

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: STREETWORKS

Report Number: P348736

Luminaire Tested: **ARCH-N-PA1-10-830-12VDC-5WQ**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P348736
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-2)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: ARCH-N-PA1-10-830-12VDC-5WQ
Description: ARCHEON ROADWAY AND AREA LUMINAIRE
(1) 80 CRI, 3000K, 270mA LIGHT ENGINE WITH 16 LEDS AND
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1829 lumens
Efficiency: N/A
Efficacy: 130.6 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.75' x H: 0')
IES Classification: Type V - Short
BUG Rating: B2 - U0 - G1

Input Watts (W): 14
Input Voltage (V): NR
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

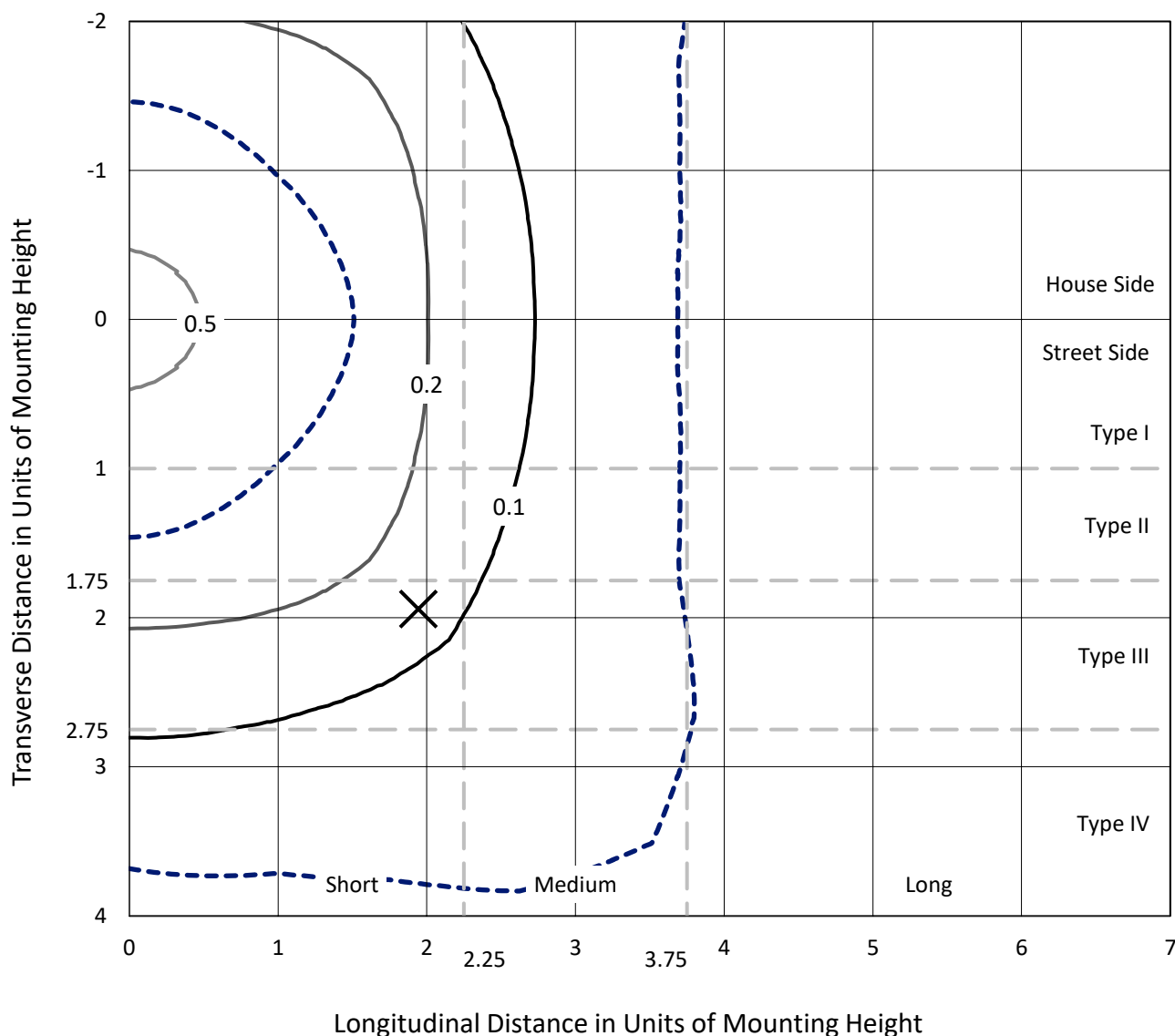
REPORT NUMBER: P348736

CATALOG NUMBER: ARCH-N-PA1-10-830-12VDC-5WQ

Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd



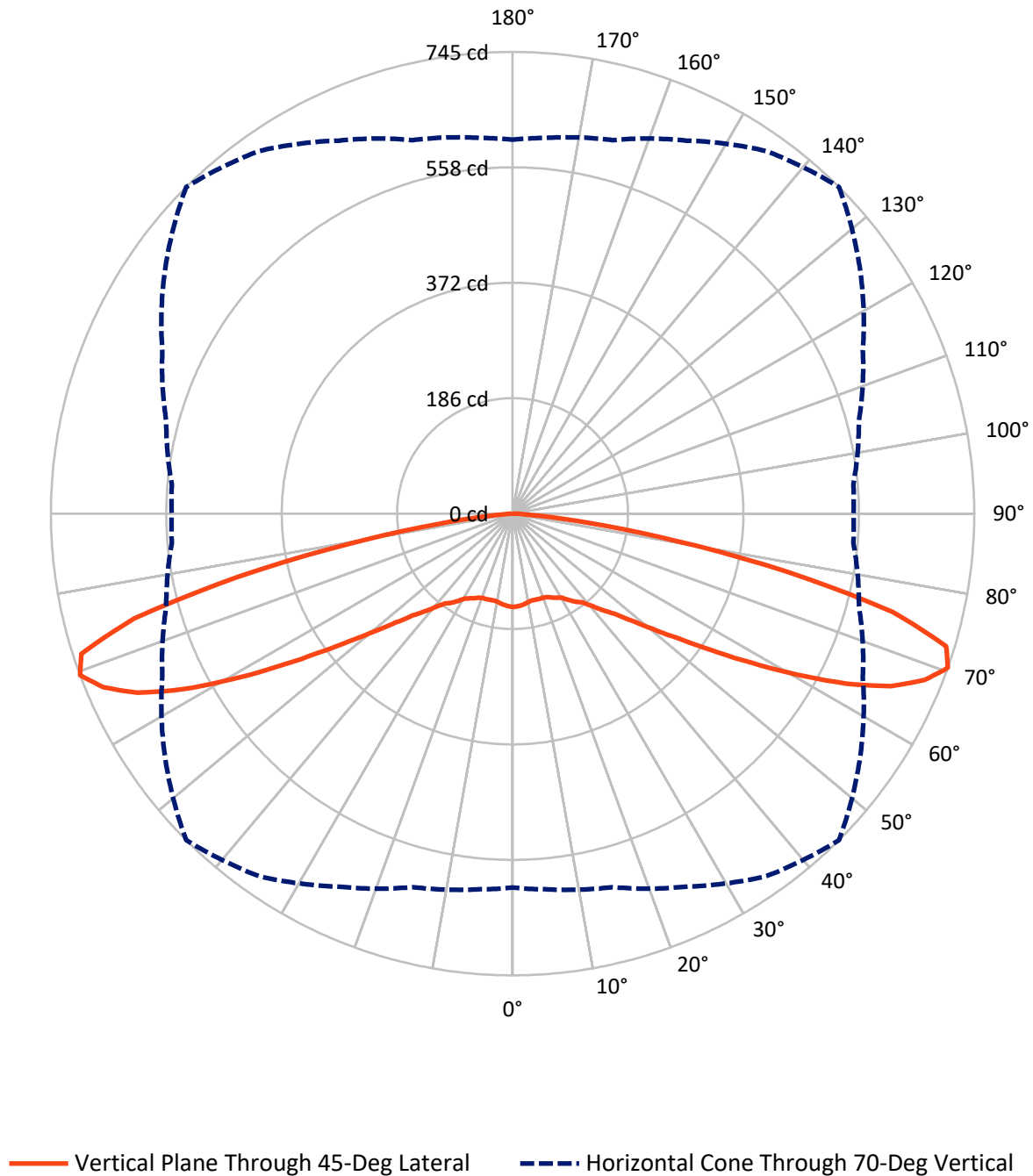
Based on 15 foot mounting height. Maximum calculated value = 0.7 fc

