

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: P672742

Luminaire Tested: **CCP-SA1B-835-U-5NQ**

Issue Date: 04/16/2023



Test Information

Test Method: LM-79-08
Report Number: P672742
Test Lab: INNOVATION CENTER(G2)
Issue Date: 04/16/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: CCP-SA1B-835-U-5NQ
Description: INVUE CLEAR CURVE POLE MOUNT LIGHT SQUARE LUMINAIRE @450mA w/ 5NQ
distribution lens
Light Source: (16) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2961.4 lumens
Efficiency: N/A
Efficacy: 123.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type V - Short
BUG Rating: B1 - U0 - G0

Input Watts (W): 24
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

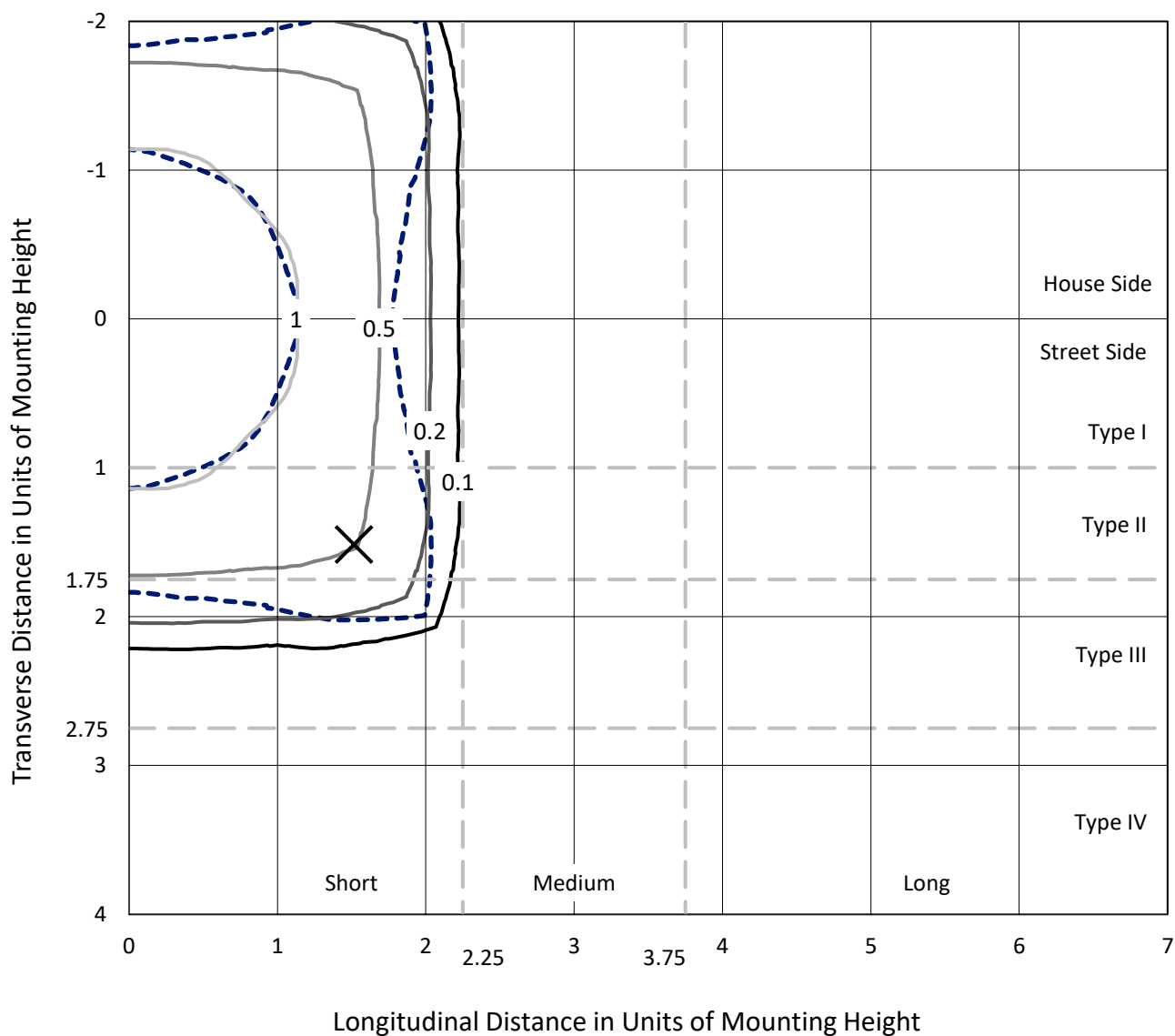
REPORT NUMBER: P672742

CATALOG NUMBER: CCP-SA1B-835-U-5NQ

Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd



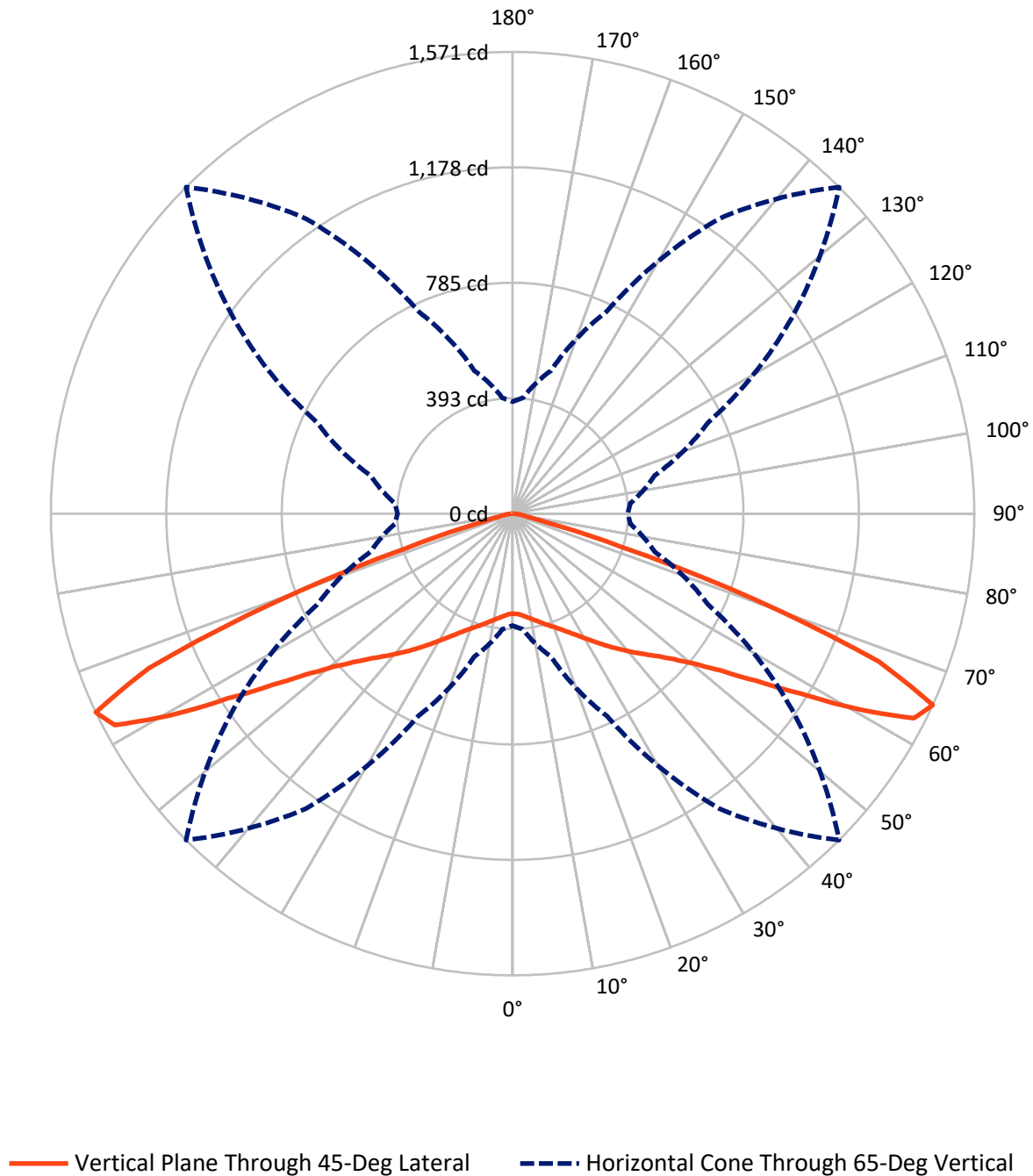
Based on 15 foot mounting height. Maximum calculated value = 1.5 fc

