

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: P832589

Luminaire Tested: **TTN-D1-830-U-WQ-CG**

Issue Date: 5/14/2024

Test Information

Test Method: LM-79-08
Report Number: P832589
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-12)
Test Lab: INNOVATION CENTER
Issue Date: 5/14/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TTN-D1-830-U-WQ-CG
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE
3000K, 80 CRI LEDS AND WIDE DISTRIBUTION WITH CLEAR GLASS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2860 lumens
Efficiency: N/A
Efficacy: 108.3 lumens/watt
Luminous Opening: Circular (Dia: 0.71' x H: 0')
IES Classification: Type V - Short
BUG Rating: B2 - U0 - G1

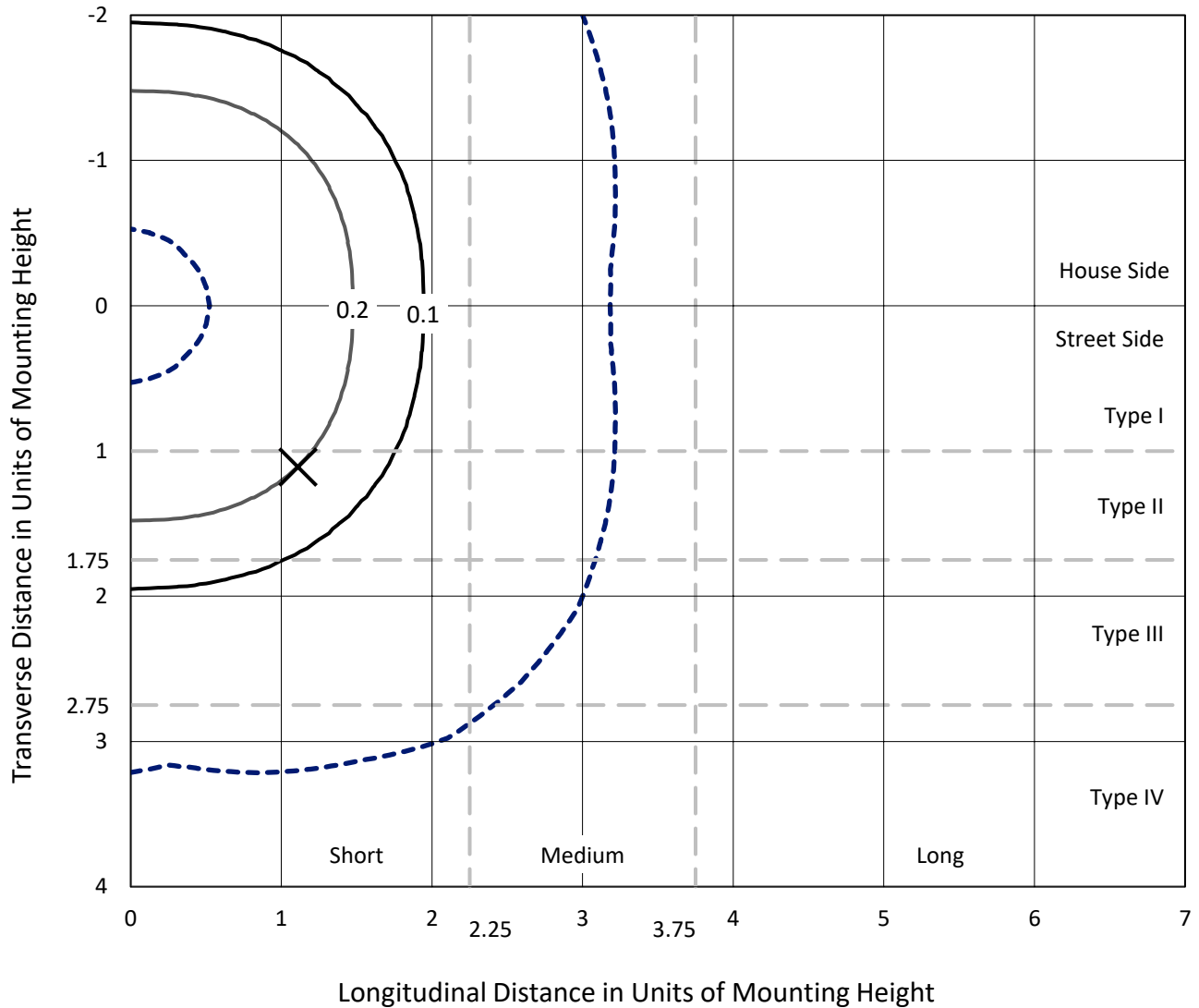
Input Watts (W): 26.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

