

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: McGRAW-EDISON

Report Number: P821249

Luminaire Tested: **TT-D4-740-24VDC-RW-PM**

Issue Date: 10/15/2020

Test Information

Test Method: LM-79-08
Report Number: P821249
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-981-1)
Test Lab: INNOVATION CENTER
Issue Date: 10/15/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D4-740-24VDC-RW-PM
Description: TOPTIER LED SITE LUMINAIRE
4000K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

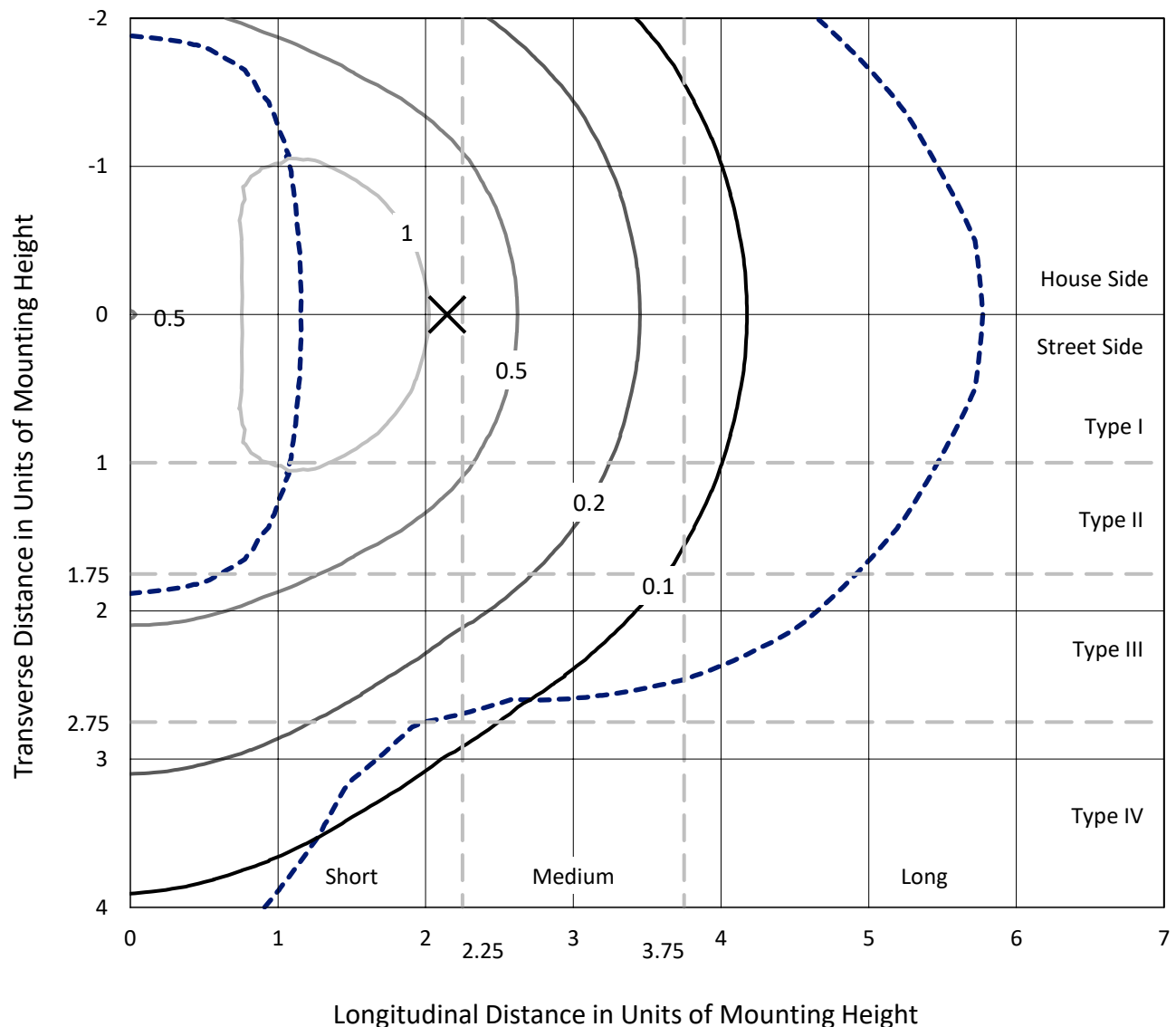
Lumens per Lamp: N/A
Luminaire Lumens: 6050 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G3

Input Watts (W): 57
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: TT-D4-740-24VDC-RW-PM

