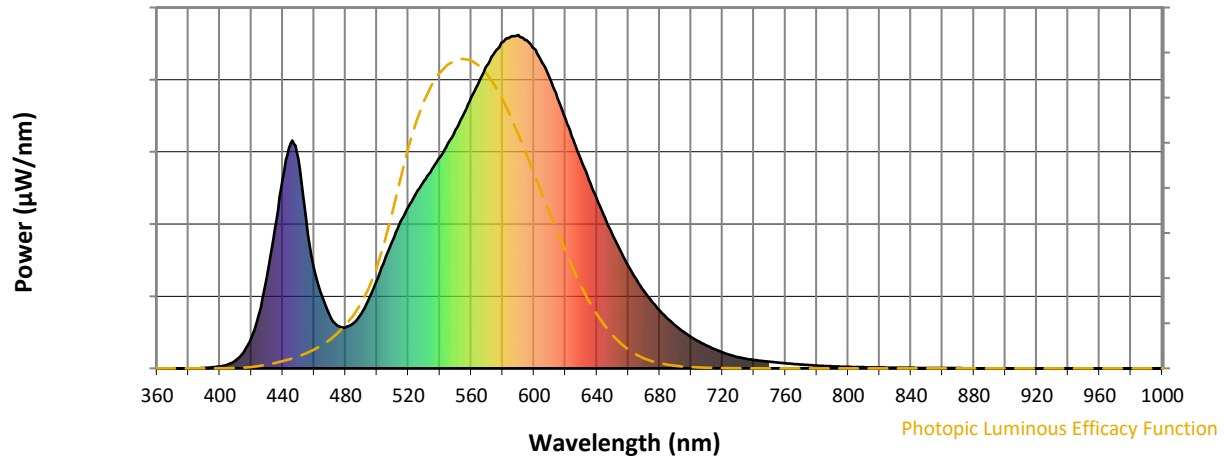
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

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Photopic Flux vs. Wavelength