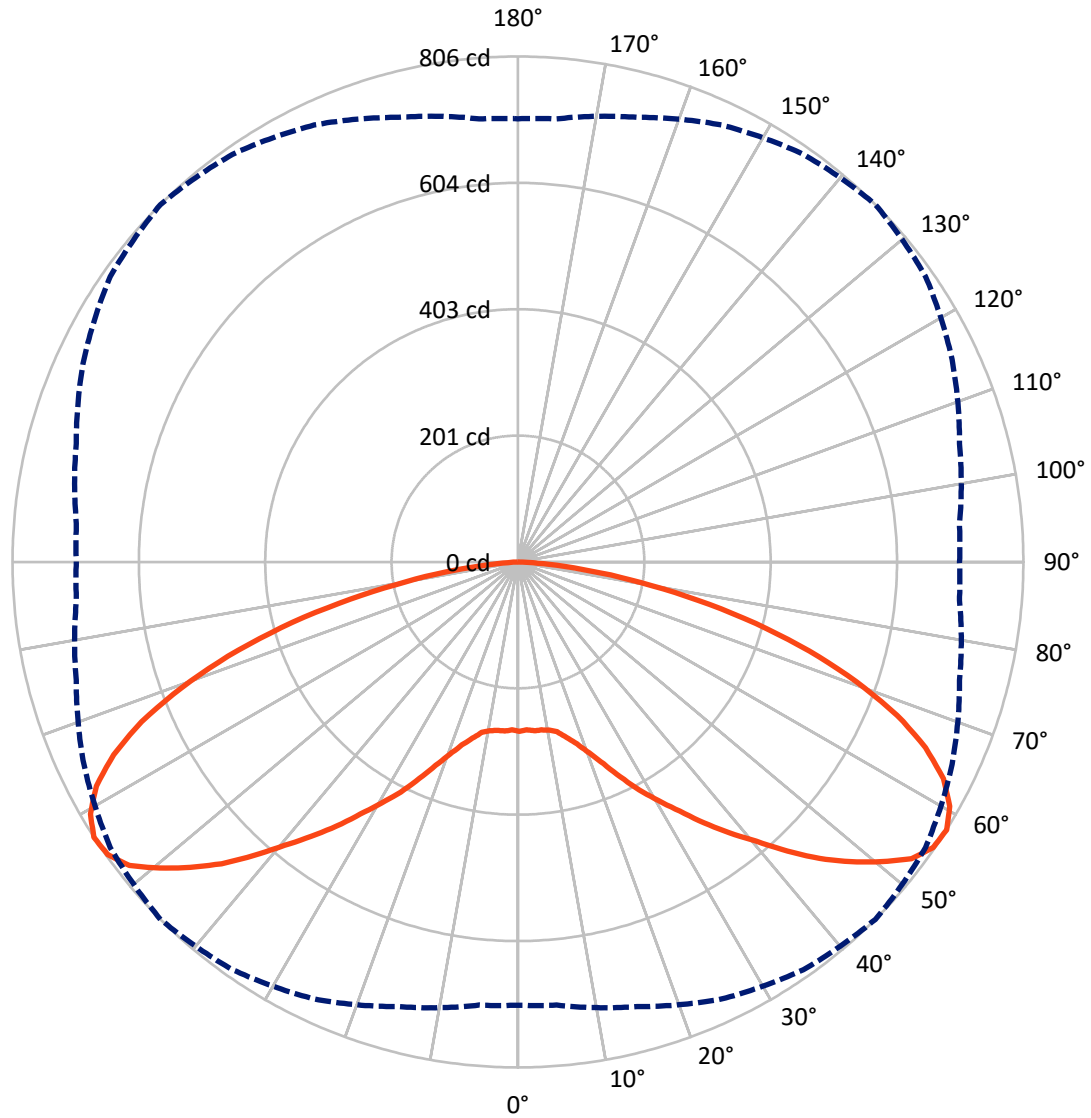
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 0.5 fc
 Type V - Short - N/A

REPORT NUMBER: P832589
CATALOG NUMBER: TTN-D1-830-U-WQ-CG

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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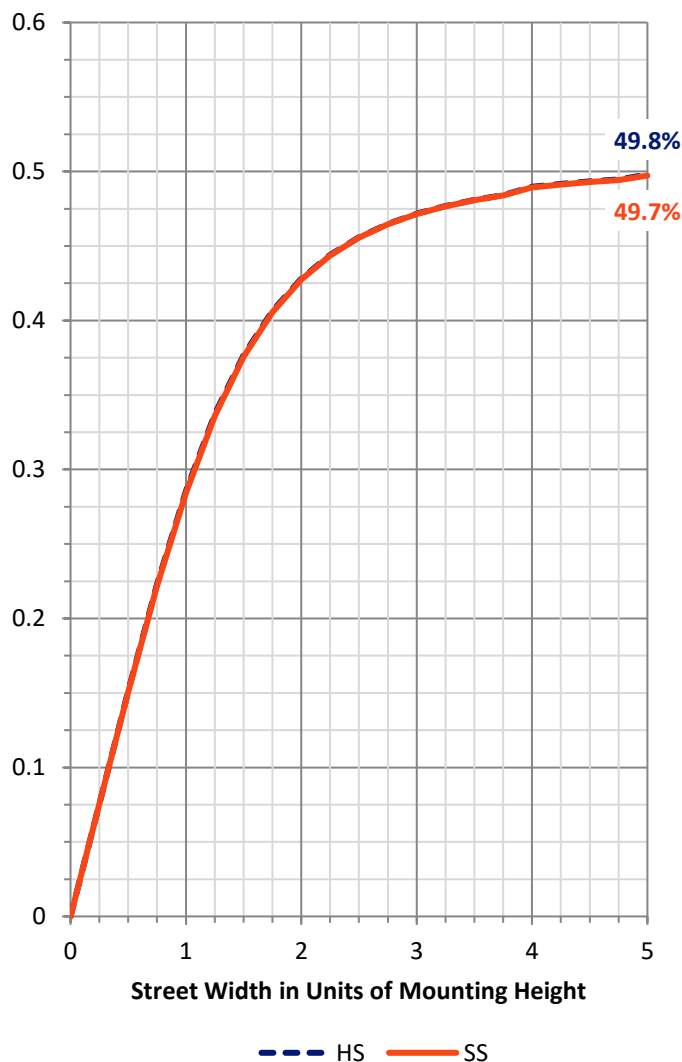
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1430.0	0.0	1430.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	1430.0	0.0	1430.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	2860.0	0.0	2860.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.8	0.9
10°-20°	83.3	2.9
20°-30°	175.3	6.1
30°-40°	316.0	11.0
40°-50°	502.3	17.6
50°-60°	670.1	23.4
60°-70°	647.5	22.6
70°-80°	375.2	13.1
80°-90°	64.7	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°	2860.0	100.0
0°-180°	2860.0	100.0