Iso-Footcandle Lines of Horizontal Illumination

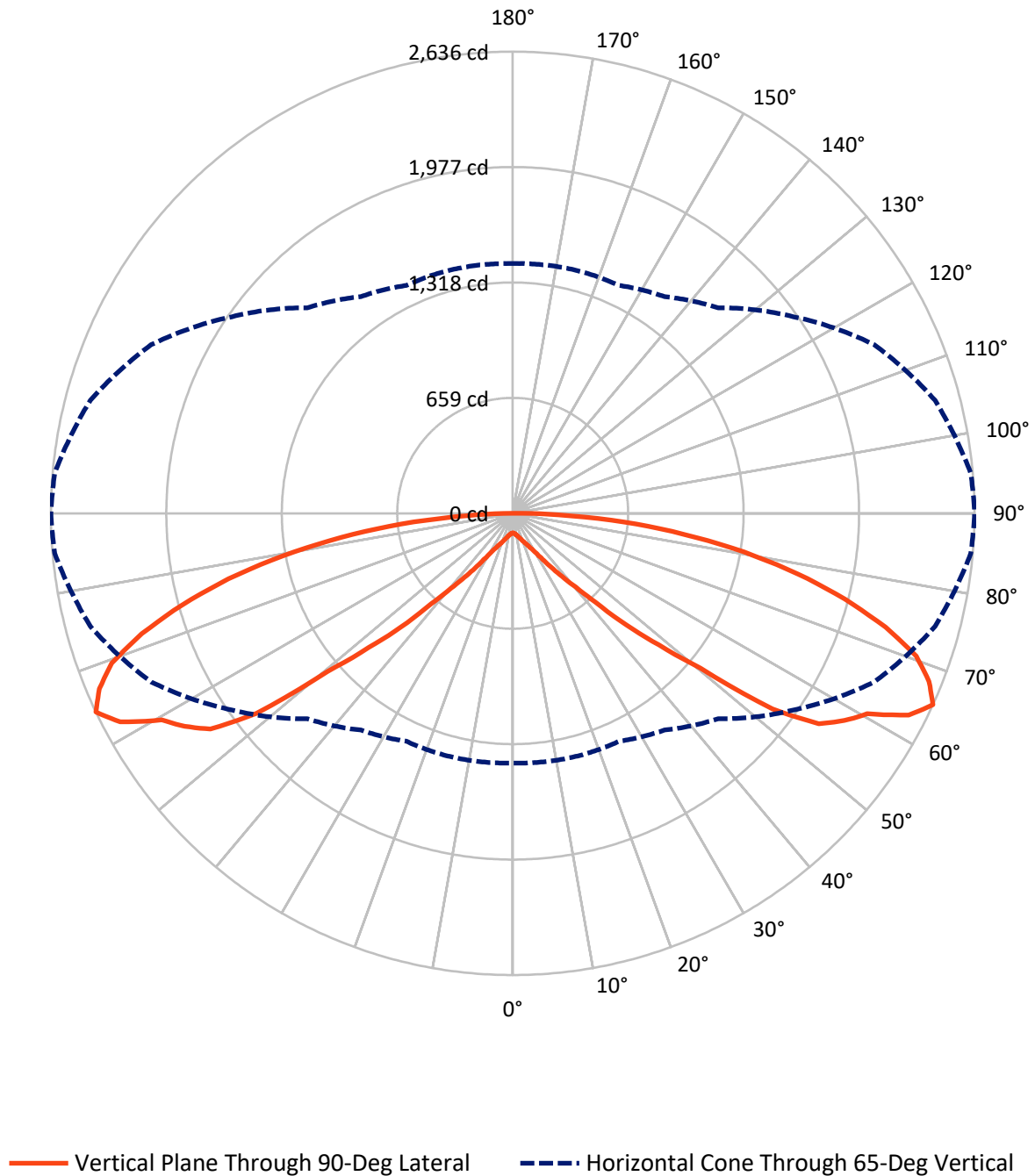
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.8 fc
 Type IV - Short - N/A

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CATALOG NUMBER: TT-D4-740-24VDC-RW-PM

Luminous Intensity Polar Plot



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CATALOG NUMBER: TT-D4-740-24VDC-RW-PM

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3025.0	0.0	3025.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3025.0	0.0	3025.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	6050.0	0.0	6050.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	11.5	0.2
10°-20°	43.1	0.7
20°-30°	99.7	1.6
30°-40°	225.4	3.7
40°-50°	549.1	9.1
50°-60°	1234.8	20.4
60°-70°	1804.6	29.8
70°-80°	1572.4	26.0
80°-90°	509.3	8.4
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°	6050.0	100.0
0°-180°	6050.0	100.0



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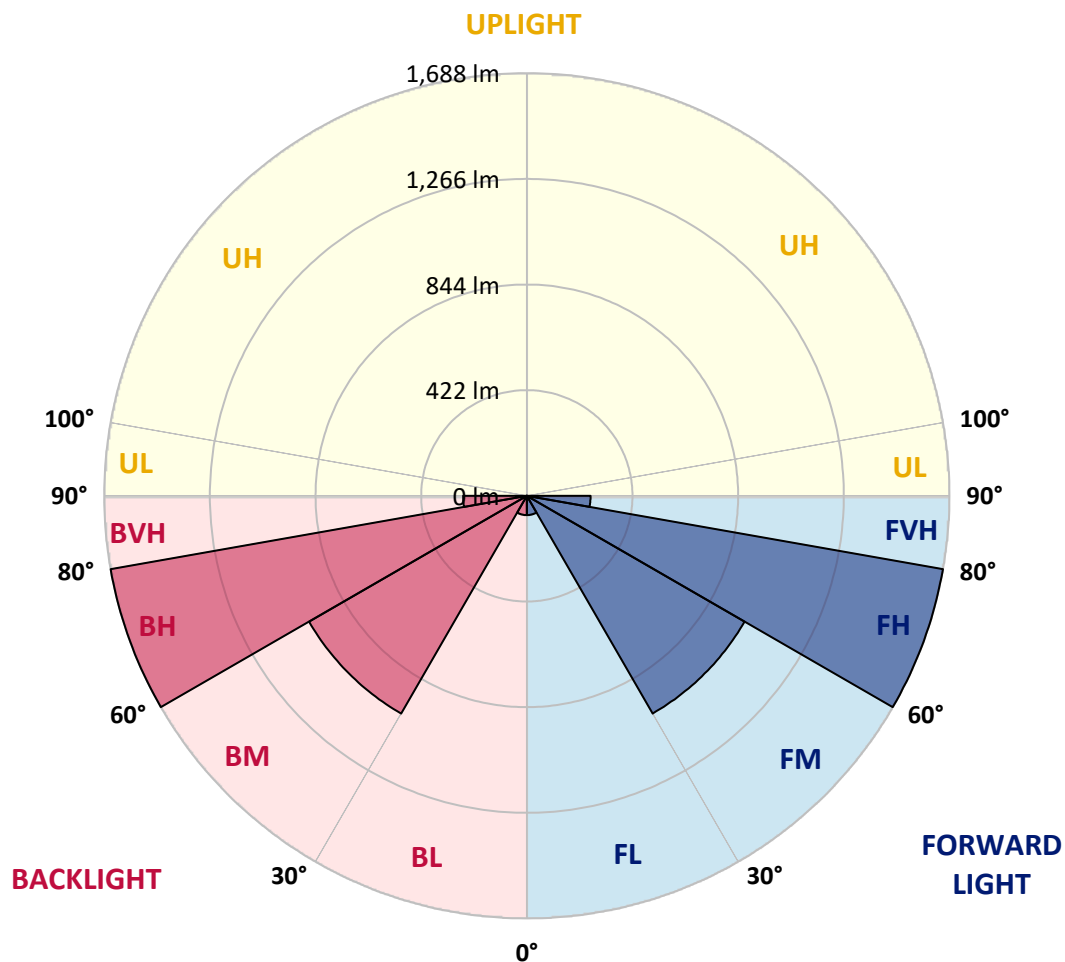
CATALOG NUMBER: TT-D4-740-24VDC-RW-PM

