

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: P672614

Luminaire Tested: **CCP-SA-2A-840-U-5MQ**

Issue Date: 04/16/2023

Test Information

Test Method: LM-79-08
Report Number: P672614
Test Lab: INNOVATION CENTER(G2)
Issue Date: 04/16/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: CCP-SA-2A-840-U-5MQ
Description: INVUE CLEAR CURVE POLE MOUNT LIGHT SQUARE LUMINAIRE @350mA w/ 5MQ
distribution lens
Light Source: (32) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4815.6 lumens
Efficiency: N/A
Efficacy: 133.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G1

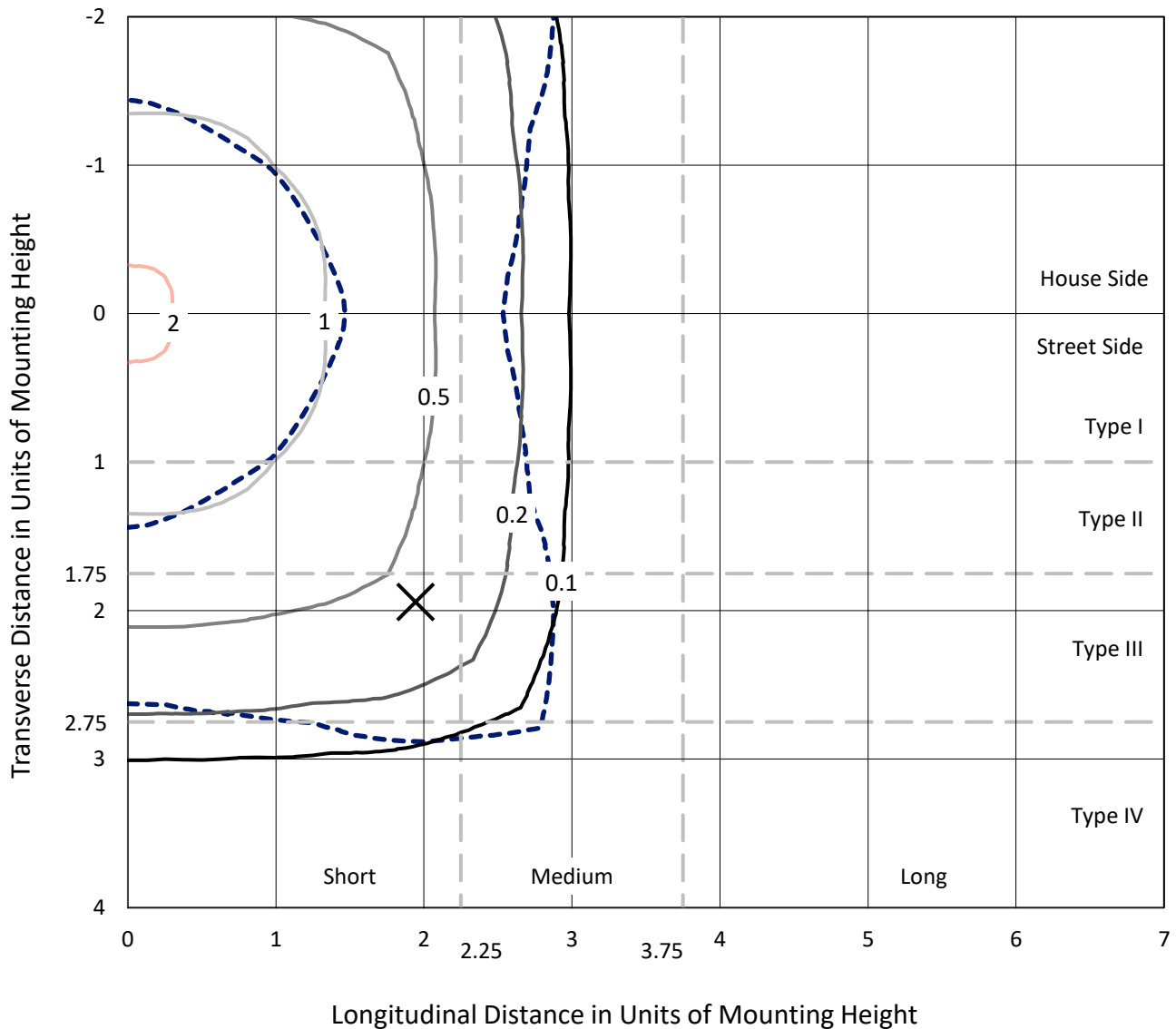
Input Watts (W): 36.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

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CATALOG NUMBER: CCP-SA-2A-840-U-5MQ

Iso-Footcandle Lines of Horizontal Illumination

× Max cd
- - - 1/2 Max cd

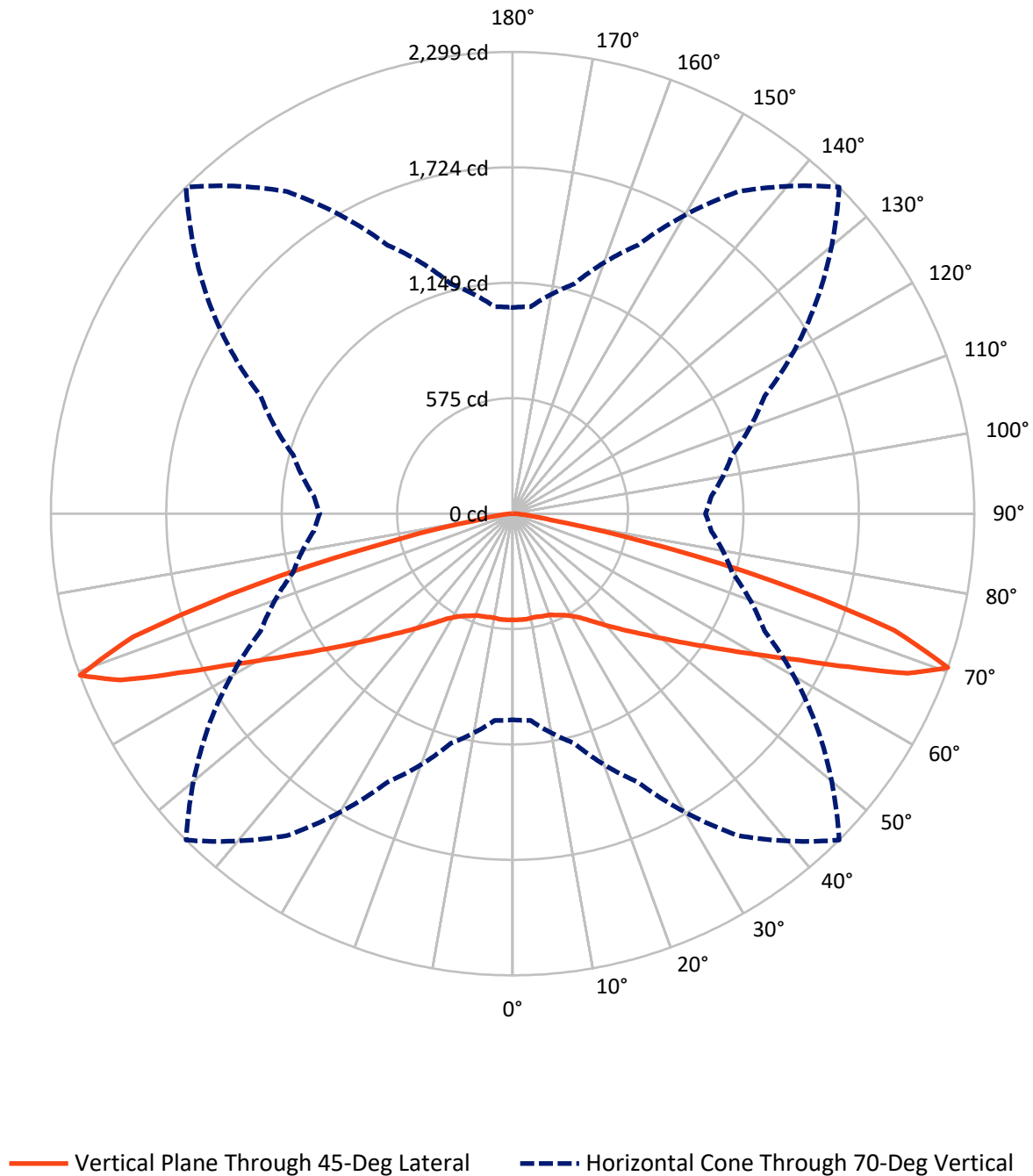


Based on 15 foot mounting height. Maximum calculated value = 2.4 fc
Type V - Short - N/A