Type V - Short - N/A

REPORT NUMBER: P348736

CATALOG NUMBER: ARCH-N-PA1-10-830-12VDC-5WQ

Luminous Intensity Polar Plot



REPORT NUMBER: P348736

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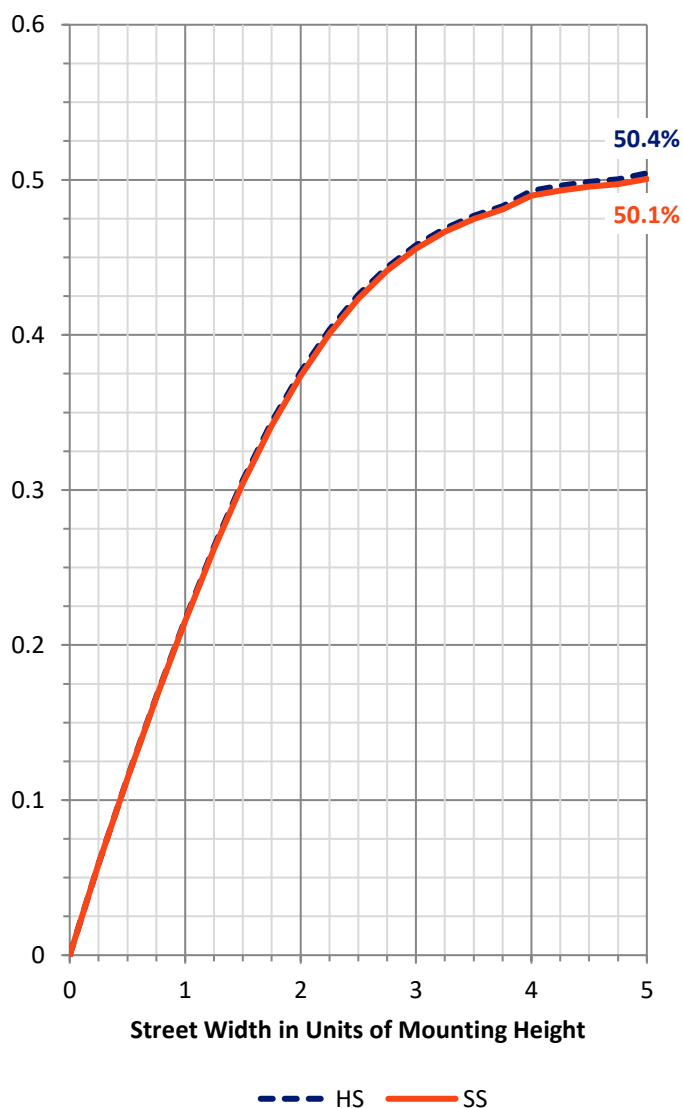
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	914.5	0.0	914.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	914.5	0.0	914.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	1829.0	0.0	1829.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.0	0.8
10°-20°	41.0	2.2
20°-30°	70.0	3.8
30°-40°	109.3	6.0
40°-50°	185.3	10.1
50°-60°	337.9	18.5
60°-70°	581.7	31.8
70°-80°	455.9	24.9
80°-90°	33.8	1.8
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°	1829.0	100.0
0°-180°	1829.0	100.0



REPORT NUMBER: P348736

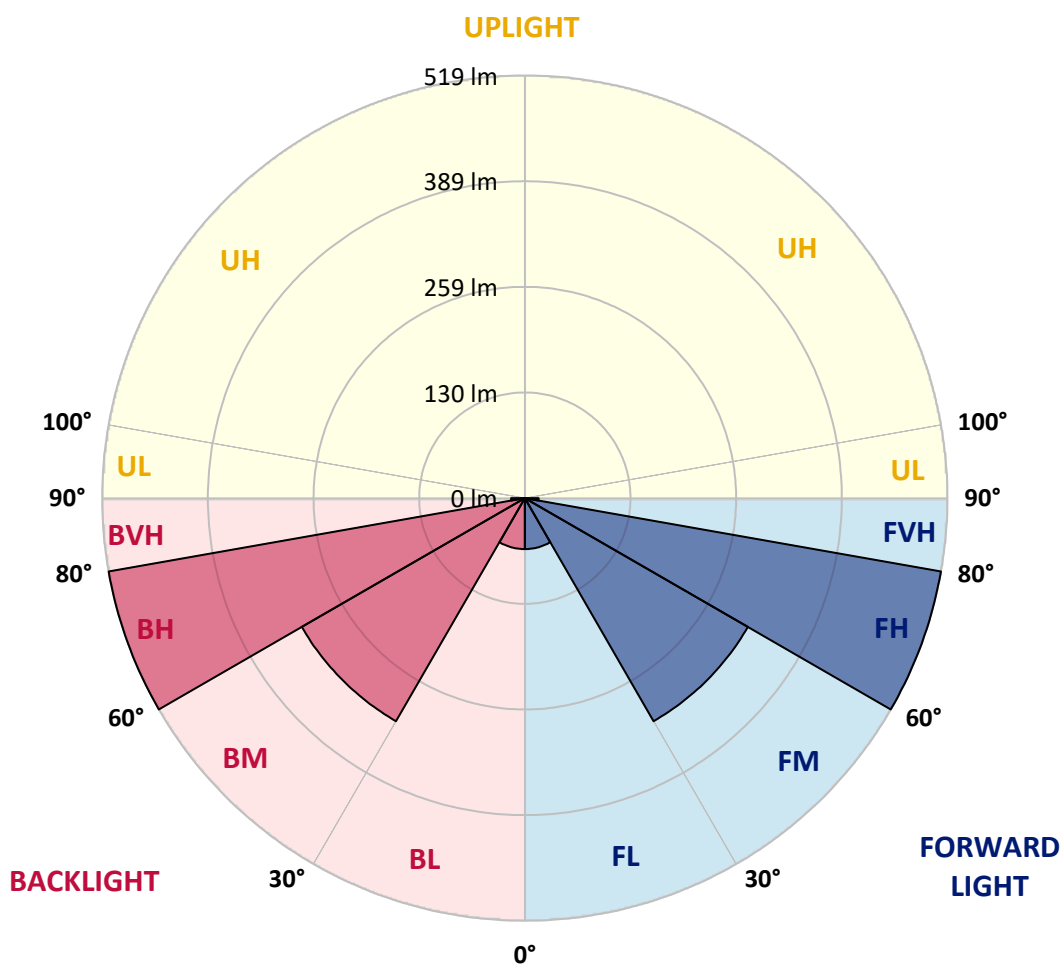
CATALOG NUMBER: ARCH-N-PA1-10-830-12VDC-5WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	62.5	3.4			
FM	(30°-60°)	316.3	17.3			
FH	(60°-80°)	518.8	28.4			G0/660
FVH	(80°-90°)	16.9	0.9			G1/100
BL	(0°-30°)	62.5	3.4	B0/110		
BM	(30°-60°)	316.3	17.3	B1/1000		
BH	(60°-80°)	518.8	28.4	B2/1000		G0/660
BVH	(80°-90°)	16.9	0.9			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G1