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	77.2	1.3			
FM	(30°-60°)	1004.6	16.6			
FH	(60°-80°)	1688.5	27.9			G1/1800
FVH	(80°-90°)	254.7	4.2			G3/500
BL	(0°-30°)	77.2	1.3	B0/110		
BM	(30°-60°)	1004.6	16.6	B2/2500		
BH	(60°-80°)	1688.5	27.9	B3/2500		G3/2500
BVH	(80°-90°)	254.7	4.2			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type IV Short



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CATALOG NUMBER: TT-D4-740-24VDC-RW-PM

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5
2.5°	112.0	112.0	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4
5°	116.3	116.3	116.3	116.3	117.7	117.7	116.3	116.3	116.3	116.3	116.3
7.5°	123.5	122.0	123.5	123.5	123.5	122.0	122.0	122.0	120.6	120.6	120.6
10°	130.6	130.6	132.1	130.6	130.6	129.2	129.2	129.2	127.8	127.8	127.8
12.5°	140.7	140.7	140.7	140.7	139.2	139.2	137.8	136.4	134.9	134.9	134.9
15°	153.6	152.2	152.2	150.7	149.3	147.9	146.4	146.4	145.0	145.0	145.0
17.5°	166.5	166.5	165.1	163.6	160.8	159.3	159.3	157.9	156.5	156.5	156.5
20°	182.3	182.3	180.9	178.0	175.1	173.7	172.3	172.3	170.8	170.8	170.8
22.5°	201.0	199.5	196.7	193.8	190.9	189.5	188.1	186.6	186.6	186.6	186.6
25°	221.1	219.6	218.2	213.9	209.6	208.1	205.3	205.3	203.8	205.3	205.3
27.5°	245.5	244.0	241.2	236.9	231.1	228.2	226.8	226.8	228.2	228.2	229.7
30°	275.6	272.7	269.9	264.1	258.4	254.1	254.1	255.5	259.8	262.7	262.7
32.5°	311.5	310.1	305.8	300.0	290.0	287.1	290.0	298.6	304.3	308.6	311.5
35°	353.1	351.7	346.0	335.9	328.7	327.3	335.9	350.3	368.9	374.7	377.5
37.5°	399.1	400.5	393.3	381.8	374.7	377.5	394.8	422.0	440.7	453.6	456.5
40°	456.5	459.4	450.8	437.8	430.7	442.1	469.4	501.0	534.0	549.8	554.1
42.5°	524.0	528.3	516.8	503.9	499.6	518.2	557.0	608.7	667.5	686.2	693.4
45°	607.2	610.1	595.7	584.3	581.4	614.4	680.4	766.6	859.9	902.9	910.1
47.5°	706.3	704.8	691.9	677.6	680.4	727.8	826.9	943.1	1042.2	1108.2	1122.6
50°	819.7	812.5	802.5	785.2	803.9	872.8	997.7	1138.4	1304.9	1363.7	1389.6
52.5°	933.1	920.2	911.5	900.1	933.1	1022.1	1197.2	1442.7	1693.9	1828.8	1856.1
55°	1035.0	1025.0	1020.6	1022.1	1073.8	1201.5	1431.2	1745.6	1988.2	2100.2	2120.3
57.5°	1135.5	1129.7	1125.4	1134.1	1215.9	1382.4	1640.8	1935.1	2134.6	2217.9	2232.2
60°	1230.2	1236.0	1233.1	1258.9	1358.0	1525.9	1749.9	2039.9	2232.2	2308.3	2324.1
62.5°	1335.0	1339.3	1339.3	1368.0	1448.4	1596.3	1824.5	2163.3	2407.4	2519.3	2536.5
65°	1425.5	1428.3	1434.1	1435.5	1510.2	1658.0	1956.6	2276.7	2494.9	2624.1	2635.6
67.5°	1492.9	1495.8	1488.6	1481.4	1538.9	1672.4	1946.6	2262.4	2456.2	2553.8	2562.4
70°	1547.5	1534.6	1514.5	1478.6	1497.2	1597.7	1863.3	2147.5	2342.8	2430.3	2443.2
72.5°	1554.7	1543.2	1480.0	1399.6	1376.7	1464.2	1716.9	1972.4	2140.3	2223.6	2225.0
75°	1511.6	1481.4	1376.7	1256.1	1213.0	1296.3	1513.0	1745.6	1880.5	1950.9	1958.0
77.5°	1366.6	1337.9	1205.8	1068.0	1019.2	1091.0	1274.7	1462.8	1592.0	1660.9	1665.2
80°	1109.7	1099.6	979.0	852.7	793.8	835.5	996.2	1144.1	1248.9	1330.7	1337.9
82.5°	818.2	809.6	717.8	607.2	559.8	594.3	709.1	818.2	915.9	981.9	986.2
85°	511.0	493.8	436.4	358.9	327.3	350.3	426.3	499.6	587.1	638.8	641.7
87.5°	170.8	163.6	140.7	116.3	97.6	101.9	124.9	152.2	222.5	245.5	259.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-5

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-740-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-740-U-WQ