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CATALOG NUMBER: CCP-SA-2A-840-U-5MQ

Luminous Intensity Polar Plot



REPORT NUMBER: P672614

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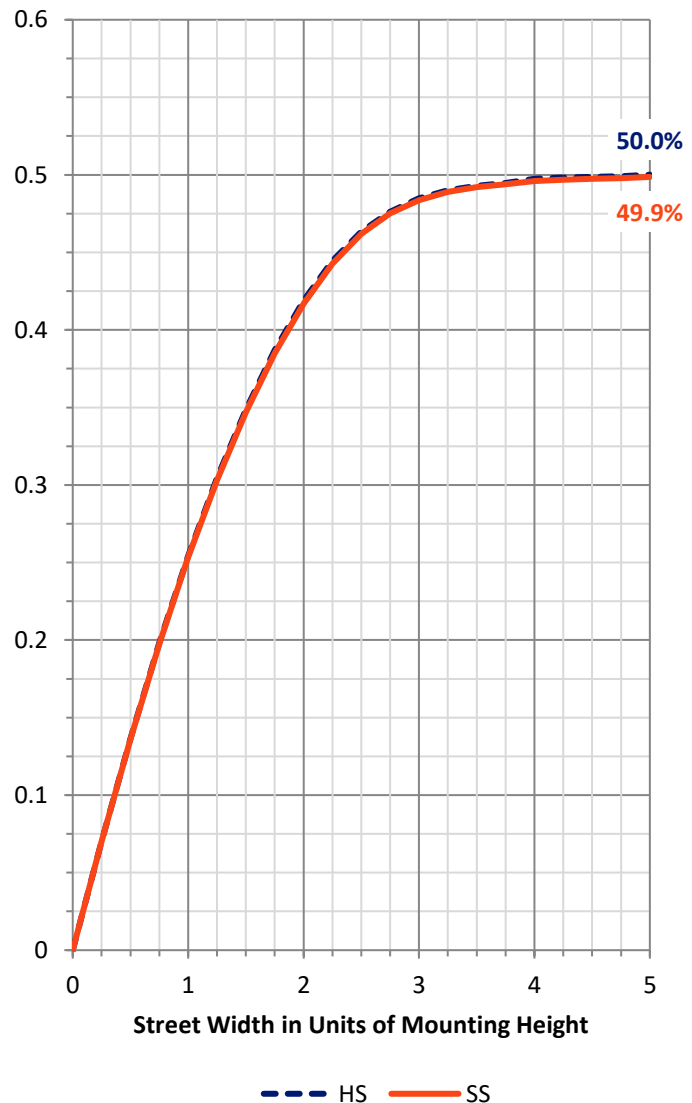
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2407.8	0.0	2407.8
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2407.8	0.0	2407.8
	% Fixture	50.0	0.0	50.0
Total	Lumens	4815.6	0.0	4815.6
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.4	1.0
10°-20°	149.1	3.1
20°-30°	254.6	5.3
30°-40°	406.3	8.4
40°-50°	655.6	13.6
50°-60°	1049.8	21.8
60°-70°	1536.9	31.9
70°-80°	675.9	14.0
80°-90°	37.0	0.8
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°	4815.6	100.0
0°-180°	4815.6	100.0



REPORT NUMBER: P672614

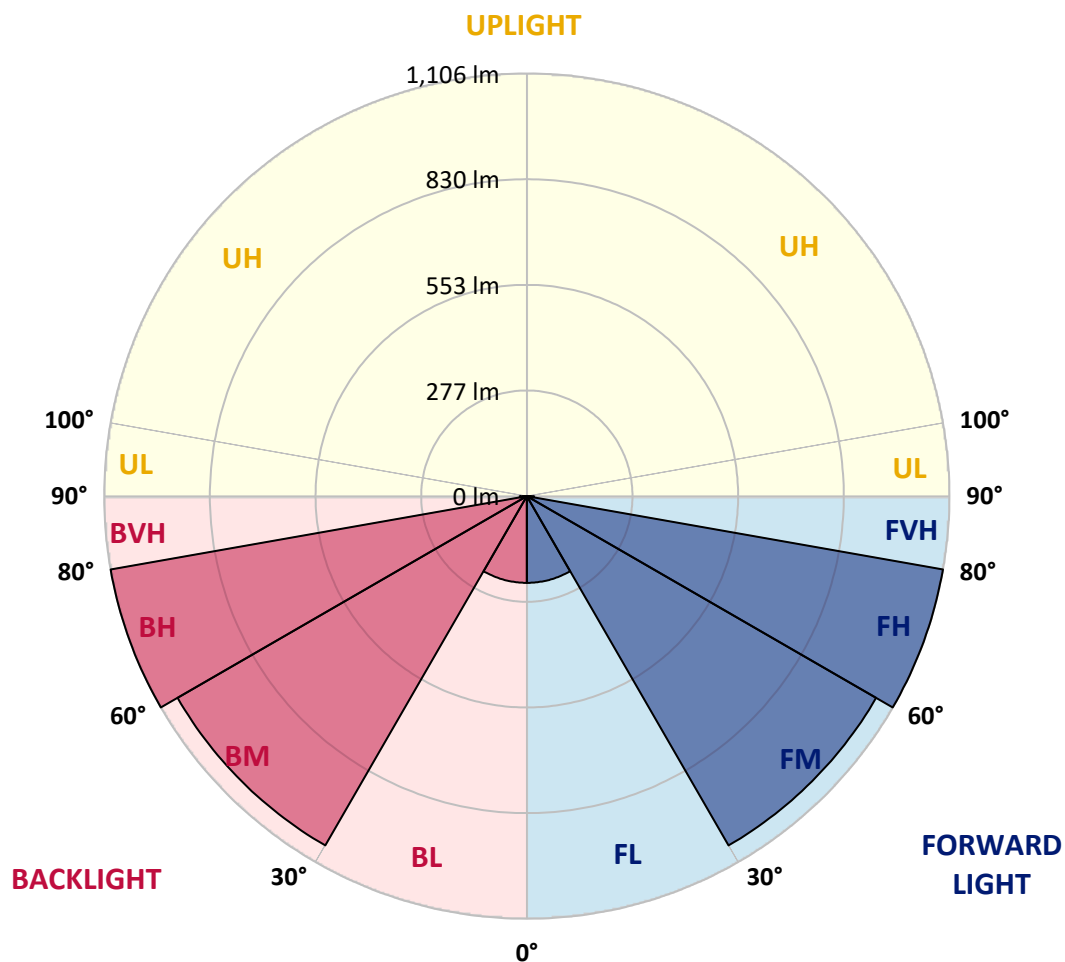
CATALOG NUMBER: CCP-SA-2A-840-U-5MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	227.0	4.7			
FM	(30°-60°)	1055.8	21.9			
FH	(60°-80°)	1106.4	23.0			G1/1800
FVH	(80°-90°)	18.5	0.4			G1/100
BL	(0°-30°)	227.0	4.7	B1/500		
BM	(30°-60°)	1055.8	21.9	B2/2500		
BH	(60°-80°)	1106.4	23.0	B3/2500		G1/1800
BVH	(80°-90°)	18.5	0.4			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G1