Coefficient of Utilization



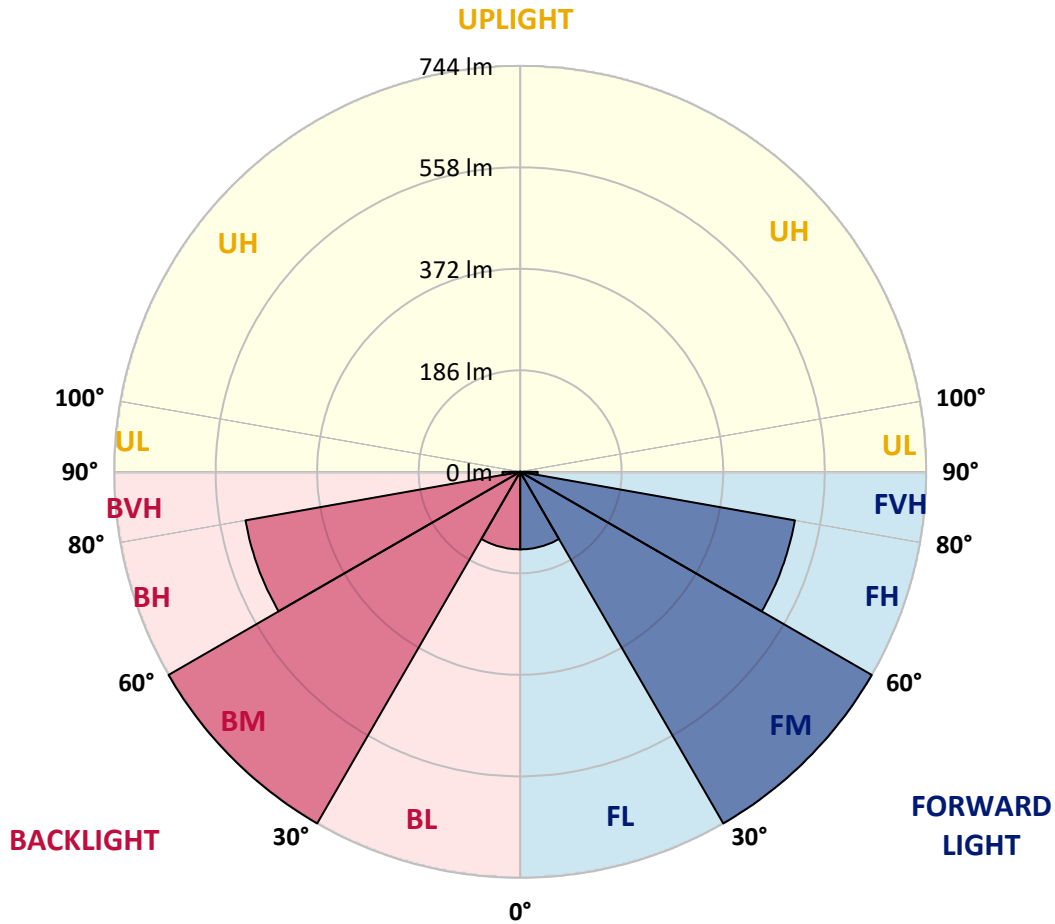
REPORT NUMBER: P832589
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	142.2	5.0			
FM (30°-60°)	744.2	26.0			
FH (60°-80°)	511.3	17.9			G0/660
FVH (80°-90°)	32.3	1.1			G1/100
BL (0°-30°)	142.2	5.0	B1/500		
BM (30°-60°)	744.2	26.0	B1/1000		
BH (60°-80°)	511.3	17.9	B2/1000		G0/660
BVH (80°-90°)	32.3	1.1			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





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 CATALOG NUMBER: TTN-D1-830-U-WQ-CG