Type V - Short - N/A

REPORT NUMBER: P672742

CATALOG NUMBER: CCP-SA1B-835-U-5NQ

Luminous Intensity Polar Plot



REPORT NUMBER: P672742

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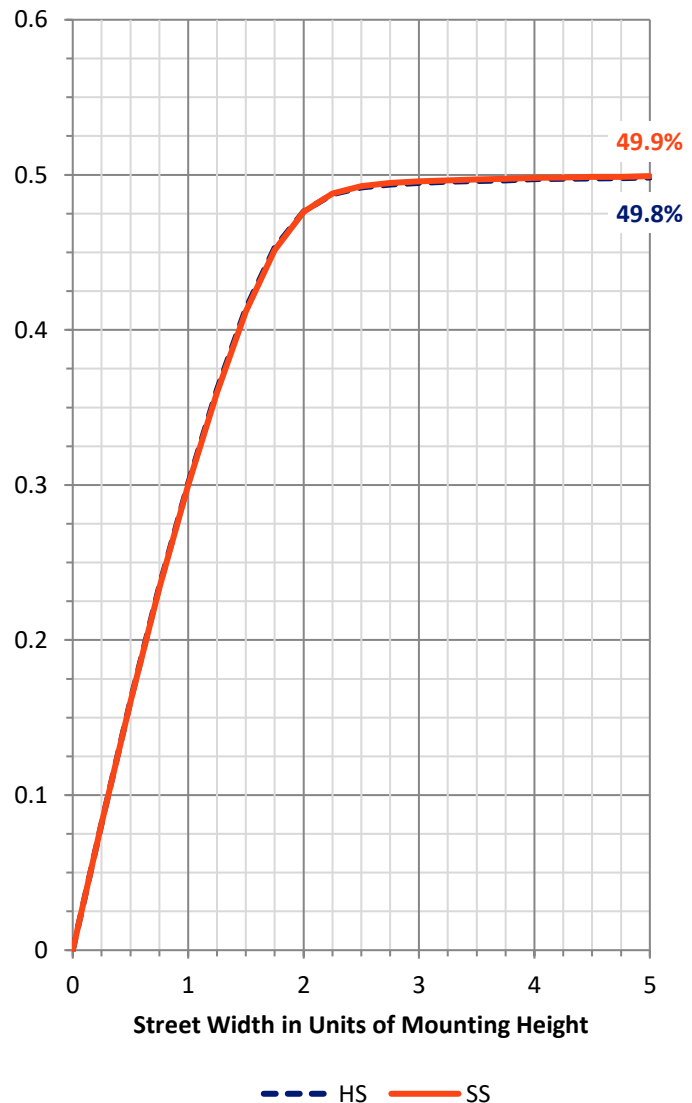
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1480.7	0.0	1480.7
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	1480.7	0.0	1480.7
	% Fixture	50.0	0.0	50.0
Total	Lumens	2961.4	0.0	2961.4
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.7	1.1
10°-20°	110.1	3.7
20°-30°	208.8	7.1
30°-40°	350.2	11.8
40°-50°	554.1	18.7
50°-60°	870.5	29.4
60°-70°	735.5	24.8
70°-80°	85.6	2.9
80°-90°	12.8	0.4
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°	2961.4	100.0
0°-180°	2961.4	100.0



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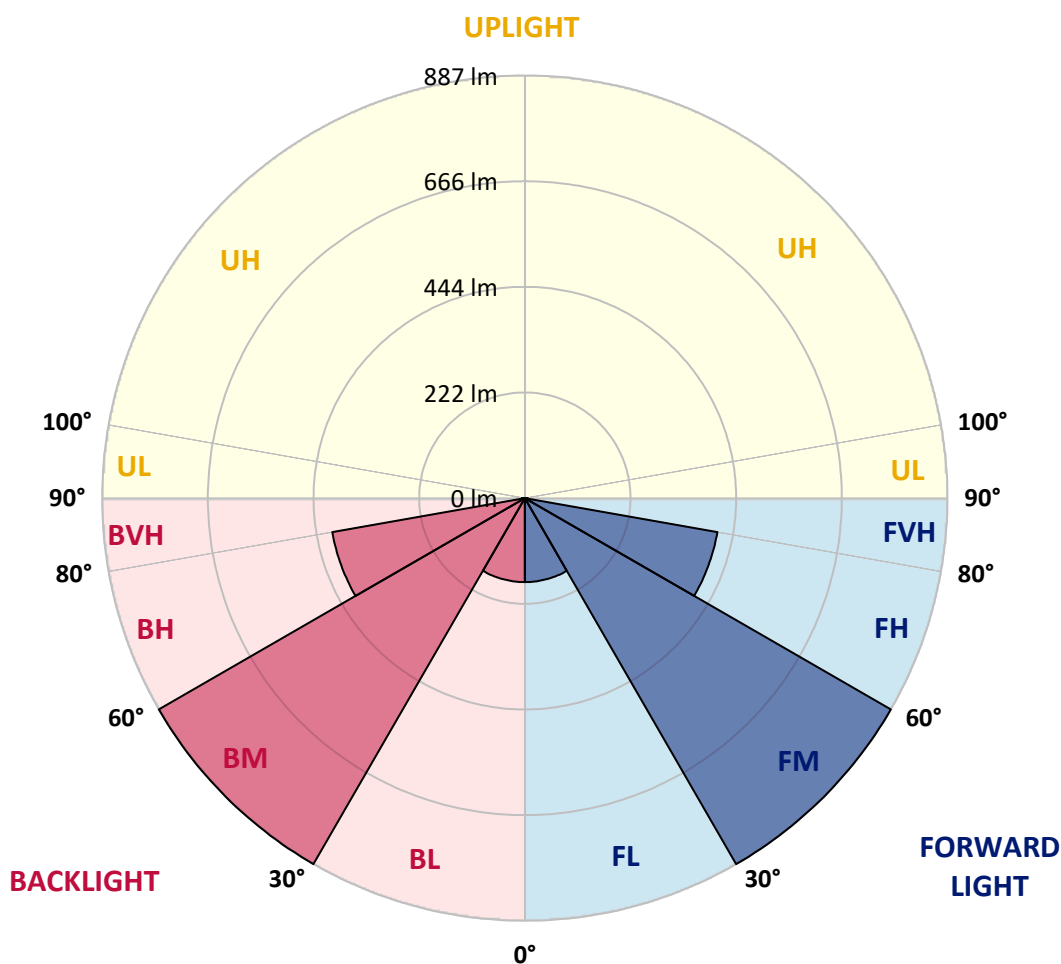
CATALOG NUMBER: CCP-SA1B-835-U-5NQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	176.3	6.0			
FM	(30°-60°)	887.4	30.0			
FH	(60°-80°)	410.6	13.9			G0/660
FVH	(80°-90°)	6.4	0.2			G0/10
BL	(0°-30°)	176.3	6.0	B1/500		
BM	(30°-60°)	887.4	30.0	B1/1000		
BH	(60°-80°)	410.6	13.9	B1/500		G0/660
BVH	(80°-90°)	6.4	0.2			G0/10
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B1-U0-G0