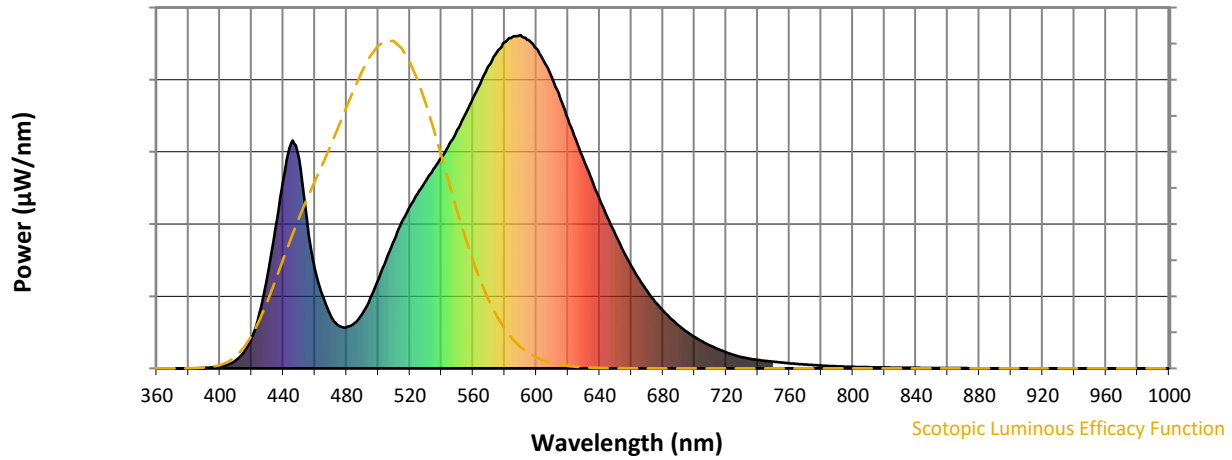


Photopic Lumens: NR

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	164	NR	620	749	NR	750	20	NR	880	0	NR
365	0	NR	495	209	NR	625	686	NR	755	17	NR	885	0	NR
370	0	NR	500	265	NR	630	624	NR	760	15	NR	890	0	NR
375	0	NR	505	325	NR	635	566	NR	765	13	NR	895	0	NR
380	0	NR	510	384	NR	640	508	NR	770	11	NR	900	0	NR
385	0	NR	515	439	NR	645	452	NR	775	10	NR	905	0	NR
390	1	NR	520	485	NR	650	401	NR	780	8	NR	910	0	NR
395	3	NR	525	526	NR	655	353	NR	785	7	NR	915	0	NR
400	6	NR	530	562	NR	660	308	NR	790	6	NR	920	0	NR
405	11	NR	535	598	NR	665	268	NR	795	5	NR	925	0	NR
410	24	NR	540	633	NR	670	232	NR	800	5	NR	930	0	NR
415	48	NR	545	674	NR	675	200	NR	805	4	NR	935	0	NR
420	91	NR	550	715	NR	680	174	NR	810	3	NR	940	0	NR
425	166	NR	555	761	NR	685	149	NR	815	3	NR	945	0	NR
430	276	NR	560	812	NR	690	129	NR	820	3	NR	950	0	NR
435	420	NR	565	860	NR	695	110	NR	825	2	NR	955	0	NR
440	568	NR	570	908	NR	700	94	NR	830	2	NR	960	0	NR
445	675	NR	575	948	NR	705	80	NR	835	2	NR	965	0	NR
450	629	NR	580	978	NR	710	68	NR	840	2	NR	970	0	NR
455	443	NR	585	994	NR	715	58	NR	845	1	NR	975	0	NR
460	299	NR	590	1000	NR	720	48	NR	850	1	NR	980	0	NR
465	217	NR	595	985	NR	725	40	NR	855	1	NR	985	0	NR
470	157	NR	600	959	NR	730	34	NR	860	1	NR	990	0	NR
475	127	NR	605	918	NR	735	29	NR	865	1	NR	995	0	NR
480	123	NR	610	869	NR	740	25	NR	870	1	NR	1000	0	NR
485	135	NR	615	810	NR	745	22	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