Type V Short



REPORT NUMBER: P348736

CATALOG NUMBER: ARCH-N-PA1-10-830-12VDC-5WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	150.5	150.5	150.5	150.5	150.5	150.5	150.5	150.5	150.5	150.5	150.5
2.5°	149.9	150.0	149.9	150.0	149.7	149.8	149.8	149.8	149.7	149.8	149.7
5°	148.5	148.7	148.4	148.5	148.3	148.5	148.6	148.5	148.4	148.5	148.2
7.5°	146.5	146.7	146.5	146.7	146.4	146.7	146.7	146.5	146.3	146.3	146.0
10°	145.4	145.5	145.0	144.8	144.3	144.4	144.6	144.8	145.0	145.3	145.3
12.5°	145.5	145.5	144.8	144.0	143.2	143.4	143.7	144.4	145.1	145.7	145.8
15°	146.1	146.0	145.0	143.7	143.1	143.7	143.9	144.3	145.4	146.6	146.7
17.5°	146.5	146.5	144.8	143.4	143.3	144.2	144.1	144.3	145.6	147.3	147.3
20°	147.3	147.3	145.1	143.6	143.6	144.5	144.5	144.8	146.1	148.0	148.3
22.5°	149.1	149.1	146.8	145.6	145.7	146.2	146.4	146.9	148.0	150.1	150.5
25°	151.6	151.7	149.3	148.6	149.0	150.0	149.9	150.3	151.6	153.6	153.9
27.5°	155.0	154.7	152.5	152.2	152.6	153.4	153.3	153.4	154.4	156.2	156.6
30°	159.5	159.4	157.8	158.0	157.8	157.5	157.6	158.1	158.6	160.1	160.5
32.5°	163.8	164.0	163.0	163.9	165.2	166.1	164.7	163.4	162.8	163.6	164.0
35°	171.7	172.0	170.5	169.9	171.7	174.4	170.4	168.3	169.5	170.5	170.8
37.5°	185.1	185.3	182.7	180.3	179.0	181.5	177.6	177.8	182.0	183.9	183.9
40°	200.3	200.4	198.7	196.6	194.3	194.9	193.3	193.8	196.6	198.3	198.8
42.5°	218.5	218.3	215.6	212.6	211.9	212.5	209.9	209.5	212.7	215.9	215.9
45°	242.0	241.6	238.1	234.8	231.6	230.3	229.6	231.4	235.8	238.7	238.7
47.5°	267.4	266.2	264.4	261.7	258.9	257.6	256.5	257.4	260.6	261.7	261.8
50°	293.4	293.7	294.0	293.0	292.0	291.6	288.7	287.1	288.0	285.9	285.6
52.5°	324.3	324.8	328.3	331.3	333.1	334.0	328.6	323.0	319.8	315.7	314.5
55°	360.8	361.6	366.8	375.0	383.5	387.9	378.2	367.7	357.9	350.2	347.8
57.5°	401.5	402.9	410.0	425.7	443.1	453.7	437.2	418.1	399.3	388.2	386.3
60°	449.2	450.5	460.3	482.9	511.1	527.0	502.0	470.8	447.3	436.8	433.2
62.5°	505.9	506.0	518.1	544.5	581.7	603.8	570.0	528.2	504.1	491.3	487.9
65°	567.0	567.3	579.7	608.3	646.7	670.8	632.7	589.1	559.6	540.8	538.1
67.5°	610.1	611.4	624.5	658.9	694.8	716.5	677.1	627.8	593.7	571.3	569.0
70°	603.2	608.2	623.6	663.7	713.7	744.6	684.3	623.2	578.2	551.7	549.8
72.5°	526.1	535.6	556.1	608.8	688.7	731.3	645.0	558.2	507.2	484.7	481.3
75°	358.2	373.7	404.7	480.6	588.4	633.2	543.0	445.0	397.1	365.9	363.6
77.5°	159.7	163.2	202.6	290.0	406.0	454.7	394.5	291.1	218.5	174.3	165.0
80°	44.5	45.1	60.1	108.0	203.2	267.2	218.2	113.4	63.8	45.0	42.4
82.5°	14.2	15.4	18.8	28.0	68.3	121.9	70.1	30.3	21.5	17.2	15.5
85°	6.9	6.8	9.5	11.4	17.4	27.0	18.6	14.0	12.3	8.2	7.4
87.5°	2.9	3.0	4.4	4.0	5.1	4.4	6.0	6.3	6.6	3.6	3.1
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: SP1-2104-224-6

Luminaire Tested: CCW-SA-2A-830-U-SL4

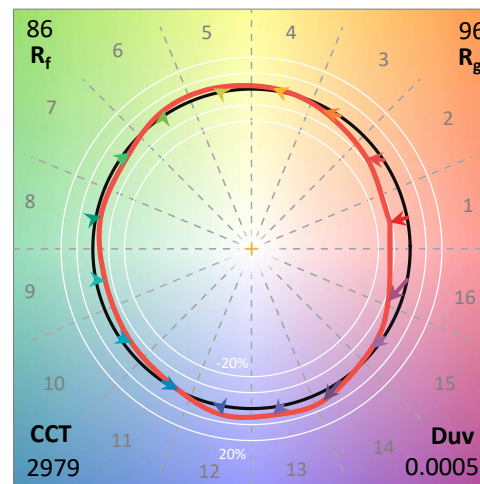
Test Date: 04/27/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2104-224-6
 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-830-U-SL4**
 Description: INVUE WALL PACK ClearCurve Light Square

Spectral Parameters

CCT (K):	2979	CRI (Ra):	83.1		
CIE u':	0.2511	R1:	81.3	R9:	7.1
CIE v':	0.5225	R2:	91.2	R10:	80.8
Duv:	0.0005	R3:	96.2	R11:	82.0
CIE x:	0.4390	R4:	81.7	R12:	76.3
CIE y:	0.4060	R5:	82.0	R13:	83.6
CIE z:	0.1550	R6:	90.2	R14:	98.4
Peak Wavelength (nm):	603	R7:	82.8		
Dominant Wavelength (nm):	582	R8:	58.9		
Purity:	54				
Rf:	86				
Rg:	96.1				