Type V Short





REPORT NUMBER: P672742

CATALOG NUMBER: CCP-SA1B-835-U-5NQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	340.5	340.5	340.5	340.5	340.5	340.5	340.5	340.5	340.5	340.5	340.5
2.5°	342.4	341.3	342.4	342.4	341.8	342.0	341.1	340.9	342.0	341.1	340.9
5°	349.5	348.6	349.5	348.8	347.8	348.0	346.7	346.3	347.6	346.3	346.5
7.5°	357.6	356.1	356.5	357.2	356.1	356.1	355.1	354.4	355.1	353.8	354.7
10°	364.4	363.2	363.8	364.6	364.4	365.1	364.0	363.6	363.0	361.5	362.8
12.5°	373.4	373.0	373.8	374.8	374.4	375.3	373.0	372.3	372.1	370.5	371.9
15°	385.0	384.0	385.5	386.7	386.1	387.5	385.7	384.8	383.8	381.7	383.0
17.5°	396.7	395.9	397.9	398.6	398.8	400.0	398.6	397.3	396.9	395.5	394.6
20°	410.6	409.6	411.3	412.5	411.5	412.9	412.3	411.5	411.1	408.8	408.6
22.5°	426.3	424.8	427.3	428.8	427.3	428.8	427.5	427.3	427.5	424.2	424.6
25°	443.7	443.9	446.4	447.5	446.7	447.5	445.6	446.9	446.2	442.7	441.4
27.5°	466.2	465.4	468.1	471.2	469.1	469.1	468.3	469.5	469.3	466.0	465.2
30°	492.4	492.2	496.2	498.1	495.1	493.9	493.7	496.8	497.0	493.5	492.0
32.5°	519.9	519.9	524.7	527.0	522.8	522.0	521.2	525.3	524.7	519.9	516.8
35°	550.1	548.8	555.3	558.6	554.5	552.0	551.6	555.3	554.5	547.8	544.1
37.5°	579.9	580.7	588.2	591.9	586.9	583.8	584.9	587.4	587.6	580.3	576.3
40°	616.3	616.5	625.9	628.8	622.3	617.5	619.0	624.6	624.2	615.2	610.2
42.5°	657.1	656.2	667.9	670.4	661.7	652.5	656.9	665.6	667.7	657.7	652.5
45°	700.8	702.0	714.1	716.8	703.1	691.4	700.8	713.9	716.6	705.8	699.3
47.5°	753.9	755.3	769.9	770.9	755.3	740.1	752.6	769.7	770.7	755.7	748.2
50°	814.4	819.4	835.7	837.7	822.3	802.8	820.7	835.9	831.9	811.9	805.1
52.5°	883.1	887.1	912.5	921.2	907.7	886.6	901.0	910.4	897.7	871.5	860.8
55°	941.6	948.3	982.0	1008.6	1018.8	1003.0	1001.3	987.6	952.2	912.2	901.2
57.5°	958.0	964.5	1016.7	1085.4	1146.0	1153.9	1117.3	1048.4	972.2	910.6	899.3
60°	891.2	900.0	976.4	1106.4	1280.2	1351.8	1219.4	1053.6	920.4	837.7	823.6
62.5°	700.0	716.2	814.8	1018.8	1334.3	1532.1	1261.5	963.9	764.1	666.4	647.7
65°	380.7	394.6	503.5	759.3	1224.7	1570.6	1158.5	733.9	499.7	401.7	391.5
67.5°	142.8	153.0	202.9	375.3	865.8	1342.7	879.4	420.2	226.9	162.8	148.4
70°	60.8	62.0	73.5	130.7	393.6	873.5	450.2	142.8	75.8	61.2	59.5
72.5°	43.7	43.9	47.0	57.9	119.9	383.2	136.1	59.9	46.2	41.6	41.6
75°	35.0	35.2	37.0	41.8	56.6	112.8	58.7	42.0	35.8	32.7	32.3
77.5°	27.5	27.9	29.8	32.7	37.9	51.6	39.8	33.1	28.7	25.8	25.4
80°	20.4	21.0	23.5	25.0	26.6	34.3	28.9	25.8	22.9	19.8	19.1
82.5°	13.5	14.2	17.5	18.5	18.3	21.6	20.0	19.8	17.5	13.1	12.5
85°	8.1	8.5	11.2	12.1	11.2	10.6	12.7	13.7	12.3	8.5	7.9
87.5°	3.5	3.5	5.0	5.2	5.0	4.0	6.0	7.1	7.3	4.4	4.0
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: SP1-2104-224-7

Luminaire Tested: CCW-SA2A-835-U-SL4

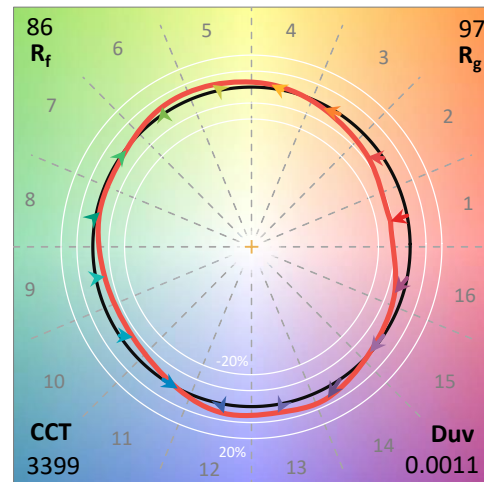
Test Date: 04/27/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2104-224-7
 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-835-U-SL4**
 Description: INVUE WALL PACK ClearCurve Light Square

Spectral Parameters

CCT (K):	3399	CRI (Ra):	84.3		
CIE u':	0.2378	R1:	82.5	R9:	12.4
CIE v':	0.5147	R2:	90.0	R10:	77.8
Duv:	0.0011	R3:	96.9	R11:	84.8
CIE x:	0.4123	R4:	84.3	R12:	74.0
CIE y:	0.3967	R5:	83.2	R13:	84.1
CIE z:	0.1911	R6:	88.1	R14:	98.4
Peak Wavelength (nm):	603	R7:	85.7		
Dominant Wavelength (nm):	580	R8:	64.0		
Purity:	43				
Rf:	86.3				
Rg:	97.5				