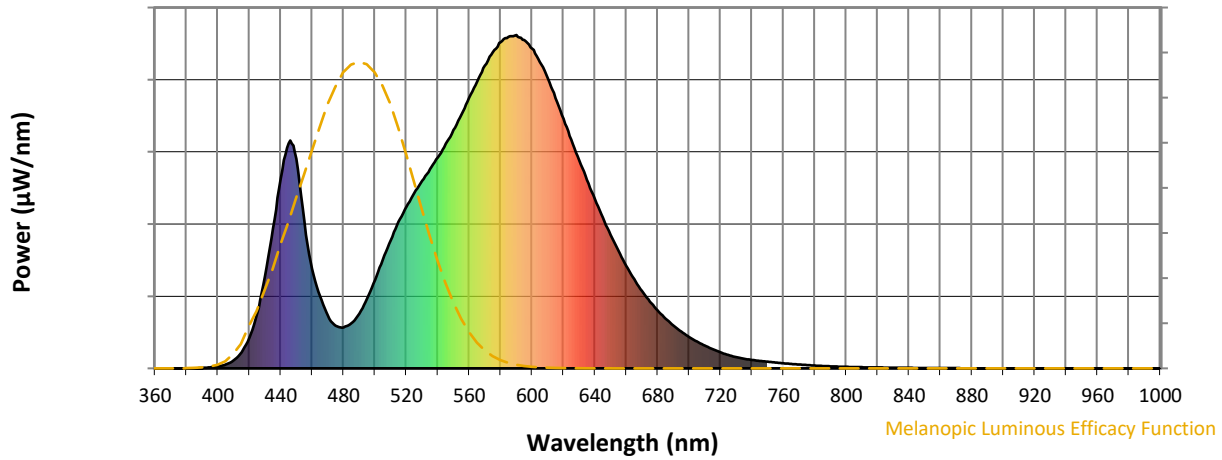
Scotopic Lumens: NR

S/P: 1.35

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	164	NR	620	749	NR	750	20	NR	880	0	NR
365	0	NR	495	209	NR	625	686	NR	755	17	NR	885	0	NR
370	0	NR	500	265	NR	630	624	NR	760	15	NR	890	0	NR
375	0	NR	505	325	NR	635	566	NR	765	13	NR	895	0	NR
380	0	NR	510	384	NR	640	508	NR	770	11	NR	900	0	NR
385	0	NR	515	439	NR	645	452	NR	775	10	NR	905	0	NR
390	1	NR	520	485	NR	650	401	NR	780	8	NR	910	0	NR
395	3	NR	525	526	NR	655	353	NR	785	7	NR	915	0	NR
400	6	NR	530	562	NR	660	308	NR	790	6	NR	920	0	NR
405	11	NR	535	598	NR	665	268	NR	795	5	NR	925	0	NR
410	24	NR	540	633	NR	670	232	NR	800	5	NR	930	0	NR
415	48	NR	545	674	NR	675	200	NR	805	4	NR	935	0	NR
420	91	NR	550	715	NR	680	174	NR	810	3	NR	940	0	NR
425	166	NR	555	761	NR	685	149	NR	815	3	NR	945	0	NR
430	276	NR	560	812	NR	690	129	NR	820	3	NR	950	0	NR
435	420	NR	565	860	NR	695	110	NR	825	2	NR	955	0	NR
440	568	NR	570	908	NR	700	94	NR	830	2	NR	960	0	NR
445	675	NR	575	948	NR	705	80	NR	835	2	NR	965	0	NR
450	629	NR	580	978	NR	710	68	NR	840	2	NR	970	0	NR
455	443	NR	585	994	NR	715	58	NR	845	1	NR	975	0	NR
460	299	NR	590	1000	NR	720	48	NR	850	1	NR	980	0	NR
465	217	NR	595	985	NR	725	40	NR	855	1	NR	985	0	NR
470	157	NR	600	959	NR	730	34	NR	860	1	NR	990	0	NR
475	127	NR	605	918	NR	735	29	NR	865	1	NR	995	0	NR
480	123	NR	610	869	NR	740	25	NR	870	1	NR	1000	0	NR
485	135	NR	615	810	NR	745	22	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



