

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: P348698

Luminaire Tested: **ARCH-N-PA1-40-727-24VDC-5WQ**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P348698
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-PA1-40-727-24VDC-5WQ
Description: ARCHEON ROADWAY AND AREA LUMINAIRE
(1) 70 CRI, 2700K, 740mA LIGHT ENGINE WITH 16 LEDS AND
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4750 lumens
Efficiency: N/A
Efficacy: 125.0 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.75' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G1

Input Watts (W): 38
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

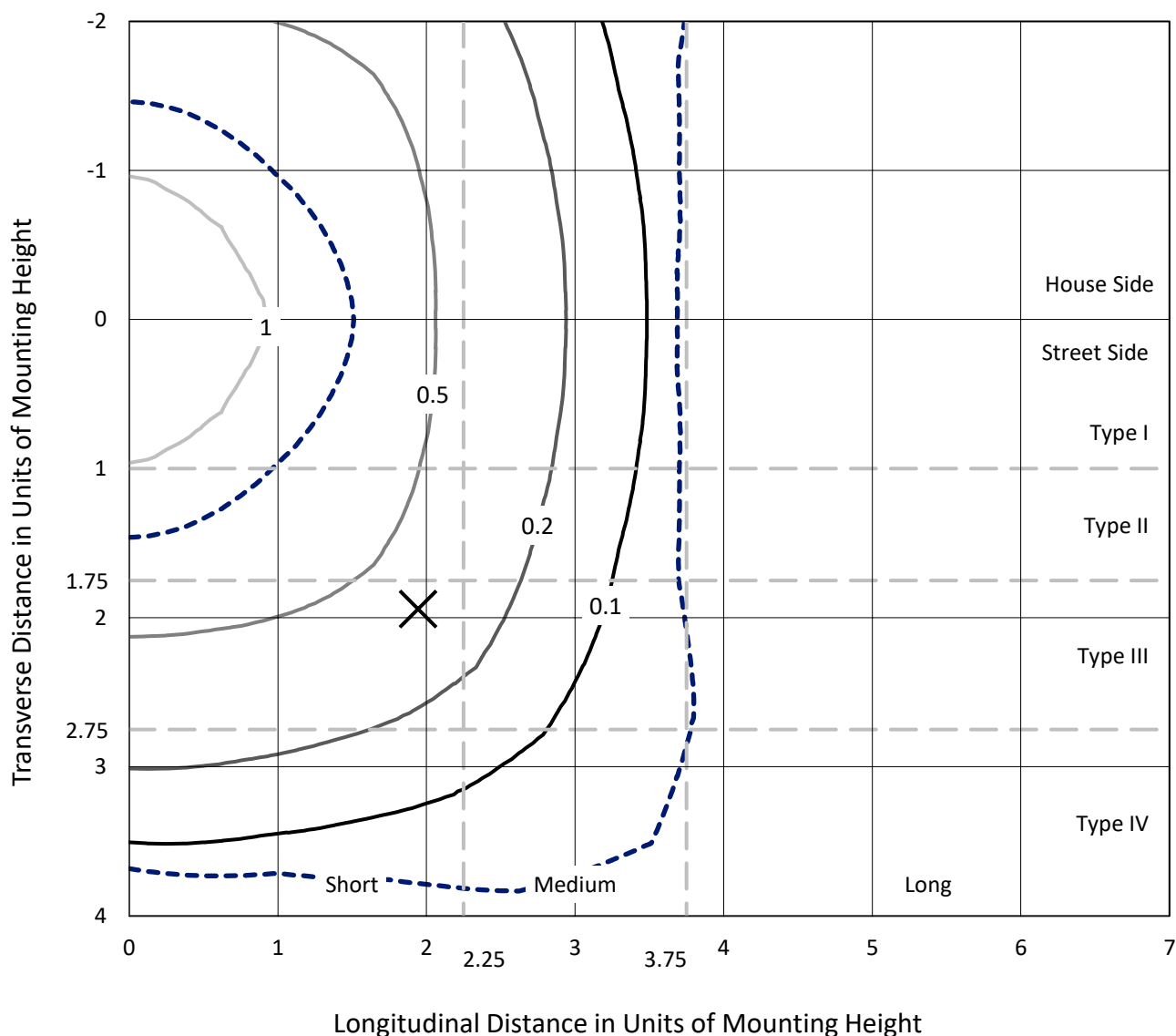
REPORT NUMBER: P348698

CATALOG NUMBER: ARCH-N-PA1-40-727-24VDC-5WQ

Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd



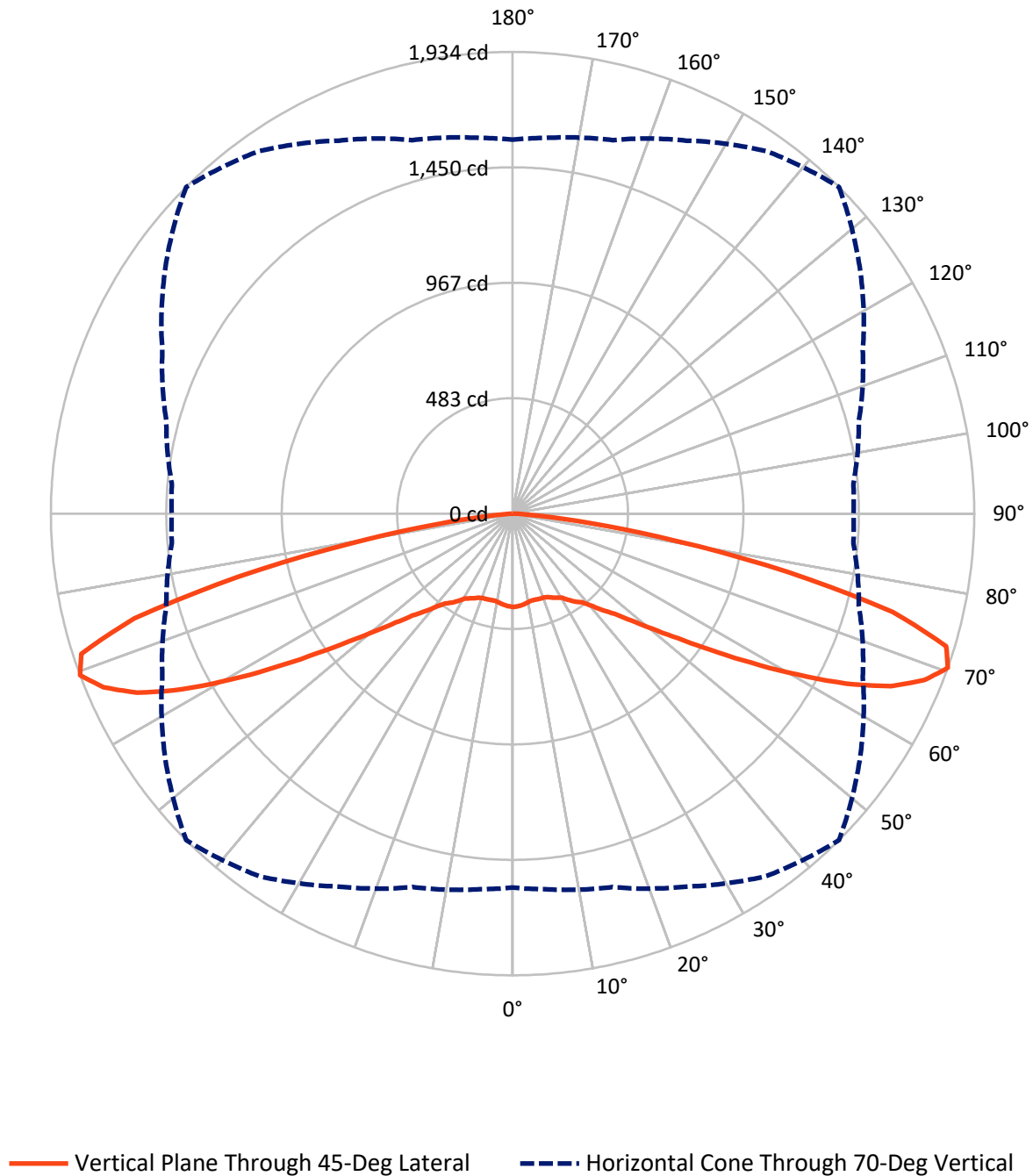
Based on 15 foot mounting height. Maximum calculated value = 1.7 fc