Type V Short



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CATALOG NUMBER: CCP-SA-2A-840-U-5MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	529.6	529.6	529.6	529.6	529.6	529.6	529.6	529.6	529.6	529.6	529.6
2.5°	528.9	528.5	529.2	529.6	528.9	529.2	527.2	527.2	528.2	527.2	528.5
5°	531.3	530.6	531.3	531.3	529.6	529.6	527.2	526.5	527.2	525.5	526.8
7.5°	531.6	530.2	531.3	530.9	529.6	529.6	526.1	524.8	525.1	523.4	524.4
10°	528.2	527.5	528.9	528.2	527.2	527.2	524.4	522.4	522.4	520.7	521.7
12.5°	526.1	525.5	527.2	527.5	526.8	527.2	523.8	521.0	520.0	517.9	518.6
15°	526.1	524.8	527.5	528.2	528.9	531.3	526.1	521.4	519.3	516.6	517.3
17.5°	525.8	525.1	528.2	530.6	531.3	534.0	528.2	523.1	520.7	516.6	517.3
20°	525.8	525.5	529.2	533.6	535.7	538.1	531.9	527.2	523.1	518.6	518.6
22.5°	527.5	527.2	532.3	538.8	544.6	548.7	541.5	533.6	528.2	522.4	521.7
25°	534.7	534.0	540.1	548.0	555.8	559.9	552.8	544.9	537.1	530.6	529.9
27.5°	549.3	549.0	555.1	564.7	570.2	573.2	567.1	560.3	552.4	544.9	544.6
30°	569.1	569.1	577.0	586.9	589.9	592.3	586.2	581.4	573.2	565.0	564.4
32.5°	593.0	594.4	603.6	614.5	616.6	617.9	611.4	608.4	599.5	590.6	589.3
35°	624.4	624.7	636.0	646.9	649.7	651.0	643.5	640.8	632.6	623.0	621.0
37.5°	664.3	663.3	673.9	686.2	688.9	690.6	684.5	682.4	672.2	662.6	659.6
40°	709.0	709.7	721.6	733.3	735.0	735.6	732.6	729.5	719.9	709.0	705.3
42.5°	760.9	760.9	774.9	788.5	788.5	785.1	783.7	783.1	773.9	761.6	757.5
45°	820.3	820.9	838.3	848.6	849.3	840.0	841.4	845.5	836.6	820.9	815.5
47.5°	885.4	886.5	906.9	918.2	916.1	904.2	911.7	913.7	903.5	883.4	876.2
50°	954.0	957.1	979.9	999.7	997.0	979.6	989.5	990.2	973.5	950.3	940.4
52.5°	1028.1	1035.2	1065.6	1086.7	1089.5	1067.6	1076.2	1075.5	1054.0	1022.3	1015.8
55°	1119.8	1123.9	1154.0	1184.0	1194.2	1167.3	1176.8	1172.0	1143.0	1106.9	1096.0
57.5°	1211.6	1217.8	1256.3	1290.1	1310.6	1287.7	1289.8	1277.5	1241.0	1197.3	1191.8
60°	1320.5	1323.2	1365.8	1409.9	1445.3	1431.7	1422.1	1396.6	1353.6	1309.9	1302.0
62.5°	1409.5	1415.0	1478.4	1543.3	1603.3	1605.7	1576.7	1538.5	1469.9	1396.9	1381.2
65°	1434.1	1443.0	1532.0	1660.0	1784.8	1840.5	1761.0	1644.3	1491.1	1380.9	1357.3
67.5°	1319.8	1336.8	1464.1	1676.7	1953.7	2120.6	1907.7	1594.1	1380.2	1251.5	1229.0
70°	1026.3	1033.9	1183.3	1475.0	1956.5	2298.7	1848.7	1384.3	1131.4	993.2	960.2
72.5°	545.2	549.0	683.8	993.2	1592.1	1985.8	1527.6	968.7	666.0	540.5	502.6
75°	176.1	180.8	235.4	406.7	878.3	1334.5	900.8	403.0	229.6	185.3	175.4
77.5°	89.7	89.4	99.3	131.0	295.5	654.1	312.5	141.3	99.3	89.1	86.3
80°	56.0	54.9	62.4	71.7	103.4	191.1	112.3	79.2	62.8	53.9	53.6
82.5°	31.7	31.7	42.0	46.1	58.3	78.8	65.5	54.3	43.0	32.1	31.0
85°	17.7	15.7	26.3	29.0	33.4	38.9	39.9	35.1	29.0	17.7	18.4
87.5°	6.5	7.2	12.3	11.6	13.3	9.2	16.4	18.4	16.4	8.5	7.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2104-224-8

Luminaire Tested: CCW-SA-2A-840-U-SL4

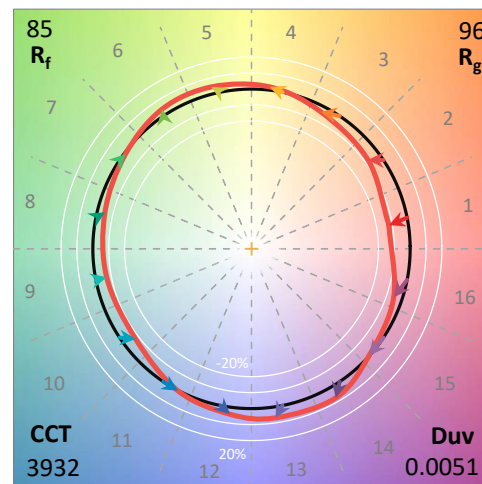
Test Date: 04/27/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2104-224-8
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 04/27/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **CCW-SA-2A-840-U-SL4**
 Description: INVUE WALL PACK ClearCurve Light Square

Spectral Parameters

CCT (K):	3932	CRI (Ra):	81.8		
CIE u':	0.2235	R1:	78.9	R9:	0.1
CIE v':	0.5092	R2:	86.4	R10:	69.8
Duv:	0.0051	R3:	94.7	R11:	82.4
CIE x:	0.3873	R4:	82.5	R12:	67.7
CIE y:	0.3923	R5:	79.9	R13:	80.2
CIE z:	0.2205	R6:	83.2	R14:	97.1
Peak Wavelength (nm):	590	R7:	86.3		
Dominant Wavelength (nm):	576	R8:	62.5		
Purity:	34				
Rf:	85.2				
Rg:	96.1				