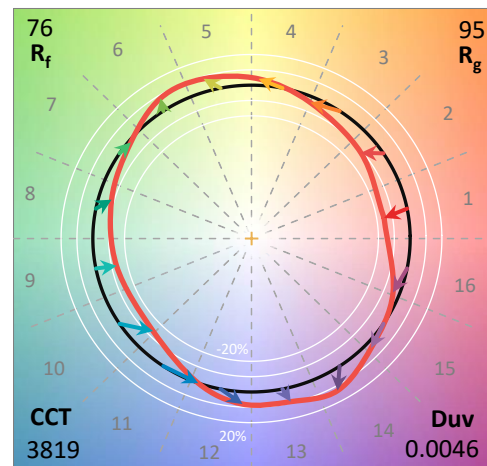
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-5
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 09/27/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-VA-30-740-U-WQ**
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K): 3819
 CIE u' : 0.2261
 CIE v' : 0.5108
 Duv: 0.0046
 CIE x: 0.3926
 CIE y: 0.3942
 CIE z: 0.2132
 Peak Wavelength (nm): 450
 Dominant Wavelength (nm): 577
 Purity: 36.15483
 R_f: 75.6
 R_g: 94.8

CRI (Ra): 72.9
 R1: 70.1
 R2: 78.4
 R3: 85.0
 R4: 72.9
 R5: 69.1
 R6: 69.2
 R7: 82.8
 R8: 55.4
 R9: -21.5
 R10: 48.5
 R11: 68.4
 R12: 39.0
 R13: 71.1
 R14: 91.3
 R15: 63.2



Test Conditions

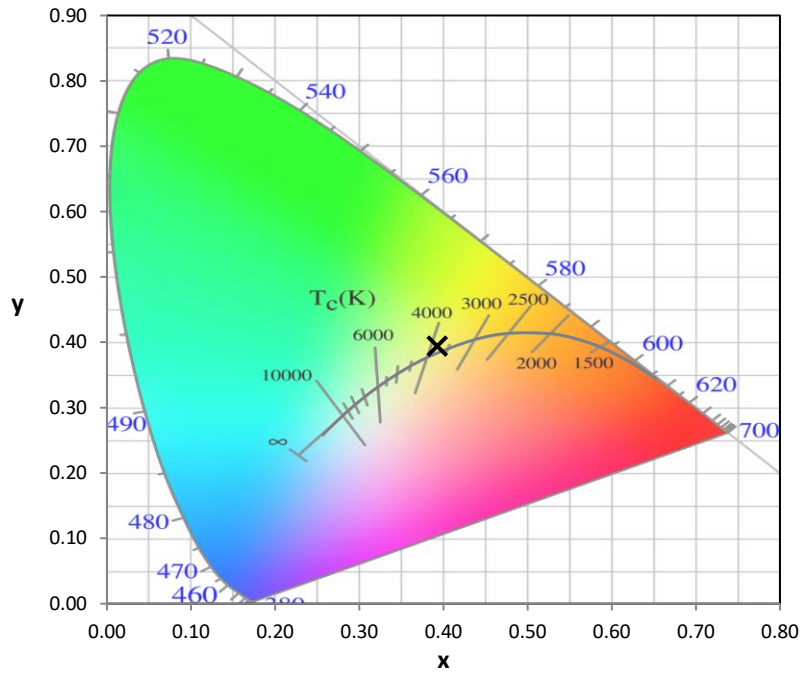
Stabilization Time: 30M
 Operation Time: 1H 30M
 Sphere Temperature (°C): 25.2

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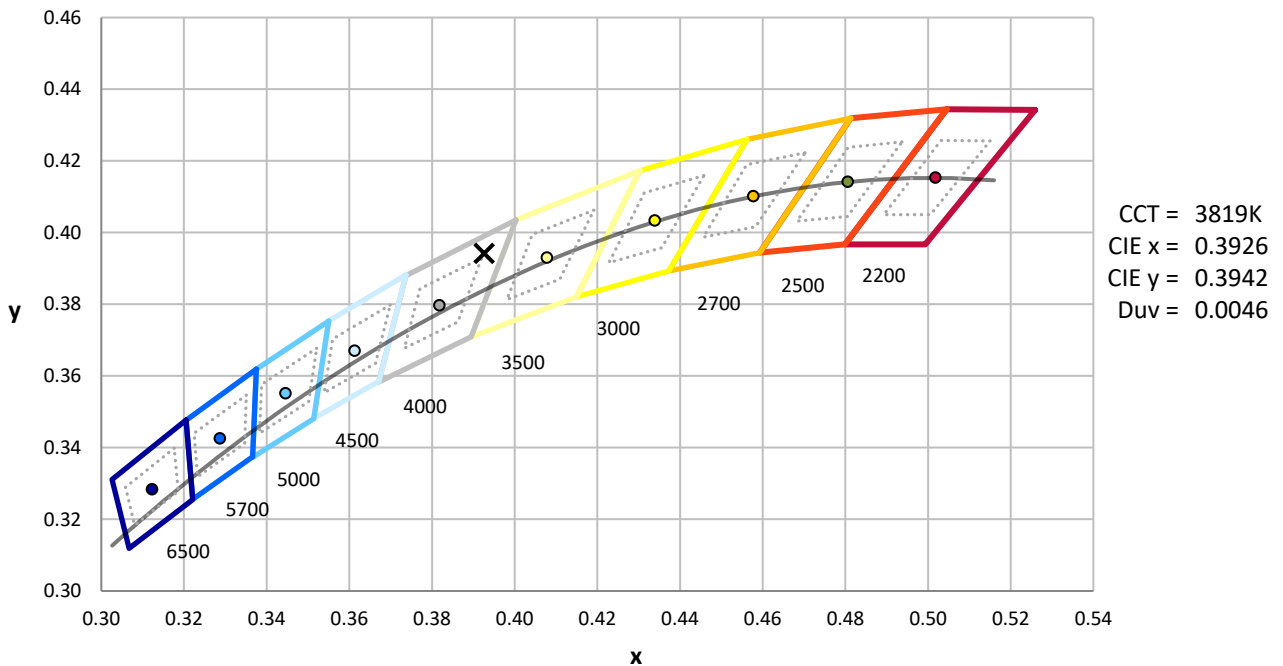
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

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CIE 1931 Chromaticity Diagram