Test Conditions

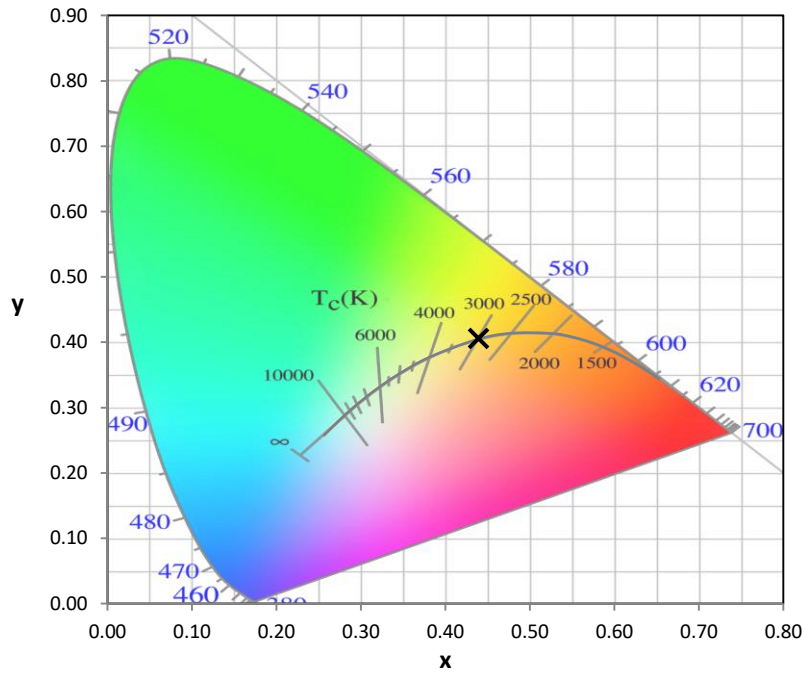
Stabilization Time: 78M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0/47%
 Sphere Temperature (°C): 24.1

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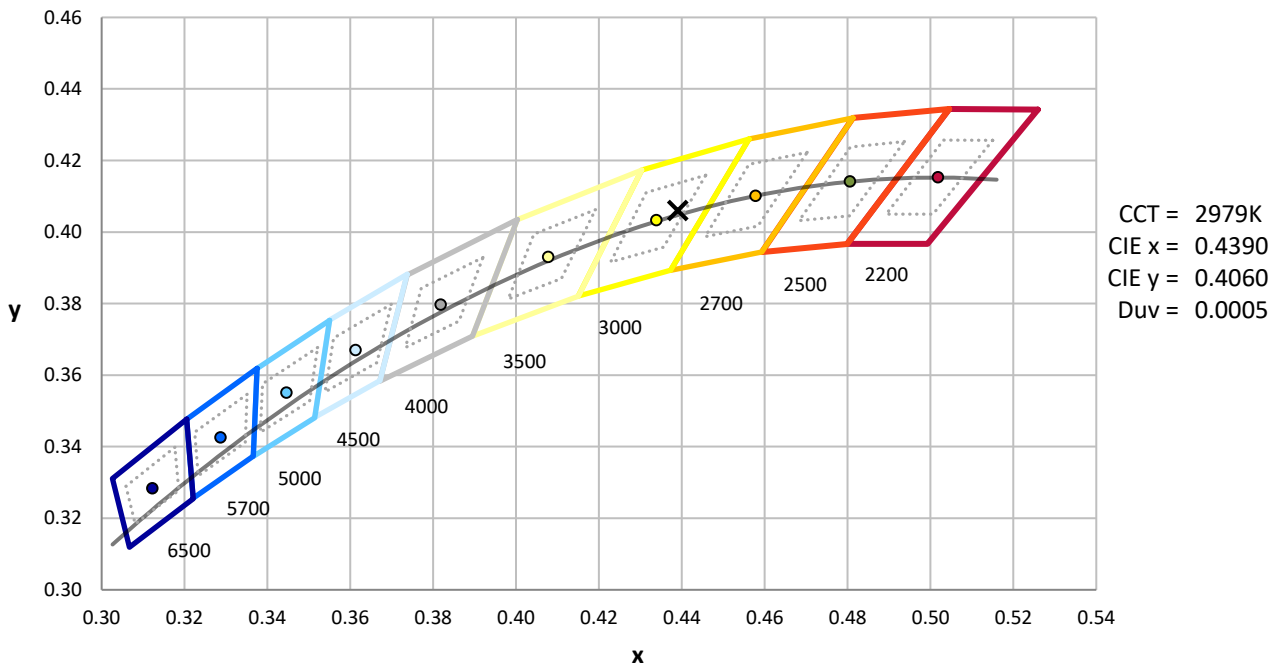
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020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

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CIE 1931 Chromaticity Diagram



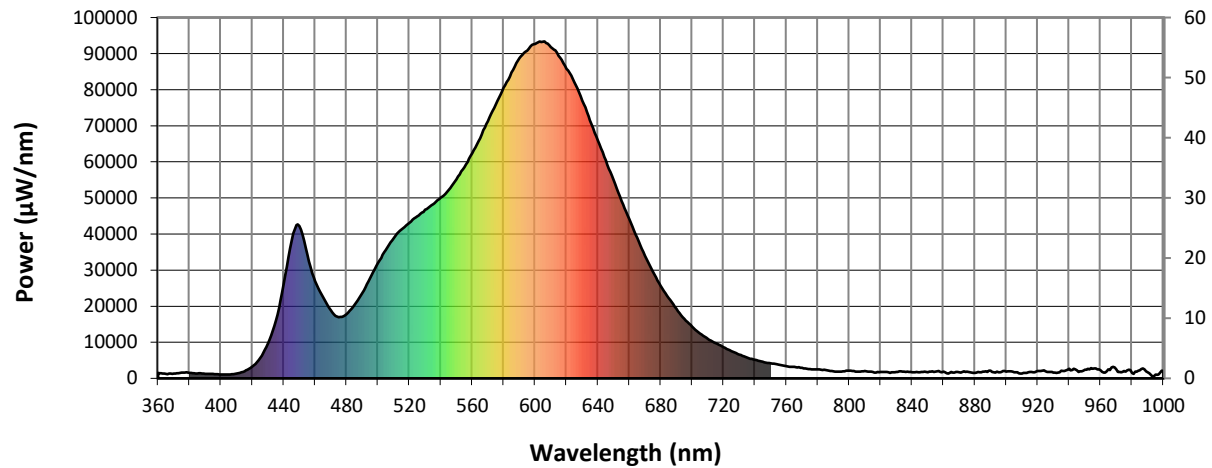
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength

