

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: P832708

Luminaire Tested: **TTN-D3-830-U-RW-CG**

Issue Date: 5/14/2024

Test Information

Test Method: LM-79-08
Report Number: P832708
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-14)
Test Lab: INNOVATION CENTER
Issue Date: 5/14/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TTN-D3-830-U-RW-CG
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE
3000K, 80 CRI LEDS AND RECTANGULAR DISTRIBUTION WITH CLEAR GLASS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5764 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Luminous Opening: Circular (Dia: 0.71' x H: 0')
IES Classification: Type II - Short
BUG Rating: B3 - U0 - G3

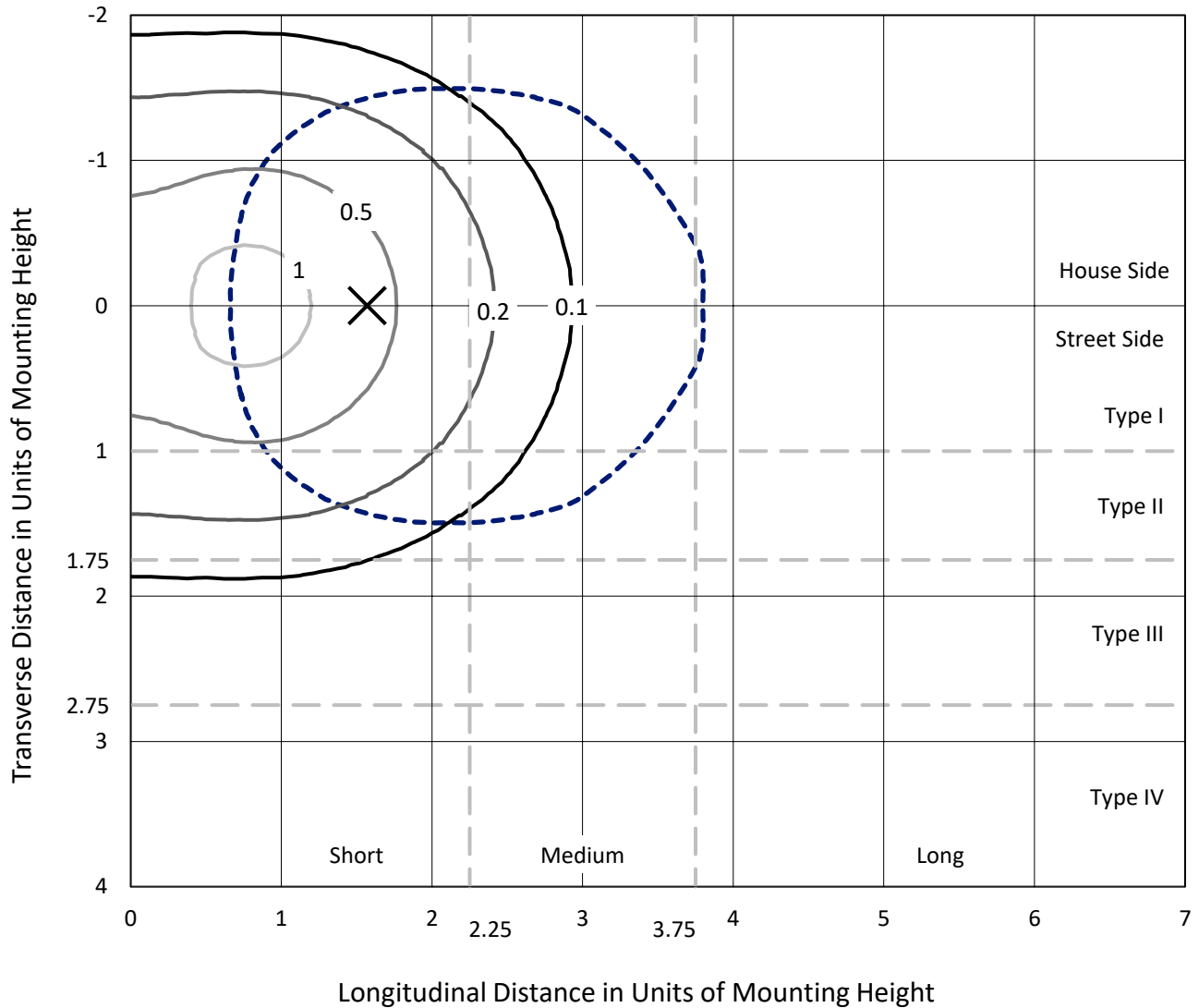
Input Watts (W): 59.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

