

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: P832623

Luminaire Tested: **TTN-D2-735-U-RW-CG**

Issue Date: 5/14/2024

Test Information

Test Method: LM-79-08
Report Number: P832623
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-D2-735-U-RW-CG
Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE
3500K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION WITH CLEAR GLASS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4582 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Luminous Opening: Circular (Dia: 0.71' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

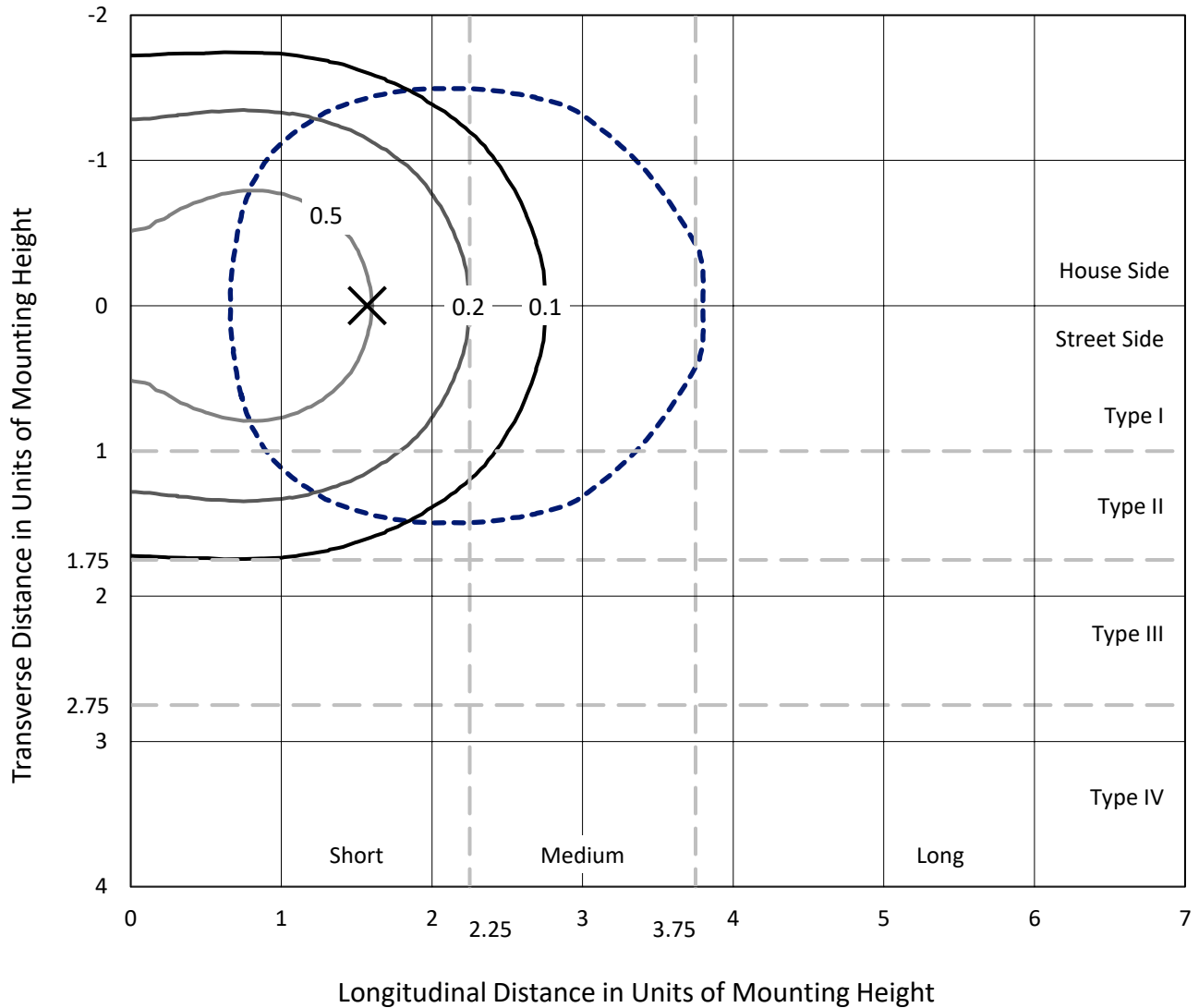
Input Watts (W): 42.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P832623
 CATALOG NUMBER: TTN-D2-735-U-RW-CG