Type V - Short - N/A

REPORT NUMBER: P348698

CATALOG NUMBER: ARCH-N-PA1-40-727-24VDC-5WQ

Luminous Intensity Polar Plot



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CATALOG NUMBER: ARCH-N-PA1-40-727-24VDC-5WQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2375.0	0.0	2375.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2375.0	0.0	2375.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	4750.0	0.0	4750.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.5	0.8
10°-20°	106.6	2.2
20°-30°	181.7	3.8
30°-40°	283.9	6.0
40°-50°	481.2	10.1
50°-60°	877.5	18.5
60°-70°	1510.7	31.8
70°-80°	1184.1	24.9
80°-90°	87.8	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°	4750.0	100.0
0°-180°	4750.0	100.0



REPORT NUMBER: P348698

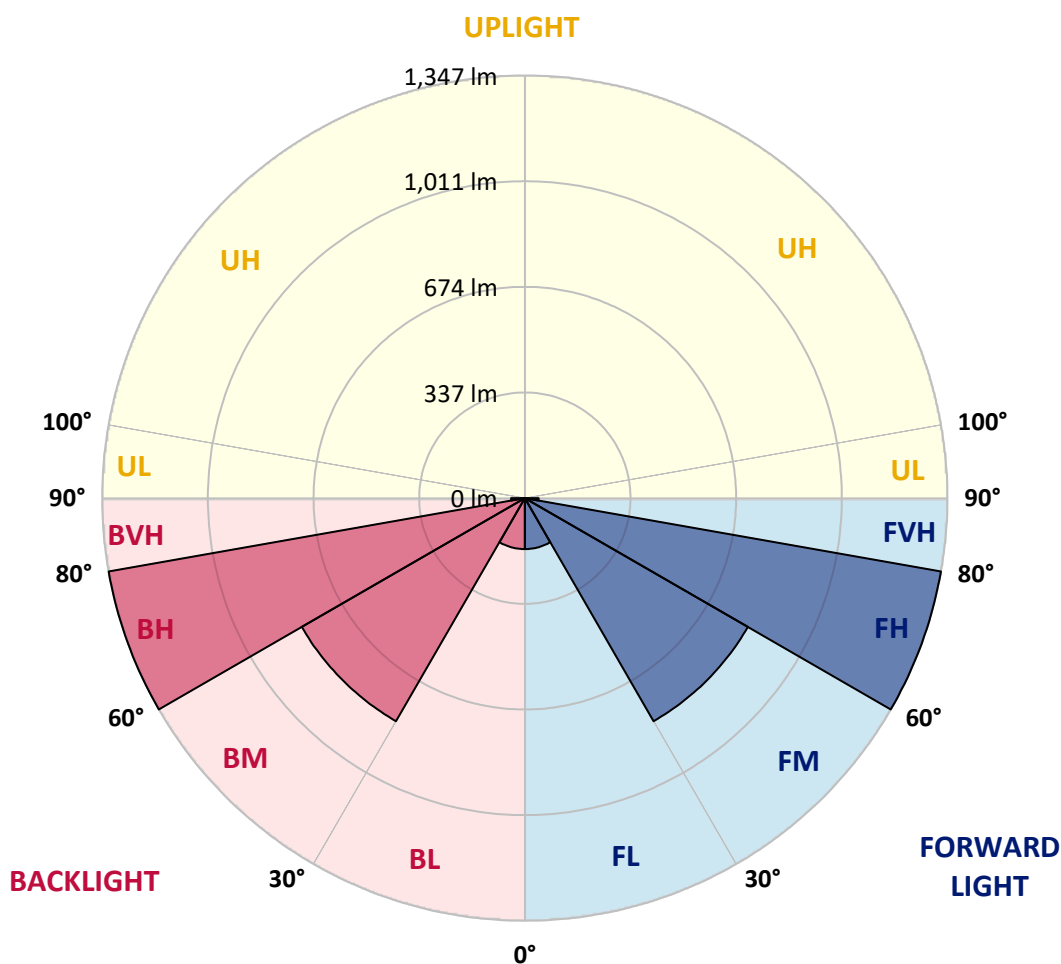
CATALOG NUMBER: ARCH-N-PA1-40-727-24VDC-5WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	162.4	3.4			
FM	(30°-60°)	821.3	17.3			
FH	(60°-80°)	1347.4	28.4			G1/1800
FVH	(80°-90°)	43.9	0.9			G1/100
BL	(0°-30°)	162.4	3.4	B1/500		
BM	(30°-60°)	821.3	17.3	B1/1000		
BH	(60°-80°)	1347.4	28.4	B3/2500		G1/1800
BVH	(80°-90°)	43.9	0.9			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G1