Test Conditions

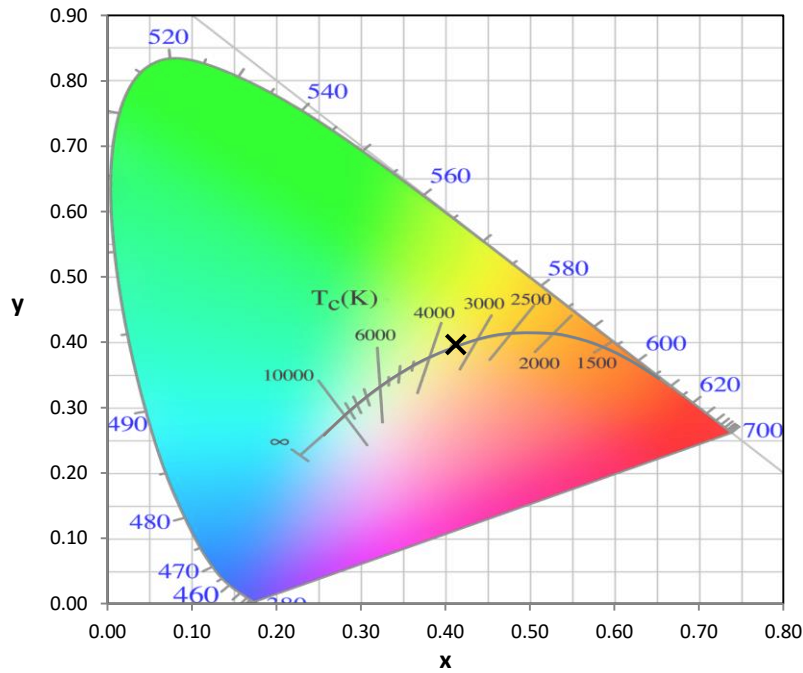
Stabilization Time: 68M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.9/42%
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2104-224-7

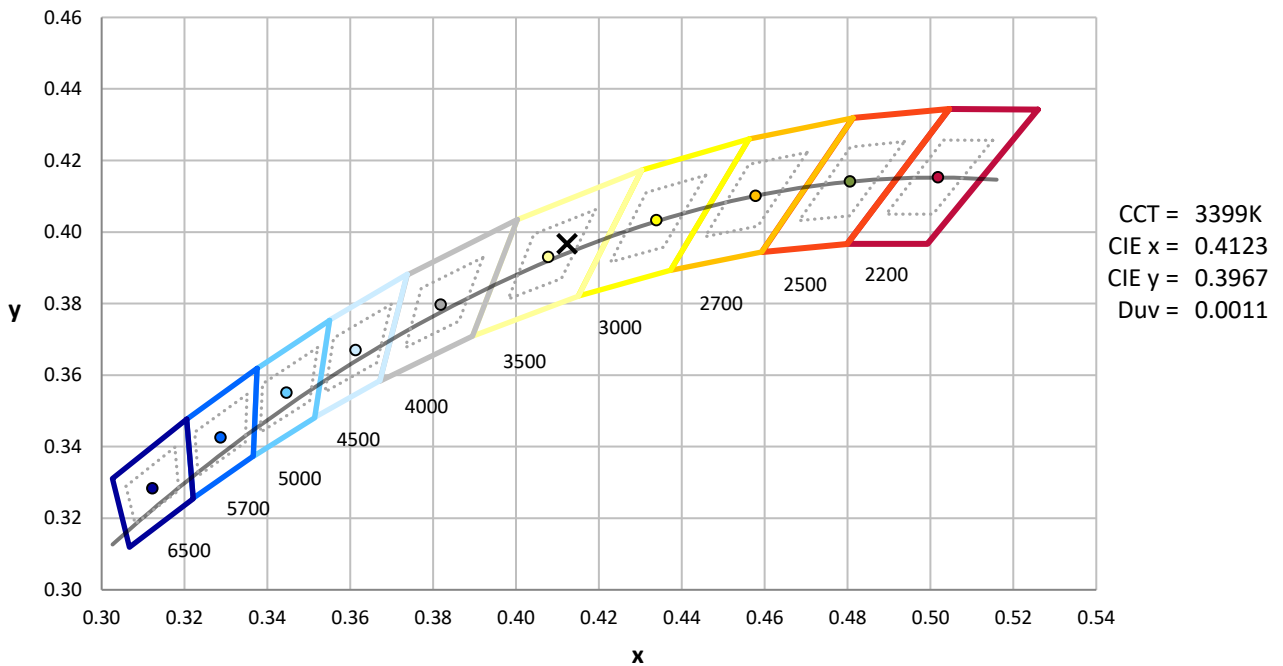
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020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

REPORT NUMBER: SP1-2104-224-7

CIE 1931 Chromaticity Diagram



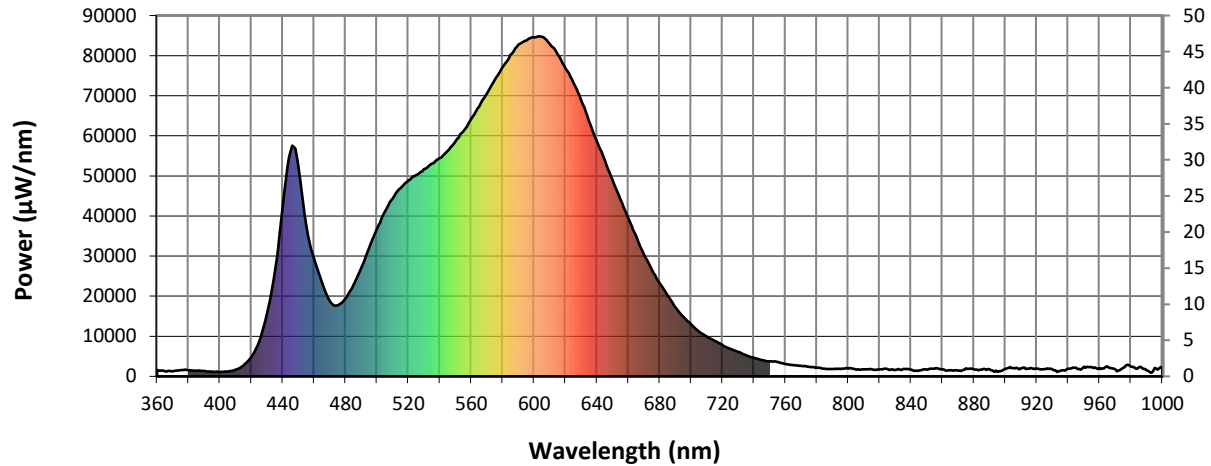
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2104-224-7

