

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: P348703

Luminaire Tested: **ARCH-N-PA1-20-730-24VDC-5WQ**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P348703
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-PA1-20-730-24VDC-5WQ
Description: ARCHEON ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 3000K, 420mA LIGHT ENGINE WITH 16 LEDS AND
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3185 lumens
Efficiency: N/A
Efficacy: 144.8 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

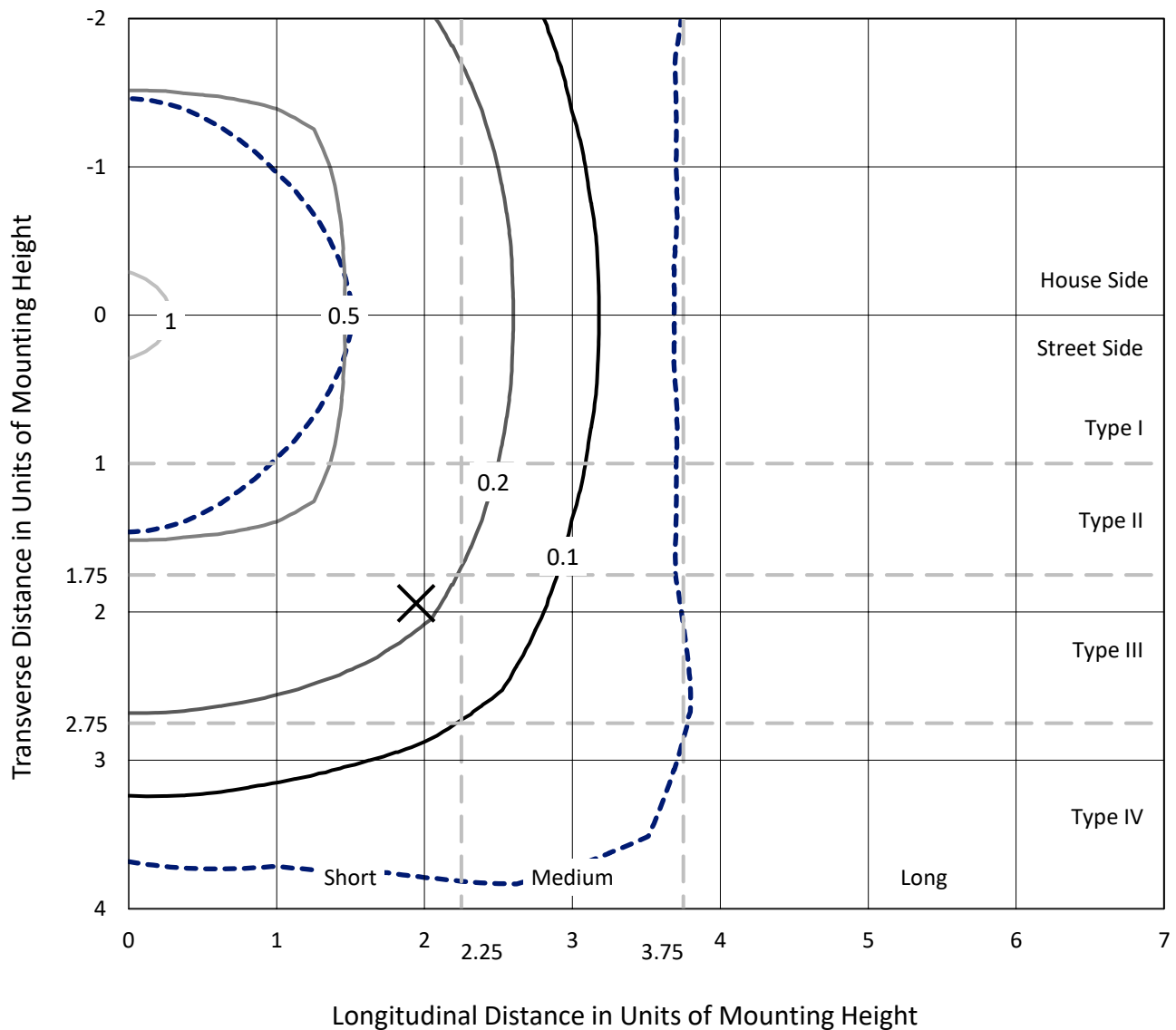
Input Watts (W): 22
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

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CATALOG NUMBER: ARCH-N-PA1-20-730-24VDC-5WQ

Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd
 - - - 1/2 Max cd

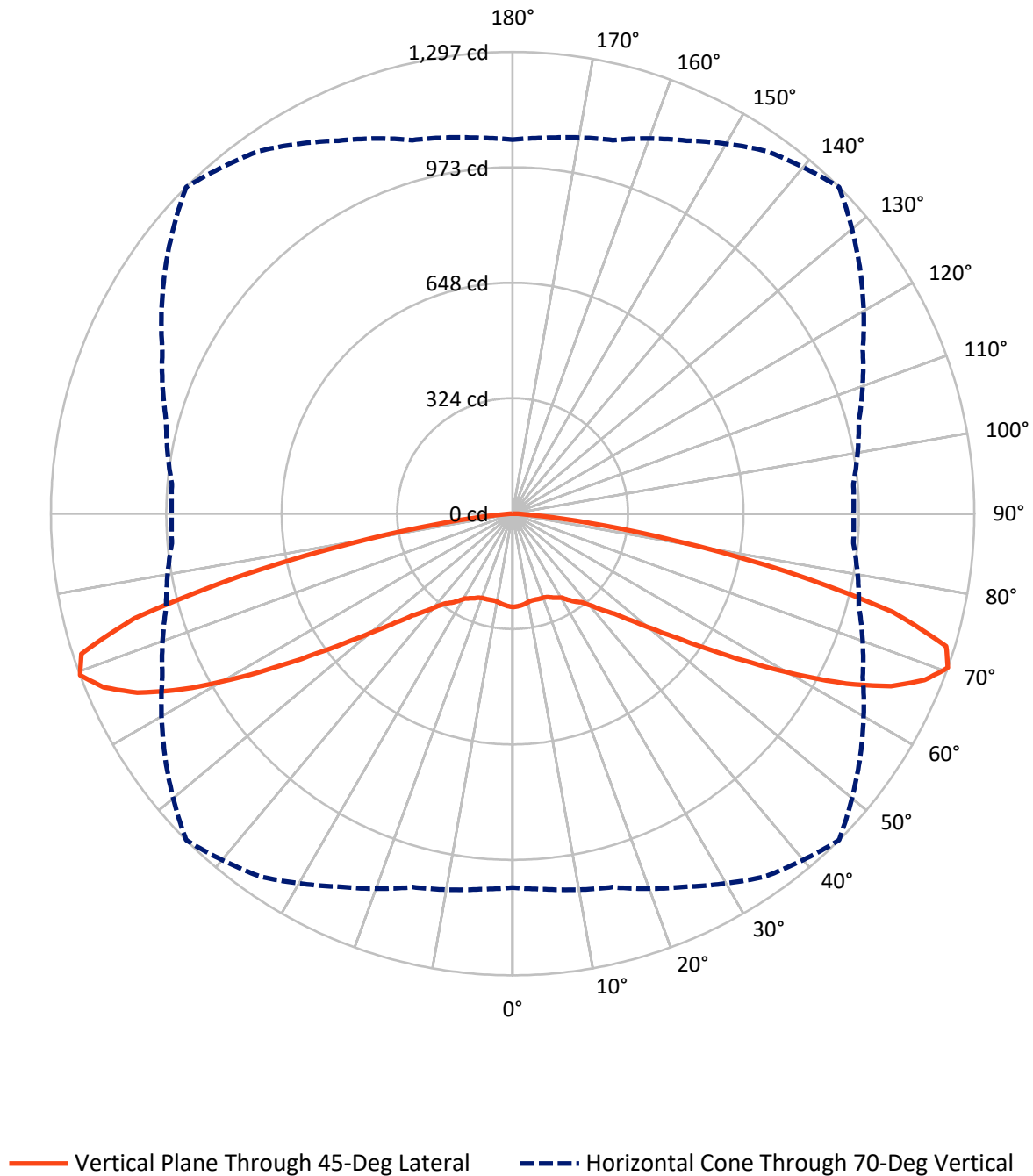


Based on 15 foot mounting height. Maximum calculated value = 1.2 fc
 Type V - Short - N/A