Type V Short



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CATALOG NUMBER: ARCH-N-PA1-40-727-24VDC-5WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9	390.9
2.5°	389.2	389.7	389.2	389.5	388.7	389.0	389.0	389.0	388.9	389.0	388.7
5°	385.7	386.1	385.4	385.7	385.3	385.7	385.9	385.7	385.4	385.6	385.0
7.5°	380.6	380.9	380.4	380.9	380.2	381.0	380.9	380.4	379.9	379.9	379.3
10°	377.7	377.9	376.6	376.2	374.7	375.1	375.5	376.0	376.5	377.4	377.3
12.5°	377.9	377.9	376.0	374.0	371.9	372.4	373.2	374.9	376.8	378.5	378.7
15°	379.5	379.3	376.5	373.2	371.8	373.2	373.6	374.7	377.7	380.7	380.9
17.5°	380.6	380.6	376.2	372.4	372.2	374.4	374.3	374.7	378.0	382.4	382.6
20°	382.6	382.6	376.9	372.9	372.9	375.2	375.4	376.2	379.5	384.3	385.1
22.5°	387.2	387.3	381.3	378.0	378.4	379.8	380.2	381.5	384.5	389.8	390.8
25°	393.6	393.9	387.8	385.9	387.0	389.7	389.4	390.3	393.6	398.8	399.7
27.5°	402.6	401.8	396.1	395.3	396.4	398.3	398.2	398.3	401.0	405.7	406.8
30°	414.2	413.9	409.8	410.3	409.8	409.2	409.3	410.6	412.0	415.8	416.9
32.5°	425.5	425.8	423.3	425.7	429.1	431.5	427.8	424.4	422.8	424.9	425.8
35°	445.9	446.7	442.8	441.2	445.9	452.8	442.6	437.0	440.1	442.8	443.6
37.5°	480.6	481.1	474.5	468.2	464.8	471.4	461.2	461.6	472.6	477.7	477.5
40°	520.2	520.4	516.0	510.5	504.5	506.1	502.0	503.3	510.5	515.1	516.3
42.5°	567.4	566.9	560.0	552.1	550.4	552.0	545.1	544.1	552.4	560.6	560.8
45°	628.5	627.4	618.4	609.8	601.5	598.0	596.3	600.8	612.3	619.9	620.0
47.5°	694.3	691.3	686.6	679.7	672.5	669.0	666.2	668.4	676.7	679.7	680.0
50°	762.1	762.7	763.6	761.0	758.3	757.2	749.8	745.6	748.1	742.6	741.8
52.5°	842.3	843.6	852.7	860.4	865.0	867.3	853.3	838.7	830.6	819.9	816.7
55°	937.1	939.1	952.5	973.9	995.9	1007.5	982.2	954.8	929.5	909.6	903.2
57.5°	1042.7	1046.3	1064.7	1105.7	1150.8	1178.3	1135.5	1085.9	1037.0	1008.3	1003.2
60°	1166.5	1169.9	1195.4	1254.2	1327.2	1368.6	1303.8	1222.6	1161.8	1134.3	1125.0
62.5°	1313.9	1314.2	1345.5	1414.1	1510.6	1568.1	1480.4	1371.9	1309.2	1276.0	1267.1
65°	1472.4	1473.2	1505.6	1579.7	1679.5	1742.0	1643.1	1529.9	1453.2	1404.4	1397.5
67.5°	1584.4	1587.7	1621.8	1711.1	1804.4	1860.8	1758.4	1630.5	1541.9	1483.6	1477.8
70°	1566.5	1579.4	1619.5	1723.7	1853.4	1933.9	1777.1	1618.5	1501.6	1432.8	1427.9
72.5°	1366.2	1390.9	1444.3	1581.0	1788.5	1899.3	1675.1	1449.6	1317.3	1258.7	1249.9
75°	930.3	970.4	1051.0	1248.2	1528.0	1644.5	1410.2	1155.8	1031.4	950.3	944.3
77.5°	414.8	423.9	526.1	753.1	1054.5	1180.9	1024.6	756.1	567.5	452.7	428.5
80°	115.6	117.1	156.2	280.5	527.8	693.9	566.6	294.6	165.6	116.7	110.0
82.5°	36.8	39.9	48.7	72.7	177.4	316.6	182.1	78.6	55.9	44.6	40.2
85°	17.9	17.8	24.7	29.5	45.3	70.1	48.2	36.5	31.9	21.2	19.2
87.5°	7.5	7.7	11.5	10.4	13.2	11.3	15.6	16.3	17.1	9.4	8.2
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)

STREETWORKS

Report Number: SP1-2101-121-5

Luminaire Tested: IFLD-S-SA2E-727-U-T2

Test Date: 03/04/2021

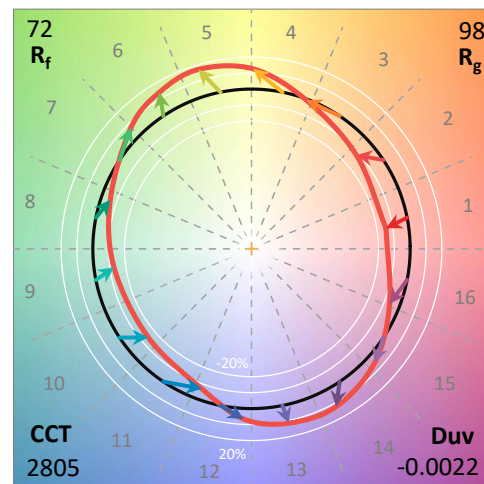
Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-5
 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-727-U-T2**
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 1500mA.

Spectral Parameters

CCT (K):	2805	CRI (Ra):	72.4		
CIE u':	0.2586	R1:	69.8	R9:	-15.0
CIE v':	0.5221	R2:	81.3	R10:	55.6
Duv:	-0.0022	R3:	90.2	R11:	61.7
CIE x:	0.4477	R4:	68.5	R12:	47.2
CIE y:	0.4017	R5:	67.5	R13:	71.4
CIE z:	0.1506	R6:	72.4	R14:	93.9
Peak Wavelength (nm):	599	R7:	79.4		
Dominant Wavelength (nm):	584	R8:	49.9		
Purity:	55.3				
Rf:	71.9				
Rg:	97.9				



Test Conditions

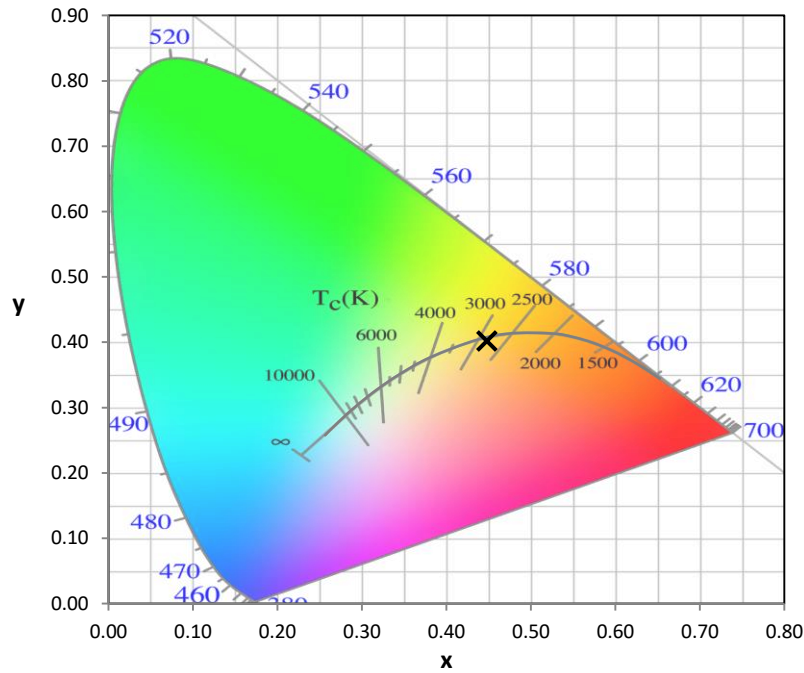
Stabilization Time: 60M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.3/31%
 Sphere Temperature (°C): 24.8