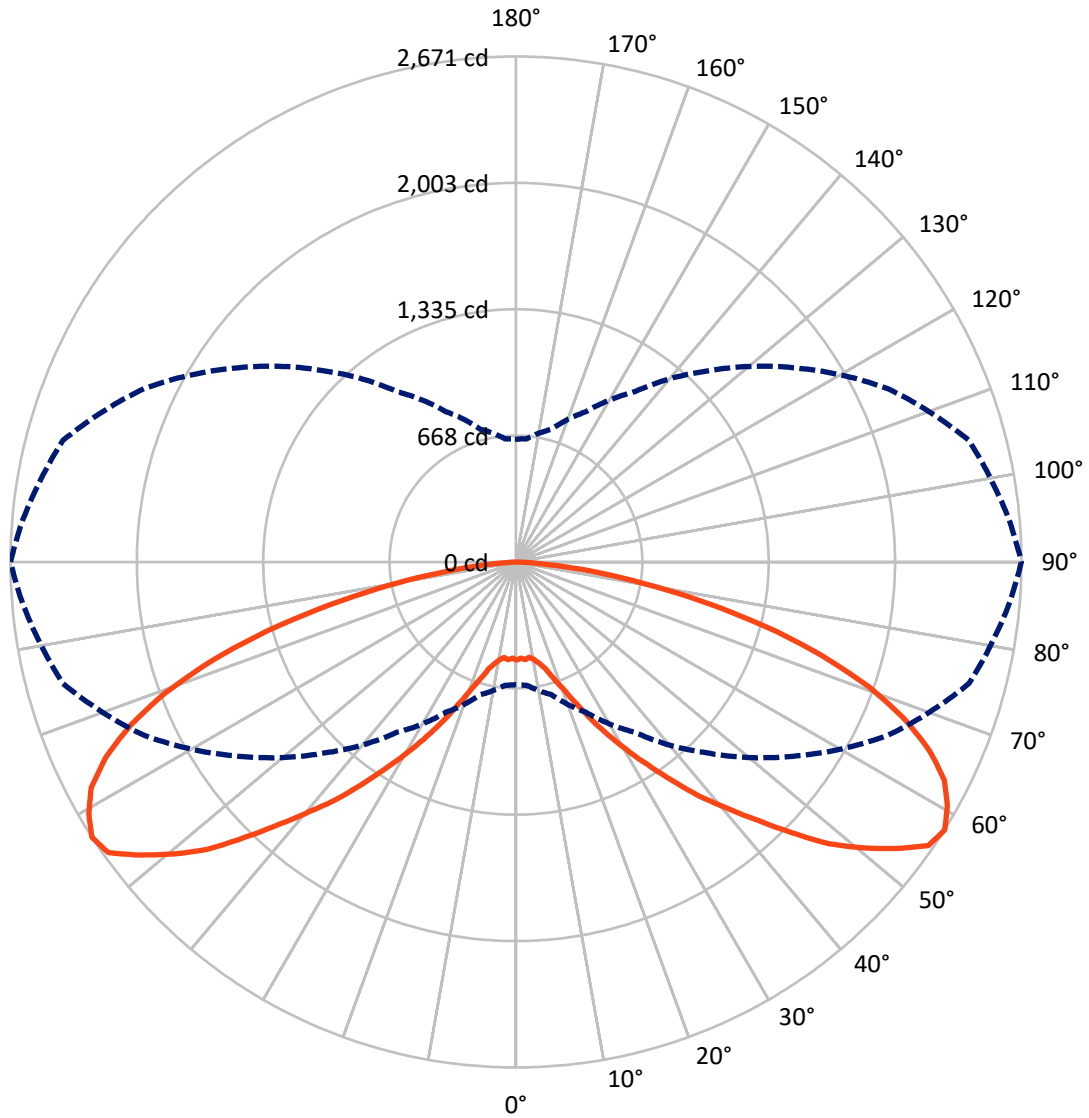
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.3 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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CATALOG NUMBER: TTN-D3-830-U-RW-CG

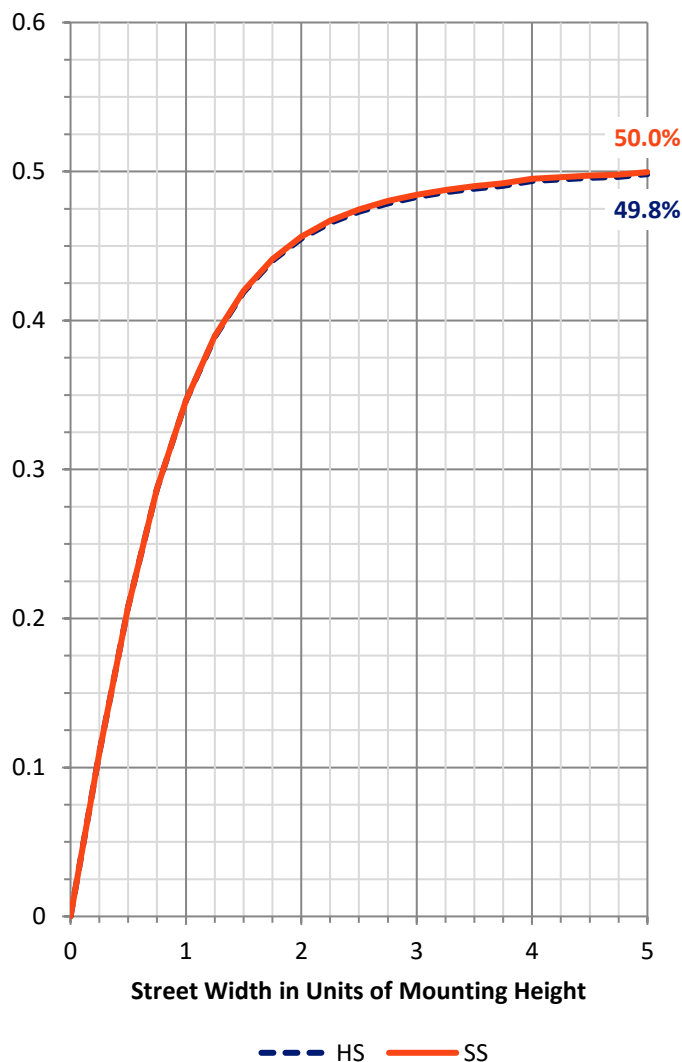
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2882.0	0.0	2882.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2882.0	0.0	2882.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	5764.0	0.0	5764.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.4	0.9
10°-20°	159.2	2.8
20°-30°	339.0	5.9
30°-40°	624.8	10.8
40°-50°	1005.9	17.5
50°-60°	1361.5	23.6
60°-70°	1323.8	23.0
70°-80°	770.2	13.4
80°-90°	130.2	2.3
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°	5764.0	100.0
0°-180°	5764.0	100.0