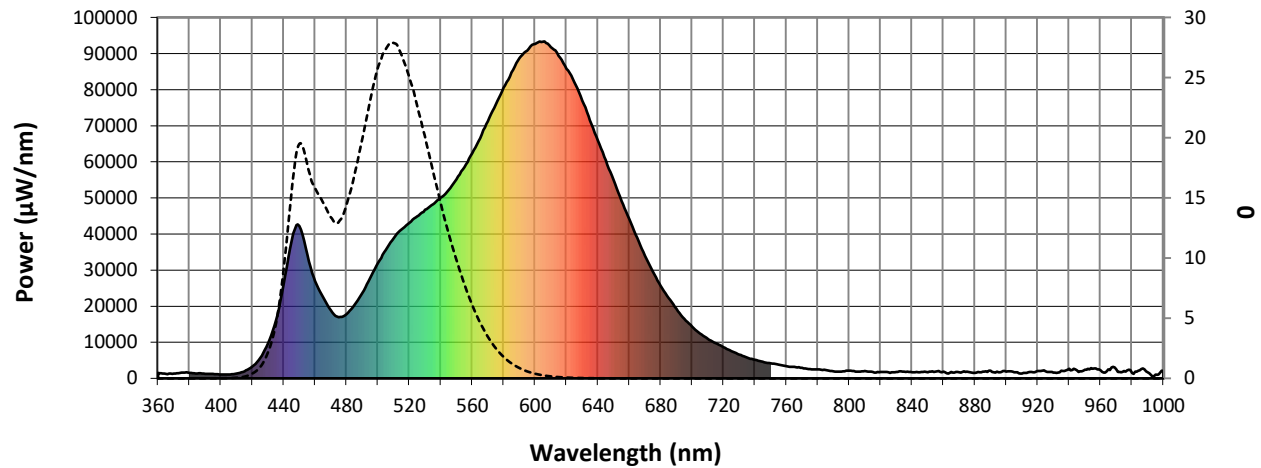


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λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1540	0.0	490	23715	3.4	620	85792	22.3	750	4198	0.0	880	1529	0.0
365	1274	0.0	495	27763	5.0	625	82163	18.1	755	3846	0.0	885	1863	0.0
370	1307	0.0	500	32023	7.1	630	76960	13.9	760	3380	0.0	890	2114	0.0
375	1612	0.0	505	35605	10.0	635	71512	10.7	765	3174	0.0	895	1695	0.0
380	1536	0.0	510	38842	13.3	640	65929	7.9	770	2898	0.0	900	1843	0.0
385	1342	0.0	515	41267	17.1	645	60362	5.8	775	2539	0.0	905	1730	0.0
390	1278	0.0	520	43140	20.9	650	55010	4.0	780	2473	0.0	910	1325	0.0
395	1204	0.0	525	44884	24.1	655	49154	2.8	785	2349	0.0	915	1786	0.0
400	1038	0.0	530	46722	27.5	660	44162	1.8	790	1939	0.0	920	2044	0.0
405	1061	0.0	535	48254	29.9	665	38916	1.2	795	1859	0.0	925	1947	0.0
410	1327	0.0	540	50064	32.6	670	33949	0.7	800	2145	0.0	930	1610	0.0
415	1996	0.0	545	52217	34.8	675	29528	0.5	805	1833	0.0	935	2111	0.0
420	3268	0.0	550	55198	37.5	680	25626	0.3	810	2023	0.0	940	2657	0.0
425	5667	0.0	555	58564	40.0	685	22299	0.2	815	1752	0.0	945	2238	0.0
430	9713	0.1	560	62385	42.4	690	19299	0.1	820	1756	0.0	950	2401	0.0
435	16063	0.2	565	66522	44.2	695	16488	0.1	825	1713	0.0	955	2656	0.0
440	26124	0.4	570	71254	46.3	700	14392	0.0	830	1766	0.0	960	2228	0.0
445	38102	0.8	575	75923	47.2	705	12426	0.0	835	1901	0.0	965	2517	0.0
450	42175	1.1	580	80516	47.8	710	10953	0.0	840	1722	0.0	970	2476	0.0
455	34315	1.1	585	84772	47.1	715	9724	0.0	845	1694	0.0	975	2085	0.0
460	26966	1.1	590	88815	45.9	720	8614	0.0	850	1717	0.0	980	1509	0.0
465	22504	1.2	595	90846	43.1	725	7544	0.0	855	1853	0.0	985	2241	0.0
470	18776	1.2	600	92683	39.9	730	6583	0.0	860	1827	0.0	990	1651	0.0
475	16954	1.3	605	93294	36.1	735	5796	0.0	865	1745	0.0	995	1035	0.0
480	17815	1.7	610	91814	31.5	740	5170	0.0	870	1690	0.0	1000	2009	0.0
485	20300	2.4	615	89370	27.0	745	4593	0.0	875	1834	0.0			

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Scotopic Flux vs. Wavelength



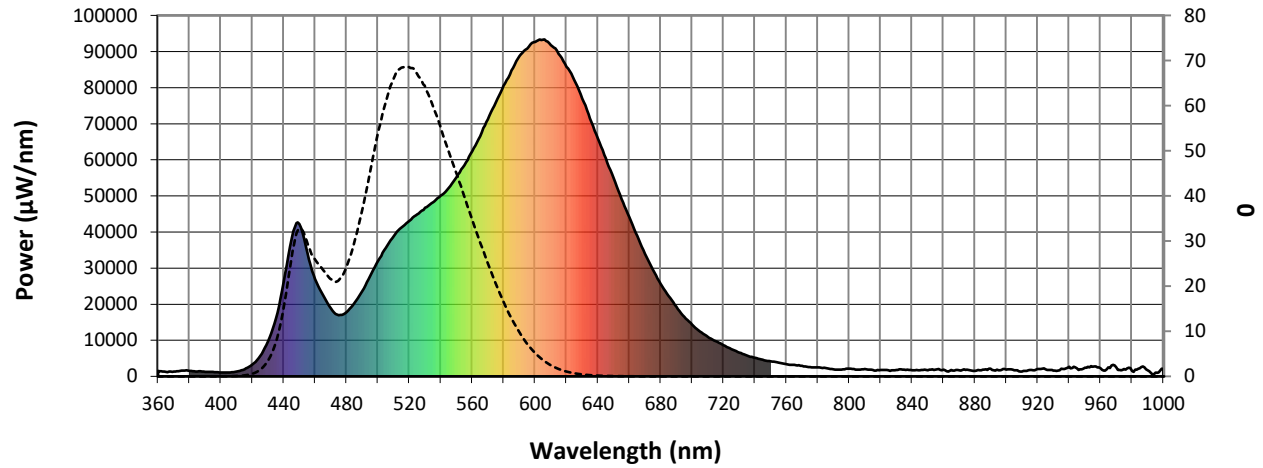
Scotopic Lumens: 6076.4

S/P: 1.34

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	1540	0.0	490	23715	36.5	620	85792	1.1	750	4198	0.0	880	1529	0.0
365	1274	0.0	495	27763	44.9	625	82163	0.7	755	3846	0.0	885	1863	0.0
370	1307	0.0	500	32023	53.6	630	76960	0.4	760	3380	0.0	890	2114	0.0
375	1612	0.0	505	35605	60.5	635	71512	0.3	765	3174	0.0	895	1695	0.0
380	1536	0.0	510	38842	65.8	640	65929	0.2	770	2898	0.0	900	1843	0.0
385	1342	0.0	515	41267	68.4	645	60362	0.1	775	2539	0.0	905	1730	0.0
390	1278	0.0	520	43140	68.6	650	55010	0.1	780	2473	0.0	910	1325	0.0
395	1204	0.0	525	44884	67.1	655	49154	0.0	785	2349	0.0	915	1786	0.0
400	1038	0.0	530	46722	64.4	660	44162	0.0	790	1939	0.0	920	2044	0.0
405	1061	0.0	535	48254	60.1	665	38916	0.0	795	1859	0.0	925	1947	0.0
410	1327	0.1	540	50064	55.3	670	33949	0.0	800	2145	0.0	930	1610	0.0
415	1996	0.2	545	52217	50.1	675	29528	0.0	805	1833	0.0	935	2111	0.0
420	3268	0.5	550	55198	45.1	680	25626	0.0	810	2023	0.0	940	2657	0.0
425	5667	1.4	555	58564	40.0	685	22299	0.0	815	1752	0.0	945	2238	0.0
430	9713	3.3	560	62385	34.9	690	19299	0.0	820	1756	0.0	950	2401	0.0
435	16063	7.2	565	66522	29.8	695	16488	0.0	825	1713	0.0	955	2656	0.0
440	26124	14.6	570	71254	25.1	700	14392	0.0	830	1766	0.0	960	2228	0.0
445	38102	25.5	575	75923	20.7	705	12426	0.0	835	1901	0.0	965	2517	0.0
450	42175	32.7	580	80516	16.6	710	10953	0.0	840	1722	0.0	970	2476	0.0
455	34315	30.0	585	84772	13.0	715	9724	0.0	845	1694	0.0	975	2085	0.0
460	26966	26.0	590	88815	9.9	720	8614	0.0	850	1717	0.0	980	1509	0.0
465	22504	23.8	595	90846	7.2	725	7544	0.0	855	1853	0.0	985	2241	0.0
470	18776	21.6	600	92683	5.2	730	6583	0.0	860	1827	0.0	990	1651	0.0
475	16954	21.2	605	93294	3.7	735	5796	0.0	865	1745	0.0	995	1035	0.0
480	17815	24.1	610	91814	2.5	740	5170	0.0	870	1690	0.0	1000	2009	0.0
485	20300	29.4	615	89370	1.7	745	4593	0.0	875	1834	0.0			