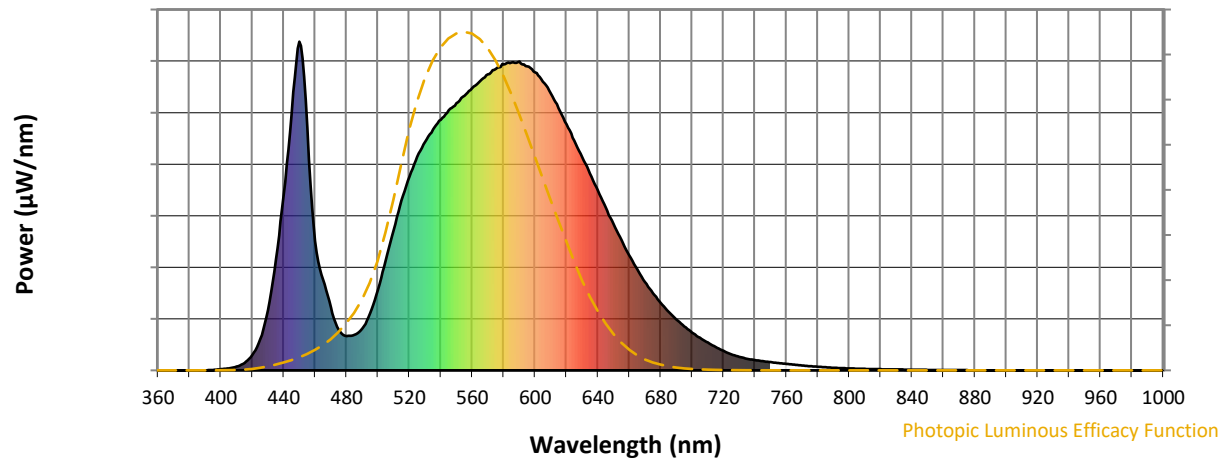
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

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Photopic Flux vs. Wavelength

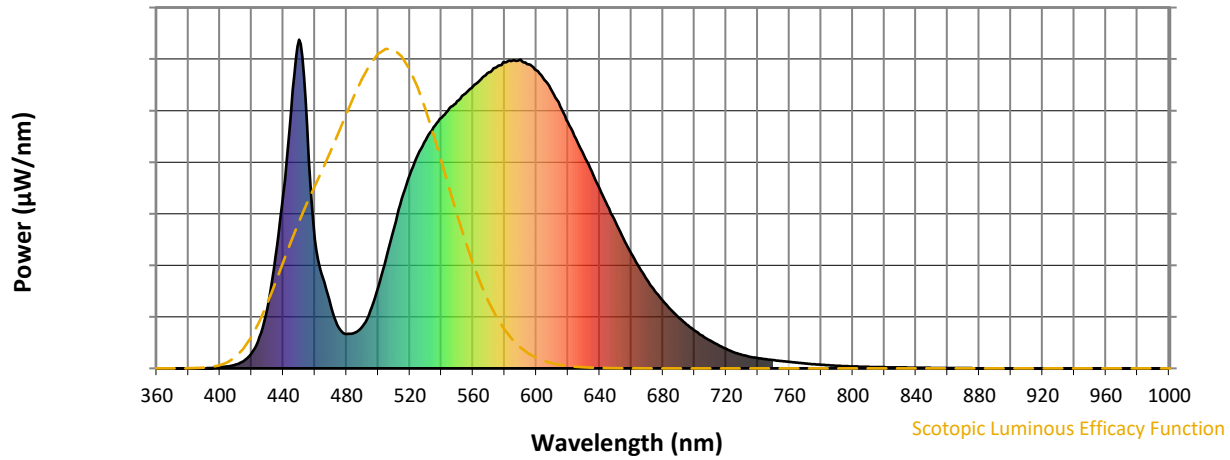


Photopic Lumens: NR

λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

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Scotopic Flux vs. Wavelength



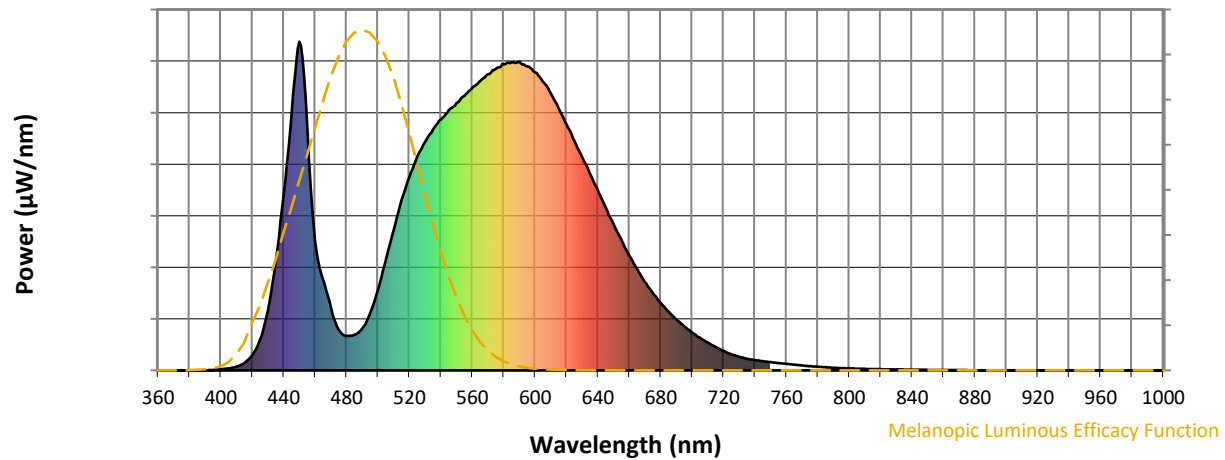
Scotopic Lumens: NR

S/P: 1.45

λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)	λ (nm)	Power W [^] /nm	Lumens (Φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.76