Photopic Flux vs. Wavelength

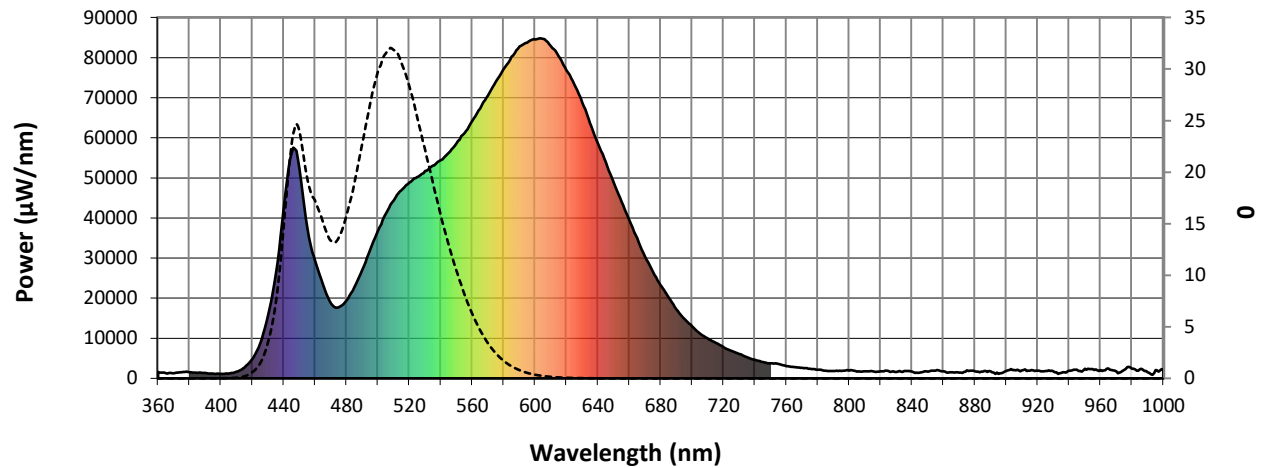


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λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1575	0.0	490	27129	3.9	620	76816	20.0	750	3769	0.0	880	1764	0.0
365	1304	0.0	495	32004	5.8	625	73341	16.2	755	3612	0.0	885	1716	0.0
370	1308	0.0	500	36855	8.1	630	68822	12.5	760	3033	0.0	890	1765	0.0
375	1543	0.0	505	41002	11.5	635	63685	9.6	765	2817	0.0	895	1149	0.0
380	1553	0.0	510	44391	15.3	640	58596	7.0	770	2655	0.0	900	1818	0.0
385	1347	0.0	515	46931	19.4	645	53894	5.2	775	2370	0.0	905	2116	0.0
390	1323	0.0	520	48839	23.7	650	48923	3.6	780	2197	0.0	910	1996	0.0
395	1205	0.0	525	50192	26.9	655	44036	2.5	785	1941	0.0	915	1915	0.0
400	1081	0.0	530	51686	30.4	660	39548	1.6	790	1871	0.0	920	1905	0.0
405	1217	0.0	535	53075	32.9	665	34921	1.1	795	1876	0.0	925	1870	0.0
410	1655	0.0	540	54402	35.4	670	30451	0.7	800	1957	0.0	930	1721	0.0
415	2743	0.0	545	56230	37.4	675	26614	0.4	805	1683	0.0	935	1335	0.0
420	4829	0.0	550	58553	39.8	680	23255	0.3	810	1724	0.0	940	1902	0.0
425	8795	0.0	555	61171	41.8	685	20234	0.2	815	1771	0.0	945	2151	0.0
430	15648	0.1	560	64140	43.6	690	17243	0.1	820	1778	0.0	950	2420	0.0
435	26272	0.3	565	67312	44.8	695	14870	0.1	825	1813	0.0	955	2342	0.0
440	42276	0.7	570	70494	45.8	700	13016	0.0	830	1600	0.0	960	2115	0.0
445	56219	1.2	575	73960	46.0	705	11173	0.0	835	1819	0.0	965	2478	0.0
450	52457	1.4	580	77110	45.8	710	9898	0.0	840	1712	0.0	970	1720	0.0
455	37508	1.3	585	80213	44.6	715	8850	0.0	845	1465	0.0	975	2086	0.0
460	29408	1.2	590	82780	42.8	720	7769	0.0	850	1667	0.0	980	2378	0.0
465	23421	1.2	595	83727	39.7	725	6837	0.0	855	1951	0.0	985	2216	0.0
470	18707	1.2	600	84514	36.4	730	6108	0.0	860	1783	0.0	990	1516	0.0
475	17733	1.4	605	84686	32.8	735	5272	0.0	865	1505	0.0	995	2048	0.0
480	19502	1.9	610	82842	28.5	740	4593	0.0	870	1414	0.0	1000	2071	0.0
485	22724	2.7	615	80383	24.3	745	4077	0.0	875	1968	0.0			

REPORT NUMBER: SP1-2104-224-7

Scotopic Flux vs. Wavelength



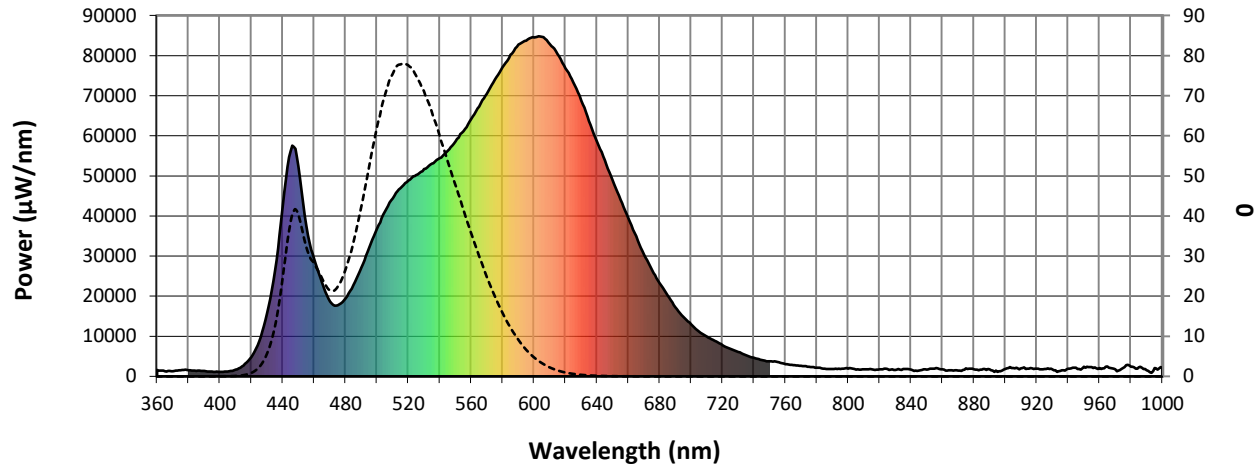
Scotopic Lumens: 6763.3

S/P: 1.5

λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)	λ (nm)	Power ($\mu\text{W/nm}$)	Lumens (Φ/nm)
360	1575	0.0	490	27129	41.8	620	76816	1.0	750	3769	0.0	880	1764	0.0
365	1304	0.0	495	32004	51.7	625	73341	0.6	755	3612	0.0	885	1716	0.0
370	1308	0.0	500	36855	61.6	630	68822	0.4	760	3033	0.0	890	1765	0.0
375	1543	0.0	505	41002	69.7	635	63685	0.2	765	2817	0.0	895	1149	0.0
380	1553	0.0	510	44391	75.2	640	58596	0.1	770	2655	0.0	900	1818	0.0
385	1347	0.0	515	46931	77.8	645	53894	0.1	775	2370	0.0	905	2116	0.0
390	1323	0.0	520	48839	77.6	650	48923	0.1	780	2197	0.0	910	1996	0.0
395	1205	0.0	525	50192	75.1	655	44036	0.0	785	1941	0.0	915	1915	0.0
400	1081	0.0	530	51686	71.3	660	39548	0.0	790	1871	0.0	920	1905	0.0
405	1217	0.0	535	53075	66.1	665	34921	0.0	795	1876	0.0	925	1870	0.0
410	1655	0.1	540	54402	60.1	670	30451	0.0	800	1957	0.0	930	1721	0.0
415	2743	0.3	545	56230	53.9	675	26614	0.0	805	1683	0.0	935	1335	0.0
420	4829	0.8	550	58553	47.9	680	23255	0.0	810	1724	0.0	940	1902	0.0
425	8795	2.2	555	61171	41.8	685	20234	0.0	815	1771	0.0	945	2151	0.0
430	15648	5.3	560	64140	35.9	690	17243	0.0	820	1778	0.0	950	2420	0.0
435	26272	11.7	565	67312	30.2	695	14870	0.0	825	1813	0.0	955	2342	0.0
440	42276	23.6	570	70494	24.9	700	13016	0.0	830	1600	0.0	960	2115	0.0
445	56219	37.6	575	73960	20.1	705	11173	0.0	835	1819	0.0	965	2478	0.0
450	52457	40.7	580	77110	15.9	710	9898	0.0	840	1712	0.0	970	1720	0.0
455	37508	32.8	585	80213	12.3	715	8850	0.0	845	1465	0.0	975	2086	0.0
460	29408	28.4	590	82780	9.2	720	7769	0.0	850	1667	0.0	980	2378	0.0
465	23421	24.7	595	83727	6.7	725	6837	0.0	855	1951	0.0	985	2216	0.0
470	18707	21.5	600	84514	4.8	730	6108	0.0	860	1783	0.0	990	1516	0.0
475	17733	22.2	605	84686	3.3	735	5272	0.0	865	1505	0.0	995	2048	0.0
480	19502	26.3	610	82842	2.2	740	4593	0.0	870	1414	0.0	1000	2071	0.0
485	22724	32.9	615	80383	1.5	745	4077	0.0	875	1968	0.0			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 2622.7 M/P: 0.58