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Melanopic Flux vs. Wavelength


Melanopic Lumens: 2300.1 **M/P: 0.51**

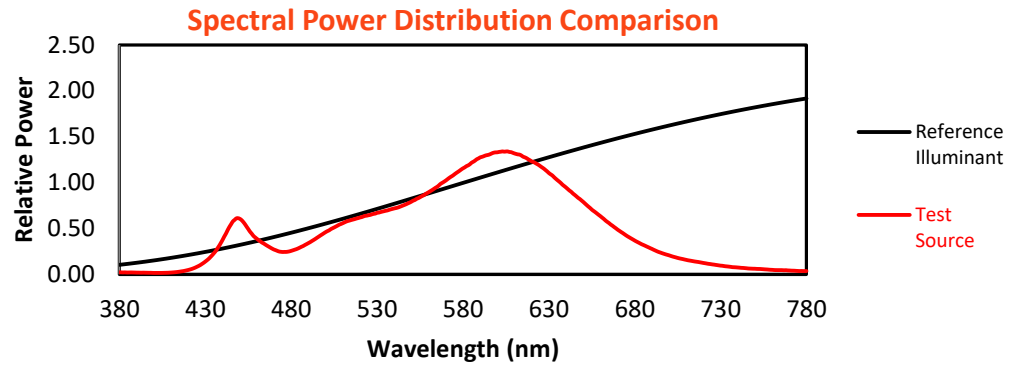
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
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365	1274	0.0	495	27763	22.9	625	82163	0.0	755	3846	0.0	885	1863	0.0
370	1307	0.0	500	32023	25.7	630	76960	0.0	760	3380	0.0	890	2114	0.0
375	1612	0.0	505	35605	27.3	635	71512	0.0	765	3174	0.0	895	1695	0.0
380	1536	0.0	510	38842	27.9	640	65929	0.0	770	2898	0.0	900	1843	0.0
385	1342	0.0	515	41267	27.0	645	60362	0.0	775	2539	0.0	905	1730	0.0
390	1278	0.0	520	43140	25.1	650	55010	0.0	780	2473	0.0	910	1325	0.0
395	1204	0.0	525	44884	22.8	655	49154	0.0	785	2349	0.0	915	1786	0.0
400	1038	0.0	530	46722	20.2	660	44162	0.0	790	1939	0.0	920	2044	0.0
405	1061	0.0	535	48254	17.4	665	38916	0.0	795	1859	0.0	925	1947	0.0
410	1327	0.1	540	50064	14.7	670	33949	0.0	800	2145	0.0	930	1610	0.0
415	1996	0.1	545	52217	12.1	675	29528	0.0	805	1833	0.0	935	2111	0.0
420	3268	0.4	550	55198	9.9	680	25626	0.0	810	2023	0.0	940	2657	0.0
425	5667	0.9	555	58564	7.9	685	22299	0.0	815	1752	0.0	945	2238	0.0
430	9713	2.1	560	62385	6.2	690	19299	0.0	820	1756	0.0	950	2401	0.0
435	16063	4.3	565	66522	4.7	695	16488	0.0	825	1713	0.0	955	2656	0.0
440	26124	8.7	570	71254	3.5	700	14392	0.0	830	1766	0.0	960	2228	0.0
445	38102	15.0	575	75923	2.5	705	12426	0.0	835	1901	0.0	965	2517	0.0
450	42175	19.4	580	80516	1.8	710	10953	0.0	840	1722	0.0	970	2476	0.0
455	34315	18.0	585	84772	1.3	715	9724	0.0	845	1694	0.0	975	2085	0.0
460	26966	15.9	590	88815	0.9	720	8614	0.0	850	1717	0.0	980	1509	0.0
465	22504	14.7	595	90846	0.6	725	7544	0.0	855	1853	0.0	985	2241	0.0
470	18776	13.4	600	92683	0.4	730	6583	0.0	860	1827	0.0	990	1651	0.0
475	16954	12.9	605	93294	0.3	735	5796	0.0	865	1745	0.0	995	1035	0.0
480	17815	14.3	610	91814	0.2	740	5170	0.0	870	1690	0.0	1000	2009	0.0
485	20300	16.7	615	89370	0.1	745	4593	0.0	875	1834	0.0			

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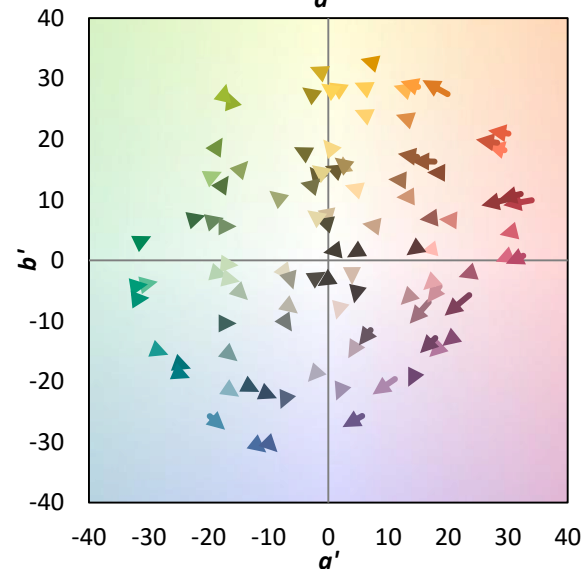
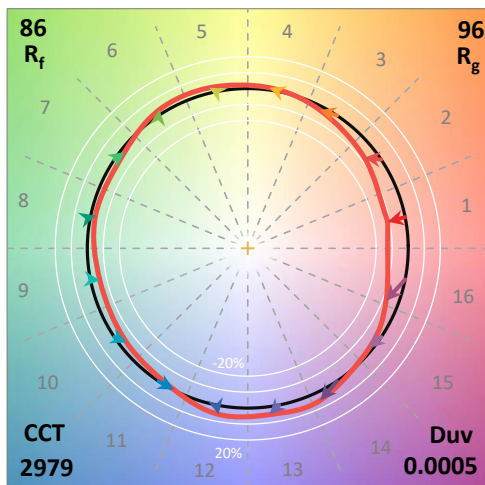
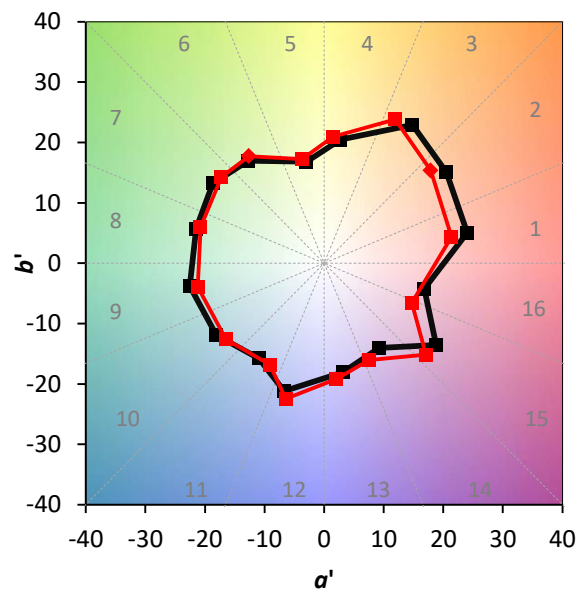
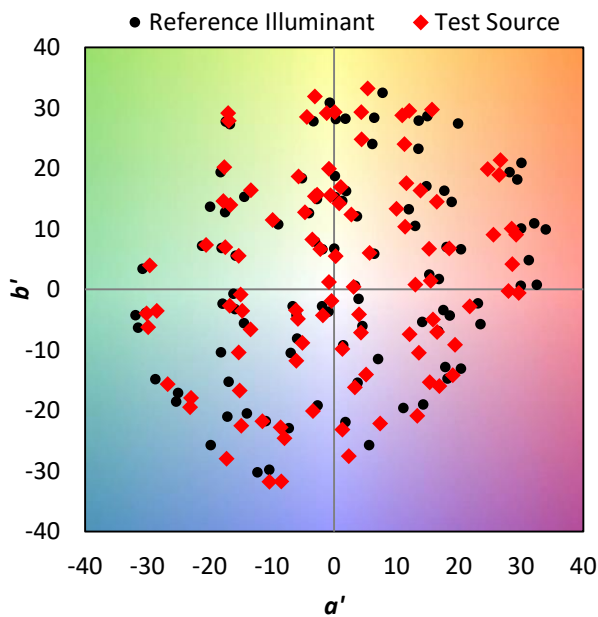
TM-30-18