REPORT NUMBER: SP1-2101-121-5

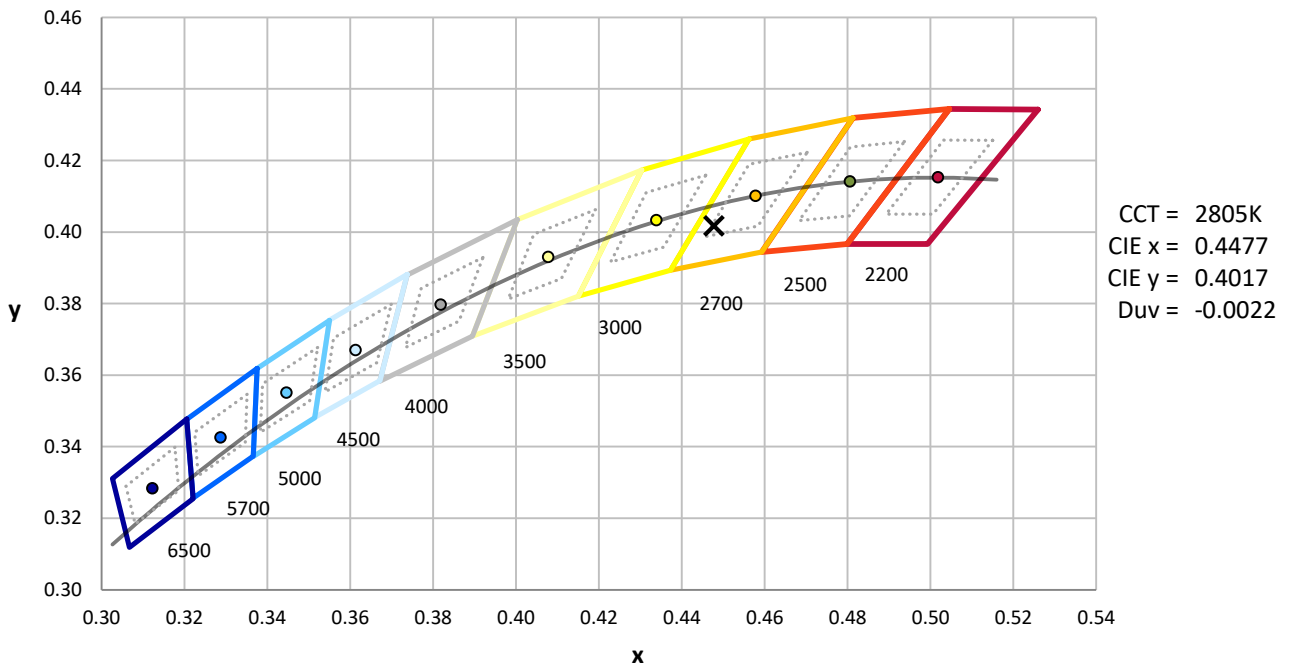
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020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

REPORT NUMBER: SP1-2101-121-5

CIE 1931 Chromaticity Diagram



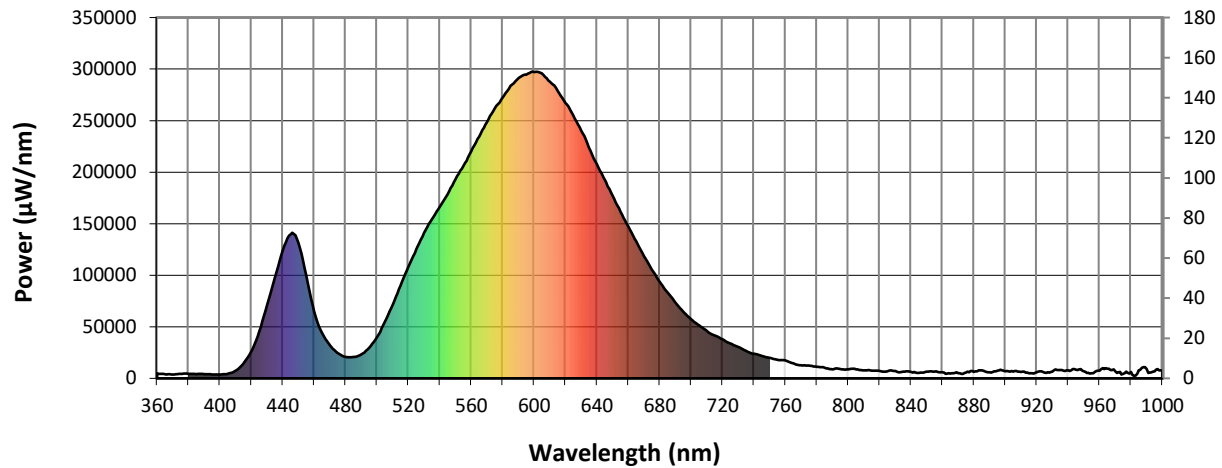
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-5