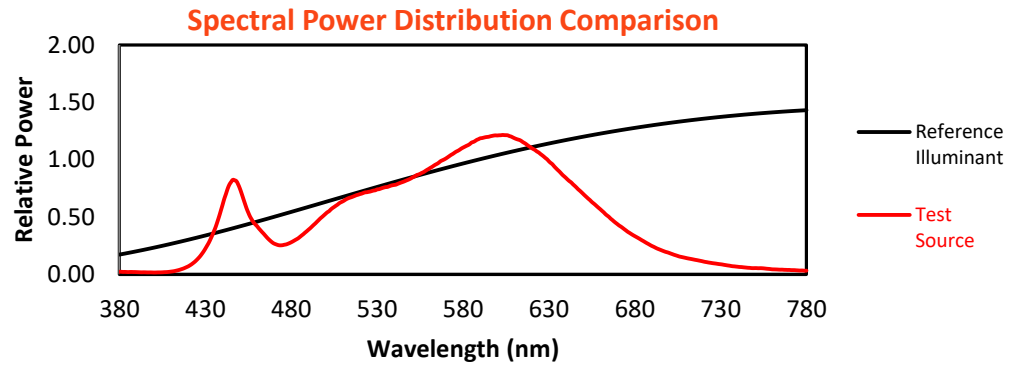
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1575	0.0	490	27129	22.6	620	76816	0.1	750	3769	0.0	880	1764	0.0
365	1304	0.0	495	32004	26.4	625	73341	0.0	755	3612	0.0	885	1716	0.0
370	1308	0.0	500	36855	29.6	630	68822	0.0	760	3033	0.0	890	1765	0.0
375	1543	0.0	505	41002	31.5	635	63685	0.0	765	2817	0.0	895	1149	0.0
380	1553	0.0	510	44391	31.9	640	58596	0.0	770	2655	0.0	900	1818	0.0
385	1347	0.0	515	46931	30.7	645	53894	0.0	775	2370	0.0	905	2116	0.0
390	1323	0.0	520	48839	28.4	650	48923	0.0	780	2197	0.0	910	1996	0.0
395	1205	0.0	525	50192	25.5	655	44036	0.0	785	1941	0.0	915	1915	0.0
400	1081	0.0	530	51686	22.3	660	39548	0.0	790	1871	0.0	920	1905	0.0
405	1217	0.0	535	53075	19.1	665	34921	0.0	795	1876	0.0	925	1870	0.0
410	1655	0.1	540	54402	15.9	670	30451	0.0	800	1957	0.0	930	1721	0.0
415	2743	0.2	545	56230	13.1	675	26614	0.0	805	1683	0.0	935	1335	0.0
420	4829	0.6	550	58553	10.5	680	23255	0.0	810	1724	0.0	940	1902	0.0
425	8795	1.4	555	61171	8.2	685	20234	0.0	815	1771	0.0	945	2151	0.0
430	15648	3.3	560	64140	6.3	690	17243	0.0	820	1778	0.0	950	2420	0.0
435	26272	7.0	565	67312	4.7	695	14870	0.0	825	1813	0.0	955	2342	0.0
440	42276	14.1	570	70494	3.4	700	13016	0.0	830	1600	0.0	960	2115	0.0
445	56219	22.2	575	73960	2.5	705	11173	0.0	835	1819	0.0	965	2478	0.0
450	52457	24.2	580	77110	1.7	710	9898	0.0	840	1712	0.0	970	1720	0.0
455	37508	19.7	585	80213	1.2	715	8850	0.0	845	1465	0.0	975	2086	0.0
460	29408	17.3	590	82780	0.8	720	7769	0.0	850	1667	0.0	980	2378	0.0
465	23421	15.3	595	83727	0.5	725	6837	0.0	855	1951	0.0	985	2216	0.0
470	18707	13.4	600	84514	0.4	730	6108	0.0	860	1783	0.0	990	1516	0.0
475	17733	13.5	605	84686	0.2	735	5272	0.0	865	1505	0.0	995	2048	0.0
480	19502	15.7	610	82842	0.2	740	4593	0.0	870	1414	0.0	1000	2071	0.0
485	22724	18.7	615	80383	0.1	745	4077	0.0	875	1968	0.0			

REPORT NUMBER: SP1-2104-224-7

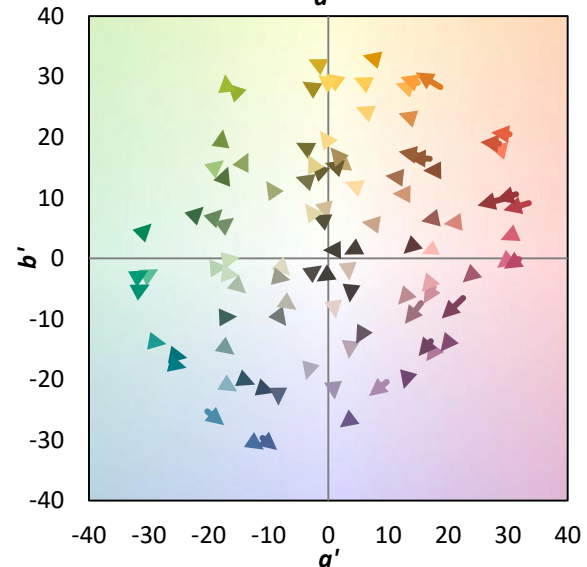
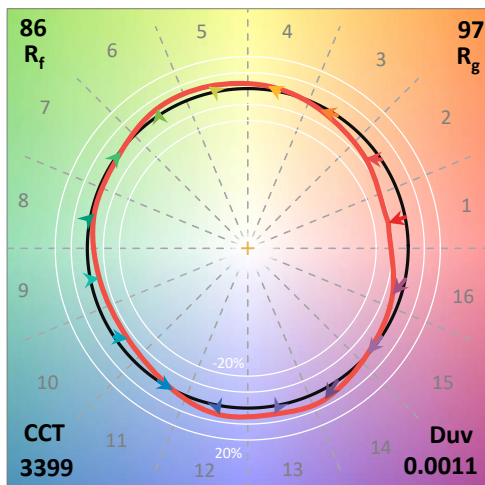
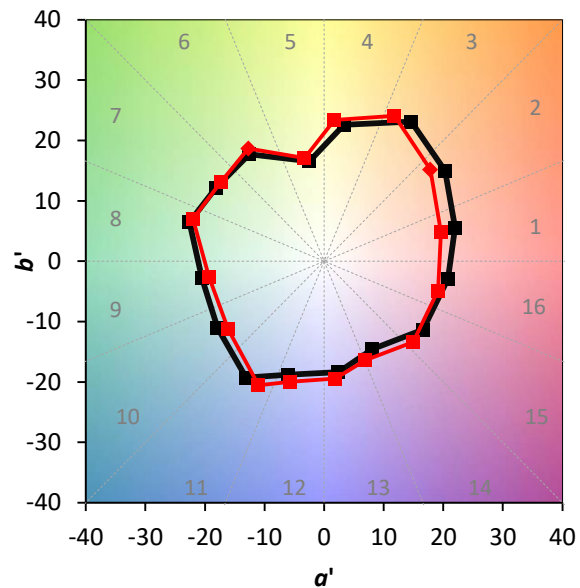
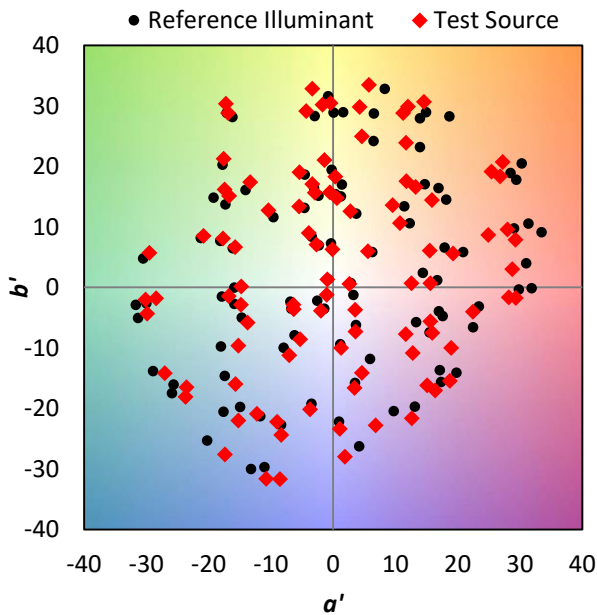
TM-30-18