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2
2.5°	267.7	267.7	267.7	267.7	267.7	267.7	267.7	267.7	267.7	267.7	267.7
5°	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2	270.2
7.5°	267.7	267.7	270.2	270.2	270.2	270.2	270.2	270.2	270.2	267.7	267.7
10°	270.2	270.2	270.2	272.7	272.7	272.7	272.7	272.7	270.2	270.2	270.2
12.5°	275.1	275.1	277.6	277.6	277.6	277.6	277.6	277.6	277.6	275.1	275.1
15°	287.5	287.5	287.5	290.0	290.0	290.0	290.0	290.0	287.5	287.5	287.5
17.5°	299.9	299.9	302.4	302.4	304.9	304.9	304.9	302.4	302.4	302.4	302.4
20°	317.3	317.3	319.8	319.8	322.2	324.7	324.7	322.2	319.8	319.8	319.8
22.5°	339.6	342.1	342.1	342.1	344.5	349.5	347.0	344.5	342.1	342.1	342.1
25°	366.8	369.3	371.8	371.8	374.3	379.2	379.2	371.8	371.8	371.8	371.8
27.5°	399.1	401.5	404.0	404.0	406.5	411.5	409.0	404.0	404.0	401.5	401.5
30°	428.8	431.3	433.8	436.2	438.7	441.2	441.2	436.2	433.8	431.3	428.8
32.5°	458.6	458.6	463.5	468.5	473.4	473.4	475.9	468.5	463.5	458.6	456.1
35°	488.3	490.8	493.3	500.7	508.1	510.6	508.1	500.7	493.3	488.3	488.3
37.5°	520.5	523.0	525.5	535.4	542.8	547.8	542.8	535.4	525.5	520.5	518.0
40°	555.2	557.7	560.2	572.6	580.0	585.0	577.5	570.1	560.2	555.2	552.7
42.5°	587.4	592.4	597.4	612.2	624.6	629.6	622.1	609.8	599.8	587.4	585.0
45°	627.1	632.1	639.5	654.4	666.8	674.2	664.3	651.9	637.0	627.1	624.6
47.5°	659.3	664.3	671.7	691.6	708.9	713.9	703.9	689.1	669.2	656.9	654.4
50°	684.1	689.1	703.9	726.3	746.1	751.0	741.1	721.3	699.0	681.6	679.2
52.5°	703.9	708.9	726.3	756.0	778.3	785.7	773.3	751.0	721.3	701.5	699.0
55°	713.9	716.3	738.6	770.9	793.2	803.1	790.7	765.9	733.7	711.4	708.9
57.5°	706.4	708.9	733.7	768.4	793.2	805.6	793.2	763.4	728.7	706.4	703.9
60°	691.6	691.6	713.9	753.5	783.3	790.7	778.3	748.6	711.4	689.1	686.6
62.5°	664.3	661.8	689.1	723.8	753.5	761.0	751.0	721.3	684.1	661.8	659.3
65°	612.2	607.3	646.9	679.2	706.4	713.9	706.4	679.2	644.5	609.8	604.8
67.5°	550.3	542.8	580.0	617.2	642.0	651.9	642.0	619.7	580.0	545.3	542.8
70°	485.8	478.4	508.1	540.4	567.6	572.6	562.7	540.4	503.2	480.9	480.9
72.5°	409.0	401.5	428.8	453.6	480.9	485.8	475.9	456.1	428.8	406.5	404.0
75°	324.7	317.3	342.1	361.9	389.2	391.6	386.7	364.4	342.1	319.8	319.8
77.5°	240.4	233.0	252.8	270.2	292.5	292.5	290.0	272.7	252.8	238.0	238.0
80°	158.6	153.7	171.0	178.5	198.3	198.3	195.8	183.4	168.6	158.6	156.2
82.5°	89.2	84.3	99.1	101.6	116.5	116.5	114.0	104.1	94.2	86.8	86.8
85°	34.7	29.7	39.7	42.1	49.6	49.6	47.1	44.6	37.2	32.2	32.2
87.5°	2.5	2.5	5.0	5.0	7.4	7.4	7.4	5.0	5.0	2.5	2.5
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

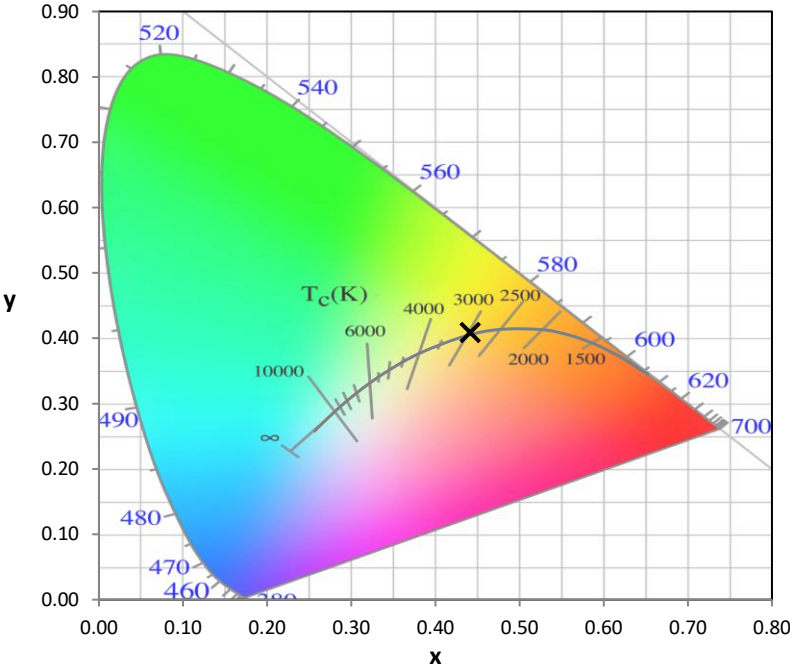
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2411-284-4