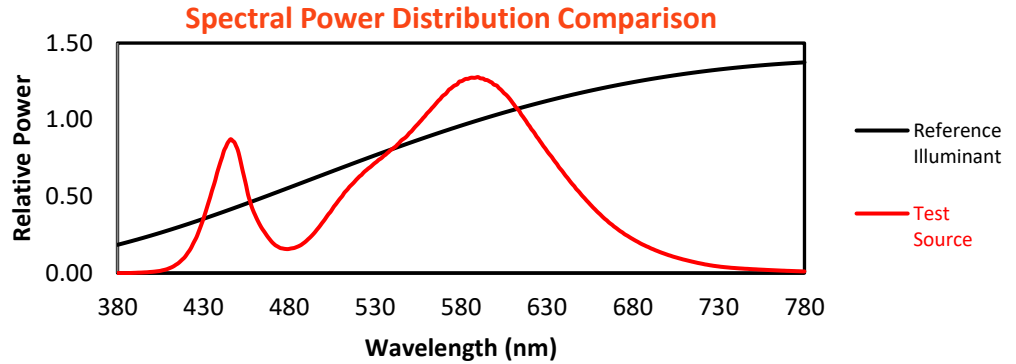
Melanopic Lumens: NR

M/P: 2.54

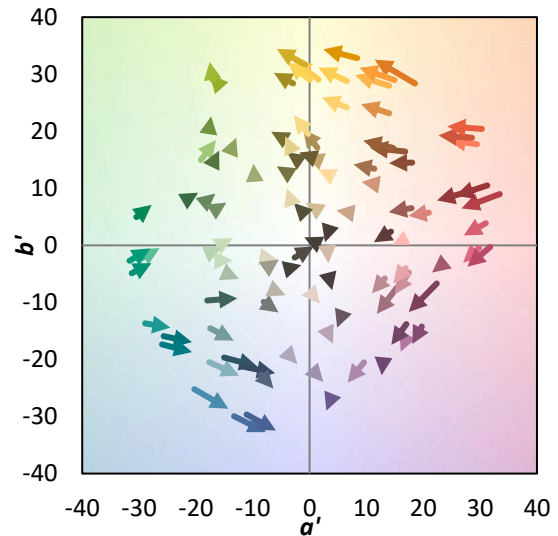
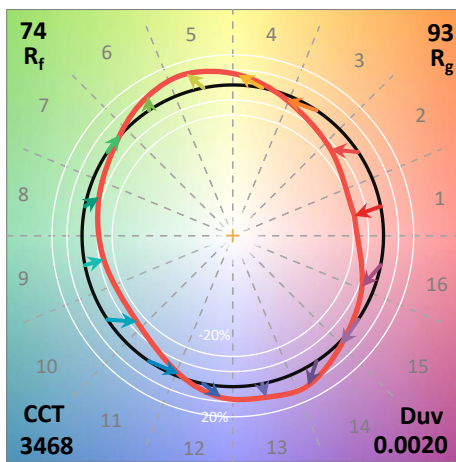
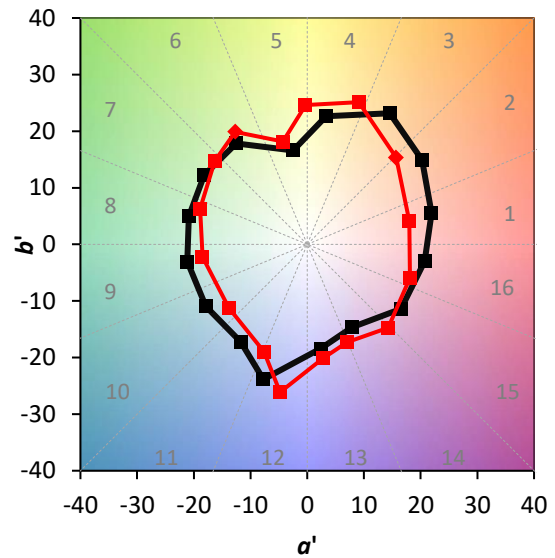
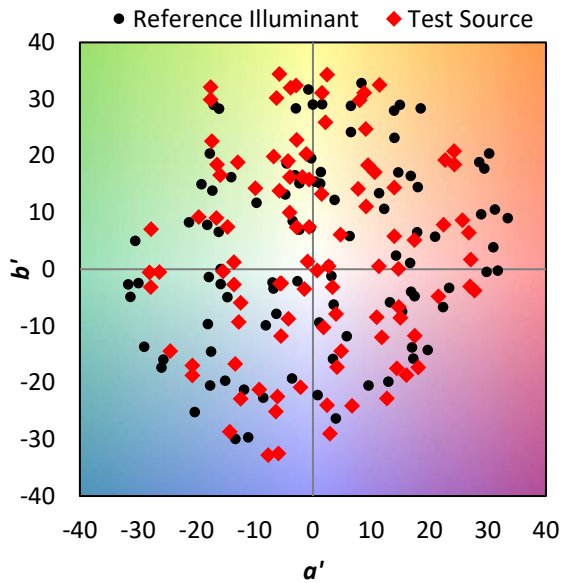
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	164	NR	620	749	NR	750	20	NR	880	0	NR
365	0	NR	495	209	NR	625	686	NR	755	17	NR	885	0	NR
370	0	NR	500	265	NR	630	624	NR	760	15	NR	890	0	NR
375	0	NR	505	325	NR	635	566	NR	765	13	NR	895	0	NR
380	0	NR	510	384	NR	640	508	NR	770	11	NR	900	0	NR
385	0	NR	515	439	NR	645	452	NR	775	10	NR	905	0	NR
390	1	NR	520	485	NR	650	401	NR	780	8	NR	910	0	NR
395	3	NR	525	526	NR	655	353	NR	785	7	NR	915	0	NR
400	6	NR	530	562	NR	660	308	NR	790	6	NR	920	0	NR
405	11	NR	535	598	NR	665	268	NR	795	5	NR	925	0	NR
410	24	NR	540	633	NR	670	232	NR	800	5	NR	930	0	NR
415	48	NR	545	674	NR	675	200	NR	805	4	NR	935	0	NR
420	91	NR	550	715	NR	680	174	NR	810	3	NR	940	0	NR
425	166	NR	555	761	NR	685	149	NR	815	3	NR	945	0	NR
430	276	NR	560	812	NR	690	129	NR	820	3	NR	950	0	NR
435	420	NR	565	860	NR	695	110	NR	825	2	NR	955	0	NR
440	568	NR	570	908	NR	700	94	NR	830	2	NR	960	0	NR
445	675	NR	575	948	NR	705	80	NR	835	2	NR	965	0	NR
450	629	NR	580	978	NR	710	68	NR	840	2	NR	970	0	NR
455	443	NR	585	994	NR	715	58	NR	845	1	NR	975	0	NR
460	299	NR	590	1000	NR	720	48	NR	850	1	NR	980	0	NR
465	217	NR	595	985	NR	725	40	NR	855	1	NR	985	0	NR
470	157	NR	600	959	NR	730	34	NR	860	1	NR	990	0	NR
475	127	NR	605	918	NR	735	29	NR	865	1	NR	995	0	NR
480	123	NR	610	869	NR	740	25	NR	870	1	NR	1000	0	NR
485	135	NR	615	810	NR	745	22	NR	875	0	NR			