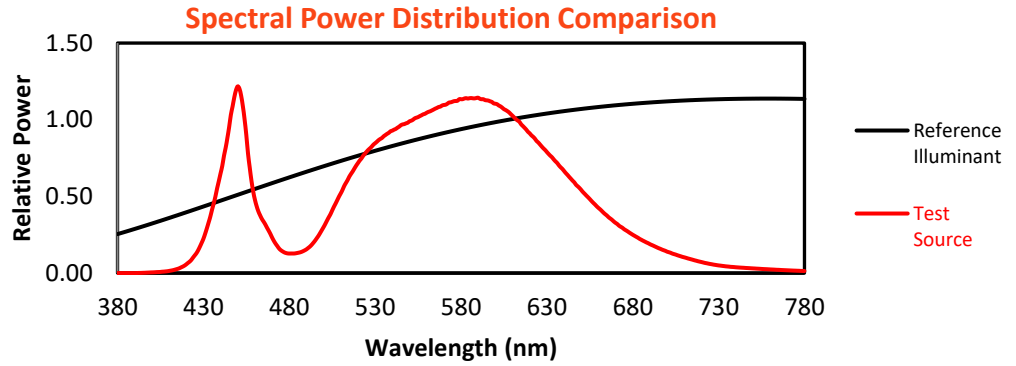
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

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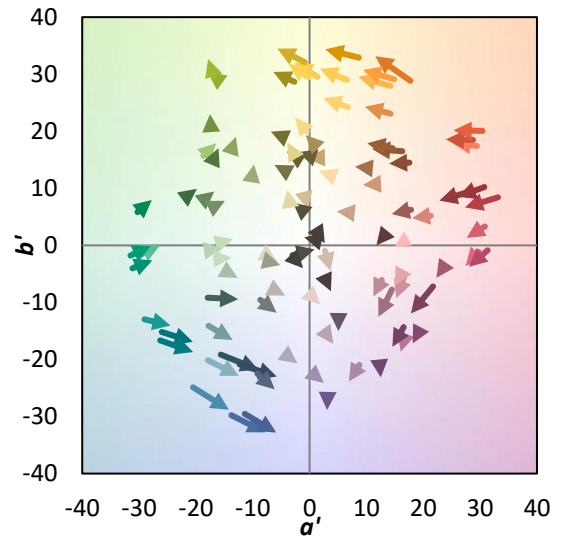
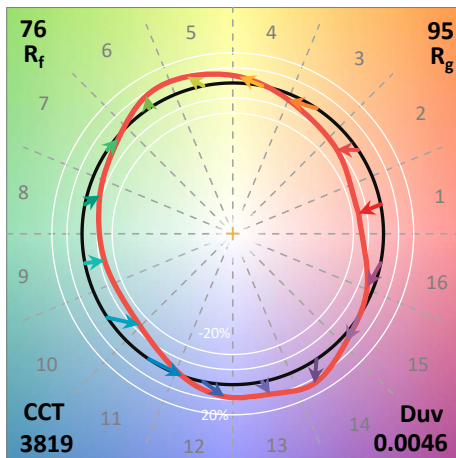
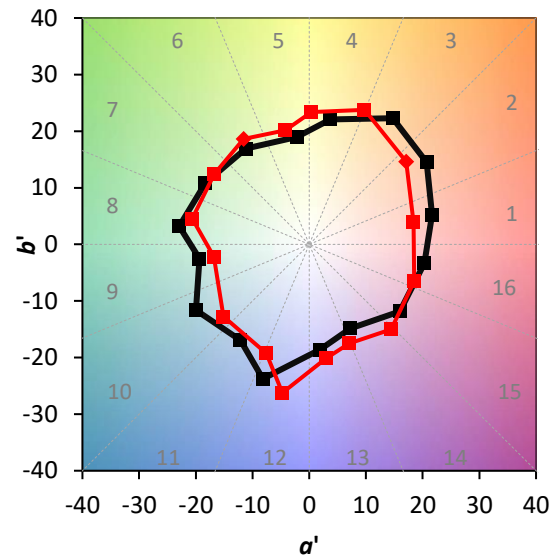
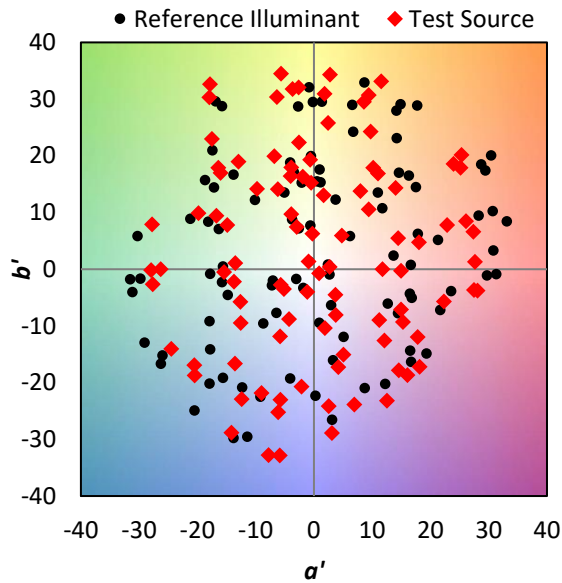
TM-30-18