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CATALOG NUMBER: ARCH-N-PA1-20-730-24VDC-5WQ

Luminous Intensity Polar Plot



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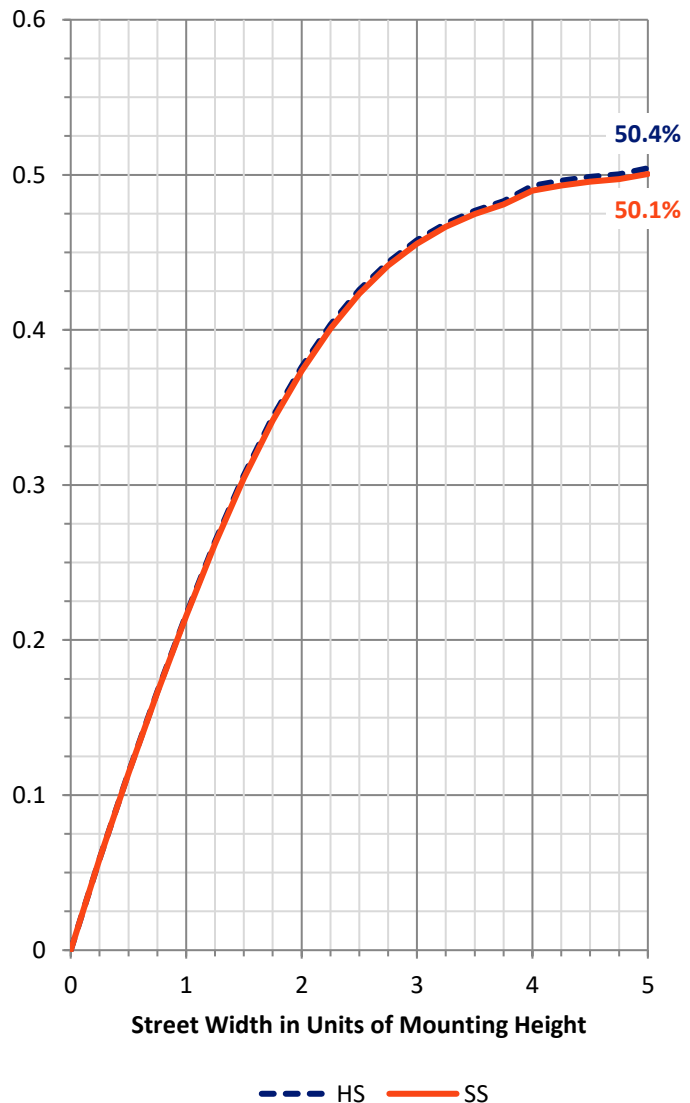
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1592.5	0.0	1592.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	1592.5	0.0	1592.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	3185.0	0.0	3185.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	24.5	0.8
10°-20°	71.5	2.2
20°-30°	121.8	3.8
30°-40°	190.4	6.0
40°-50°	322.7	10.1
50°-60°	588.4	18.5
60°-70°	1013.0	31.8
70°-80°	794.0	24.9
80°-90°	58.9	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°	3185.0	100.0
0°-180°	3185.0	100.0



REPORT NUMBER: P348703

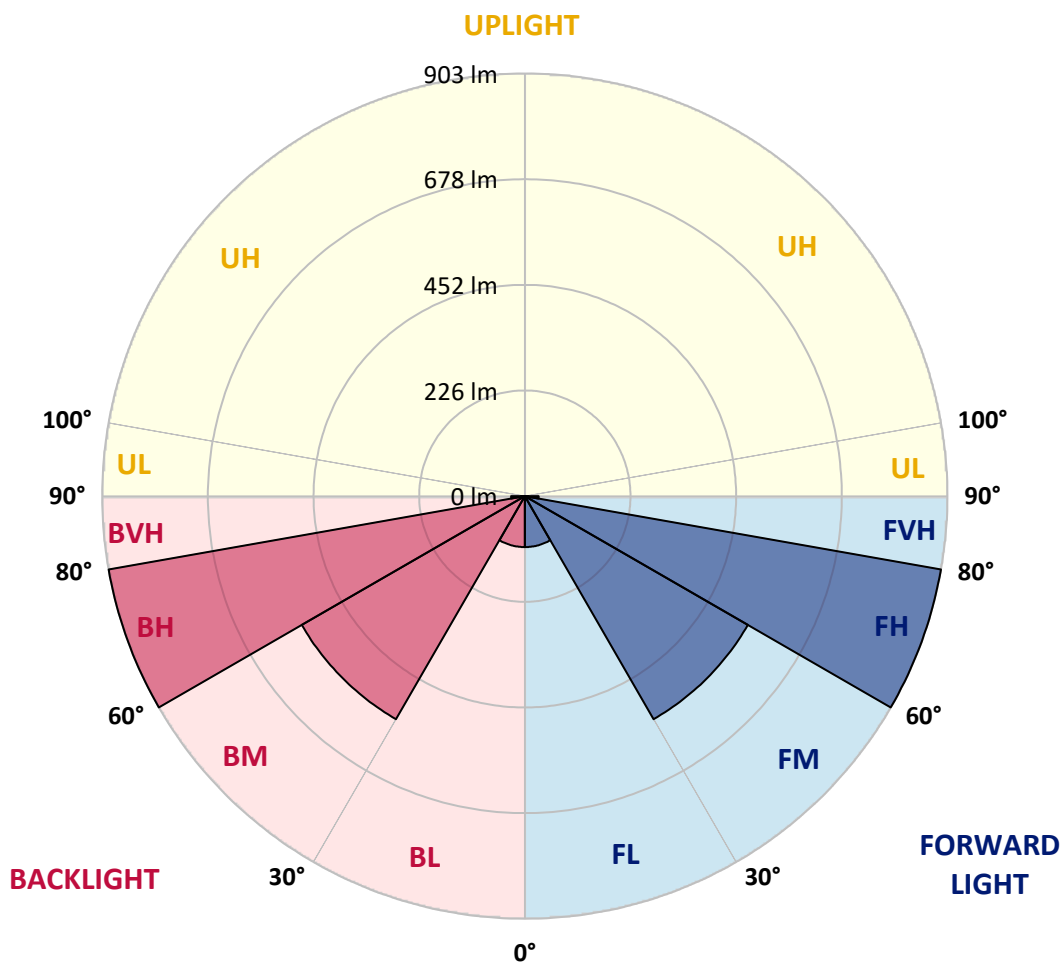
CATALOG NUMBER: ARCH-N-PA1-20-730-24VDC-5WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	108.9	3.4			
FM	(30°-60°)	550.7	17.3			
FH	(60°-80°)	903.5	28.4			G1/1800
FVH	(80°-90°)	29.4	0.9			G1/100
BL	(0°-30°)	108.9	3.4	B0/110		
BM	(30°-60°)	550.7	17.3	B1/1000		
BH	(60°-80°)	903.5	28.4	B2/1000		G1/1800
BVH	(80°-90°)	29.4	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: P348703