Test Conditions

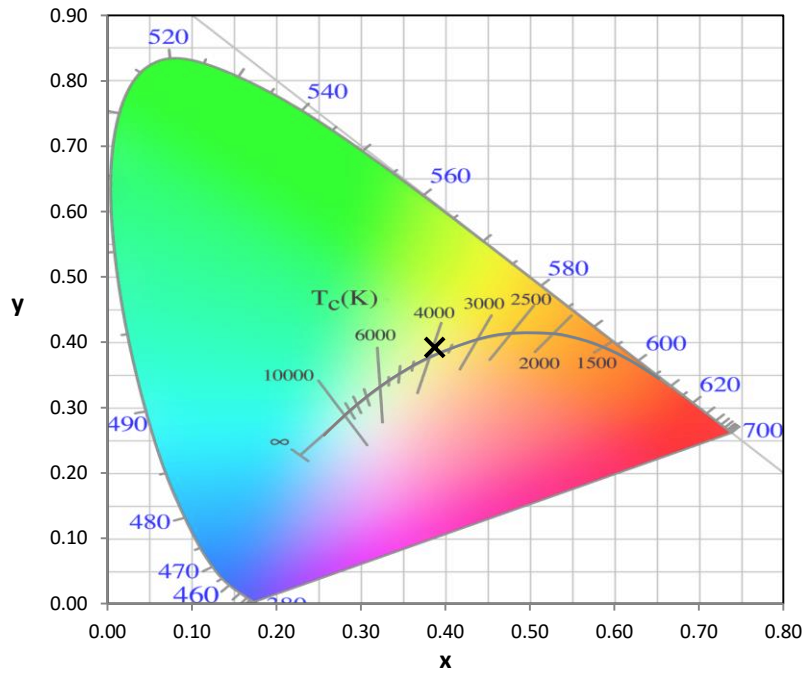
Stabilization Time: 123M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.9/41%
 Sphere Temperature (°C): 24.2

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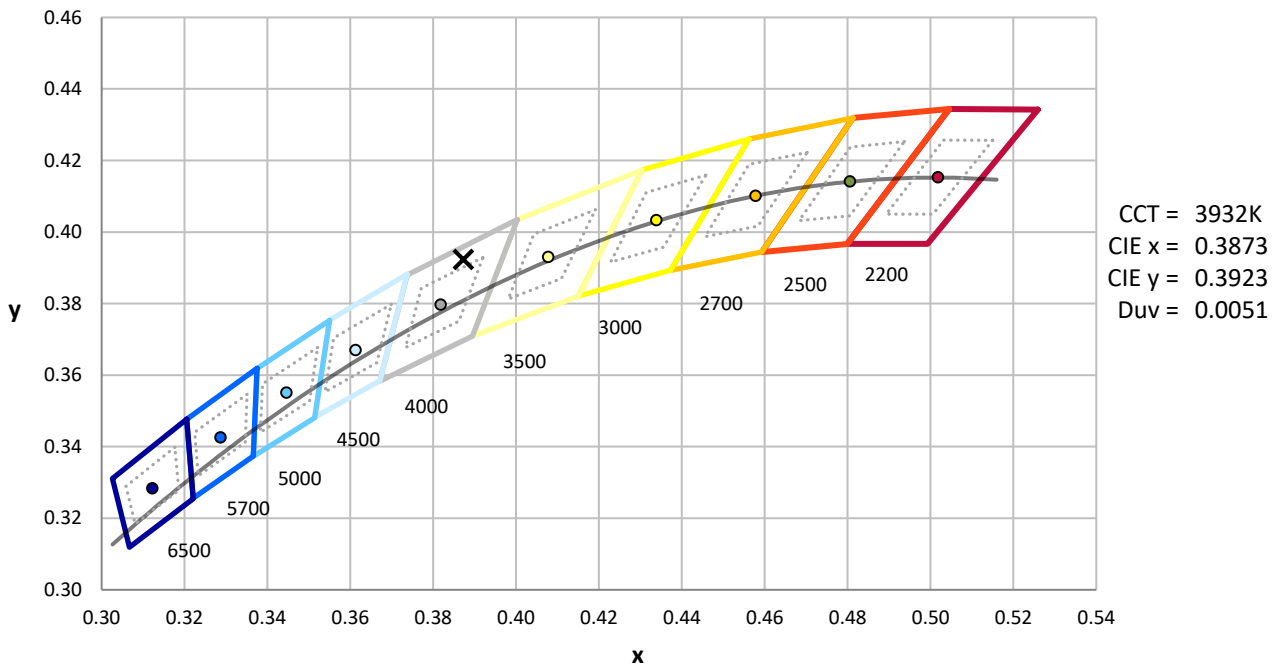
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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CIE 1931 Chromaticity Diagram



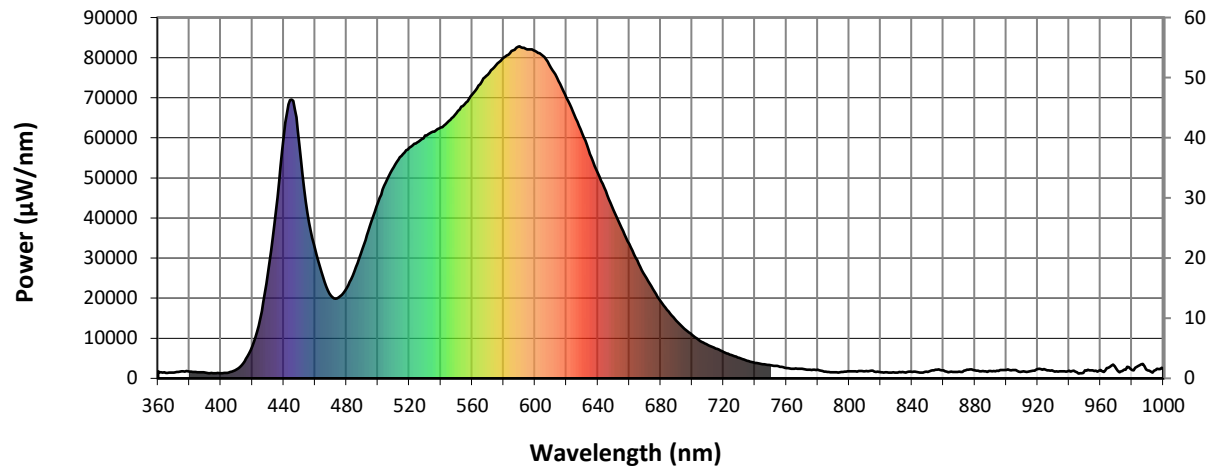
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

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Photopic Flux vs. Wavelength