Summary

$R_f = 86.3$
 $R_g = 97.5$
 CIE $R_a = 84.3$
 $R_9 = 12.4$

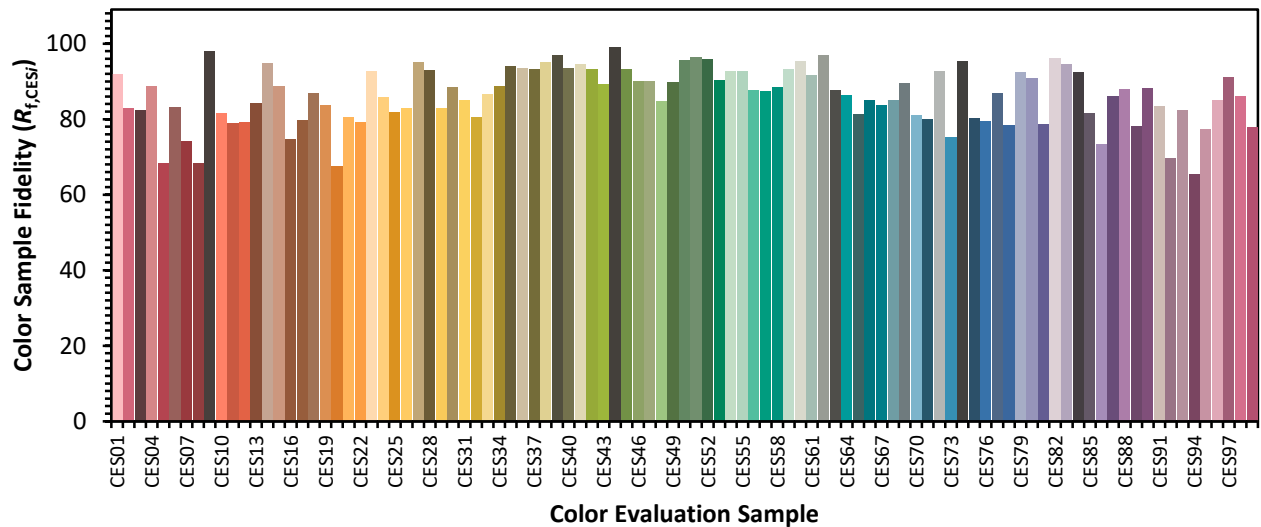


Color Vector Graphics

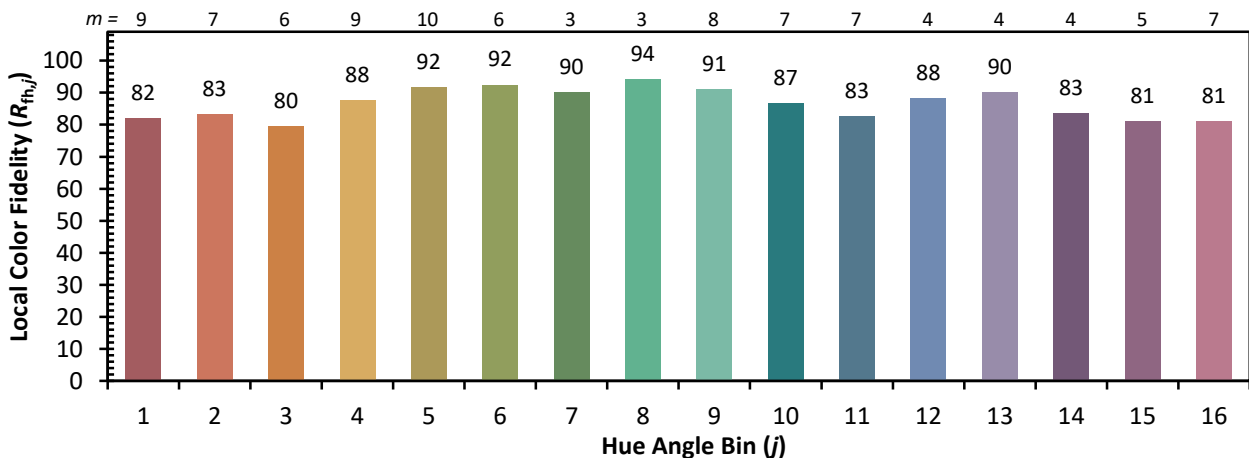
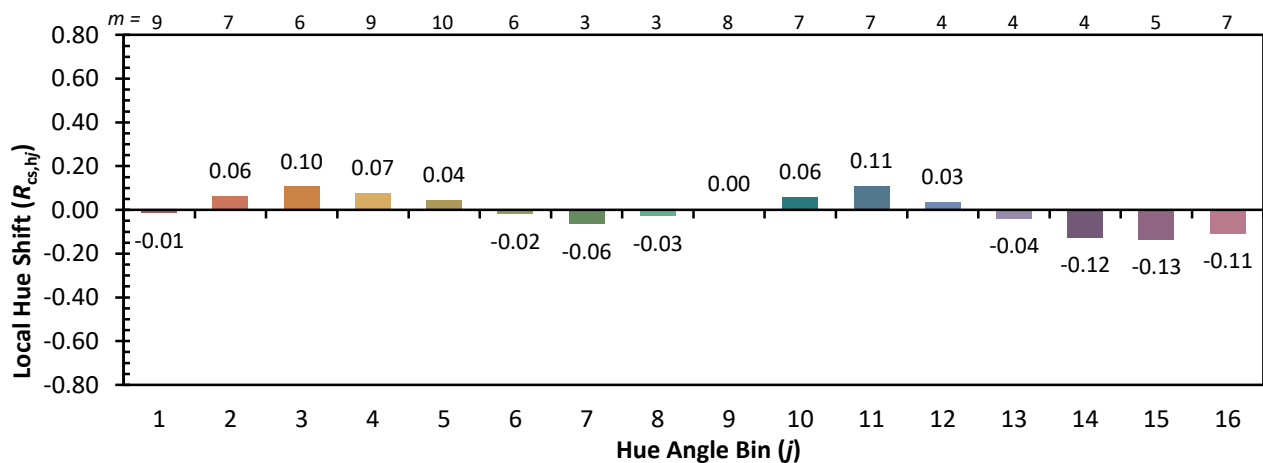
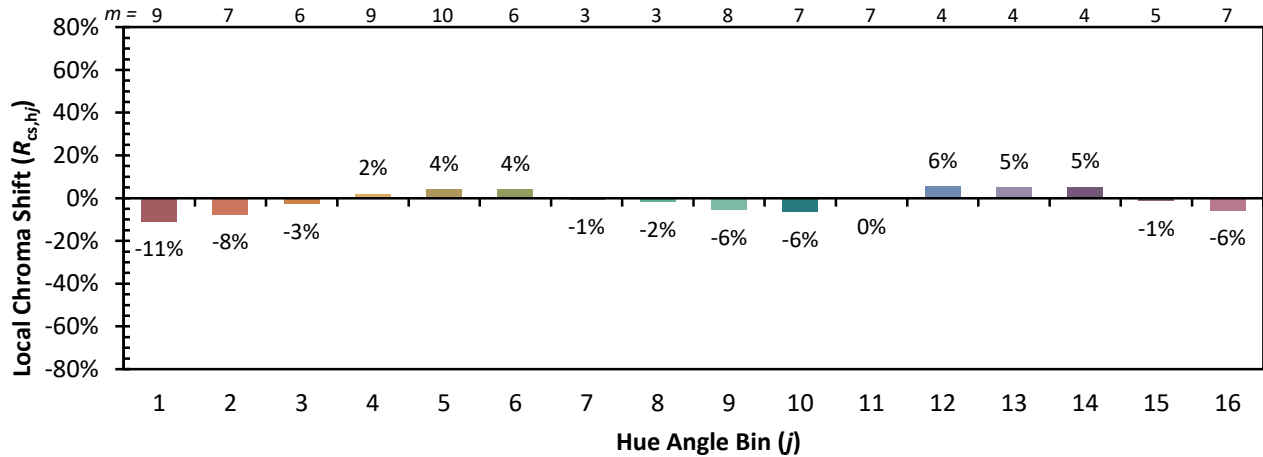