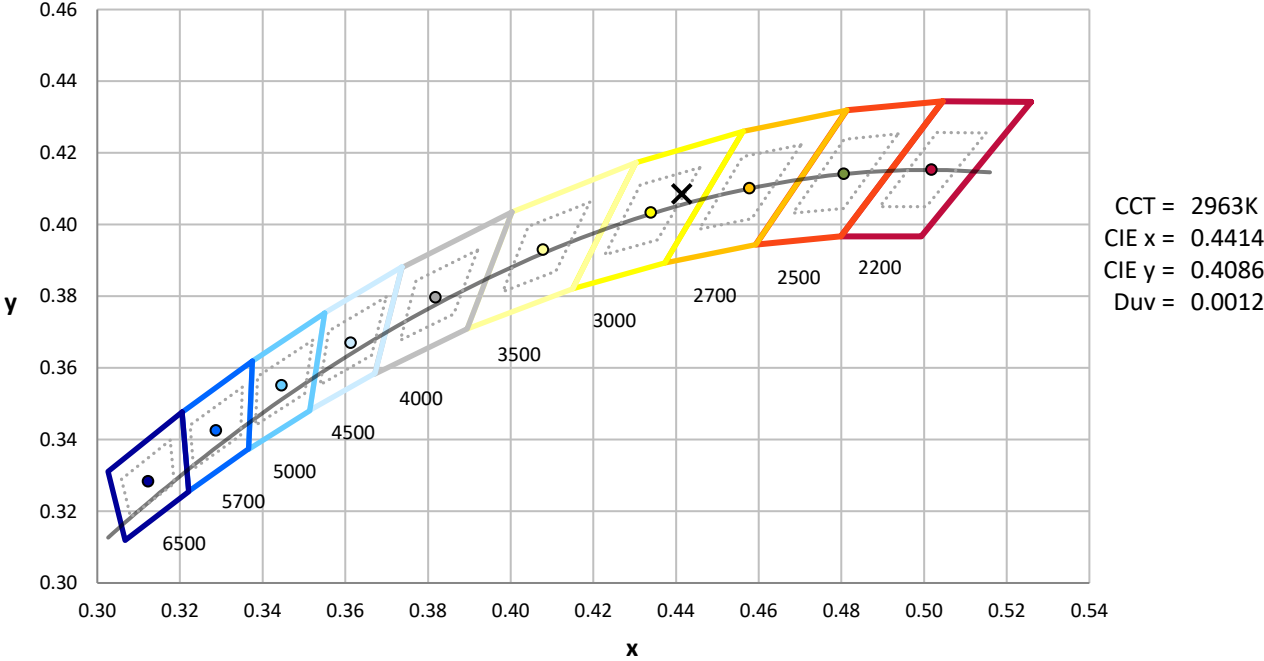
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