CATALOG NUMBER: ARCH-N-PA1-20-730-24VDC-5WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	262.1	262.1	262.1	262.1	262.1	262.1	262.1	262.1	262.1	262.1	262.1
2.5°	261.0	261.3	261.0	261.2	260.7	260.9	260.9	260.9	260.8	260.9	260.7
5°	258.6	258.9	258.4	258.6	258.3	258.6	258.8	258.6	258.4	258.5	258.1
7.5°	255.2	255.4	255.1	255.4	255.0	255.5	255.4	255.1	254.8	254.8	254.3
10°	253.3	253.4	252.5	252.2	251.3	251.5	251.8	252.1	252.4	253.1	253.0
12.5°	253.4	253.4	252.1	250.7	249.4	249.7	250.2	251.4	252.6	253.8	253.9
15°	254.4	254.3	252.4	250.2	249.3	250.2	250.5	251.3	253.3	255.3	255.4
17.5°	255.2	255.2	252.2	249.7	249.6	251.1	251.0	251.3	253.5	256.4	256.5
20°	256.5	256.5	252.7	250.0	250.0	251.6	251.7	252.2	254.4	257.7	258.2
22.5°	259.6	259.7	255.7	253.5	253.7	254.6	255.0	255.8	257.8	261.4	262.0
25°	263.9	264.1	260.0	258.8	259.5	261.3	261.1	261.7	263.9	267.4	268.0
27.5°	269.9	269.4	265.6	265.1	265.8	267.1	267.0	267.1	268.9	272.0	272.8
30°	277.7	277.5	274.8	275.1	274.8	274.3	274.5	275.3	276.2	278.8	279.5
32.5°	285.3	285.5	283.8	285.4	287.7	289.3	286.9	284.6	283.5	284.9	285.5
35°	299.0	299.5	296.9	295.8	299.0	303.6	296.8	293.0	295.1	296.9	297.4
37.5°	322.3	322.6	318.2	314.0	311.6	316.1	309.2	309.5	316.9	320.3	320.2
40°	348.8	348.9	346.0	342.3	338.3	339.4	336.6	337.5	342.3	345.4	346.2
42.5°	380.4	380.1	375.5	370.2	369.1	370.1	365.5	364.8	370.4	375.9	376.0
45°	421.4	420.7	414.7	408.9	403.3	401.0	399.8	402.9	410.6	415.6	415.7
47.5°	465.6	463.6	460.4	455.8	450.9	448.6	446.7	448.2	453.8	455.8	456.0
50°	511.0	511.4	512.0	510.2	508.4	507.7	502.8	499.9	501.6	497.9	497.4
52.5°	564.8	565.7	571.8	576.9	580.0	581.6	572.2	562.4	556.9	549.7	547.6
55°	628.3	629.7	638.7	653.0	667.7	675.5	658.6	640.2	623.3	609.9	605.6
57.5°	699.1	701.6	713.9	741.4	771.6	790.1	761.4	728.1	695.4	676.1	672.7
60°	782.2	784.5	801.5	841.0	889.9	917.7	874.2	819.8	779.0	760.6	754.3
62.5°	881.0	881.2	902.2	948.2	1012.9	1051.5	992.7	919.9	877.8	855.6	849.6
65°	987.3	987.8	1009.5	1059.3	1126.2	1168.1	1101.7	1025.9	974.4	941.7	937.0
67.5°	1062.4	1064.6	1087.5	1147.3	1209.9	1247.7	1179.0	1093.3	1033.9	994.8	990.9
70°	1050.4	1059.0	1085.9	1155.8	1242.8	1296.7	1191.6	1085.3	1006.9	960.7	957.5
72.5°	916.1	932.6	968.4	1060.1	1199.3	1273.5	1123.2	972.0	883.3	844.0	838.1
75°	623.8	650.7	704.7	836.9	1024.6	1102.7	945.6	775.0	691.6	637.2	633.2
77.5°	278.1	284.3	352.7	505.0	707.0	791.9	687.0	507.0	380.5	303.5	287.3
80°	77.5	78.5	104.7	188.1	353.9	465.3	379.9	197.5	111.0	78.3	73.7
82.5°	24.7	26.8	32.7	48.8	118.9	212.3	122.1	52.7	37.5	29.9	27.0
85°	12.0	11.9	16.5	19.8	30.3	47.0	32.3	24.4	21.4	14.2	12.9
87.5°	5.1	5.2	7.7	7.0	8.8	7.6	10.4	11.0	11.5	6.3	5.5
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)

STREETWORKS

Report Number: SP1-2101-121-6

Luminaire Tested: IFLD-S-SA2E-730-U-T2

Test Date: 03/04/2021

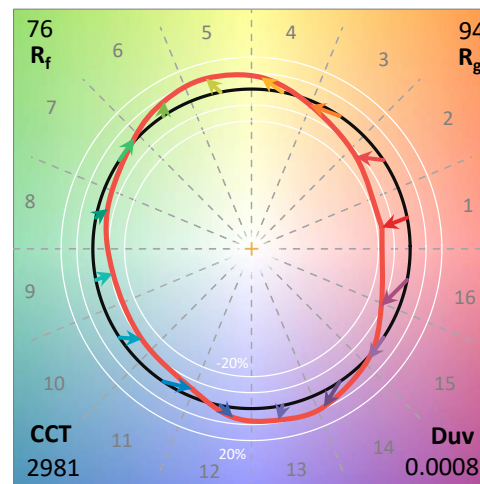
Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-6
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/04/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2E-730-U-T2**
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

Spectral Parameters

CCT (K):	2981	CRI (Ra):	72.3		
CIE u':	0.2509	R1:	68.0	R9:	-36.9
CIE v':	0.5228	R2:	82.9	R10:	62.7
Duv:	0.0008	R3:	95.0	R11:	65.3
CIE x:	0.4393	R4:	68.7	R12:	58.3
CIE y:	0.4068	R5:	68.4	R13:	70.8
CIE z:	0.1540	R6:	77.8	R14:	97.4
Peak Wavelength (nm):	598	R7:	76.5		
Dominant Wavelength (nm):	582	R8:	41.3		
Purity:	54.3				
Rf:	76.2				
Rg:	94.1				