Coefficient of Utilization



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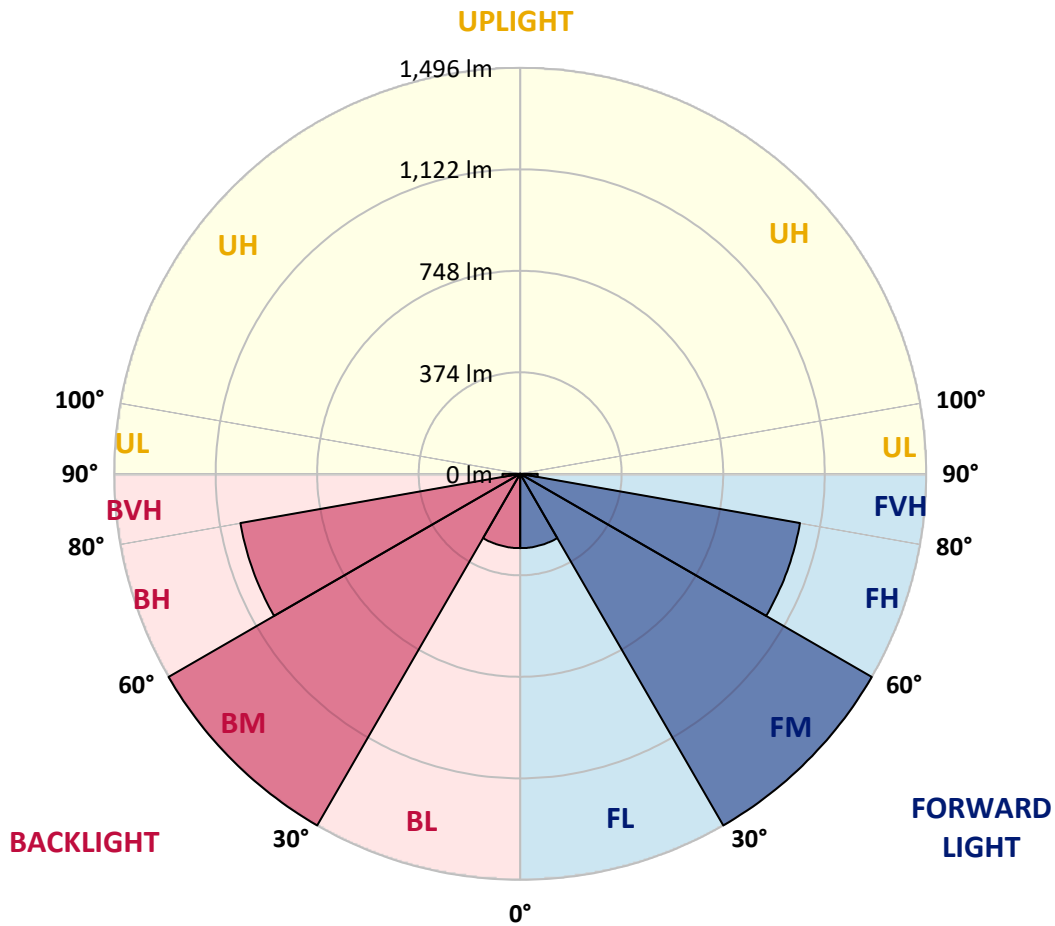
CATALOG NUMBER: TTN-D3-830-U-RW-CG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	273.8	4.8			
FM (30°-60°)	1496.1	26.0			
FH (60°-80°)	1047.0	18.2			G1/1800
FVH (80°-90°)	65.1	1.1			G1/100
BL (0°-30°)	273.8	4.8	B1/500		
BM (30°-60°)	1496.1	26.0	B2/2500		
BH (60°-80°)	1047.0	18.2	B3/2500		G3/2500
BVH (80°-90°)	65.1	1.1			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type II Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	518.6	518.6	518.6	518.6	518.6	518.6	518.6	518.6	518.6	518.6	518.6
2.5°	518.6	518.6	518.6	518.6	513.4	513.4	513.4	508.2	508.2	508.2	508.2
5°	518.6	518.6	518.6	523.8	523.8	523.8	518.6	518.6	518.6	518.6	518.6
7.5°	518.6	523.8	523.8	518.6	518.6	513.4	513.4	513.4	508.2	508.2	508.2
10°	518.6	518.6	518.6	518.6	513.4	513.4	518.6	518.6	523.8	523.8	523.8
12.5°	513.4	513.4	518.6	518.6	518.6	523.8	534.2	539.4	544.5	549.7	549.7
15°	518.6	518.6	523.8	529.0	534.2	544.5	560.1	575.7	586.0	591.2	586.0
17.5°	518.6	523.8	529.0	539.4	554.9	570.5	596.4	617.1	637.9	643.1	648.3
20°	529.0	529.0	534.2	554.9	580.8	606.8	643.1	679.4	705.3	715.7	715.7
22.5°	534.2	539.4	544.5	570.5	612.0	653.5	705.3	746.8	783.1	803.8	809.0
25°	549.7	549.7	560.1	596.4	648.3	710.5	777.9	840.2	886.8	912.8	917.9
27.5°	560.1	565.3	580.8	627.5	694.9	772.7	866.1	938.7	995.7	1026.9	1032.0
30°	570.5	575.7	606.8	658.6	741.6	835.0	943.9	1037.2	1109.8	1146.1	1151.3
32.5°	586.0	591.2	627.5	684.6	783.1	897.2	1021.7	1135.8	1239.5	1270.6	1275.8
35°	601.6	606.8	648.3	715.7	829.8	959.4	1104.6	1239.5	1363.9	1405.4	1415.8
37.5°	617.1	622.3	663.8	746.8	876.5	1026.9	1198.0	1358.8	1493.6	1550.7	1566.2
40°	632.7	637.9	684.6	777.9	923.1	1099.5	1296.5	1472.9	1628.4	1695.9	1706.2
42.5°	643.1	648.3	700.1	803.8	969.8	1166.9	1400.3	1597.3	1763.3	1851.4	1861.8
45°	658.6	663.8	720.9	840.2	1011.3	1244.7	1498.8	1737.4	1929.2	2027.8	2038.1
47.5°	669.0	674.2	736.4	860.9	1058.0	1317.3	1602.5	1861.8	2090.0	2193.7	2224.8
50°	674.2	679.4	746.8	881.6	1089.1	1369.1	1685.5	1986.3	2230.0	2359.7	2375.2
52.5°	674.2	684.6	752.0	897.2	1109.8	1415.8	1752.9	2090.0	2364.9	2510.1	2515.3
55°	669.0	674.2	746.8	892.0	1120.2	1436.6	1799.6	2152.2	2458.2	2598.2	2644.9
57.5°	648.3	653.5	726.1	876.5	1099.5	1426.2	1789.2	2167.8	2479.0	2613.8	2670.9
60°	617.1	627.5	694.9	840.2	1068.3	1389.9	1758.1	2136.7	2447.8	2613.8	2619.0
62.5°	580.8	586.0	653.5	793.5	1021.7	1332.8	1701.0	2074.4	2375.2	2546.4	2541.2
65°	529.0	534.2	591.2	736.4	938.7	1223.9	1587.0	1975.9	2235.2	2416.7	2401.2
67.5°	471.9	477.1	529.0	658.6	840.2	1104.6	1431.4	1810.0	2038.1	2224.8	2214.5
70°	409.7	409.7	456.4	565.3	736.4	969.8	1260.2	1592.1	1820.3	1975.9	1981.1
72.5°	337.1	337.1	378.6	471.9	617.1	814.2	1063.2	1358.8	1545.5	1680.3	1690.7
75°	264.5	259.3	295.6	373.4	487.5	648.3	840.2	1094.3	1239.5	1369.1	1363.9
77.5°	186.7	186.7	207.4	269.7	352.7	482.3	622.3	824.6	923.1	1032.0	1011.3
80°	119.3	119.3	129.7	176.3	233.4	321.5	409.7	560.1	627.5	710.5	684.6
82.5°	62.2	57.0	67.4	93.4	124.5	176.3	228.2	326.7	357.8	420.1	399.3
85°	20.7	20.7	20.7	31.1	46.7	67.4	88.2	140.0	145.2	186.7	171.1
87.5°	5.2	0.0	0.0	5.2	5.2	5.2	5.2	15.6	15.6	31.1	20.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-4