Summary

$R_f = 86$
 $R_g = 96.1$
 CIE $R_a = 83.1$
 $R_9 = 7.1$

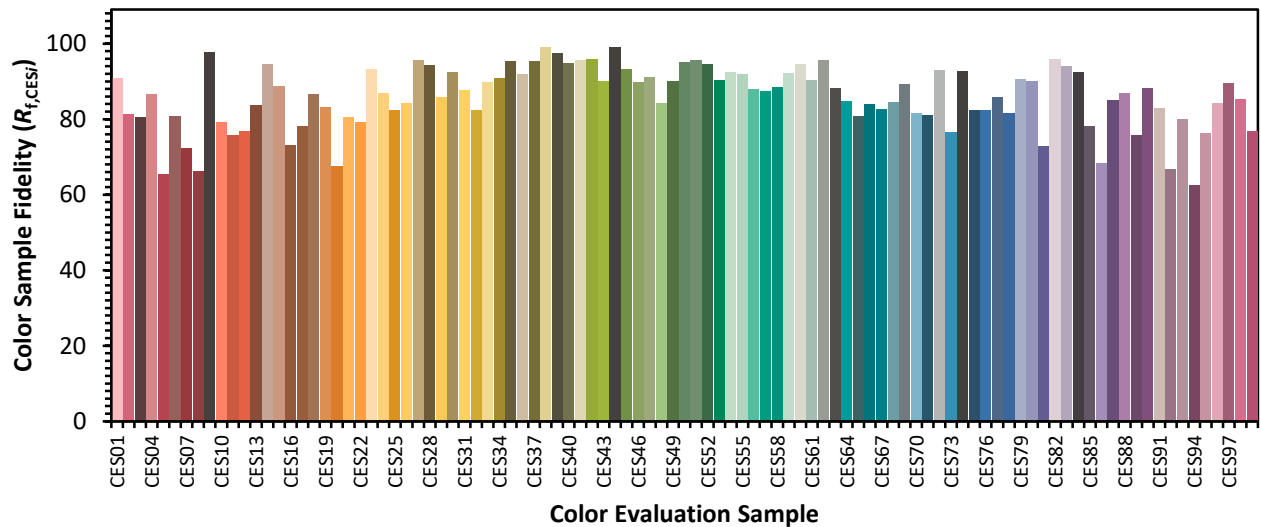


Color Vector Graphics

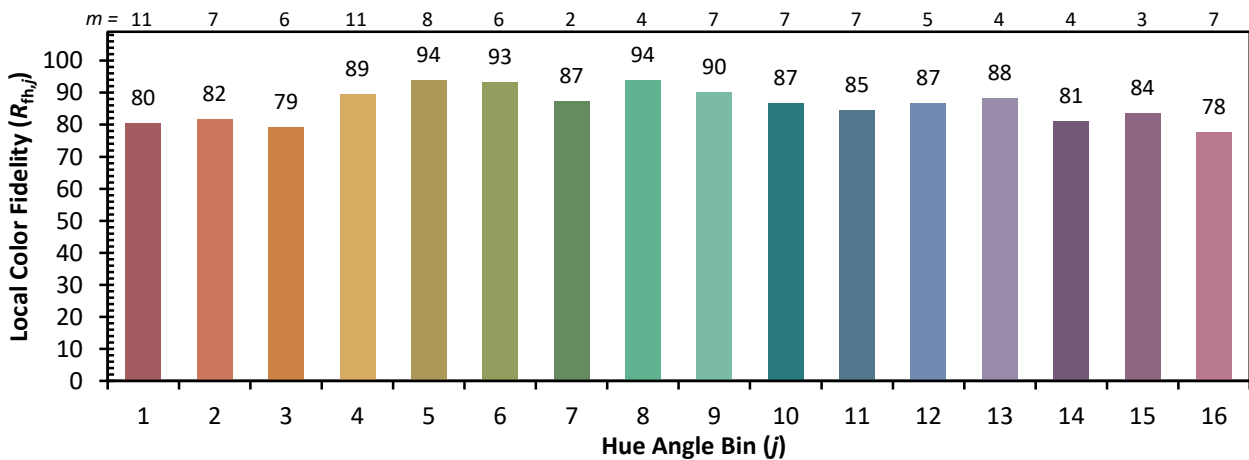
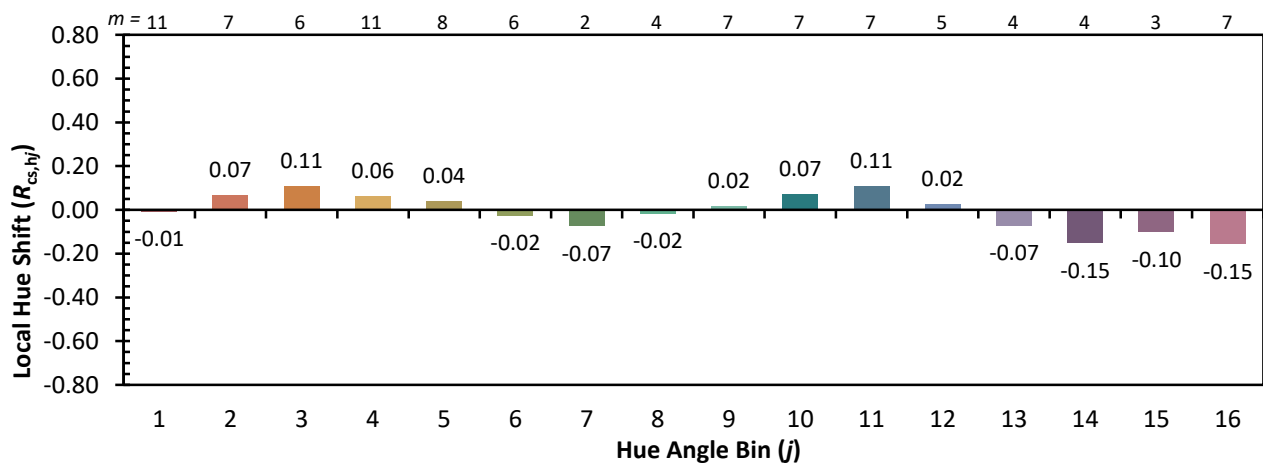
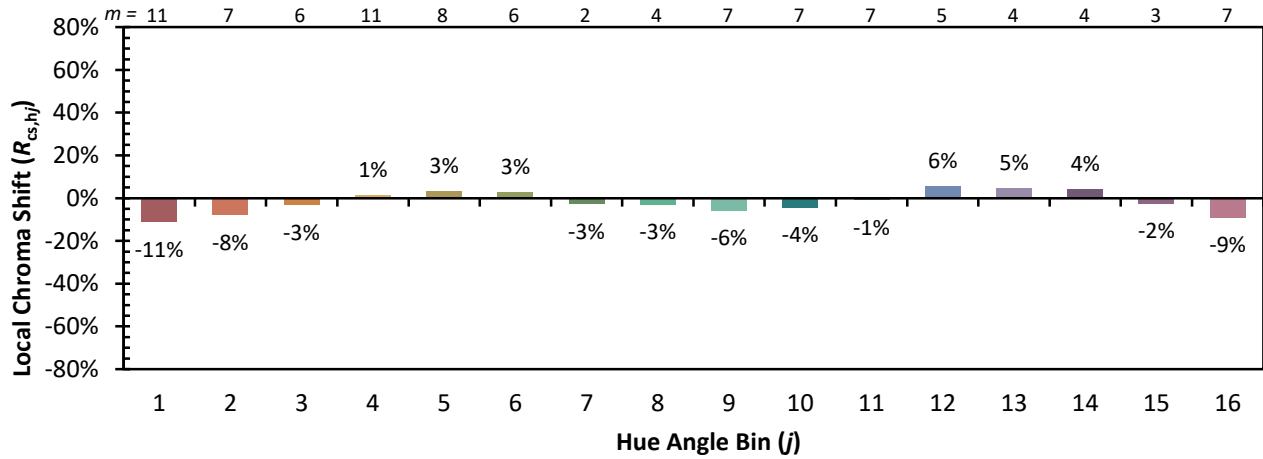