Test Conditions

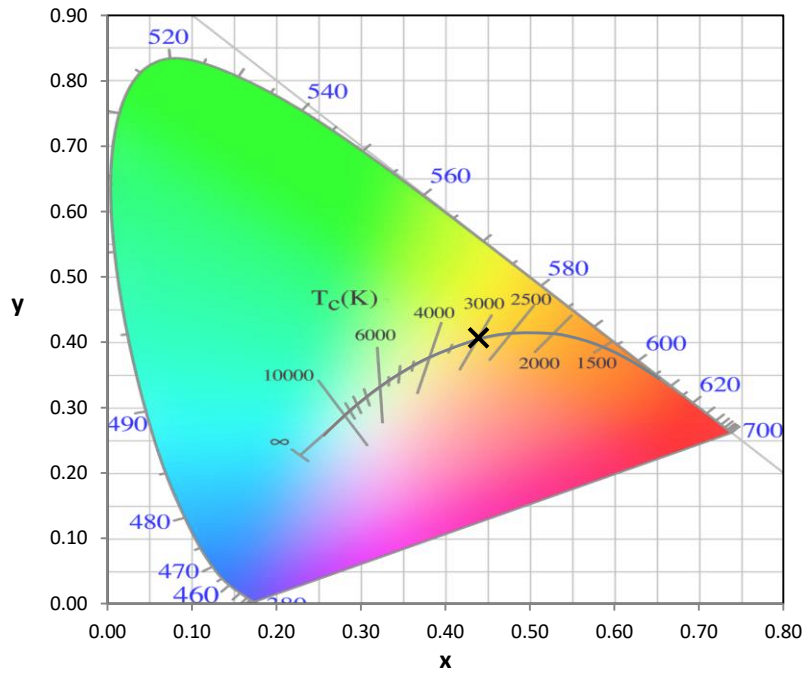
Stabilization Time: 64M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0/30%
 Sphere Temperature (°C): 24.1

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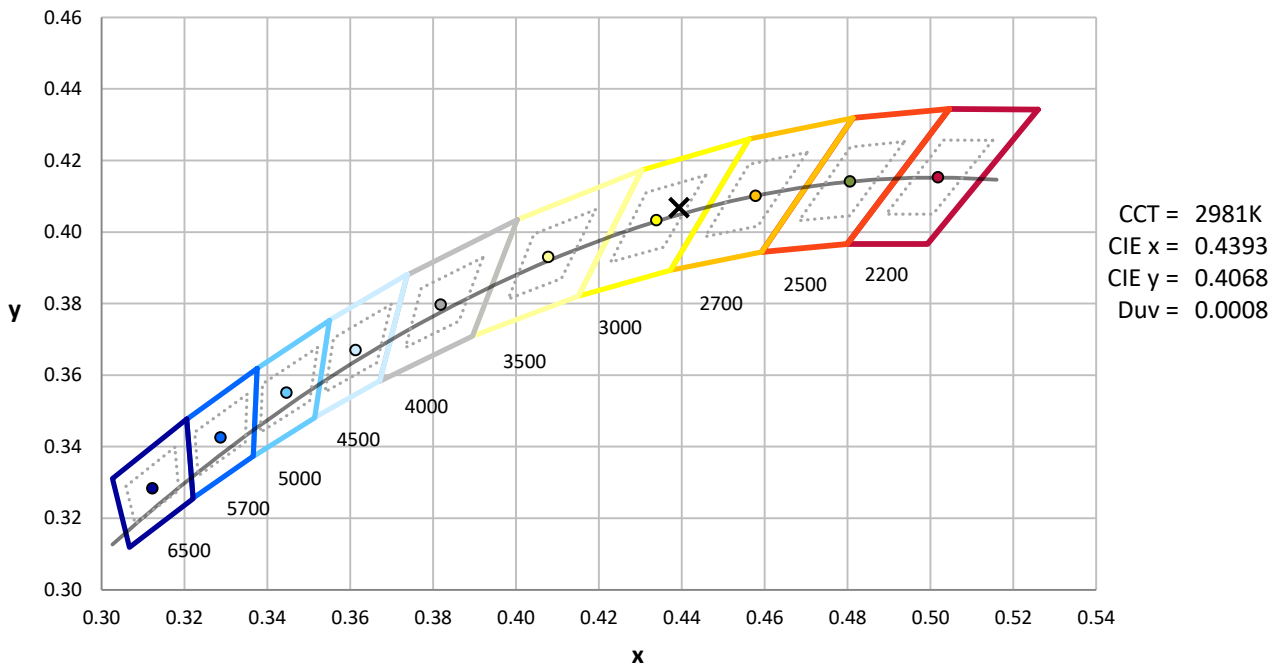
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020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

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CIE 1931 Chromaticity Diagram



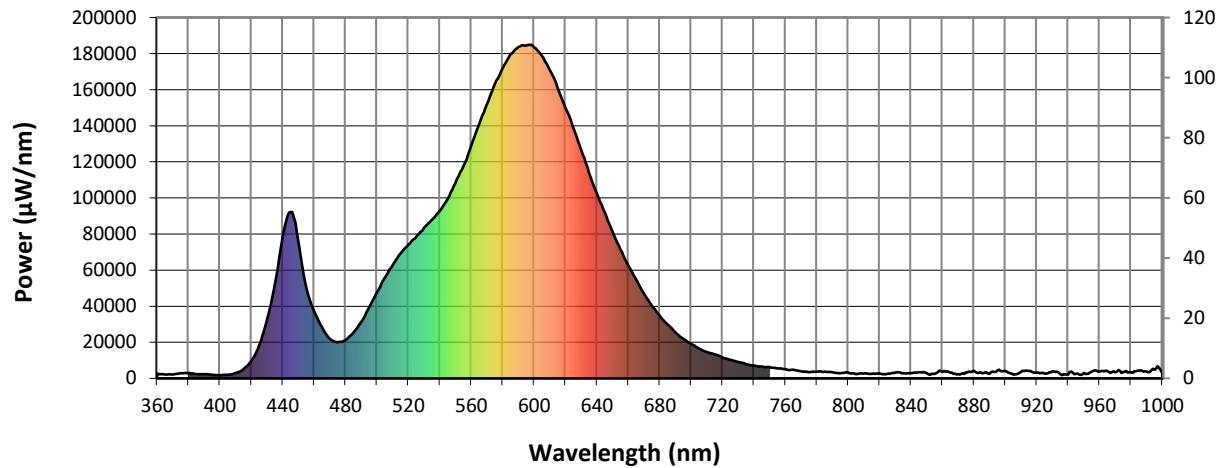
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength

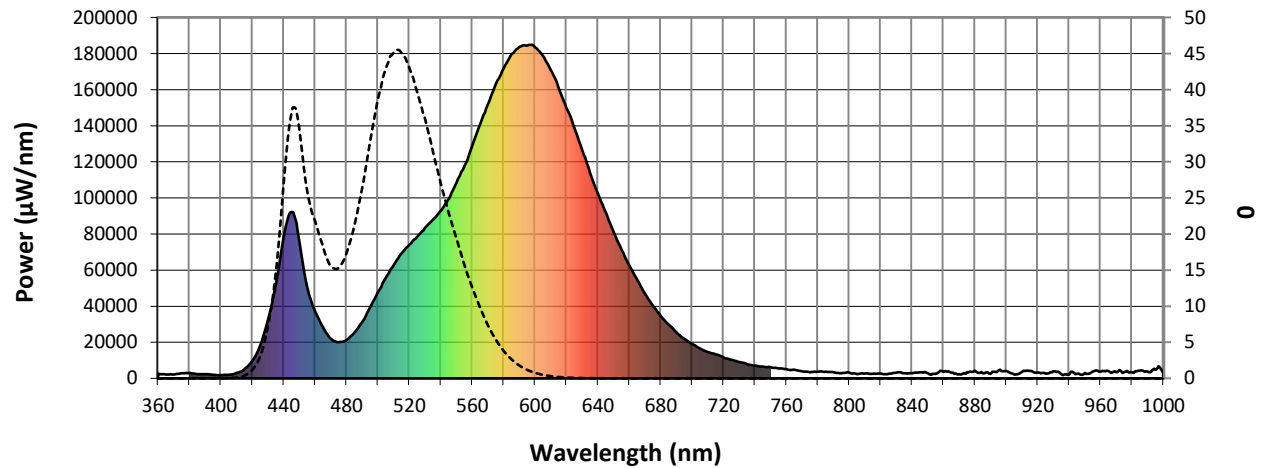


#####

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	2718	0.0	490	31388	4.5	620	149681	39.0	750	6127	0.0	880	4244	0.0
365	2104	0.0	495	39325	7.1	625	139059	30.7	755	5537	0.0	885	2890	0.0
370	2172	0.0	500	47816	10.5	630	126485	22.9	760	5066	0.0	890	2506	0.0
375	2770	0.0	505	55667	15.6	635	114115	17.1	765	4739	0.0	895	4522	0.0
380	2942	0.0	510	62766	21.6	640	102385	12.2	770	3828	0.0	900	4104	0.0
385	2372	0.0	515	69117	28.6	645	91895	8.8	775	3411	0.0	905	2090	0.0
390	2265	0.0	520	74088	35.9	650	81196	5.9	780	3776	0.0	910	3618	0.0
395	2023	0.0	525	78477	42.1	655	71232	4.1	785	3744	0.0	915	4126	0.0
400	1804	0.0	530	83585	49.2	660	62529	2.6	790	3446	0.0	920	3214	0.0
405	2029	0.0	535	87899	54.5	665	54721	1.7	795	2834	0.0	925	2696	0.0
410	2968	0.0	540	92850	60.5	670	47069	1.0	800	3213	0.0	930	3892	0.0
415	5120	0.0	545	99487	66.2	675	40348	0.7	805	2357	0.0	935	2376	0.0
420	9660	0.0	550	108411	73.7	680	34816	0.4	810	2616	0.0	940	2172	0.0
425	18379	0.1	555	117570	80.3	685	29890	0.3	815	2510	0.0	945	2531	0.0
430	32455	0.3	560	128783	87.5	690	25584	0.1	820	2684	0.0	950	3041	0.0
435	52561	0.6	565	140888	93.7	695	21945	0.1	825	2434	0.0	955	3777	0.0
440	78320	1.2	570	151789	98.7	700	19163	0.1	830	3163	0.0	960	3733	0.0
445	92278	1.9	575	163210	101.6	705	16563	0.0	835	2905	0.0	965	4082	0.0
450	75996	2.0	580	171760	102.1	710	14632	0.0	840	2917	0.0	970	3333	0.0
455	50251	1.7	585	179606	99.8	715	13282	0.0	845	3384	0.0	975	3396	0.0
460	37320	1.5	590	183682	95.0	720	11587	0.0	850	2926	0.0	980	3415	0.0
465	28321	1.5	595	184440	87.4	725	10271	0.0	855	2420	0.0	985	4316	0.0
470	21814	1.4	600	183413	79.0	730	9052	0.0	860	3637	0.0	990	3771	0.0
475	19996	1.6	605	178745	69.2	735	7872	0.0	865	3162	0.0	995	4745	0.0
480	21364	2.0	610	170867	58.7	740	7066	0.0	870	2292	0.0	1000	2768	0.0
485	25425	3.0	615	161088	48.6	745	6501	0.0	875	3357	0.0			

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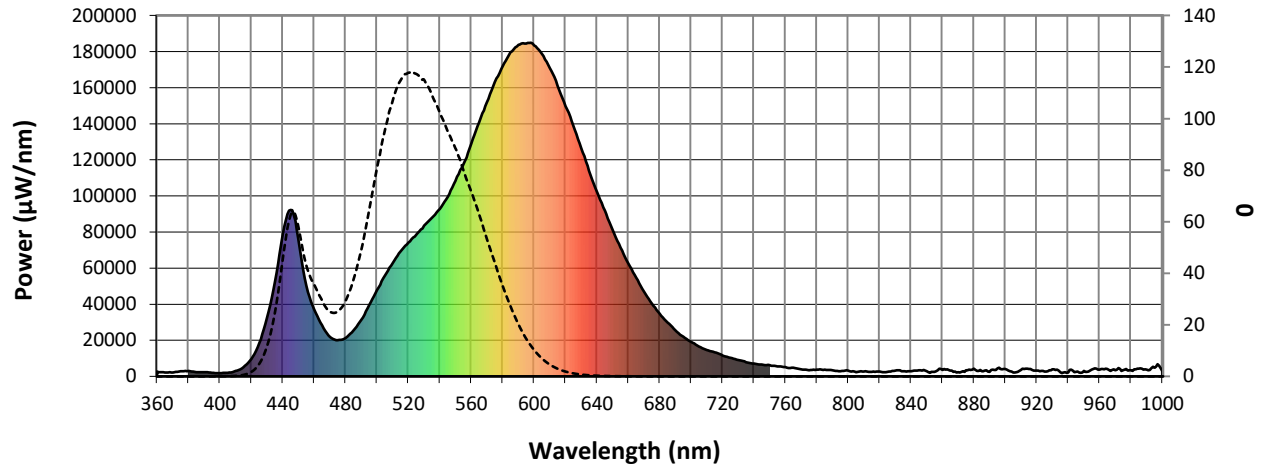
Scotopic Flux vs. Wavelength


Scotopic Lumens: 10635.1
S/P: 1.22

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	2718	0.0	490	31388	48.3	620	149681	1.9	750	6127	0.0	880	4244	0.0
365	2104	0.0	495	39325	63.6	625	139059	1.2	755	5537	0.0	885	2890	0.0
370	2172	0.0	500	47816	80.0	630	126485	0.7	760	5066	0.0	890	2506	0.0
375	2770	0.0	505	55667	94.6	635	114115	0.4	765	4739	0.0	895	4522	0.0
380	2942	0.0	510	62766	106.4	640	102385	0.3	770	3828	0.0	900	4104	0.0
385	2372	0.0	515	69117	114.6	645	91895	0.2	775	3411	0.0	905	2090	0.0
390	2265	0.0	520	74088	117.8	650	81196	0.1	780	3776	0.0	910	3618	0.0
395	2023	0.0	525	78477	117.4	655	71232	0.1	785	3744	0.0	915	4126	0.0
400	1804	0.0	530	83585	115.2	660	62529	0.0	790	3446	0.0	920	3214	0.0
405	2029	0.1	535	87899	109.5	665	54721	0.0	795	2834	0.0	925	2696	0.0
410	2968	0.2	540	92850	102.6	670	47069	0.0	800	3213	0.0	930	3892	0.0
415	5120	0.5	545	99487	95.4	675	40348	0.0	805	2357	0.0	935	2376	0.0
420	9660	1.6	550	108411	88.6	680	34816	0.0	810	2616	0.0	940	2172	0.0
425	18379	4.5	555	117570	80.3	685	29890	0.0	815	2510	0.0	945	2531	0.0
430	32455	11.0	560	128783	72.0	690	25584	0.0	820	2684	0.0	950	3041	0.0
435	52561	23.5	565	140888	63.2	695	21945	0.0	825	2434	0.0	955	3777	0.0
440	78320	43.8	570	151789	53.6	700	19163	0.0	830	3163	0.0	960	3733	0.0
445	92278	61.8	575	163210	44.4	705	16563	0.0	835	2905	0.0	965	4082	0.0
450	75996	58.9	580	171760	35.4	710	14632	0.0	840	2917	0.0	970	3333	0.0
455	50251	43.9	585	179606	27.4	715	13282	0.0	845	3384	0.0	975	3396	0.0
460	37320	36.0	590	183682	20.5	720	11587	0.0	850	2926	0.0	980	3415	0.0
465	28321	29.9	595	184440	14.7	725	10271	0.0	855	2420	0.0	985	4316	0.0
470	21814	25.1	600	183413	10.3	730	9052	0.0	860	3637	0.0	990	3771	0.0
475	19996	25.0	605	178745	7.0	735	7872	0.0	865	3162	0.0	995	4745	0.0
480	21364	28.9	610	170867	4.6	740	7066	0.0	870	2292	0.0	1000	2768	0.0
485	25425	36.9	615	161088	3.0	745	6501	0.0	875	3357	0.0			