Summary

$R_f = 75.6$
 $R_g = 94.8$
 $CIE R_a = 72.9$
 $R_g = -21.5$

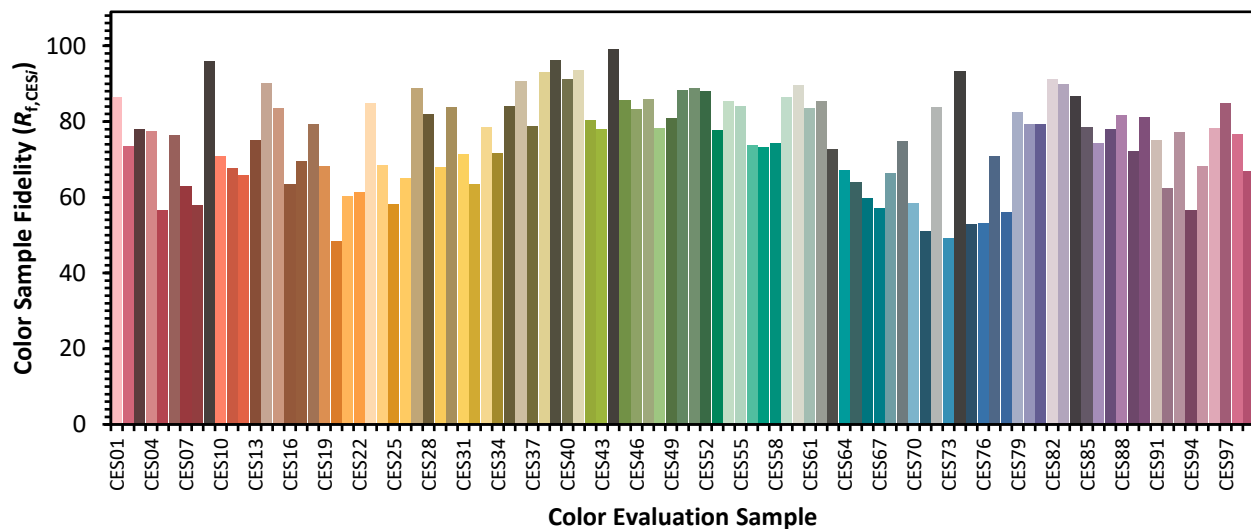


Color Vector Graphics

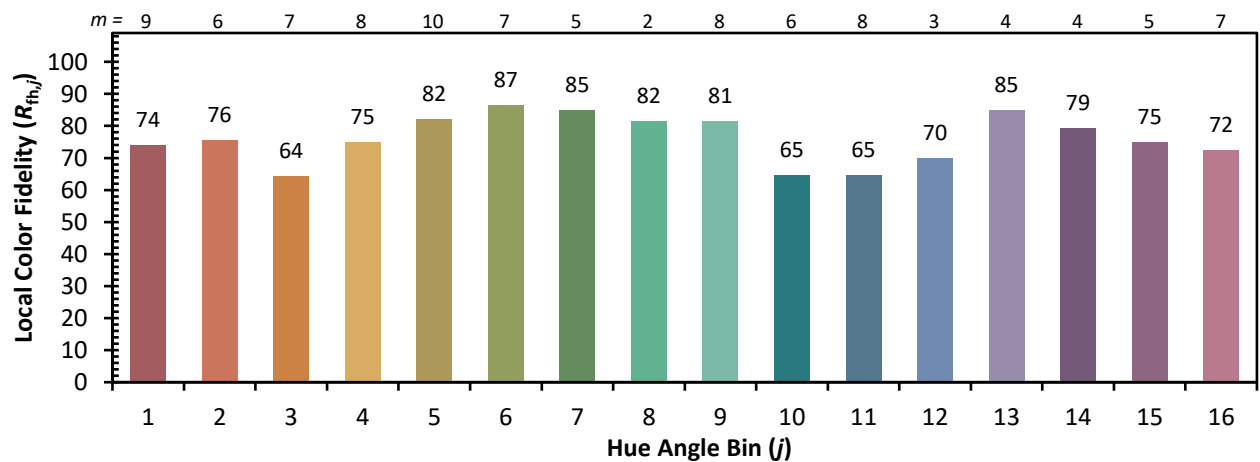
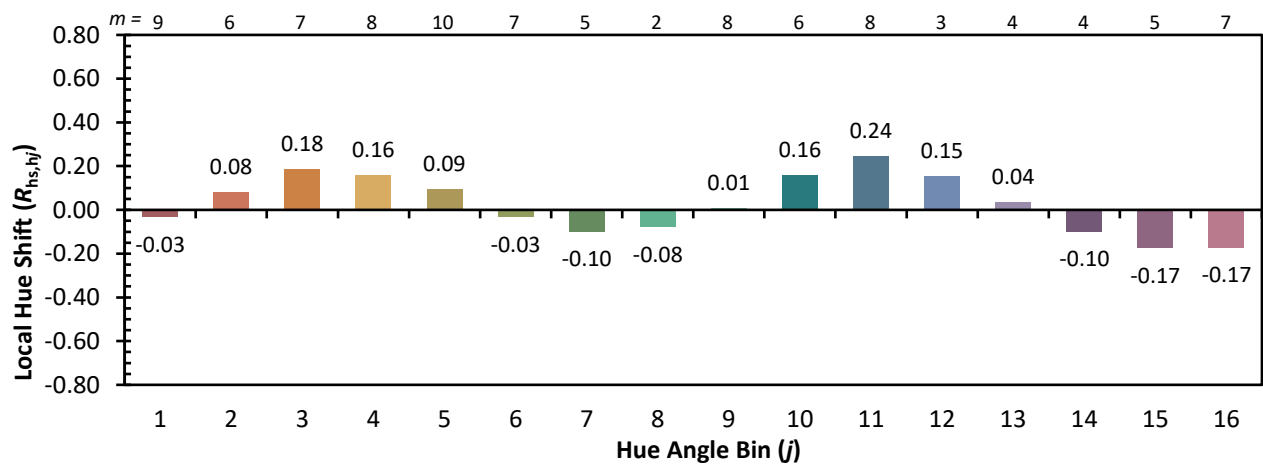
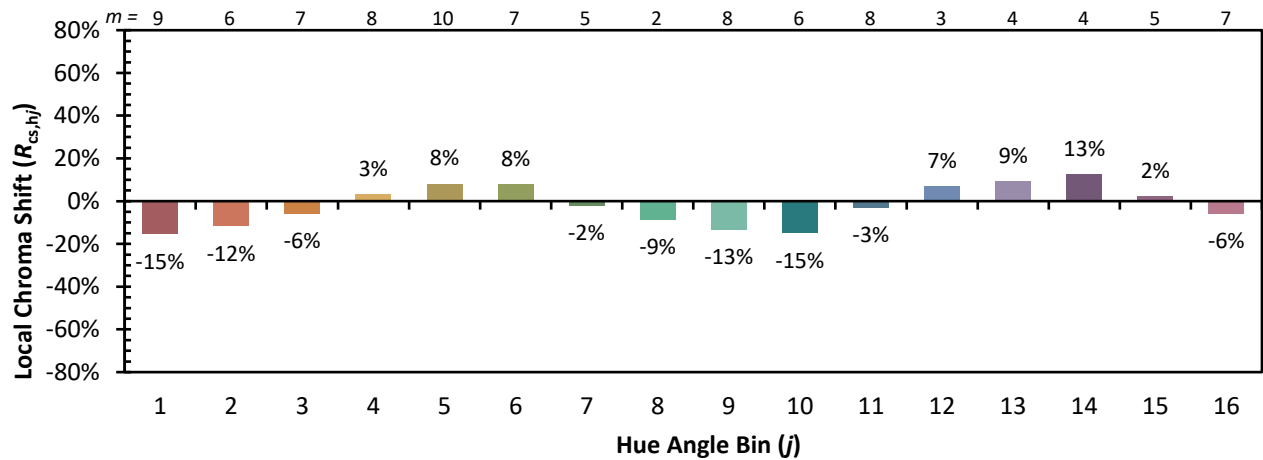