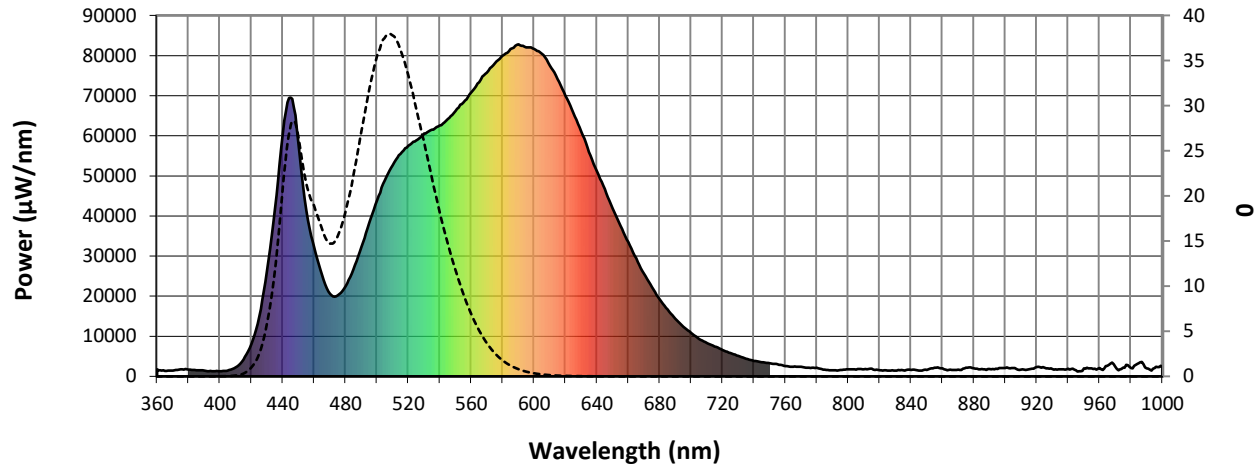


#####

λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1725	0.0	490	32247	4.6	620	69956	18.2	750	3261	0.0	880	1960	0.0
365	1400	0.0	495	38143	6.9	625	65781	14.5	755	3018	0.0	885	1828	0.0
370	1447	0.0	500	43918	9.7	630	61092	11.1	760	2521	0.0	890	1806	0.0
375	1728	0.0	505	48833	13.7	635	55954	8.4	765	2437	0.0	895	1814	0.0
380	1669	0.0	510	52659	18.1	640	51151	6.1	770	2407	0.0	900	2078	0.0
385	1495	0.0	515	55510	23.0	645	46656	4.5	775	2143	0.0	905	2072	0.0
390	1437	0.0	520	57534	27.9	650	41933	3.1	780	2156	0.0	910	1650	0.0
395	1307	0.0	525	58806	31.6	655	37478	2.2	785	1708	0.0	915	1725	0.0
400	1277	0.0	530	60565	35.7	660	33501	1.4	790	1555	0.0	920	2324	0.0
405	1471	0.0	535	61554	38.2	665	29439	0.9	795	1560	0.0	925	2173	0.0
410	2252	0.0	540	62542	40.8	670	25594	0.6	800	1752	0.0	930	1833	0.0
415	4196	0.0	545	64150	42.7	675	22306	0.4	805	1696	0.0	935	1740	0.0
420	7969	0.0	550	66171	45.0	680	19204	0.2	810	1762	0.0	940	1956	0.0
425	14965	0.1	555	68352	46.7	685	16645	0.1	815	1884	0.0	945	1549	0.0
430	26348	0.2	560	70775	48.1	690	14365	0.1	820	1502	0.0	950	2026	0.0
435	41840	0.5	565	73374	48.8	695	12367	0.1	825	1454	0.0	955	1971	0.0
440	60229	0.9	570	75776	49.3	700	10847	0.0	830	1466	0.0	960	2048	0.0
445	69537	1.4	575	78035	48.6	705	9369	0.0	835	1541	0.0	965	2608	0.0
450	58253	1.5	580	79996	47.5	710	8303	0.0	840	1616	0.0	970	2403	0.0
455	41363	1.4	585	81672	45.4	715	7458	0.0	845	1445	0.0	975	2154	0.0
460	32336	1.3	590	82819	42.8	720	6565	0.0	850	1636	0.0	980	2109	0.0
465	25279	1.3	595	82030	38.9	725	5799	0.0	855	2149	0.0	985	3271	0.0
470	20560	1.3	600	81639	35.2	730	5071	0.0	860	2002	0.0	990	1987	0.0
475	20192	1.6	605	80430	31.1	735	4394	0.0	865	1653	0.0	995	2115	0.0
480	22473	2.1	610	77509	26.6	740	3856	0.0	870	1669	0.0	1000	2424	0.0
485	26686	3.2	615	74116	22.4	745	3544	0.0	875	2164	0.0			

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Scotopic Flux vs. Wavelength



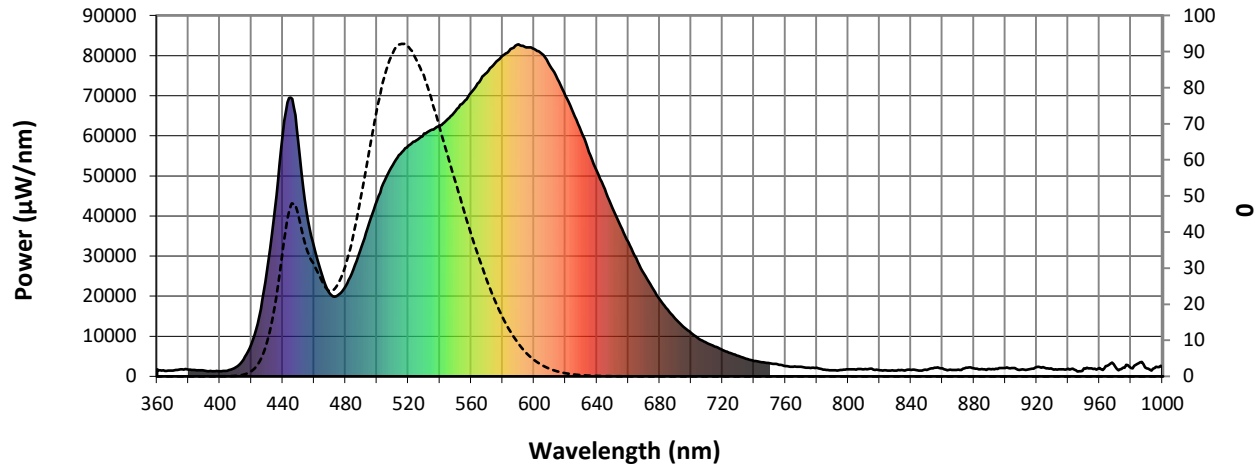
Scotopic Lumens: 7846

S/P: 1.64

λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1725	0.0	490	32247	49.7	620	69956	0.9	750	3261	0.0	880	1960	0.0
365	1400	0.0	495	38143	61.7	625	65781	0.6	755	3018	0.0	885	1828	0.0
370	1447	0.0	500	43918	73.5	630	61092	0.3	760	2521	0.0	890	1806	0.0
375	1728	0.0	505	48833	83.0	635	55954	0.2	765	2437	0.0	895	1814	0.0
380	1669	0.0	510	52659	89.3	640	51151	0.1	770	2407	0.0	900	2078	0.0
385	1495	0.0	515	55510	92.0	645	46656	0.1	775	2143	0.0	905	2072	0.0
390	1437	0.0	520	57534	91.5	650	41933	0.0	780	2156	0.0	910	1650	0.0
395	1307	0.0	525	58806	88.0	655	37478	0.0	785	1708	0.0	915	1725	0.0
400	1277	0.0	530	60565	83.5	660	33501	0.0	790	1555	0.0	920	2324	0.0
405	1471	0.0	535	61554	76.7	665	29439	0.0	795	1560	0.0	925	2173	0.0
410	2252	0.1	540	62542	69.1	670	25594	0.0	800	1752	0.0	930	1833	0.0
415	4196	0.4	545	64150	61.5	675	22306	0.0	805	1696	0.0	935	1740	0.0
420	7969	1.3	550	66171	54.1	680	19204	0.0	810	1762	0.0	940	1956	0.0
425	14965	3.7	555	68352	46.7	685	16645	0.0	815	1884	0.0	945	1549	0.0
430	26348	9.0	560	70775	39.6	690	14365	0.0	820	1502	0.0	950	2026	0.0
435	41840	18.7	565	73374	32.9	695	12367	0.0	825	1454	0.0	955	1971	0.0
440	60229	33.7	570	75776	26.7	700	10847	0.0	830	1466	0.0	960	2048	0.0
445	69537	46.6	575	78035	21.3	705	9369	0.0	835	1541	0.0	965	2608	0.0
450	58253	45.1	580	79996	16.5	710	8303	0.0	840	1616	0.0	970	2403	0.0
455	41363	36.1	585	81672	12.5	715	7458	0.0	845	1445	0.0	975	2154	0.0
460	32336	31.2	590	82819	9.2	720	6565	0.0	850	1636	0.0	980	2109	0.0
465	25279	26.7	595	82030	6.5	725	5799	0.0	855	2149	0.0	985	3271	0.0
470	20560	23.7	600	81639	4.6	730	5071	0.0	860	2002	0.0	990	1987	0.0
475	20192	25.2	605	80430	3.2	735	4394	0.0	865	1653	0.0	995	2115	0.0
480	22473	30.4	610	77509	2.1	740	3856	0.0	870	1669	0.0	1000	2424	0.0
485	26686	38.7	615	74116	1.4	745	3544	0.0	875	2164	0.0			