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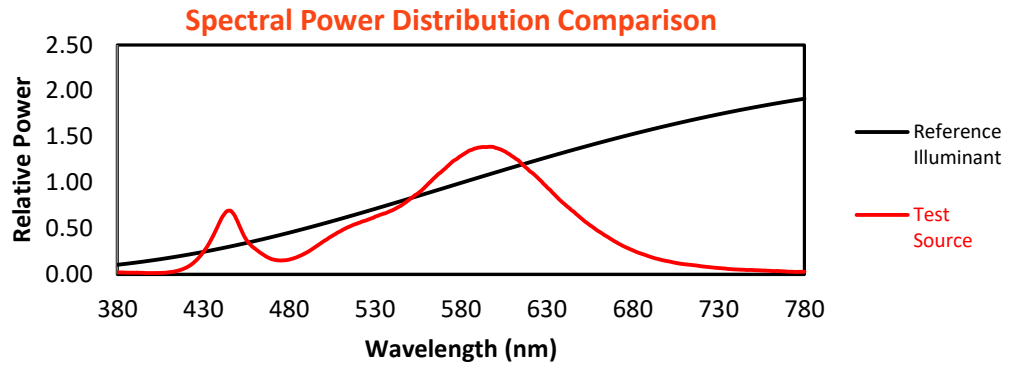
Melanopic Flux vs. Wavelength


Melanopic Lumens: 3860
M/P: 0.44

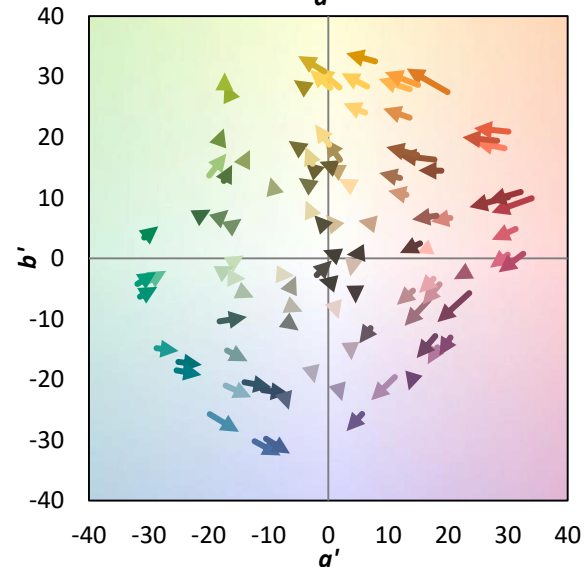
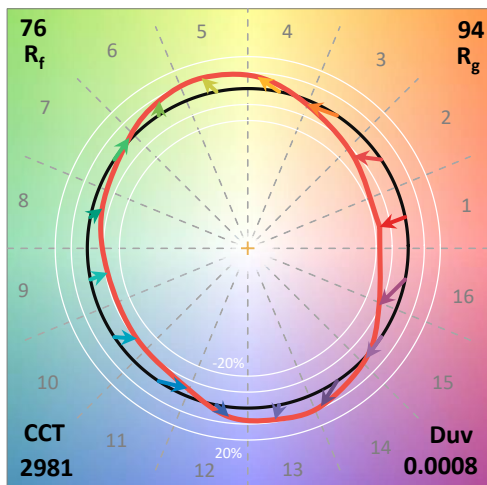
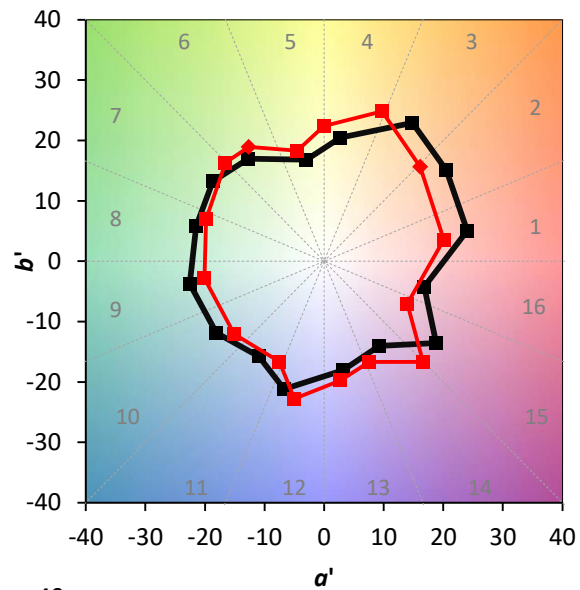
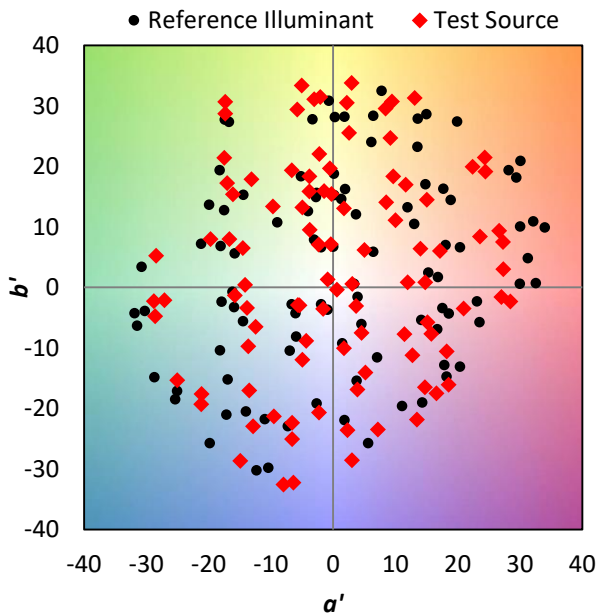
λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	2718	0.0	490	31388	26.1	620	149681	0.1	750	6127	0.0	880	4244	0.0
365	2104	0.0	495	39325	32.5	625	139059	0.1	755	5537	0.0	885	2890	0.0
370	2172	0.0	500	47816	38.4	630	126485	0.0	760	5066	0.0	890	2506	0.0
375	2770	0.0	505	55667	42.7	635	114115	0.0	765	4739	0.0	895	4522	0.0
380	2942	0.0	510	62766	45.1	640	102385	0.0	770	3828	0.0	900	4104	0.0
385	2372	0.0	515	69117	45.2	645	91895	0.0	775	3411	0.0	905	2090	0.0
390	2265	0.0	520	74088	43.1	650	81196	0.0	780	3776	0.0	910	3618	0.0
395	2023	0.0	525	78477	39.8	655	71232	0.0	785	3744	0.0	915	4126	0.0
400	1804	0.0	530	83585	36.1	660	62529	0.0	790	3446	0.0	920	3214	0.0
405	2029	0.0	535	87899	31.6	665	54721	0.0	795	2834	0.0	925	2696	0.0
410	2968	0.1	540	92850	27.2	670	47069	0.0	800	3213	0.0	930	3892	0.0
415	5120	0.3	545	99487	23.1	675	40348	0.0	805	2357	0.0	935	2376	0.0
420	9660	1.1	550	108411	19.5	680	34816	0.0	810	2616	0.0	940	2172	0.0
425	18379	2.9	555	117570	15.9	685	29890	0.0	815	2510	0.0	945	2531	0.0
430	32455	6.9	560	128783	12.7	690	25584	0.0	820	2684	0.0	950	3041	0.0
435	52561	14.0	565	140888	9.9	695	21945	0.0	825	2434	0.0	955	3777	0.0
440	78320	26.2	570	151789	7.4	700	19163	0.0	830	3163	0.0	960	3733	0.0
445	92278	36.4	575	163210	5.4	705	16563	0.0	835	2905	0.0	965	4082	0.0
450	75996	35.0	580	171760	3.8	710	14632	0.0	840	2917	0.0	970	3333	0.0
455	50251	26.3	585	179606	2.7	715	13282	0.0	845	3384	0.0	975	3396	0.0
460	37320	22.0	590	183682	1.8	720	11587	0.0	850	2926	0.0	980	3415	0.0
465	28321	18.5	595	184440	1.2	725	10271	0.0	855	2420	0.0	985	4316	0.0
470	21814	15.6	600	183413	0.8	730	9052	0.0	860	3637	0.0	990	3771	0.0
475	19996	15.3	605	178745	0.5	735	7872	0.0	865	3162	0.0	995	4745	0.0
480	21364	17.2	610	170867	0.3	740	7066	0.0	870	2292	0.0	1000	2768	0.0
485	25425	21.0	615	161088	0.2	745	6501	0.0	875	3357	0.0			