Photopic Flux vs. Wavelength

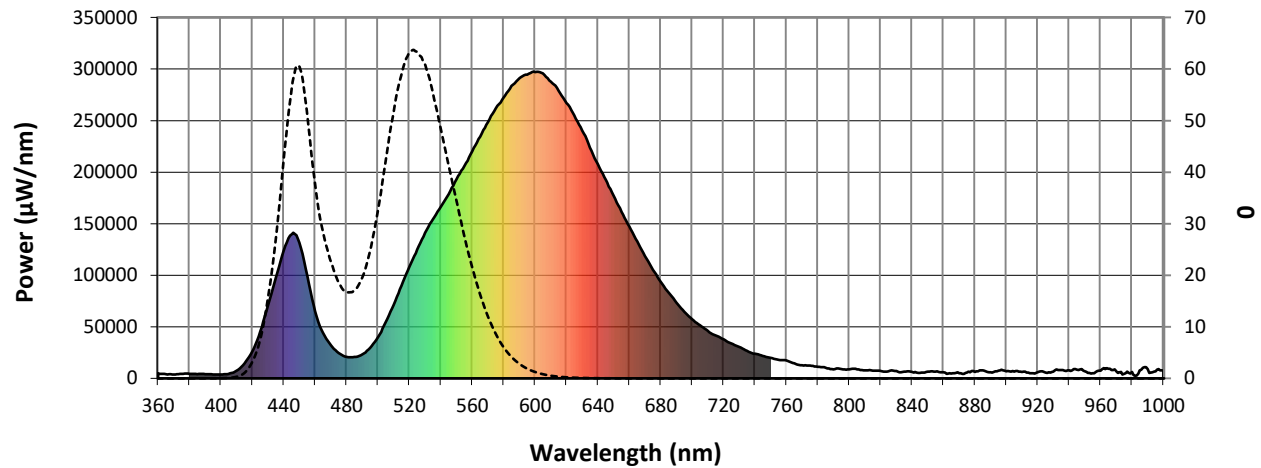


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λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	4854	0.0	490	23280	3.3	620	266893	69.5	750	19996	0.0	880	6314	0.0
365	4049	0.0	495	29582	5.4	625	255096	56.3	755	17900	0.0	885	7853	0.0
370	3795	0.0	500	39981	8.8	630	240244	43.5	760	17272	0.0	890	5823	0.0
375	4296	0.0	505	54556	15.3	635	223787	33.6	765	14514	0.0	895	7346	0.0
380	4496	0.0	510	71364	24.5	640	207566	24.8	770	12643	0.0	900	6920	0.0
385	4186	0.0	515	89828	37.2	645	192517	18.5	775	12475	0.0	905	6608	0.0
390	3945	0.0	520	108414	52.6	650	177187	12.9	780	11188	0.0	910	6279	0.0
395	3780	0.0	525	124929	67.1	655	161553	9.3	785	10229	0.0	915	5131	0.0
400	3679	0.0	530	141352	83.2	660	147361	6.1	790	8578	0.0	920	5855	0.0
405	4475	0.0	535	154552	95.8	665	132756	4.2	795	9114	0.0	925	5678	0.0
410	7499	0.0	540	166297	108.4	670	118534	2.6	800	8597	0.0	930	6661	0.0
415	14449	0.0	545	178874	119.1	675	105260	1.8	805	8790	0.0	935	8074	0.0
420	26000	0.1	550	193176	131.3	680	93637	1.1	810	7814	0.0	940	7823	0.0
425	45491	0.2	555	206008	140.7	685	83217	0.7	815	7533	0.0	945	8364	0.0
430	70707	0.6	560	220126	149.6	690	73671	0.4	820	7303	0.0	950	6763	0.0
435	98169	1.2	565	234383	155.8	695	64520	0.3	825	6745	0.0	955	4883	0.0
440	123846	1.9	570	248161	161.4	700	57442	0.2	830	7209	0.0	960	7488	0.0
445	139822	2.9	575	261970	163.0	705	51479	0.1	835	6674	0.0	965	9316	0.0
450	131679	3.4	580	272271	161.8	710	45940	0.1	840	6151	0.0	970	6857	0.0
455	99242	3.3	585	283822	157.7	715	41575	0.0	845	5371	0.0	975	4388	0.0
460	65216	2.7	590	291192	150.6	720	37753	0.0	850	6484	0.0	980	6095	0.0
465	44137	2.3	595	294651	139.7	725	33818	0.0	855	6614	0.0	985	7701	0.0
470	32002	2.0	600	297168	128.1	730	30414	0.0	860	5959	0.0	990	9045	0.0
475	24549	1.9	605	295658	114.5	735	26662	0.0	865	4768	0.0	995	6989	0.0
480	20801	2.0	610	287633	98.8	740	23848	0.0	870	5098	0.0	1000	7341	0.0
485	20656	2.4	615	279152	84.3	745	21851	0.0	875	5516	0.0			

REPORT NUMBER: SP1-2101-121-5

Scotopic Flux vs. Wavelength



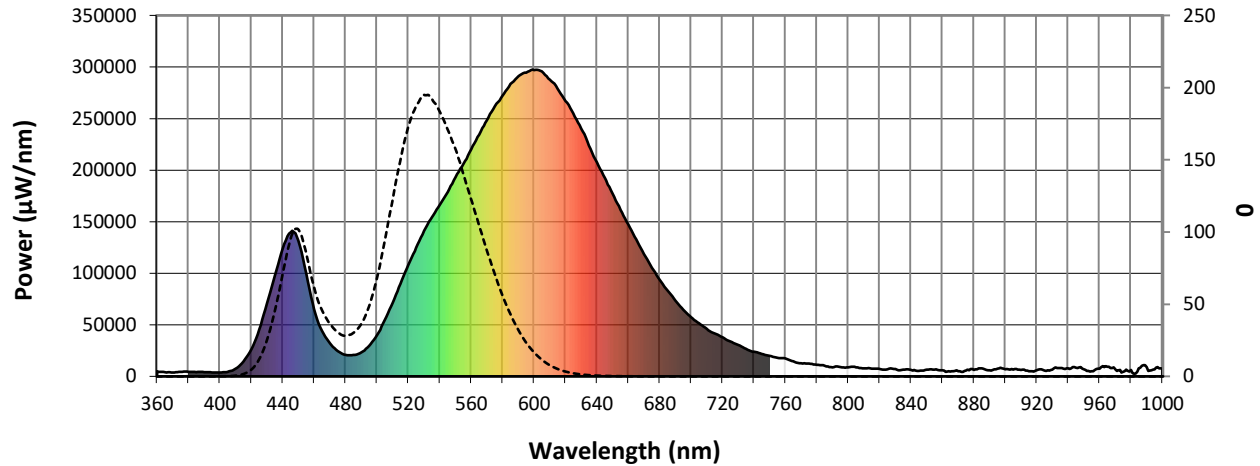
Scotopic Lumens: 15895.6

S/P: 1.11

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	4854	0.0	490	23280	35.8	620	266893	3.3	750	19996	0.0	880	6314	0.0
365	4049	0.0	495	29582	47.8	625	255096	2.2	755	17900	0.0	885	7853	0.0
370	3795	0.0	500	39981	66.9	630	240244	1.4	760	17272	0.0	890	5823	0.0
375	4296	0.0	505	54556	92.7	635	223787	0.9	765	14514	0.0	895	7346	0.0
380	4496	0.0	510	71364	121.0	640	207566	0.5	770	12643	0.0	900	6920	0.0
385	4186	0.0	515	89828	148.9	645	192517	0.3	775	12475	0.0	905	6608	0.0
390	3945	0.0	520	108414	172.3	650	177187	0.2	780	11188	0.0	910	6279	0.0
395	3780	0.0	525	124929	186.9	655	161553	0.1	785	10229	0.0	915	5131	0.0
400	3679	0.1	530	141352	194.9	660	147361	0.1	790	8578	0.0	920	5855	0.0
405	4475	0.1	535	154552	192.6	665	132756	0.0	795	9114	0.0	925	5678	0.0
410	7499	0.4	540	166297	183.8	670	118534	0.0	800	8597	0.0	930	6661	0.0
415	14449	1.5	545	178874	171.5	675	105260	0.0	805	8790	0.0	935	8074	0.0
420	26000	4.3	550	193176	158.0	680	93637	0.0	810	7814	0.0	940	7823	0.0
425	45491	11.1	555	206008	140.8	685	83217	0.0	815	7533	0.0	945	8364	0.0
430	70707	24.1	560	220126	123.0	690	73671	0.0	820	7303	0.0	950	6763	0.0
435	98169	43.9	565	234383	105.2	695	64520	0.0	825	6745	0.0	955	4883	0.0
440	123846	69.2	570	248161	87.6	700	57442	0.0	830	7209	0.0	960	7488	0.0
445	139822	93.6	575	261970	71.3	705	51479	0.0	835	6674	0.0	965	9316	0.0
450	131679	102.1	580	272271	56.1	710	45940	0.0	840	6151	0.0	970	6857	0.0
455	99242	86.7	585	283822	43.4	715	41575	0.0	845	5371	0.0	975	4388	0.0
460	65216	63.0	590	291192	32.4	720	37753	0.0	850	6484	0.0	980	6095	0.0
465	44137	46.6	595	294651	23.5	725	33818	0.0	855	6614	0.0	985	7701	0.0
470	32002	36.9	600	297168	16.7	730	30414	0.0	860	5959	0.0	990	9045	0.0
475	24549	30.7	605	295658	11.6	735	26662	0.0	865	4768	0.0	995	6989	0.0
480	20801	28.1	610	287633	7.8	740	23848	0.0	870	5098	0.0	1000	7341	0.0
485	20656	29.9	615	279152	5.2	745	21851	0.0	875	5516	0.0			