Test Date: 11/22/2024

Luminaire Tested: TTN-D0-830-U-WQ

Data in this report applies to TT and TTN families of products

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/22/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-830-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3000K, 80 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 2963
 CIE u': 0.2515
 CIE v': 0.5238
 Duv: 0.0012
 CIE x: 0.4414
 CIE y: 0.4086
 CIE z: 0.1501
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 582
 Purity: 55.12798
 Rf: 86.1
 Rg: 94.9

CRI (Ra):	82.9		
R1:	81.4	R9:	3.9
R2:	91.9	R10:	82.5
R3:	95.2	R11:	82.3
R4:	81.6	R12:	76.5
R5:	82.3	R13:	83.9
R6:	91.4	R14:	97.8
R7:	82.0	R15:	72.6
R8:	57.2		



Test Conditions

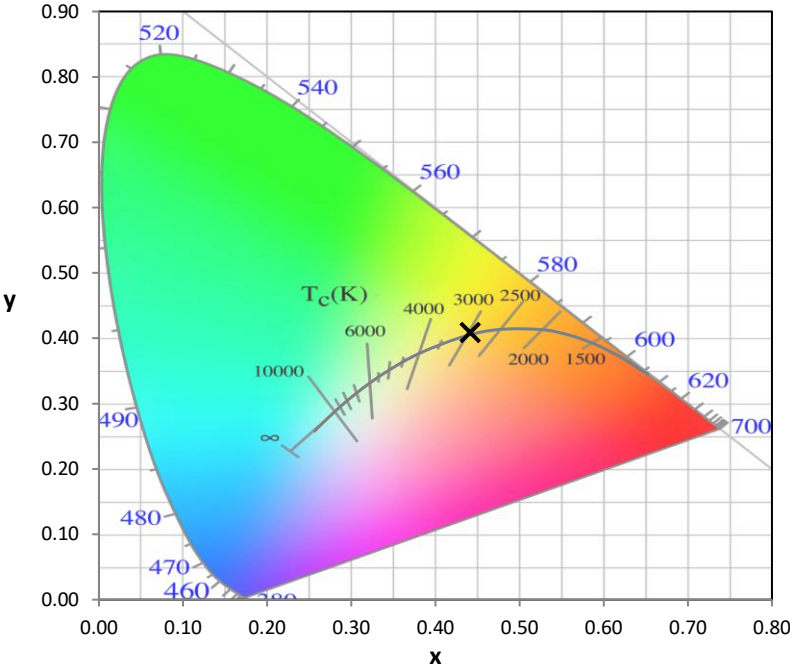
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