Individual Sample Fidelity Index ($R_{f,i}$)

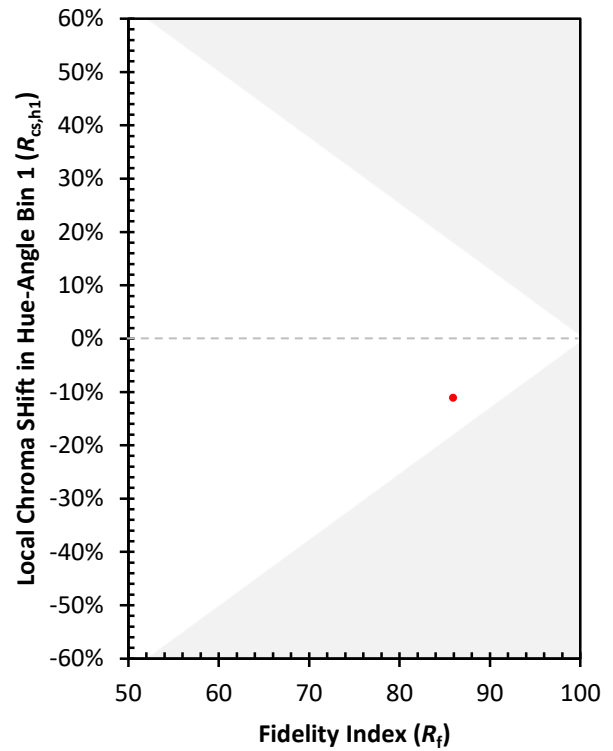
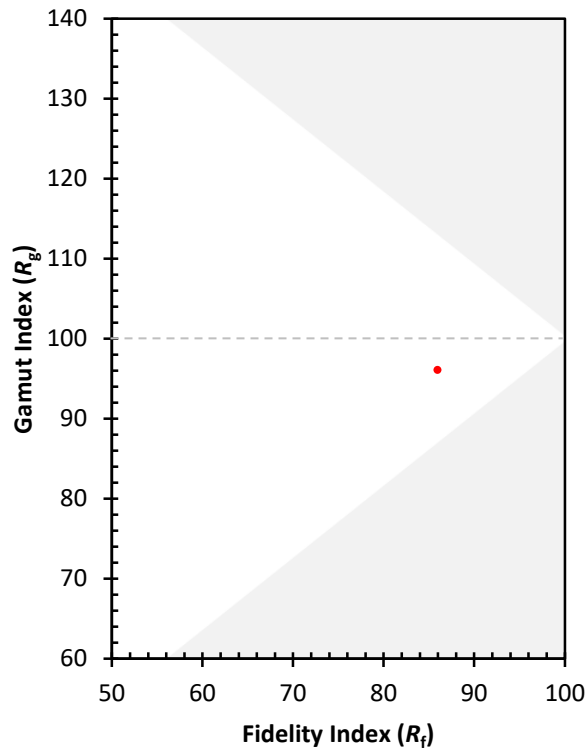
CES01 = 86	CES26 = 84	CES51 = 96	CES76 = 82
CES02 = 63	CES27 = 96	CES52 = 95	CES77 = 86
CES03 = 31	CES28 = 94	CES53 = 90	CES78 = 82
CES04 = 70	CES29 = 86	CES54 = 92	CES79 = 91
CES05 = 50	CES30 = 92	CES55 = 92	CES80 = 90
CES06 = 51	CES31 = 88	CES56 = 88	CES81 = 73
CES07 = 42	CES32 = 82	CES57 = 88	CES82 = 96
CES08 = 41	CES33 = 90	CES58 = 89	CES83 = 94
CES09 = 29	CES34 = 91	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 95	CES60 = 95	CES85 = 78
CES11 = 59	CES36 = 92	CES61 = 90	CES86 = 68
CES12 = 65	CES37 = 95	CES62 = 96	CES87 = 85
CES13 = 44	CES38 = 99	CES63 = 88	CES88 = 87
CES14 = 74	CES39 = 98	CES64 = 85	CES89 = 76
CES15 = 72	CES40 = 95	CES65 = 81	CES90 = 88
CES16 = 48	CES41 = 96	CES66 = 84	CES91 = 83
CES17 = 50	CES42 = 96	CES67 = 83	CES92 = 67
CES18 = 57	CES43 = 90	CES68 = 84	CES93 = 80
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 63
CES20 = 67	CES45 = 93	CES70 = 82	CES95 = 76
CES21 = 87	CES46 = 90	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 91	CES72 = 93	CES97 = 90
CES23 = 92	CES48 = 84	CES73 = 77	CES98 = 85
CES24 = 91	CES49 = 90	CES74 = 93	CES99 = 77
CES25 = 72	CES50 = 95	CES75 = 82	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)