REPORT NUMBER: SP1-2101-121-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.7

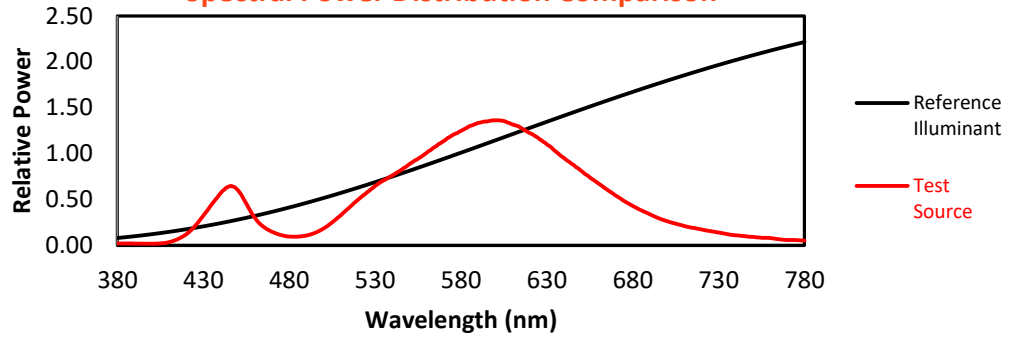
M/P: 0.39

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	4854	0.0	490	23280	19.4	620	266893	0.2	750	19996	0.0	880	6314	0.0
365	4049	0.0	495	29582	24.4	625	255096	0.1	755	17900	0.0	885	7853	0.0
370	3795	0.0	500	39981	32.1	630	240244	0.1	760	17272	0.0	890	5823	0.0
375	4296	0.0	505	54556	41.9	635	223787	0.1	765	14514	0.0	895	7346	0.0
380	4496	0.0	510	71364	51.2	640	207566	0.0	770	12643	0.0	900	6920	0.0
385	4186	0.0	515	89828	58.7	645	192517	0.0	775	12475	0.0	905	6608	0.0
390	3945	0.0	520	108414	63.1	650	177187	0.0	780	11188	0.0	910	6279	0.0
395	3780	0.0	525	124929	63.4	655	161553	0.0	785	10229	0.0	915	5131	0.0
400	3679	0.0	530	141352	61.1	660	147361	0.0	790	8578	0.0	920	5855	0.0
405	4475	0.1	535	154552	55.6	665	132756	0.0	795	9114	0.0	925	5678	0.0
410	7499	0.3	540	166297	48.7	670	118534	0.0	800	8597	0.0	930	6661	0.0
415	14449	1.0	545	178874	41.5	675	105260	0.0	805	8790	0.0	935	8074	0.0
420	26000	3.0	550	193176	34.7	680	93637	0.0	810	7814	0.0	940	7823	0.0
425	45491	7.1	555	206008	27.8	685	83217	0.0	815	7533	0.0	945	8364	0.0
430	70707	14.9	560	220126	21.7	690	73671	0.0	820	7303	0.0	950	6763	0.0
435	98169	26.2	565	234383	16.5	695	64520	0.0	825	6745	0.0	955	4883	0.0
440	123846	41.4	570	248161	12.1	700	57442	0.0	830	7209	0.0	960	7488	0.0
445	139822	55.1	575	261970	8.7	705	51479	0.0	835	6674	0.0	965	9316	0.0
450	131679	60.7	580	272271	6.1	710	45940	0.0	840	6151	0.0	970	6857	0.0
455	99242	52.0	585	283822	4.2	715	41575	0.0	845	5371	0.0	975	4388	0.0
460	65216	38.4	590	291192	2.9	720	37753	0.0	850	6484	0.0	980	6095	0.0
465	44137	28.8	595	294651	1.9	725	33818	0.0	855	6614	0.0	985	7701	0.0
470	32002	22.9	600	297168	1.3	730	30414	0.0	860	5959	0.0	990	9045	0.0
475	24549	18.7	605	295658	0.8	735	26662	0.0	865	4768	0.0	995	6989	0.0
480	20801	16.7	610	287633	0.5	740	23848	0.0	870	5098	0.0	1000	7341	0.0
485	20656	17.0	615	279152	0.3	745	21851	0.0	875	5516	0.0			

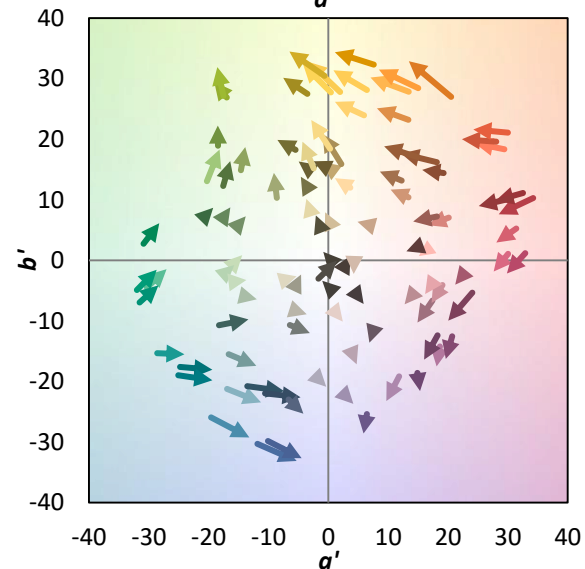
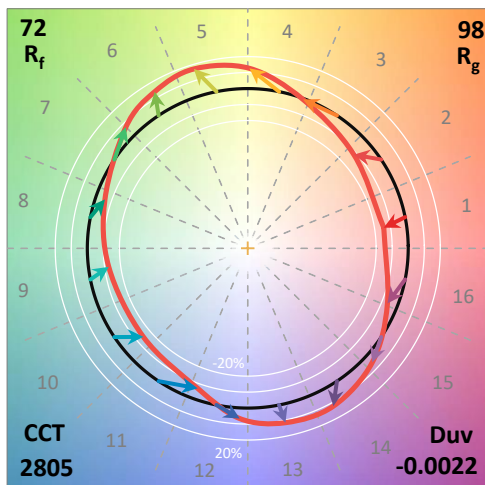
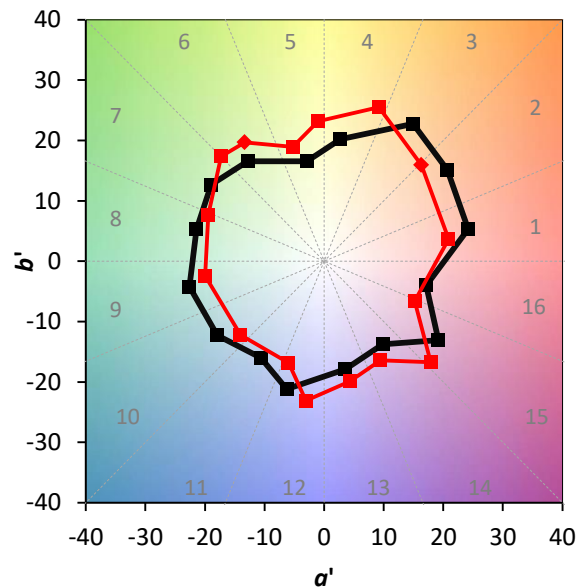
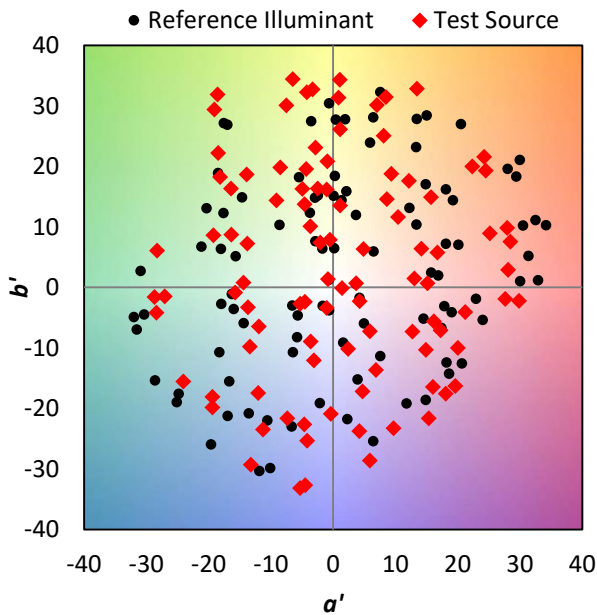
Summary