REPORT NUMBER: SP1-2104-224-8

Melanopic Flux vs. Wavelength


Melanopic Lumens: 3084.4
M/P: 0.64

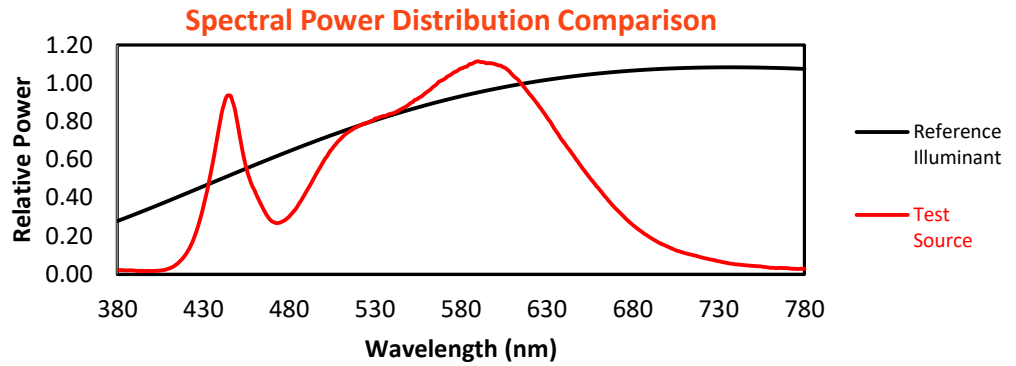
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1725	0.0	490	32247	26.8	620	69956	0.1	750	3261	0.0	880	1960	0.0
365	1400	0.0	495	38143	31.5	625	65781	0.0	755	3018	0.0	885	1828	0.0
370	1447	0.0	500	43918	35.3	630	61092	0.0	760	2521	0.0	890	1806	0.0
375	1728	0.0	505	48833	37.5	635	55954	0.0	765	2437	0.0	895	1814	0.0
380	1669	0.0	510	52659	37.8	640	51151	0.0	770	2407	0.0	900	2078	0.0
385	1495	0.0	515	55510	36.3	645	46656	0.0	775	2143	0.0	905	2072	0.0
390	1437	0.0	520	57534	33.5	650	41933	0.0	780	2156	0.0	910	1650	0.0
395	1307	0.0	525	58806	29.8	655	37478	0.0	785	1708	0.0	915	1725	0.0
400	1277	0.0	530	60565	26.2	660	33501	0.0	790	1555	0.0	920	2324	0.0
405	1471	0.0	535	61554	22.2	665	29439	0.0	795	1560	0.0	925	2173	0.0
410	2252	0.1	540	62542	18.3	670	25594	0.0	800	1752	0.0	930	1833	0.0
415	4196	0.3	545	64150	14.9	675	22306	0.0	805	1696	0.0	935	1740	0.0
420	7969	0.9	550	66171	11.9	680	19204	0.0	810	1762	0.0	940	1956	0.0
425	14965	2.3	555	68352	9.2	685	16645	0.0	815	1884	0.0	945	1549	0.0
430	26348	5.6	560	70775	7.0	690	14365	0.0	820	1502	0.0	950	2026	0.0
435	41840	11.2	565	73374	5.1	695	12367	0.0	825	1454	0.0	955	1971	0.0
440	60229	20.1	570	75776	3.7	700	10847	0.0	830	1466	0.0	960	2048	0.0
445	69537	27.4	575	78035	2.6	705	9369	0.0	835	1541	0.0	965	2608	0.0
450	58253	26.8	580	79996	1.8	710	8303	0.0	840	1616	0.0	970	2403	0.0
455	41363	21.7	585	81672	1.2	715	7458	0.0	845	1445	0.0	975	2154	0.0
460	32336	19.1	590	82819	0.8	720	6565	0.0	850	1636	0.0	980	2109	0.0
465	25279	16.5	595	82030	0.5	725	5799	0.0	855	2149	0.0	985	3271	0.0
470	20560	14.7	600	81639	0.3	730	5071	0.0	860	2002	0.0	990	1987	0.0
475	20192	15.4	605	80430	0.2	735	4394	0.0	865	1653	0.0	995	2115	0.0
480	22473	18.1	610	77509	0.1	740	3856	0.0	870	1669	0.0	1000	2424	0.0
485	26686	22.0	615	74116	0.1	745	3544	0.0	875	2164	0.0			

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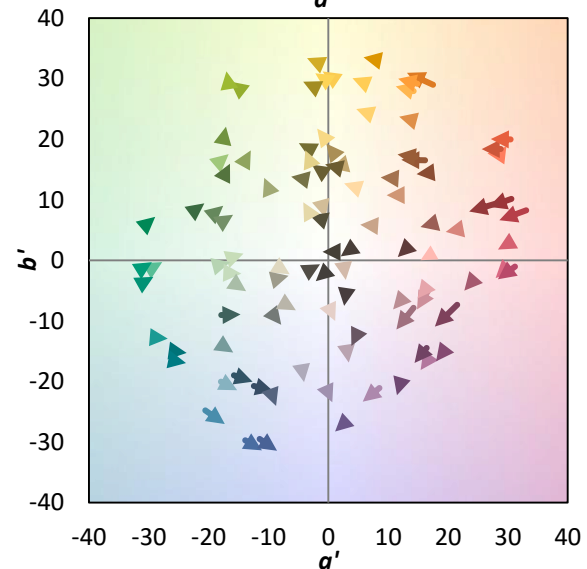
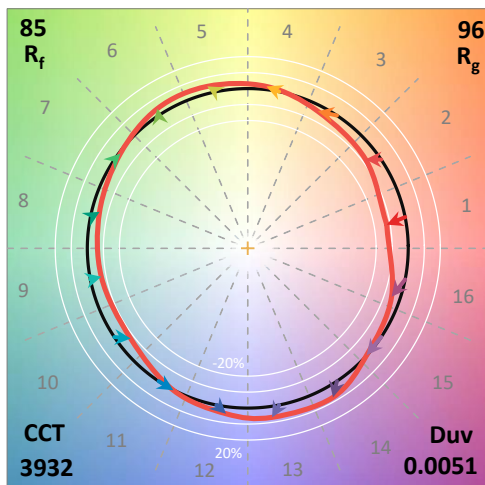
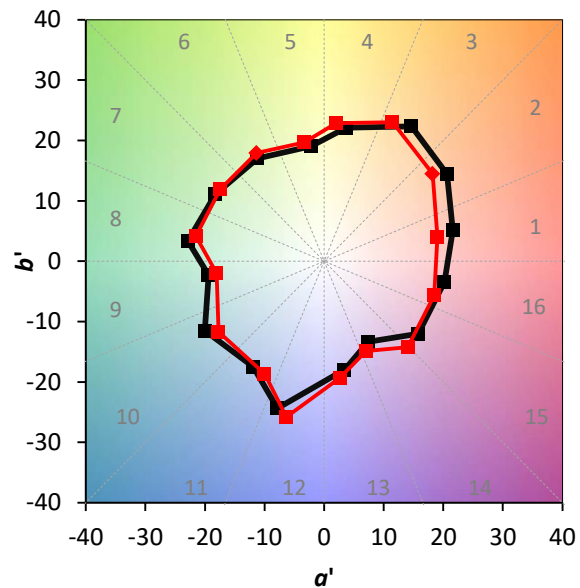
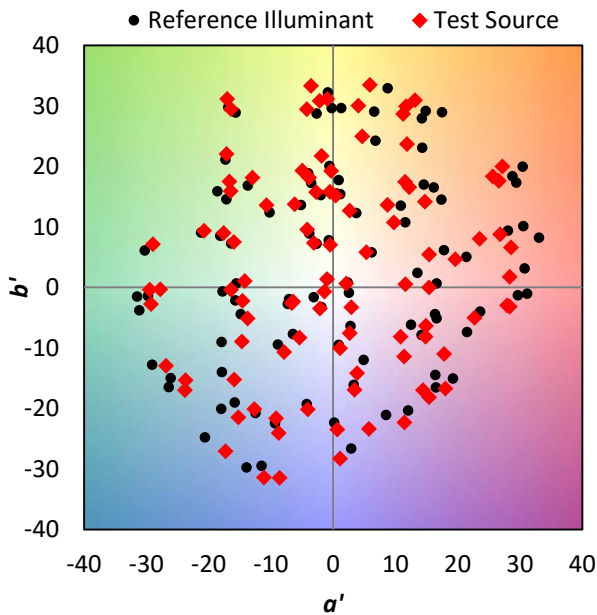
TM-30-18