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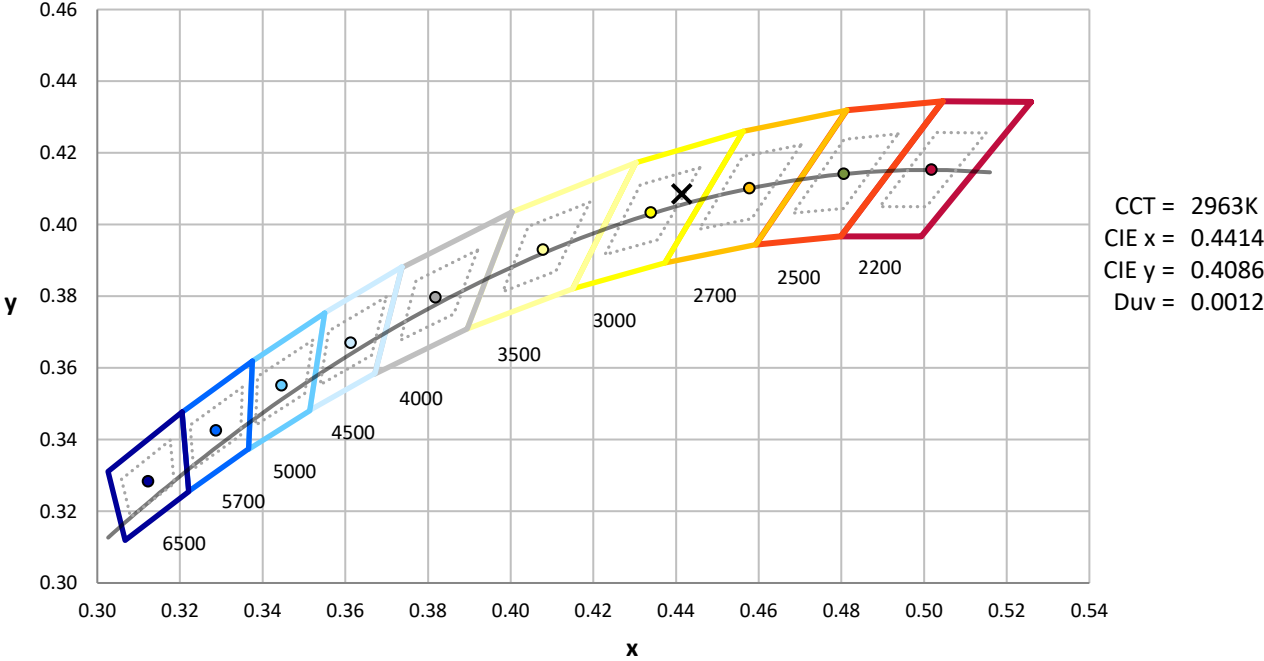
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

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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

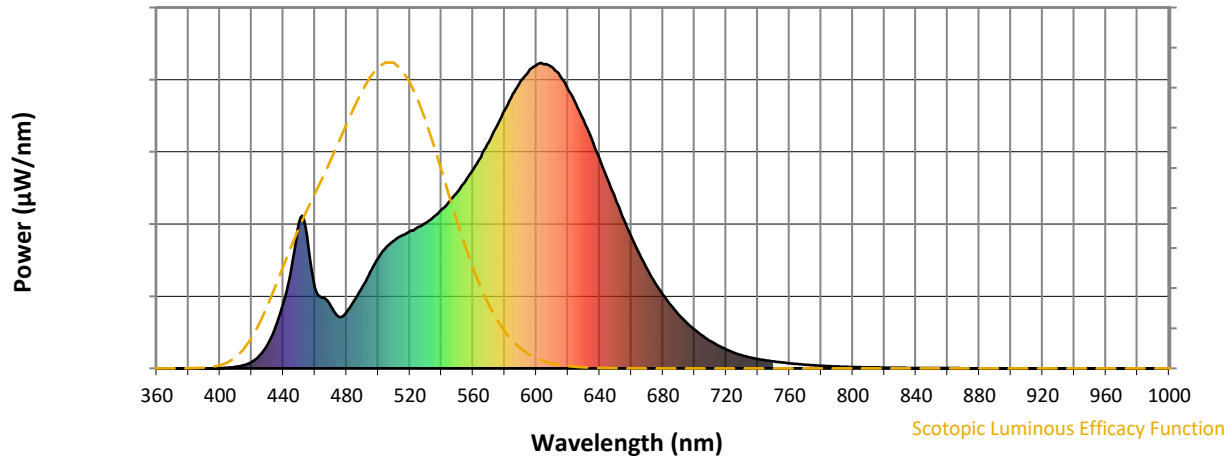


Photopic Lumens: NR

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.34

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	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