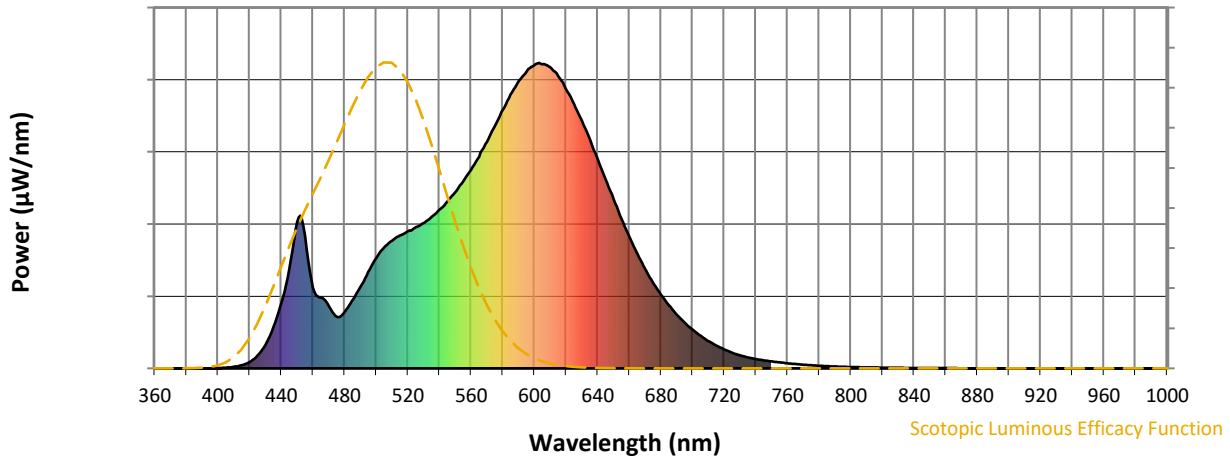


Photopic Lumens: NR

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



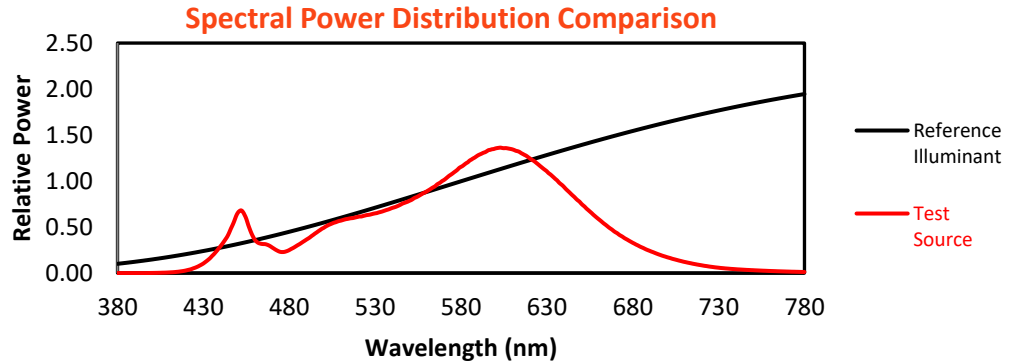
Melanopic Lumens: NR

M/P: 2.58

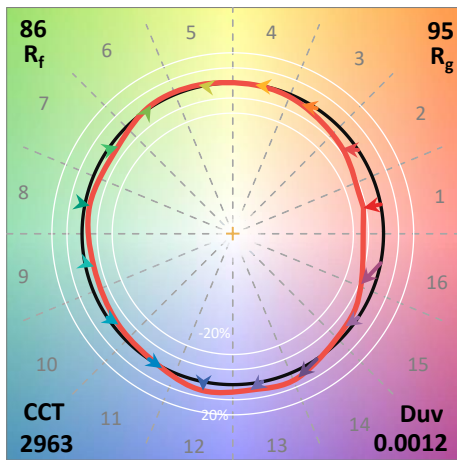
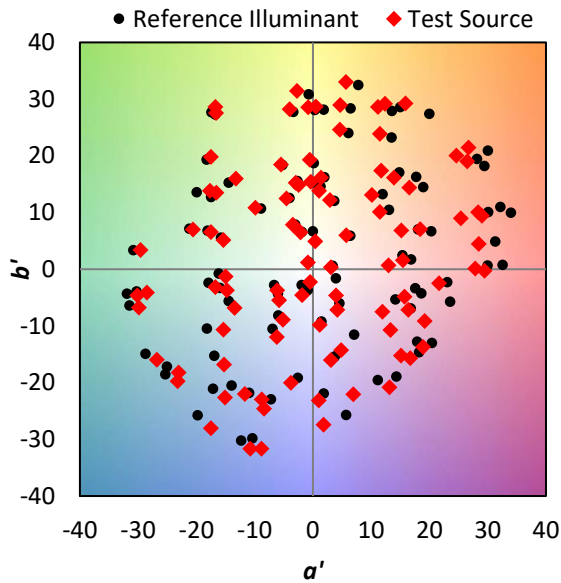
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	267	NR	620	915	NR	750	23	NR	880	0	NR
365	0	NR	495	315	NR	625	866	NR	755	20	NR	885	0	NR
370	0	NR	500	360	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 $R_a = 82.9$
 $R_9 = 3.9$