Summary

$R_f = 74.1$
 $R_g = 93.4$
 $CIE R_a = 70.6$
 $R_9 = -41.3$

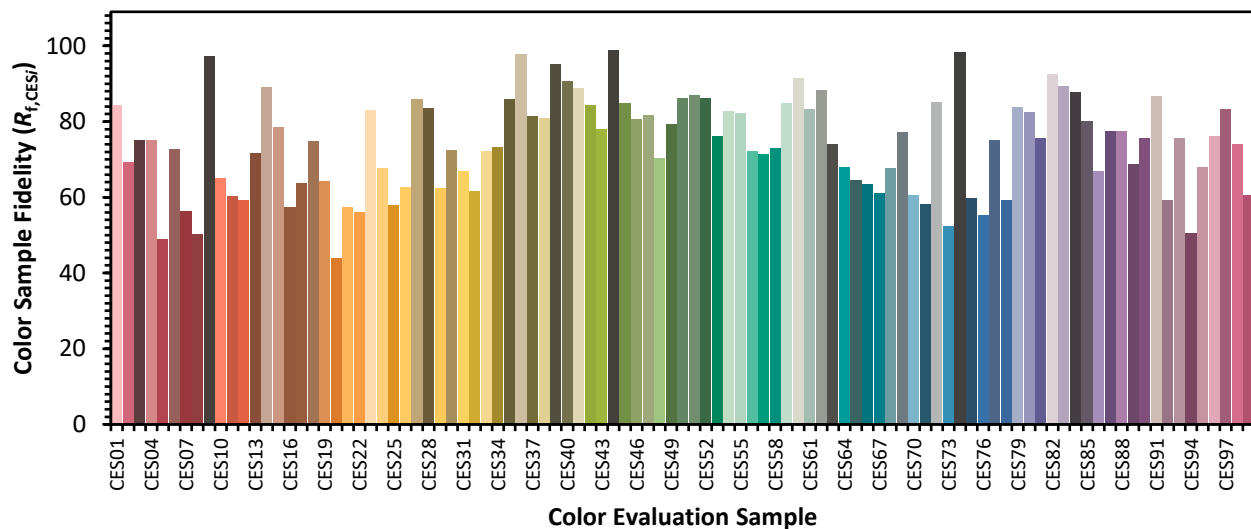


Color Vector Graphics