Individual Sample Fidelity Index ($R_{f,i}$)

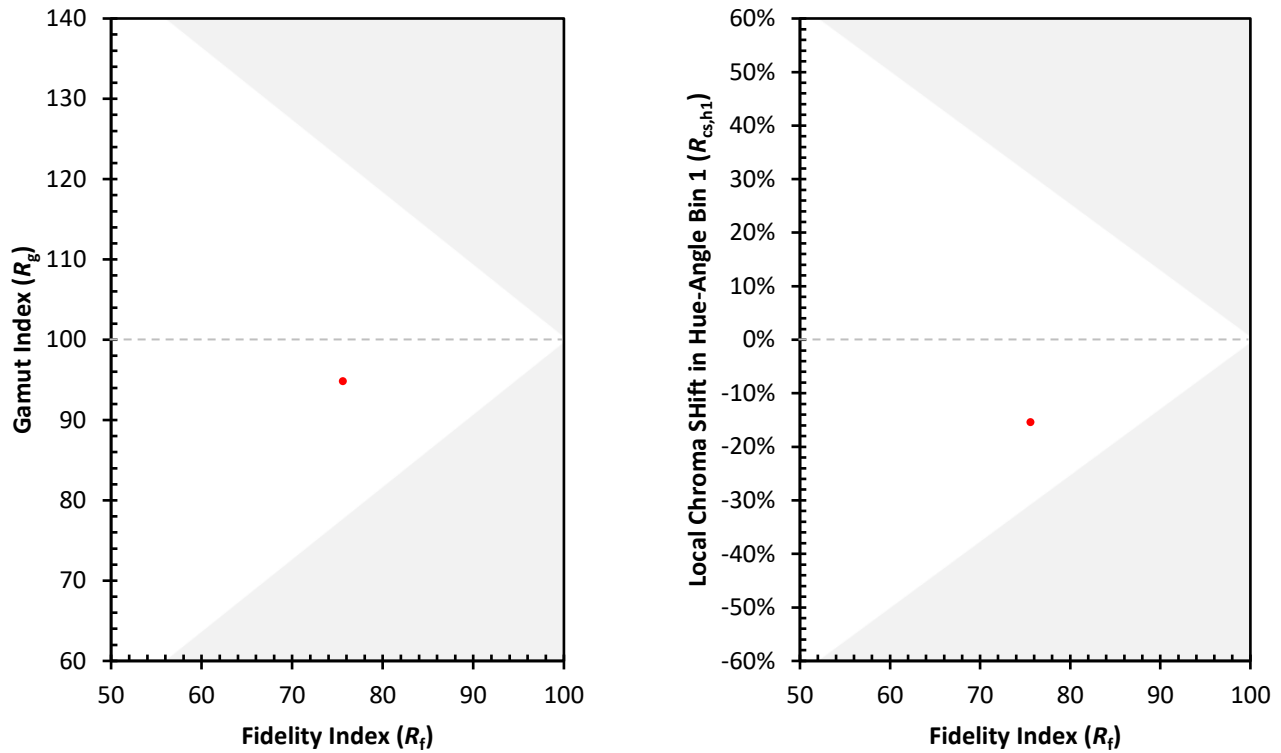
CES01 = 85	CES26 = 65	CES51 = 89	CES76 = 53
CES02 = 61	CES27 = 89	CES52 = 88	CES77 = 71
CES03 = 30	CES28 = 82	CES53 = 78	CES78 = 56
CES04 = 70	CES29 = 68	CES54 = 85	CES79 = 83
CES05 = 48	CES30 = 84	CES55 = 84	CES80 = 79
CES06 = 50	CES31 = 71	CES56 = 74	CES81 = 79
CES07 = 40	CES32 = 63	CES57 = 73	CES82 = 91
CES08 = 39	CES33 = 79	CES58 = 74	CES83 = 90
CES09 = 29	CES34 = 72	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 84	CES60 = 90	CES85 = 78
CES11 = 57	CES36 = 91	CES61 = 84	CES86 = 74
CES12 = 63	CES37 = 79	CES62 = 85	CES87 = 78
CES13 = 42	CES38 = 93	CES63 = 73	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 67	CES89 = 72
CES15 = 71	CES40 = 91	CES65 = 64	CES90 = 81
CES16 = 47	CES41 = 93	CES66 = 60	CES91 = 75
CES17 = 49	CES42 = 80	CES67 = 57	CES92 = 62
CES18 = 56	CES43 = 78	CES68 = 66	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 75	CES94 = 57
CES20 = 65	CES45 = 86	CES70 = 58	CES95 = 68
CES21 = 86	CES46 = 83	CES71 = 51	CES96 = 78
CES22 = 78	CES47 = 86	CES72 = 84	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 49	CES98 = 77
CES24 = 91	CES49 = 81	CES74 = 93	CES99 = 67
CES25 = 72	CES50 = 88	CES75 = 53	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)