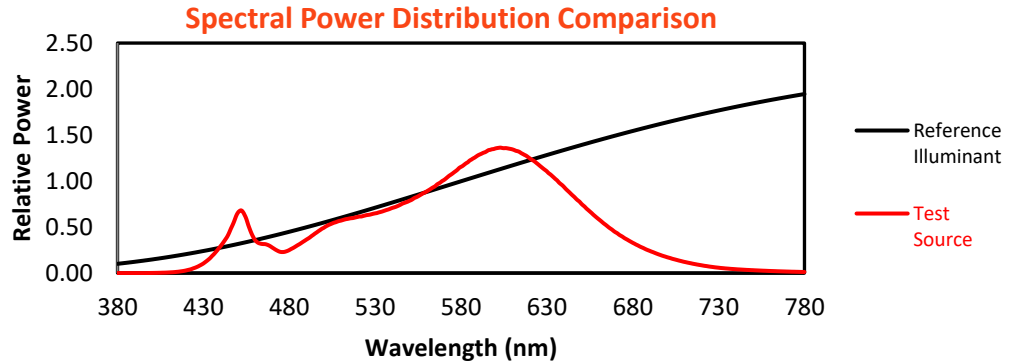
Melanopic Lumens: NR

M/P: 2.58

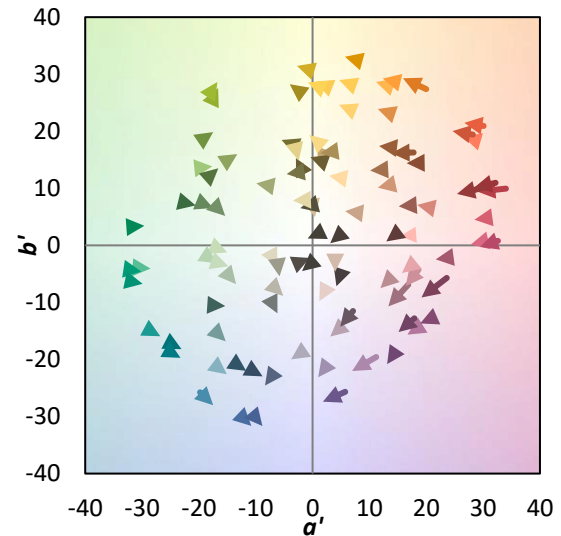
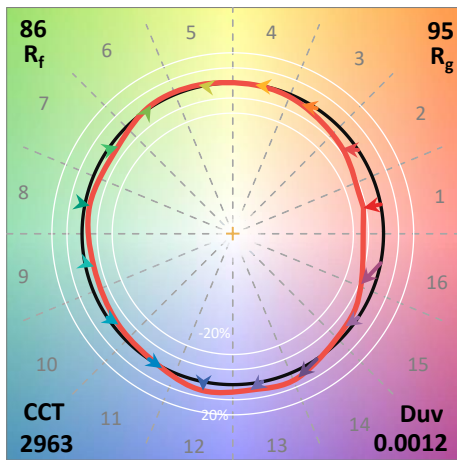
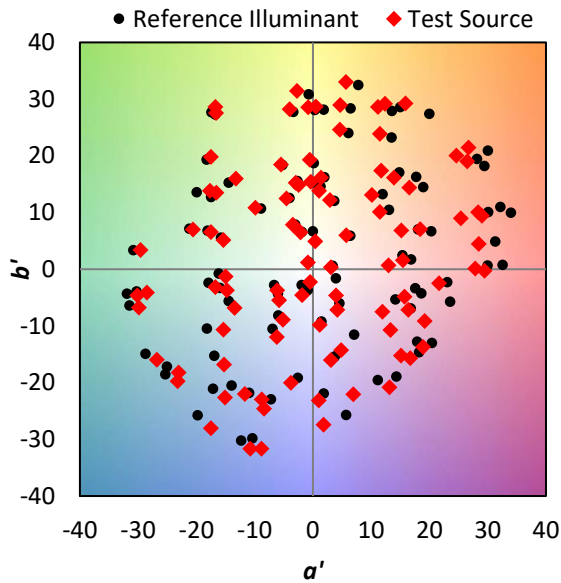
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	NR	630	811	NR	760	17	NR	890	0	NR
375	0	NR	505	396	NR	635	750	NR	765	14	NR	895	0	NR
380	0	NR	510	418	NR	640	686	NR	770	12	NR	900	0	NR
385	0	NR	515	435	NR	645	619	NR	775	10	NR	905	0	NR
390	0	NR	520	448	NR	650	554	NR	780	9	NR	910	0	NR
395	0	NR	525	462	NR	655	491	NR	785	7	NR	915	0	NR
400	1	NR	530	476	NR	660	431	NR	790	6	NR	920	0	NR
405	2	NR	535	495	NR	665	376	NR	795	5	NR	925	0	NR
410	5	NR	540	520	NR	670	325	NR	800	4	NR	930	0	NR
415	10	NR	545	547	NR	675	280	NR	805	4	NR	935	0	NR
420	21	NR	550	576	NR	680	241	NR	810	3	NR	940	0	NR
425	42	NR	555	612	NR	685	207	NR	815	3	NR	945	0	NR
430	77	NR	560	651	NR	690	176	NR	820	2	NR	950	0	NR
435	135	NR	565	693	NR	695	149	NR	825	2	NR	955	0	NR
440	215	NR	570	741	NR	700	127	NR	830	2	NR	960	0	NR
445	321	NR	575	793	NR	705	107	NR	835	2	NR	965	0	NR
450	479	NR	580	847	NR	710	89	NR	840	1	NR	970	0	NR
455	432	NR	585	897	NR	715	75	NR	845	1	NR	975	0	NR
460	265	NR	590	940	NR	720	62	NR	850	1	NR	980	0	NR
465	231	NR	595	971	NR	725	51	NR	855	1	NR	985	0	NR
470	204	NR	600	993	NR	730	43	NR	860	1	NR	990	0	NR
475	168	NR	605	996	NR	735	36	NR	865	1	NR	995	0	NR
480	183	NR	610	986	NR	740	31	NR	870	1	NR	1000	0	NR
485	223	NR	615	957	NR	745	26	NR	875	0	NR			