Summary

$R_f = 85.2$
 $R_g = 96.1$
 CIE $R_a = 81.8$
 $R_9 = 0.1$

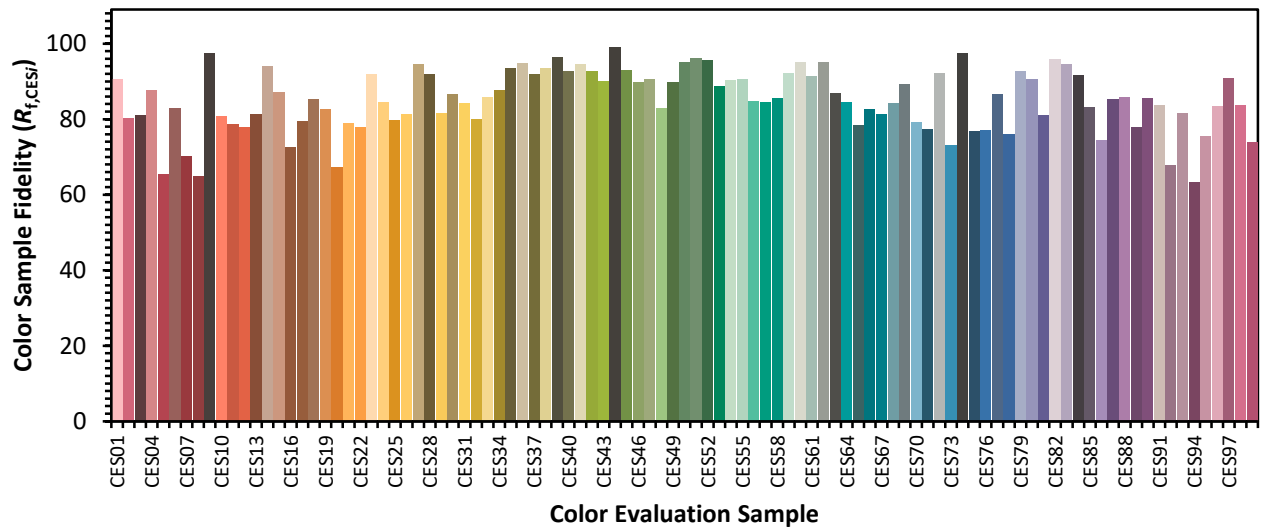


Color Vector Graphics

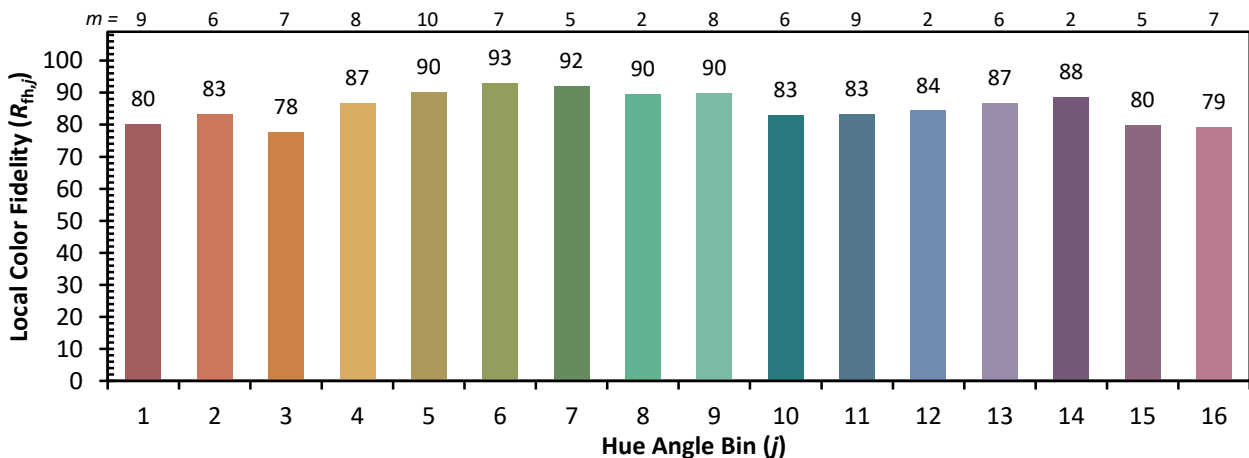
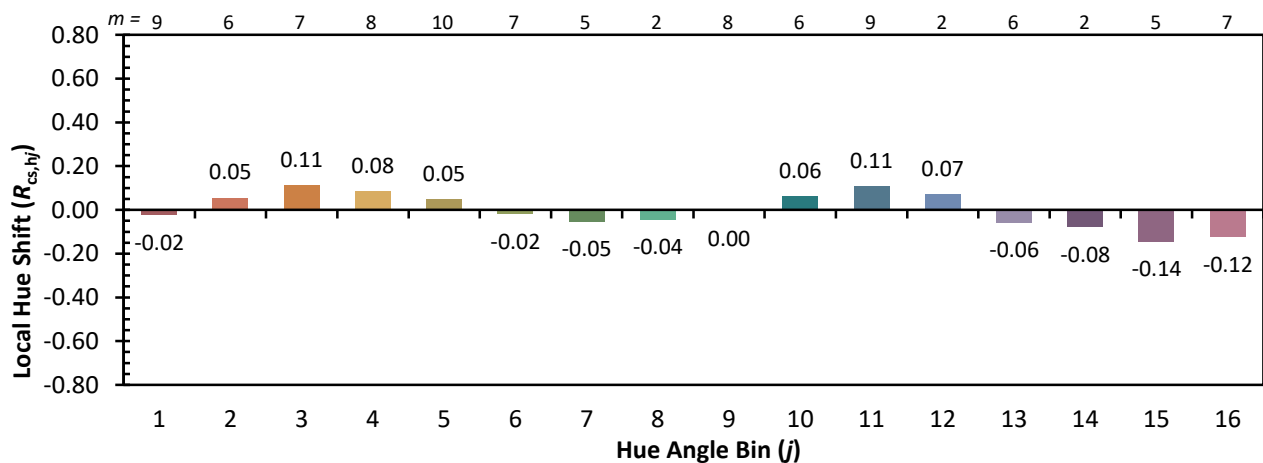
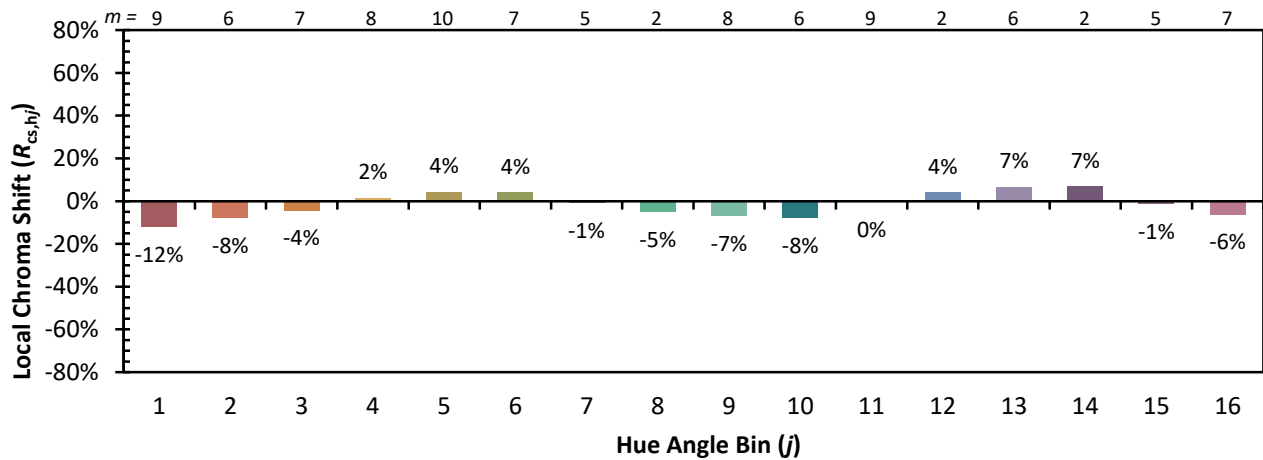