$R_f = 71.9$
 $R_g = 97.9$
 CIE $R_a = 72.4$
 $R_g = -15.0$

Spectral Power Distribution Comparison

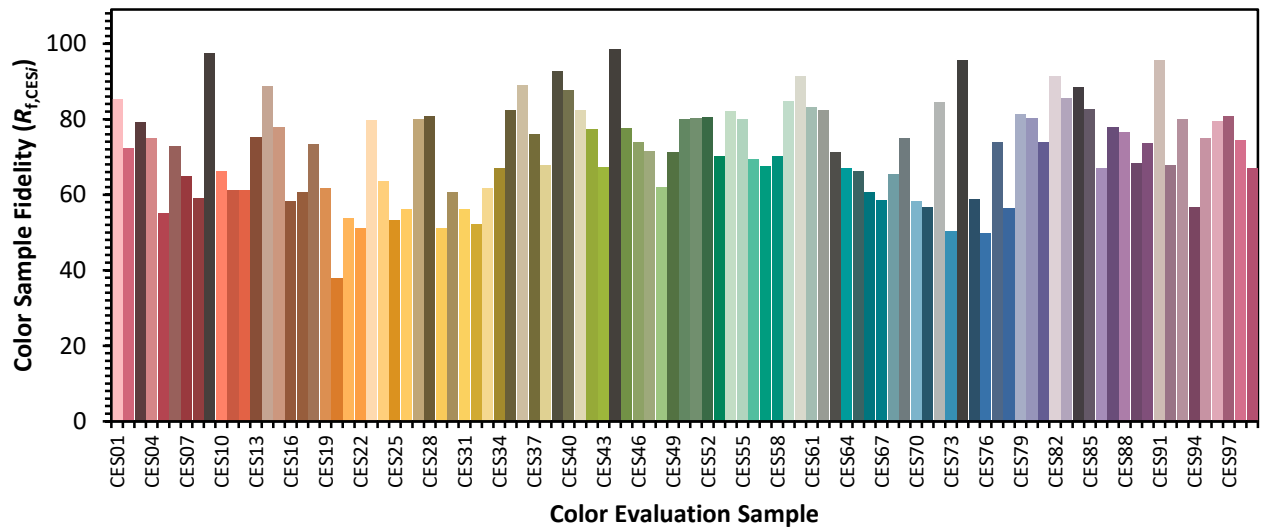


Color Vector Graphics

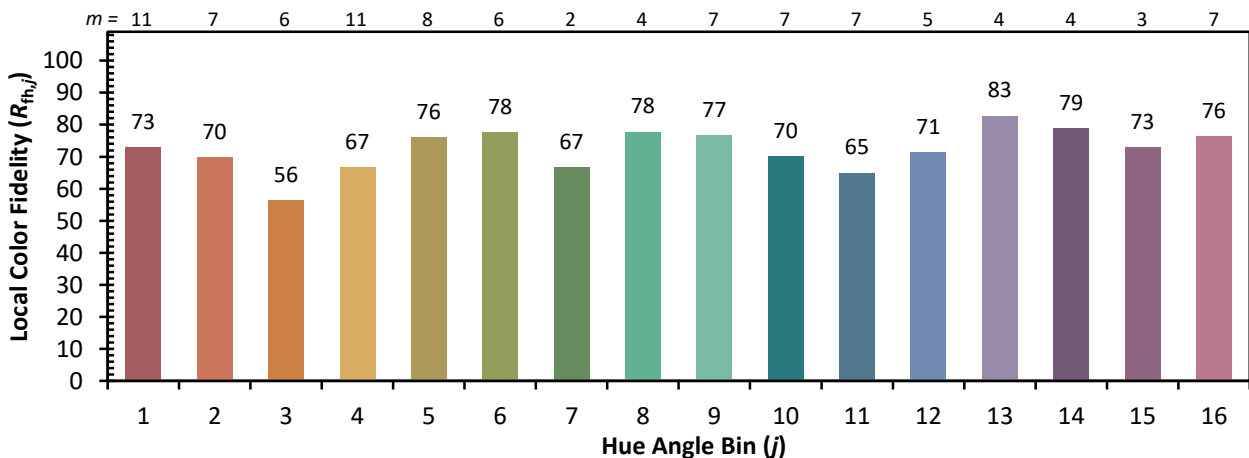
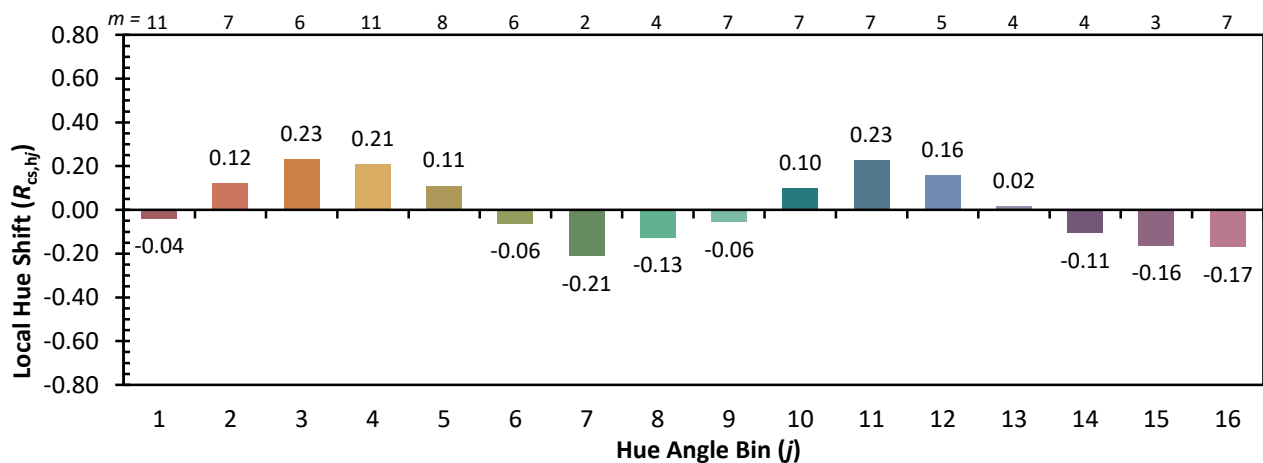
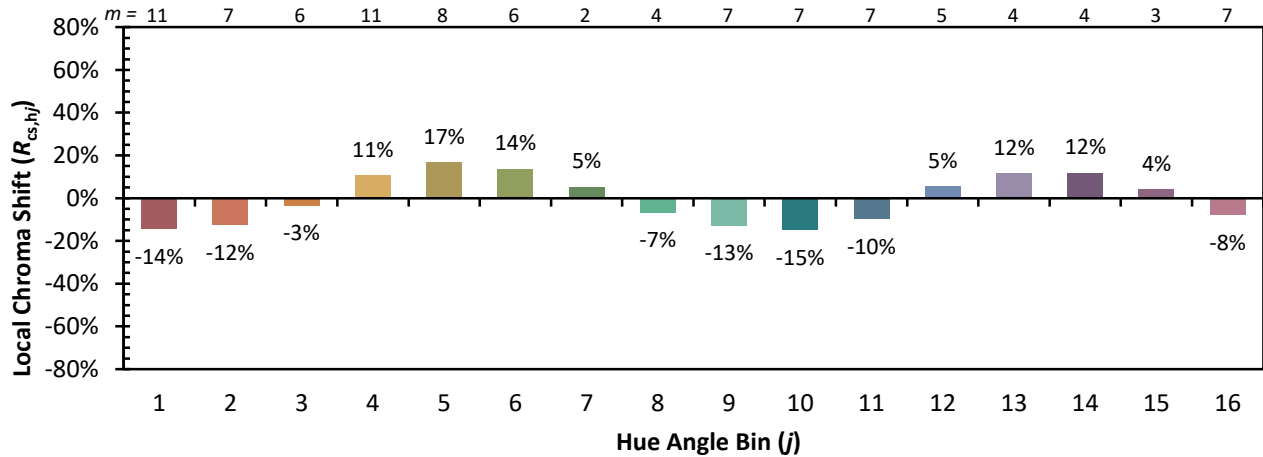