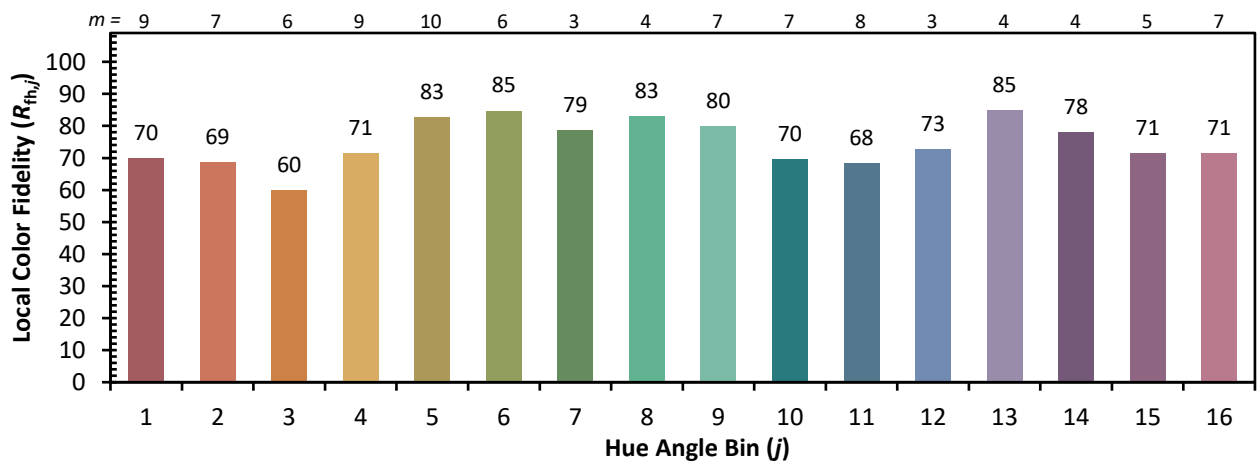
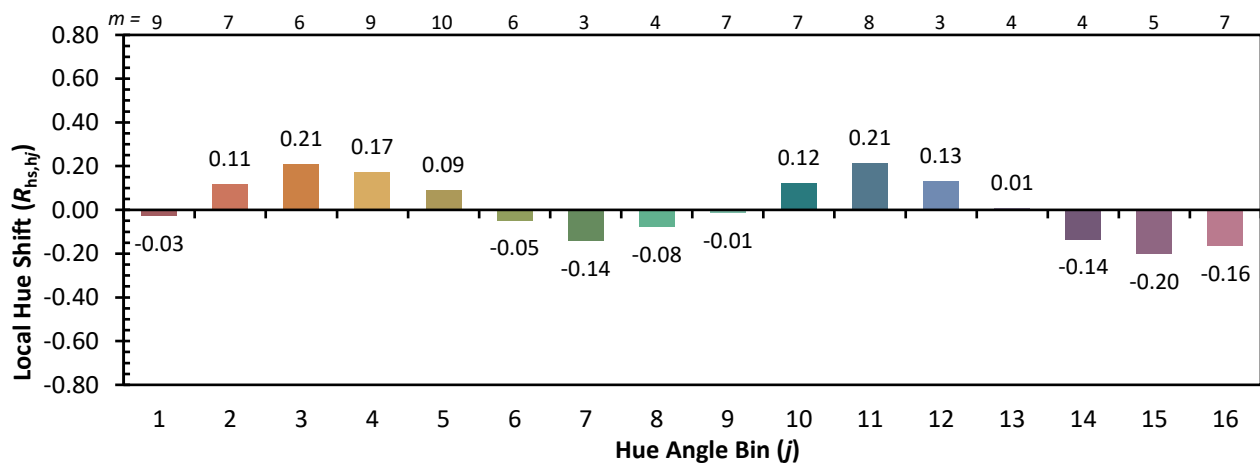
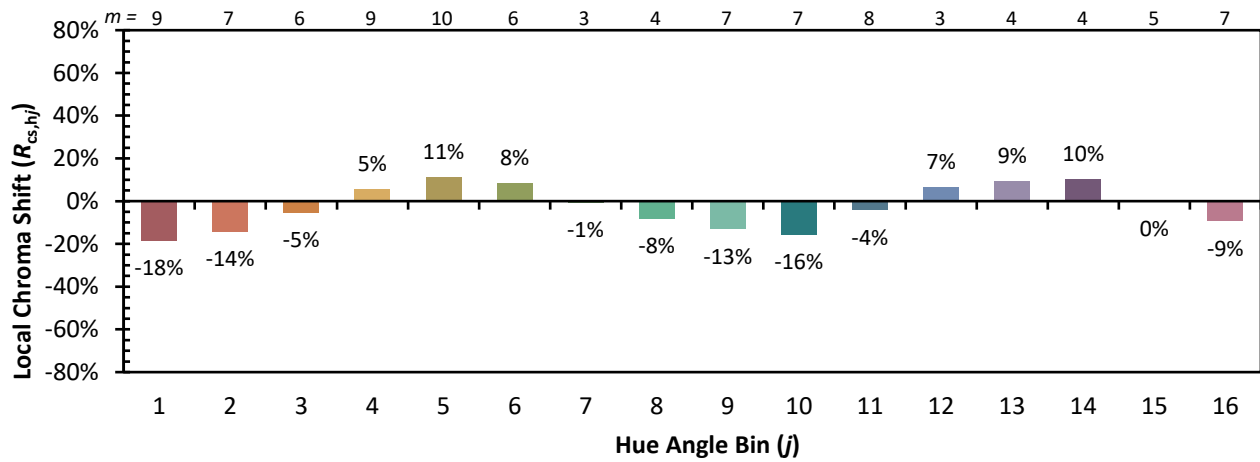


Individual Sample Fidelity Index ($R_{f,i}$)