Individual Sample Fidelity Index ($R_{f,i}$)

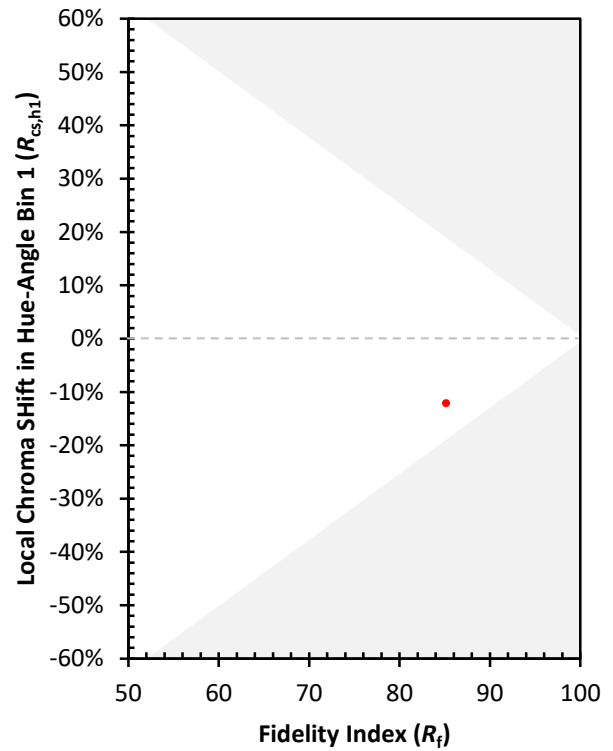
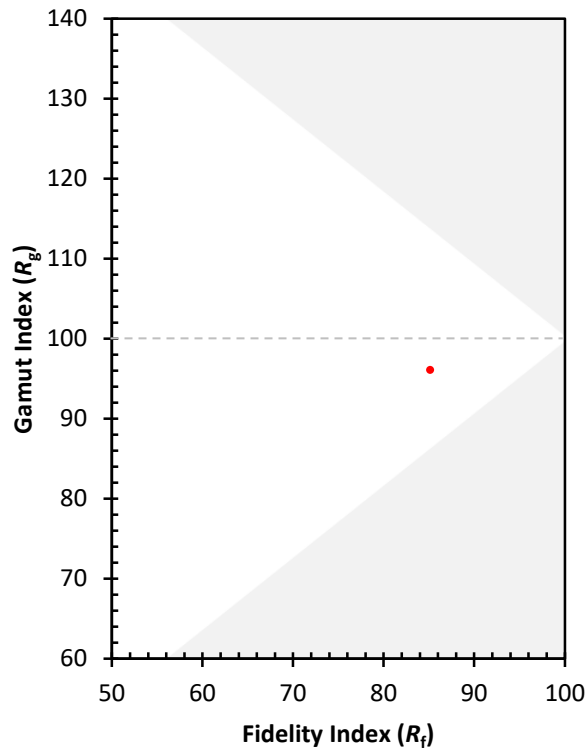
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CES02 = 61	CES27 = 95	CES52 = 96	CES77 = 87
CES03 = 31	CES28 = 92	CES53 = 89	CES78 = 76
CES04 = 69	CES29 = 82	CES54 = 90	CES79 = 93
CES05 = 48	CES30 = 87	CES55 = 91	CES80 = 91
CES06 = 50	CES31 = 84	CES56 = 85	CES81 = 81
CES07 = 40	CES32 = 80	CES57 = 84	CES82 = 96
CES08 = 39	CES33 = 86	CES58 = 85	CES83 = 95
CES09 = 29	CES34 = 88	CES59 = 92	CES84 = 92
CES10 = 74	CES35 = 93	CES60 = 95	CES85 = 83
CES11 = 57	CES36 = 95	CES61 = 91	CES86 = 74
CES12 = 63	CES37 = 92	CES62 = 95	CES87 = 85
CES13 = 42	CES38 = 93	CES63 = 87	CES88 = 86
CES14 = 74	CES39 = 96	CES64 = 84	CES89 = 78
CES15 = 71	CES40 = 93	CES65 = 78	CES90 = 85
CES16 = 47	CES41 = 95	CES66 = 83	CES91 = 84
CES17 = 49	CES42 = 93	CES67 = 81	CES92 = 68
CES18 = 56	CES43 = 90	CES68 = 84	CES93 = 82
CES19 = 71	CES44 = 99	CES69 = 89	CES94 = 63
CES20 = 65	CES45 = 93	CES70 = 79	CES95 = 75
CES21 = 86	CES46 = 90	CES71 = 77	CES96 = 83
CES22 = 78	CES47 = 91	CES72 = 92	CES97 = 91
CES23 = 91	CES48 = 83	CES73 = 73	CES98 = 84
CES24 = 90	CES49 = 90	CES74 = 98	CES99 = 74
CES25 = 71	CES50 = 95	CES75 = 77	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)