Individual Sample Fidelity Index ($R_{f,i}$)

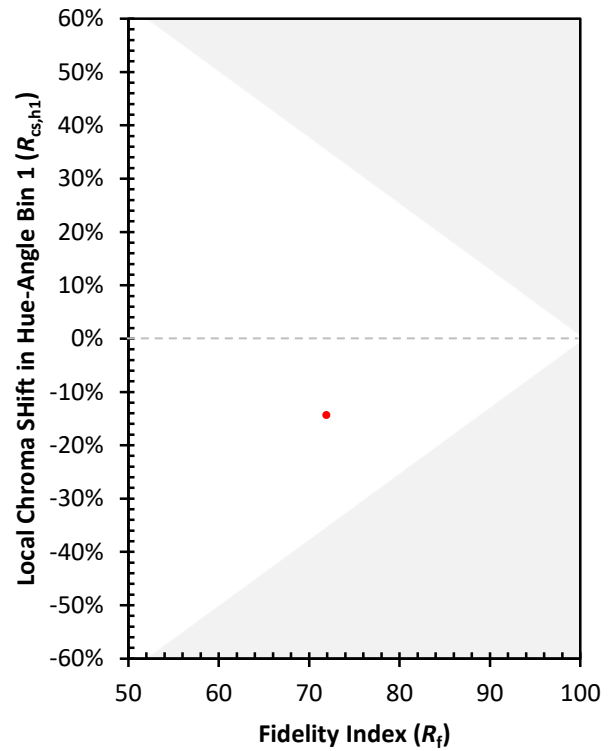
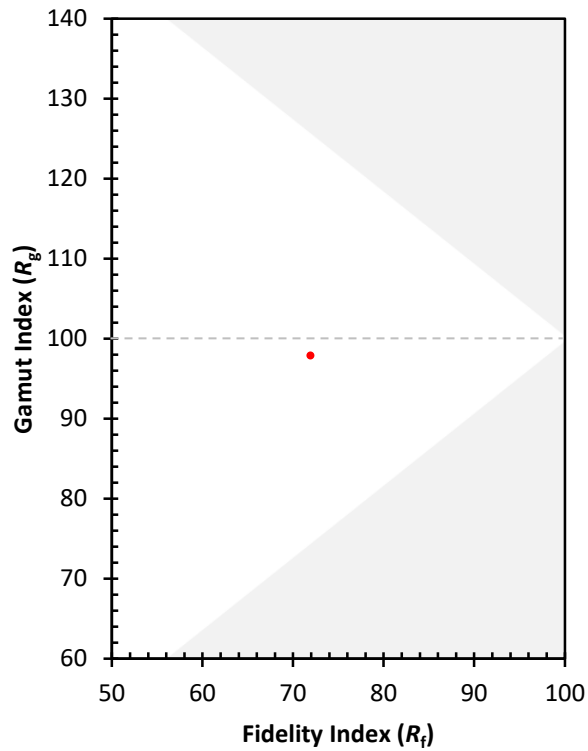
CES01 = 86	CES26 = 56	CES51 = 80	CES76 = 50
CES02 = 63	CES27 = 80	CES52 = 81	CES77 = 74
CES03 = 31	CES28 = 81	CES53 = 70	CES78 = 56
CES04 = 71	CES29 = 51	CES54 = 82	CES79 = 81
CES05 = 50	CES30 = 61	CES55 = 80	CES80 = 80
CES06 = 52	CES31 = 56	CES56 = 69	CES81 = 74
CES07 = 42	CES32 = 52	CES57 = 67	CES82 = 91
CES08 = 41	CES33 = 62	CES58 = 70	CES83 = 86
CES09 = 29	CES34 = 67	CES59 = 85	CES84 = 89
CES10 = 76	CES35 = 83	CES60 = 91	CES85 = 83
CES11 = 60	CES36 = 89	CES61 = 83	CES86 = 67
CES12 = 66	CES37 = 76	CES62 = 82	CES87 = 78
CES13 = 43	CES38 = 68	CES63 = 71	CES88 = 76
CES14 = 74	CES39 = 93	CES64 = 67	CES89 = 68
CES15 = 71	CES40 = 88	CES65 = 66	CES90 = 74
CES16 = 48	CES41 = 82	CES66 = 61	CES91 = 96
CES17 = 50	CES42 = 77	CES67 = 58	CES92 = 68
CES18 = 57	CES43 = 67	CES68 = 65	CES93 = 80
CES19 = 73	CES44 = 99	CES69 = 75	CES94 = 57
CES20 = 67	CES45 = 78	CES70 = 58	CES95 = 75
CES21 = 88	CES46 = 74	CES71 = 57	CES96 = 79
CES22 = 80	CES47 = 71	CES72 = 85	CES97 = 81
CES23 = 92	CES48 = 62	CES73 = 50	CES98 = 75
CES24 = 91	CES49 = 71	CES74 = 96	CES99 = 67
CES25 = 73	CES50 = 80	CES75 = 59	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)