Individual Sample Fidelity Index ($R_{f,i}$)

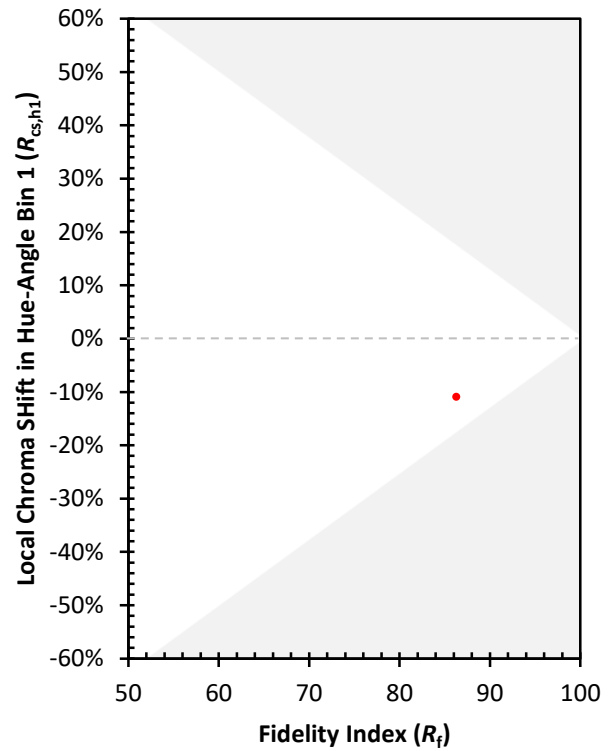
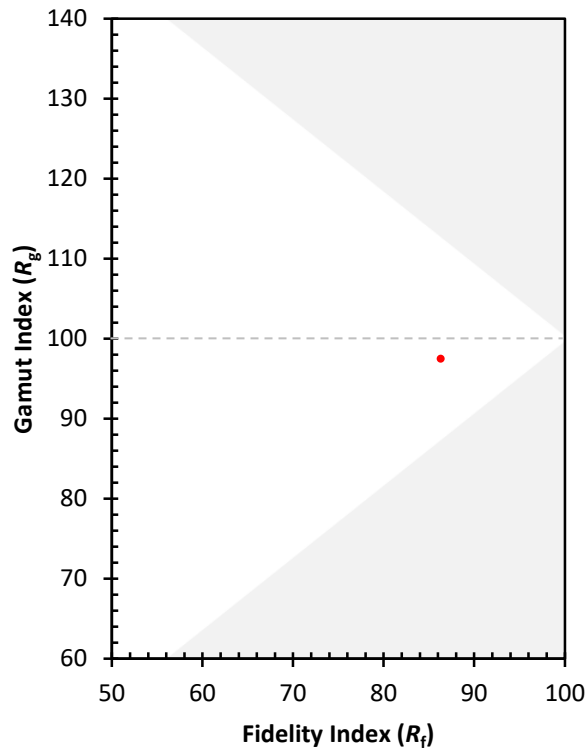
CES01 = 86	CES26 = 83	CES51 = 96	CES76 = 80
CES02 = 62	CES27 = 95	CES52 = 96	CES77 = 87
CES03 = 31	CES28 = 93	CES53 = 90	CES78 = 78
CES04 = 70	CES29 = 83	CES54 = 93	CES79 = 92
CES05 = 49	CES30 = 89	CES55 = 93	CES80 = 91
CES06 = 51	CES31 = 85	CES56 = 88	CES81 = 79
CES07 = 42	CES32 = 81	CES57 = 87	CES82 = 96
CES08 = 40	CES33 = 87	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 89	CES59 = 93	CES84 = 92
CES10 = 75	CES35 = 94	CES60 = 95	CES85 = 82
CES11 = 58	CES36 = 94	CES61 = 92	CES86 = 73
CES12 = 64	CES37 = 93	CES62 = 97	CES87 = 86
CES13 = 43	CES38 = 95	CES63 = 88	CES88 = 88
CES14 = 74	CES39 = 97	CES64 = 86	CES89 = 78
CES15 = 71	CES40 = 94	CES65 = 81	CES90 = 88
CES16 = 47	CES41 = 95	CES66 = 85	CES91 = 83
CES17 = 50	CES42 = 93	CES67 = 84	CES92 = 70
CES18 = 56	CES43 = 89	CES68 = 85	CES93 = 82
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 65
CES20 = 66	CES45 = 93	CES70 = 81	CES95 = 77
CES21 = 86	CES46 = 90	CES71 = 80	CES96 = 85
CES22 = 78	CES47 = 90	CES72 = 93	CES97 = 91
CES23 = 92	CES48 = 85	CES73 = 75	CES98 = 86
CES24 = 90	CES49 = 90	CES74 = 95	CES99 = 78
CES25 = 72	CES50 = 96	CES75 = 80	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)