Summary

$R_f = 86.1$
 $R_g = 94.9$
 CIE $R_a = 82.9$
 $R_9 = 3.9$

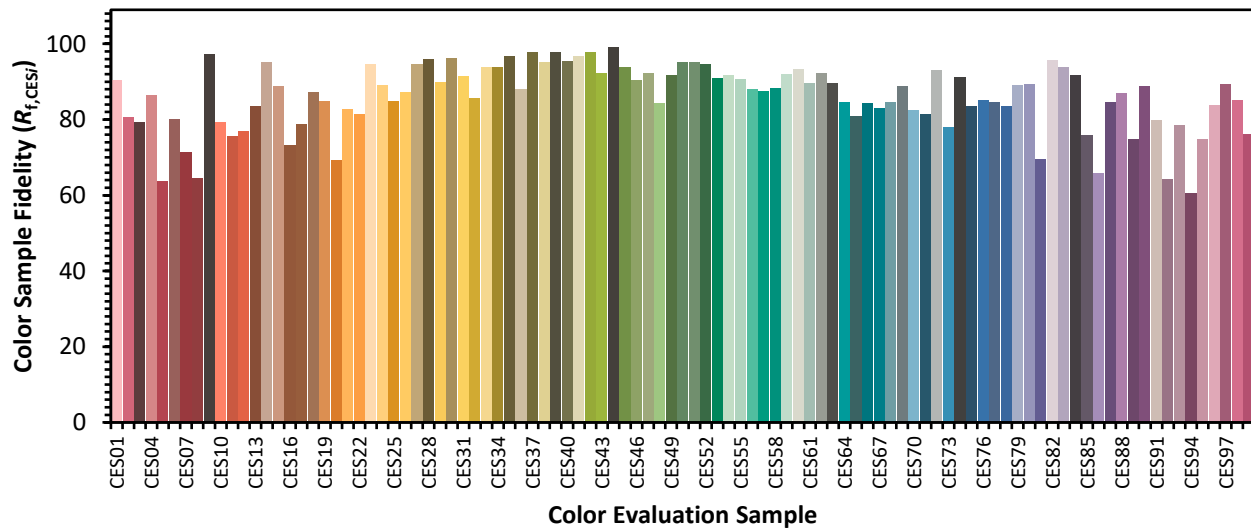


Color Vector Graphics

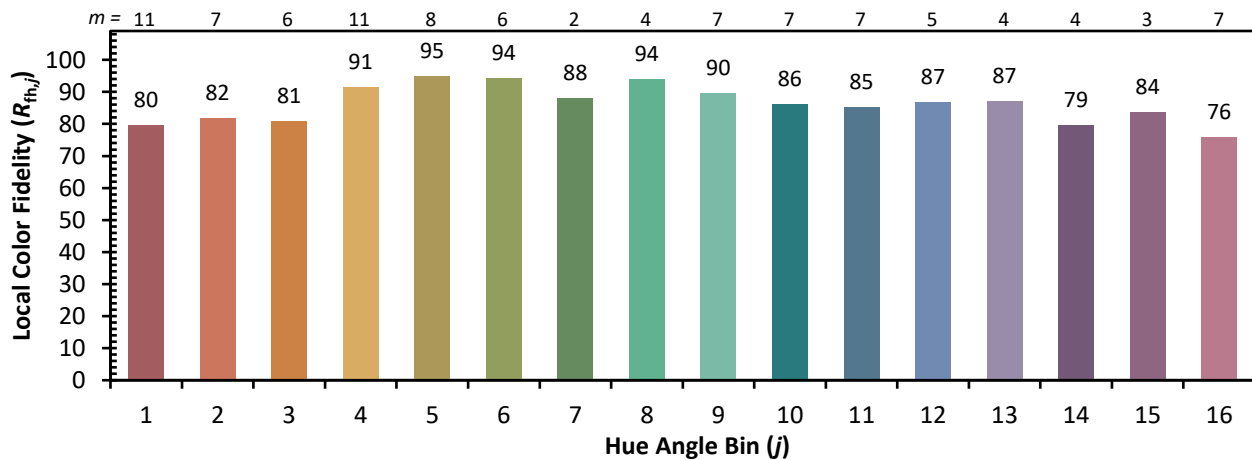
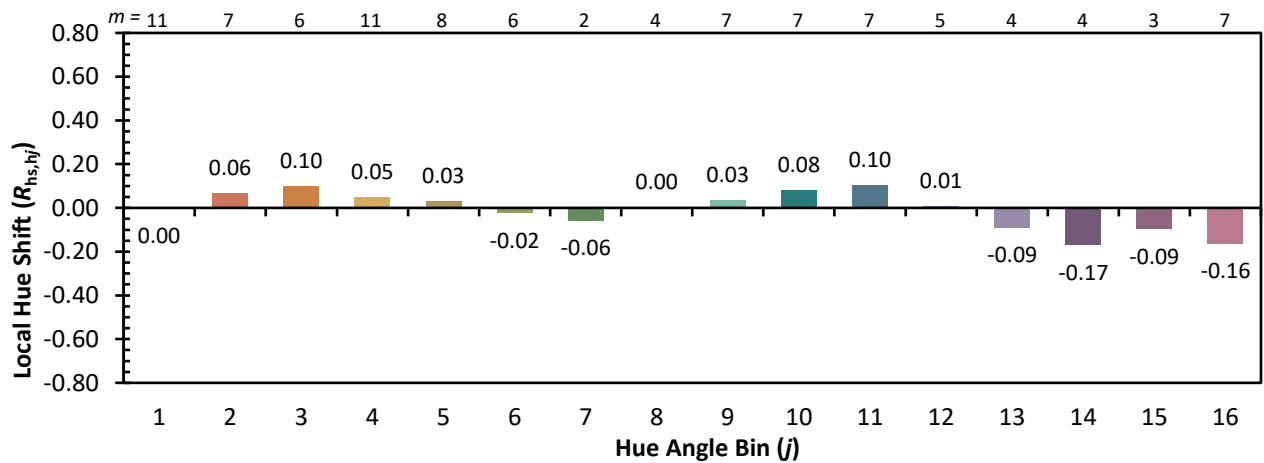
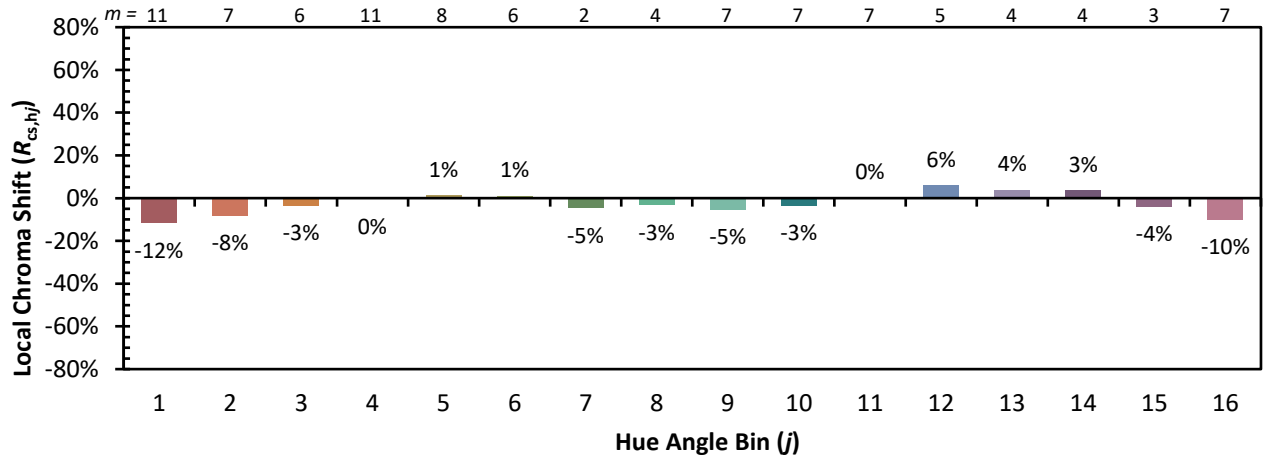