Summary

$R_f = 76.2$
 $R_g = 94.1$
 CIE $R_a = 72.3$
 $R_g = -36.9$

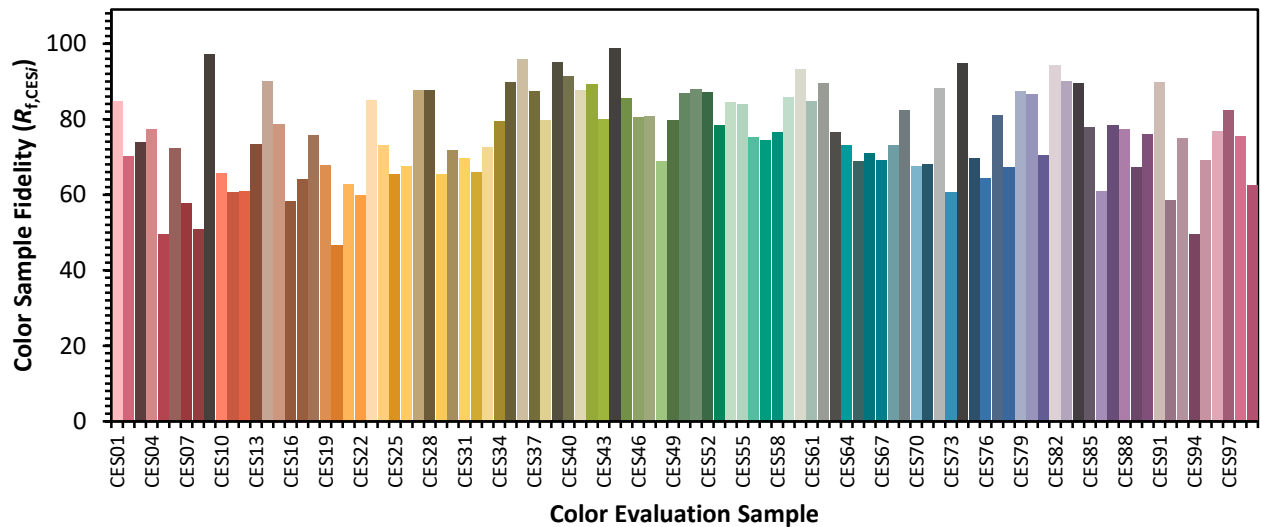


Color Vector Graphics

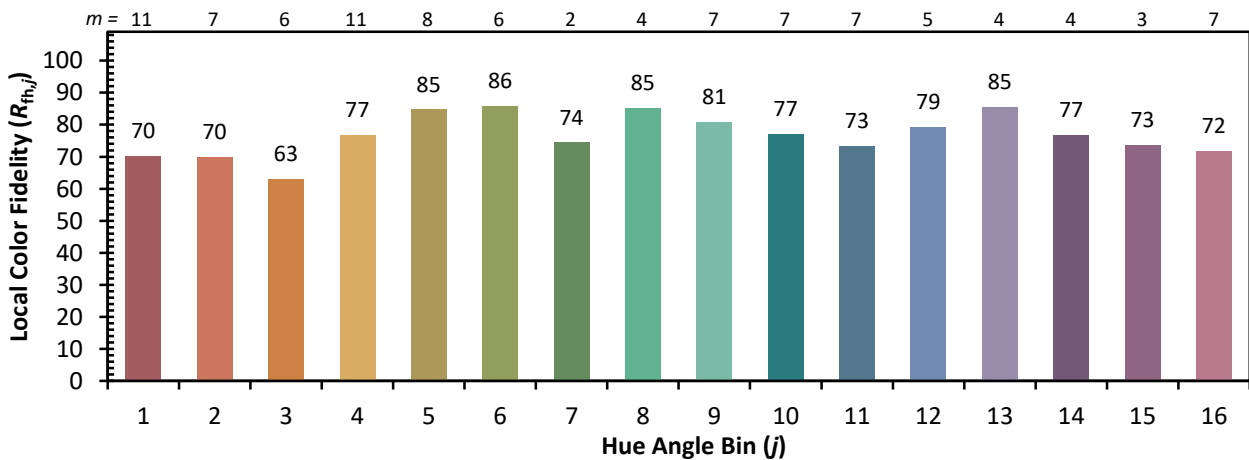
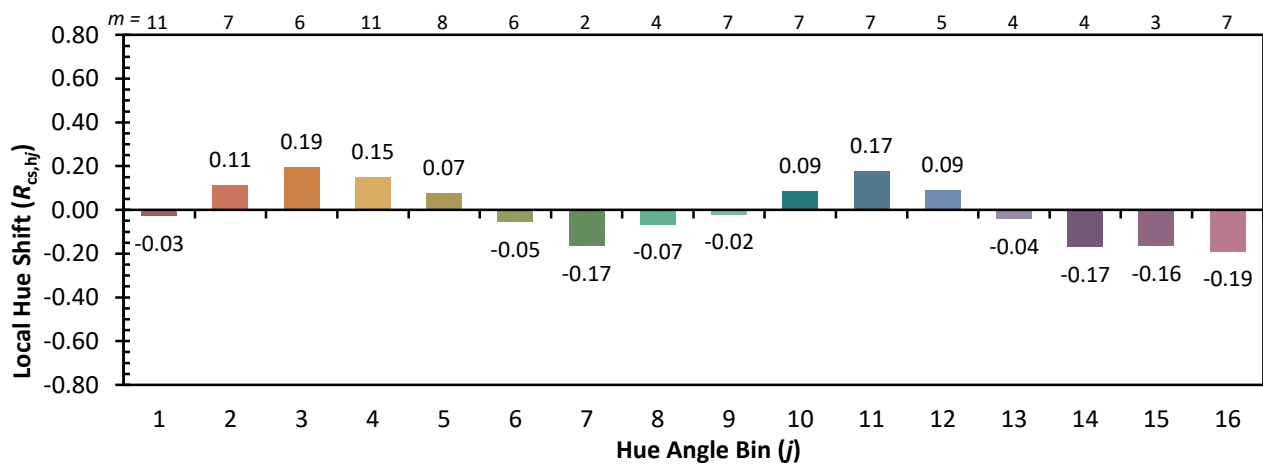
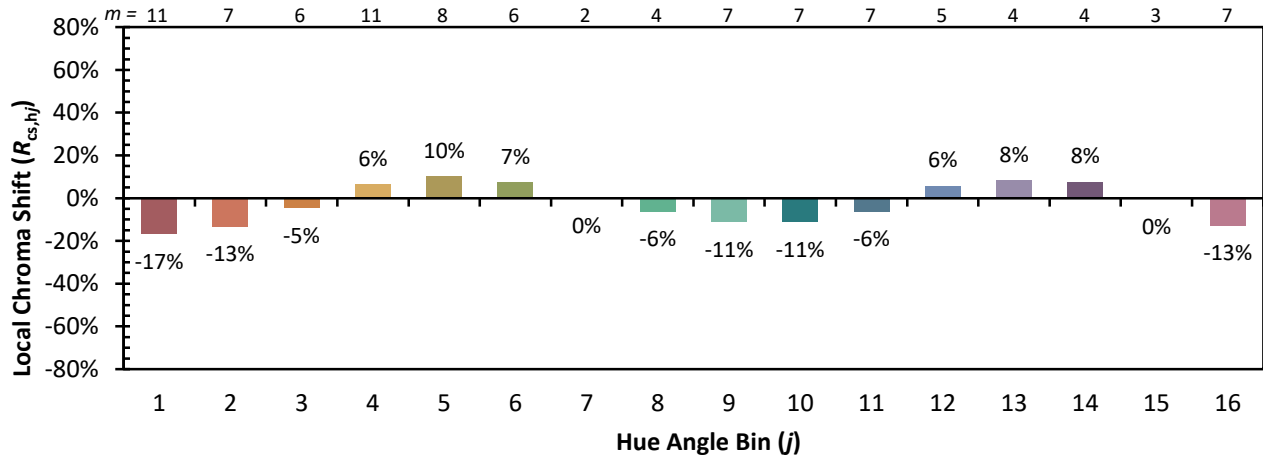