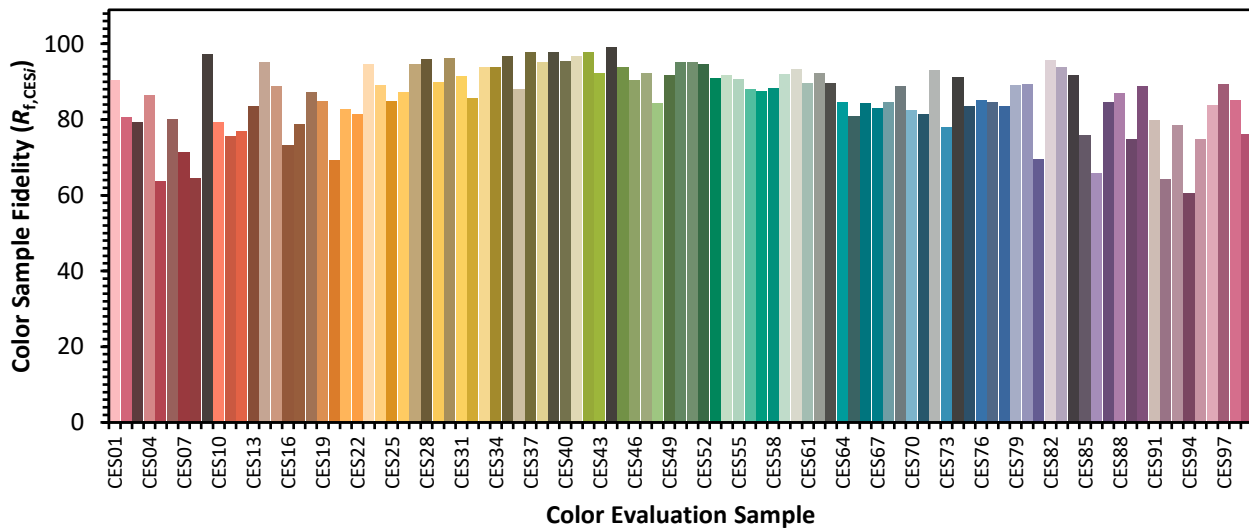


Color Vector Graphics

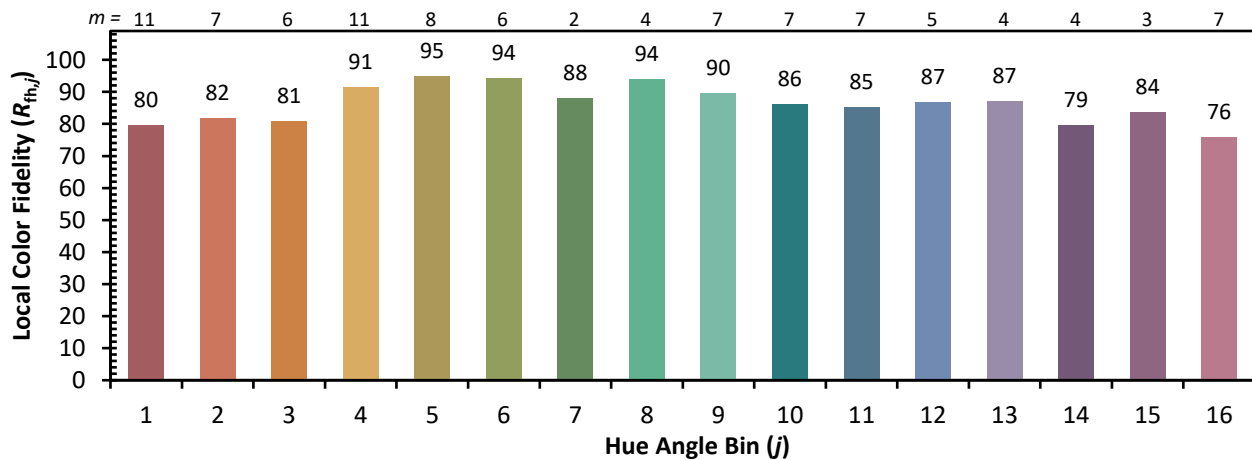
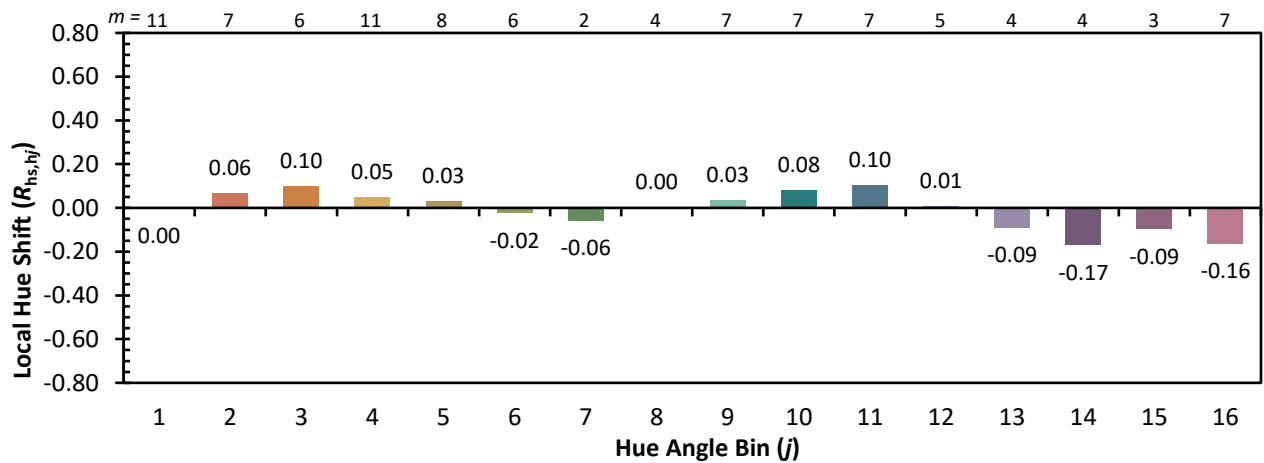
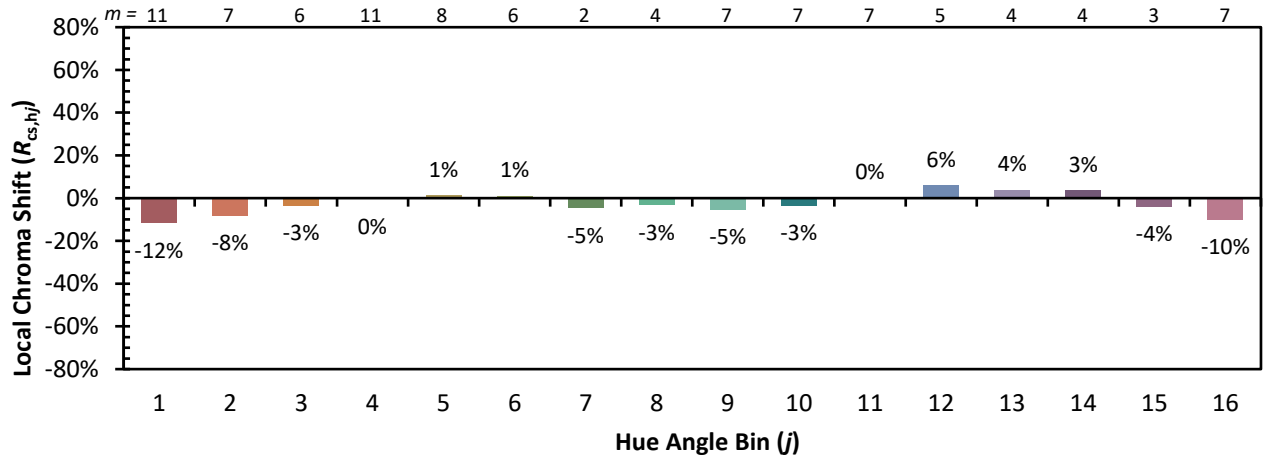