Individual Sample Fidelity Index ($R_{f,i}$)

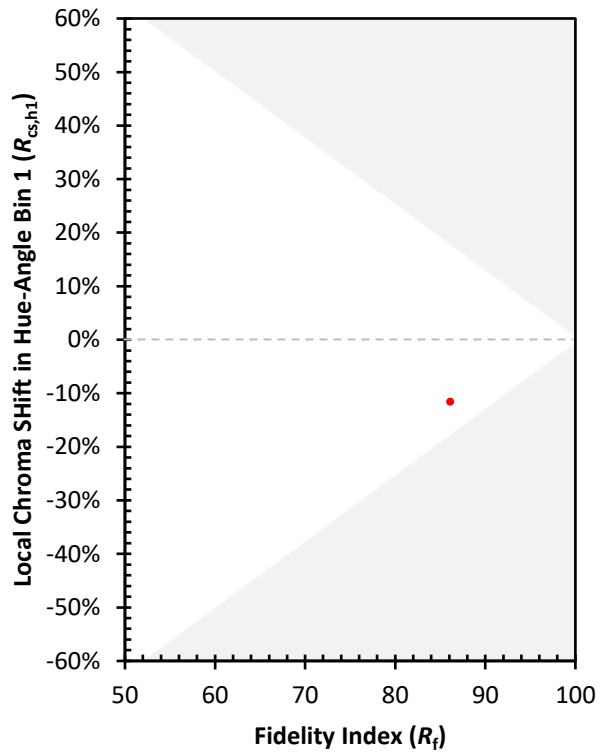
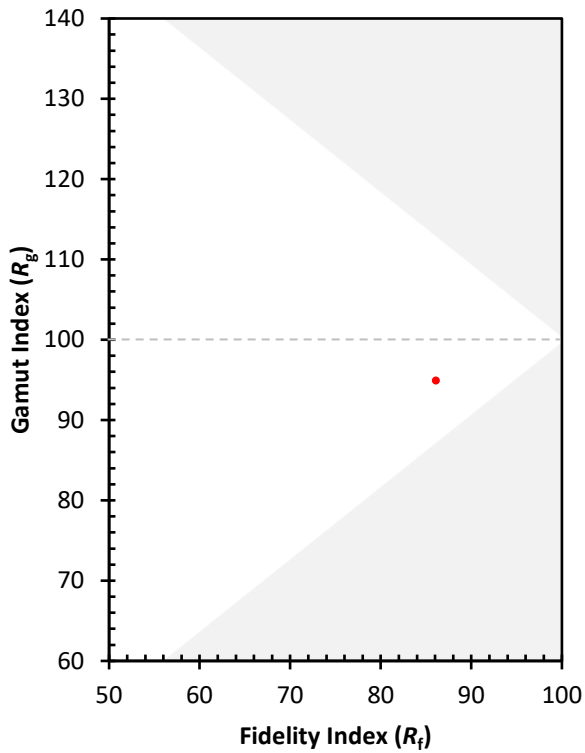
CES01 = 86	CES26 = 87	CES51 = 95	CES76 = 85
CES02 = 63	CES27 = 95	CES52 = 95	CES77 = 85
CES03 = 31	CES28 = 96	CES53 = 91	CES78 = 83
CES04 = 70	CES29 = 90	CES54 = 92	CES79 = 89
CES05 = 50	CES30 = 96	CES55 = 91	CES80 = 89
CES06 = 51	CES31 = 92	CES56 = 88	CES81 = 70
CES07 = 42	CES32 = 86	CES57 = 87	CES82 = 96
CES08 = 41	CES33 = 94	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 93	CES85 = 76
CES11 = 59	CES36 = 88	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 98	CES62 = 92	CES87 = 85
CES13 = 44	CES38 = 95	CES63 = 90	CES88 = 87
CES14 = 74	CES39 = 98	CES64 = 85	CES89 = 75
CES15 = 72	CES40 = 96	CES65 = 81	CES90 = 89
CES16 = 48	CES41 = 97	CES66 = 84	CES91 = 80
CES17 = 50	CES42 = 98	CES67 = 83	CES92 = 64
CES18 = 57	CES43 = 92	CES68 = 85	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 61
CES20 = 67	CES45 = 94	CES70 = 83	CES95 = 75
CES21 = 87	CES46 = 91	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 92	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 84	CES73 = 78	CES98 = 85
CES24 = 91	CES49 = 92	CES74 = 91	CES99 = 76
CES25 = 72	CES50 = 95	CES75 = 84	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)