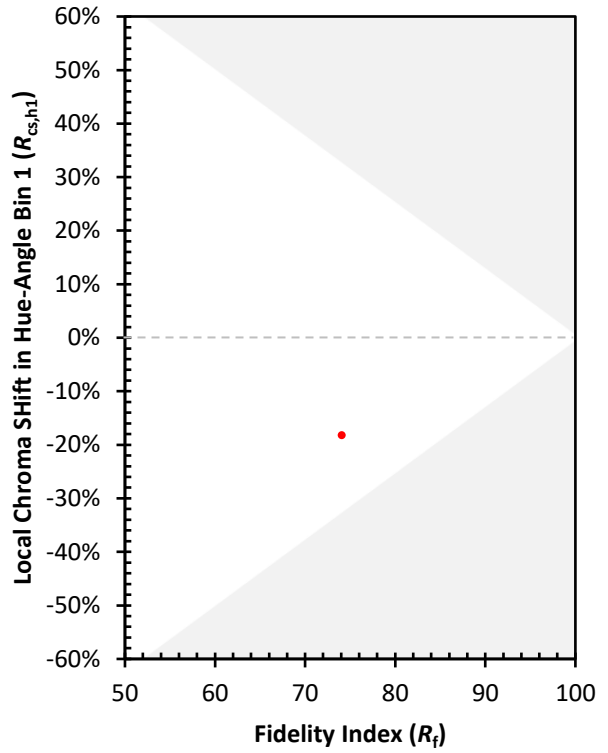
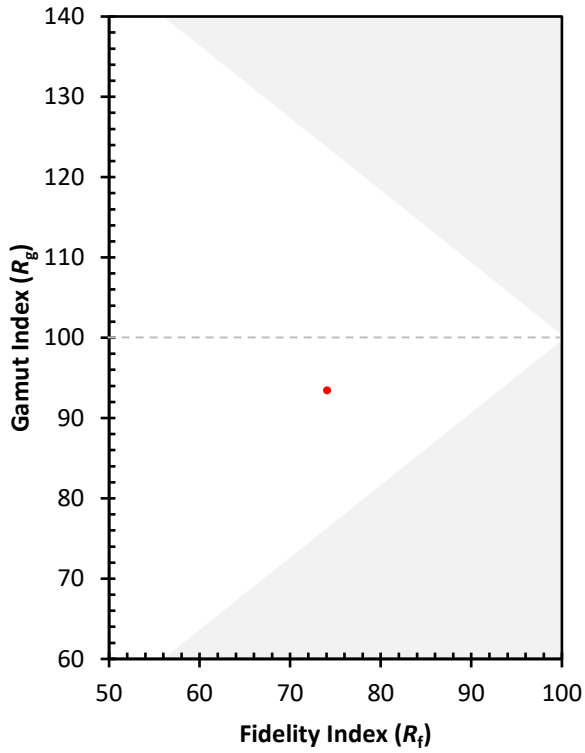
CES01 = 86	CES26 = 63	CES51 = 87	CES76 = 55
CES02 = 61	CES27 = 86	CES52 = 86	CES77 = 75
CES03 = 31	CES28 = 84	CES53 = 76	CES78 = 59
CES04 = 70	CES29 = 62	CES54 = 83	CES79 = 84
CES05 = 48	CES30 = 72	CES55 = 82	CES80 = 82
CES06 = 51	CES31 = 67	CES56 = 72	CES81 = 76
CES07 = 40	CES32 = 62	CES57 = 71	CES82 = 93
CES08 = 39	CES33 = 72	CES58 = 73	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 85	CES84 = 88
CES10 = 75	CES35 = 86	CES60 = 92	CES85 = 80
CES11 = 58	CES36 = 98	CES61 = 83	CES86 = 67
CES12 = 64	CES37 = 82	CES62 = 88	CES87 = 78
CES13 = 42	CES38 = 81	CES63 = 74	CES88 = 77
CES14 = 74	CES39 = 95	CES64 = 68	CES89 = 69
CES15 = 71	CES40 = 91	CES65 = 64	CES90 = 76
CES16 = 47	CES41 = 89	CES66 = 63	CES91 = 87
CES17 = 50	CES42 = 84	CES67 = 61	CES92 = 59
CES18 = 56	CES43 = 78	CES68 = 68	CES93 = 76
CES19 = 72	CES44 = 99	CES69 = 77	CES94 = 50
CES20 = 65	CES45 = 85	CES70 = 61	CES95 = 68
CES21 = 87	CES46 = 81	CES71 = 58	CES96 = 76
CES22 = 79	CES47 = 82	CES72 = 85	CES97 = 83
CES23 = 92	CES48 = 70	CES73 = 52	CES98 = 74
CES24 = 91	CES49 = 79	CES74 = 98	CES99 = 61
CES25 = 72	CES50 = 86	CES75 = 60	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)