Individual Sample Fidelity Index ($R_{f,i}$)

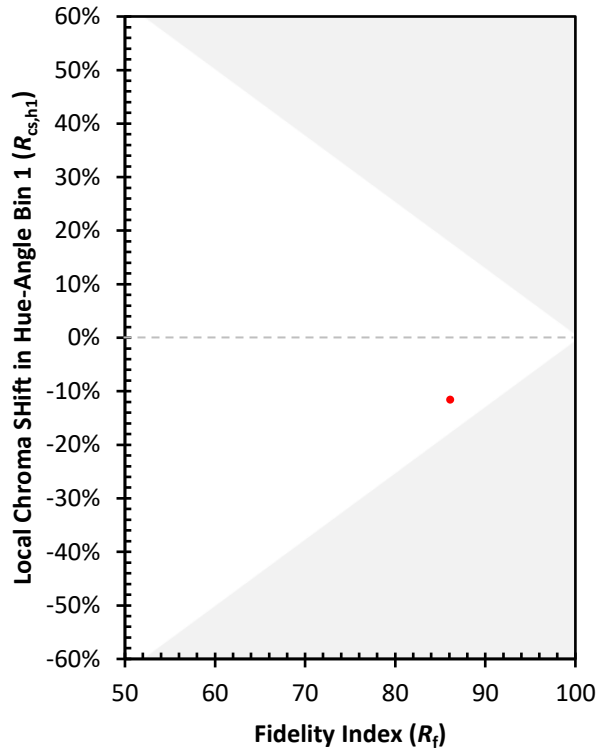
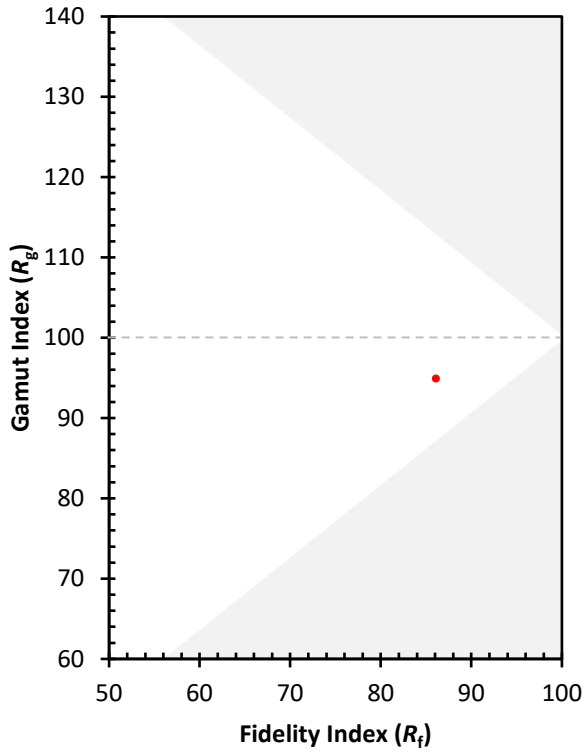
CES01 = 86	CES26 = 87	CES51 = 95	CES76 = 85
CES02 = 63	CES27 = 95	CES52 = 95	CES77 = 85
CES03 = 31	CES28 = 96	CES53 = 91	CES78 = 83
CES04 = 70	CES29 = 90	CES54 = 92	CES79 = 89
CES05 = 50	CES30 = 96	CES55 = 91	CES80 = 89
CES06 = 51	CES31 = 92	CES56 = 88	CES81 = 70
CES07 = 42	CES32 = 86	CES57 = 87	CES82 = 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)