Individual Sample Fidelity Index ($R_{f,i}$)

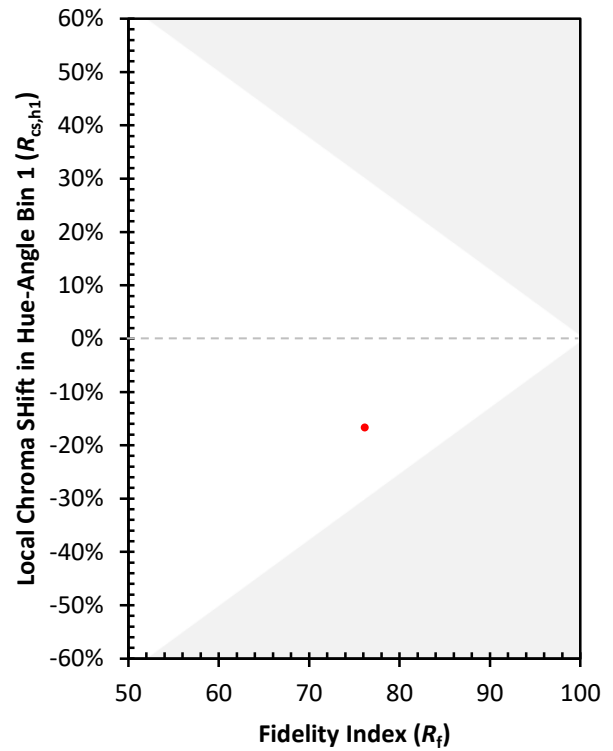
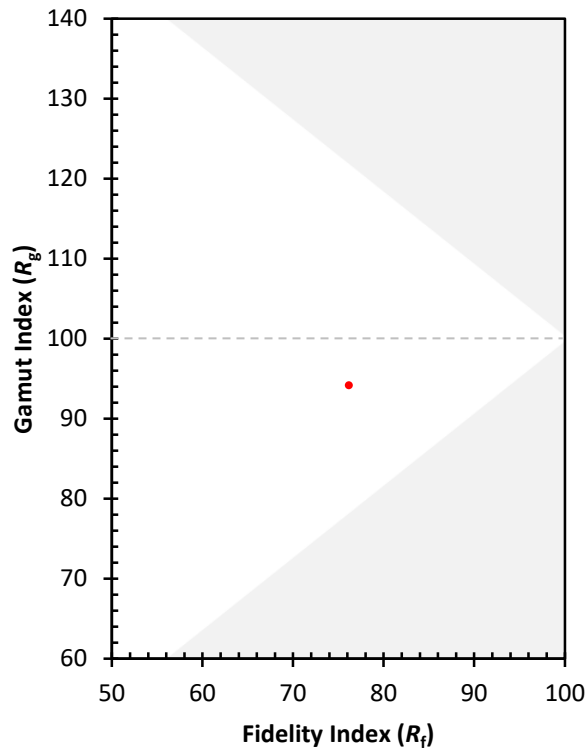
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 64
CES02 = 63	CES27 = 88	CES52 = 87	CES77 = 81
CES03 = 31	CES28 = 88	CES53 = 79	CES78 = 67
CES04 = 71	CES29 = 66	CES54 = 84	CES79 = 87
CES05 = 49	CES30 = 72	CES55 = 84	CES80 = 87
CES06 = 51	CES31 = 70	CES56 = 75	CES81 = 71
CES07 = 41	CES32 = 66	CES57 = 74	CES82 = 94
CES08 = 40	CES33 = 73	CES58 = 77	CES83 = 90
CES09 = 29	CES34 = 80	CES59 = 86	CES84 = 90
CES10 = 76	CES35 = 90	CES60 = 93	CES85 = 78
CES11 = 59	CES36 = 96	CES61 = 85	CES86 = 61
CES12 = 65	CES37 = 88	CES62 = 90	CES87 = 79
CES13 = 43	CES38 = 80	CES63 = 77	CES88 = 77
CES14 = 74	CES39 = 95	CES64 = 73	CES89 = 67
CES15 = 71	CES40 = 91	CES65 = 69	CES90 = 76
CES16 = 47	CES41 = 88	CES66 = 71	CES91 = 90
CES17 = 50	CES42 = 89	CES67 = 69	CES92 = 59
CES18 = 56	CES43 = 80	CES68 = 73	CES93 = 75
CES19 = 73	CES44 = 99	CES69 = 82	CES94 = 50
CES20 = 66	CES45 = 85	CES70 = 68	CES95 = 69
CES21 = 87	CES46 = 80	CES71 = 68	CES96 = 77
CES22 = 79	CES47 = 81	CES72 = 88	CES97 = 83
CES23 = 92	CES48 = 69	CES73 = 61	CES98 = 75
CES24 = 91	CES49 = 80	CES74 = 95	CES99 = 63
CES25 = 73	CES50 = 87	CES75 = 70	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)