Iso-Footcandle Lines of Horizontal Illumination

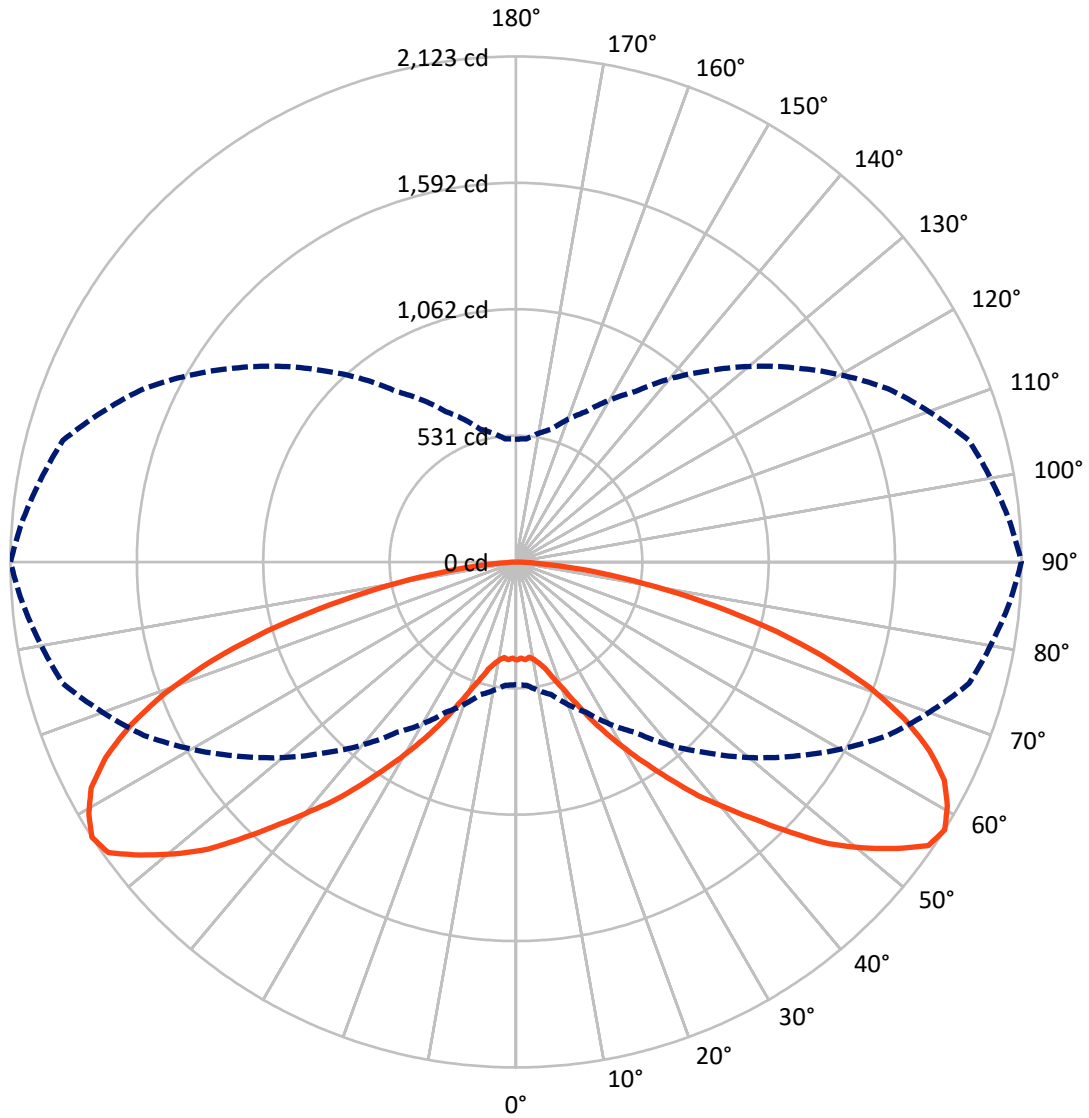
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1 fc
 Type II - Short - N/A

REPORT NUMBER: P832623
CATALOG NUMBER: TTN-D2-735-U-RW-CG

Luminous Intensity Polar Plot



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

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CATALOG NUMBER: TTN-D2-735-U-RW-CG

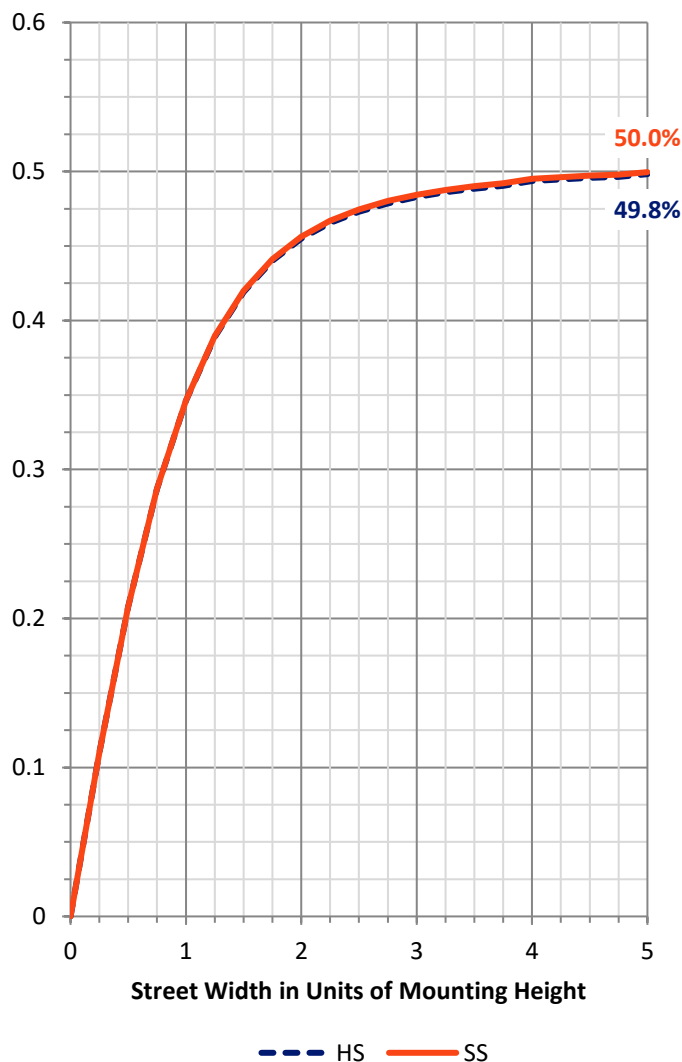
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2291.0	0.0	2291.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2291.0	0.0	2291.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	4582.0	0.0	4582.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.3	0.9
10°-20°	126.6	2.8
20°-30°	269.5	5.9
30°-40°	496.6	10.8
40°-50°	799.6	17.5
50°-60°	1082.3	23.6
60°-70°	1052.3	23.0
70°-80°	612.3	13.4
80°-90°	103.5	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°	4582.0	100.0
0°-180°	4582.0	100.0

Coefficient of Utilization



REPORT NUMBER: P832623

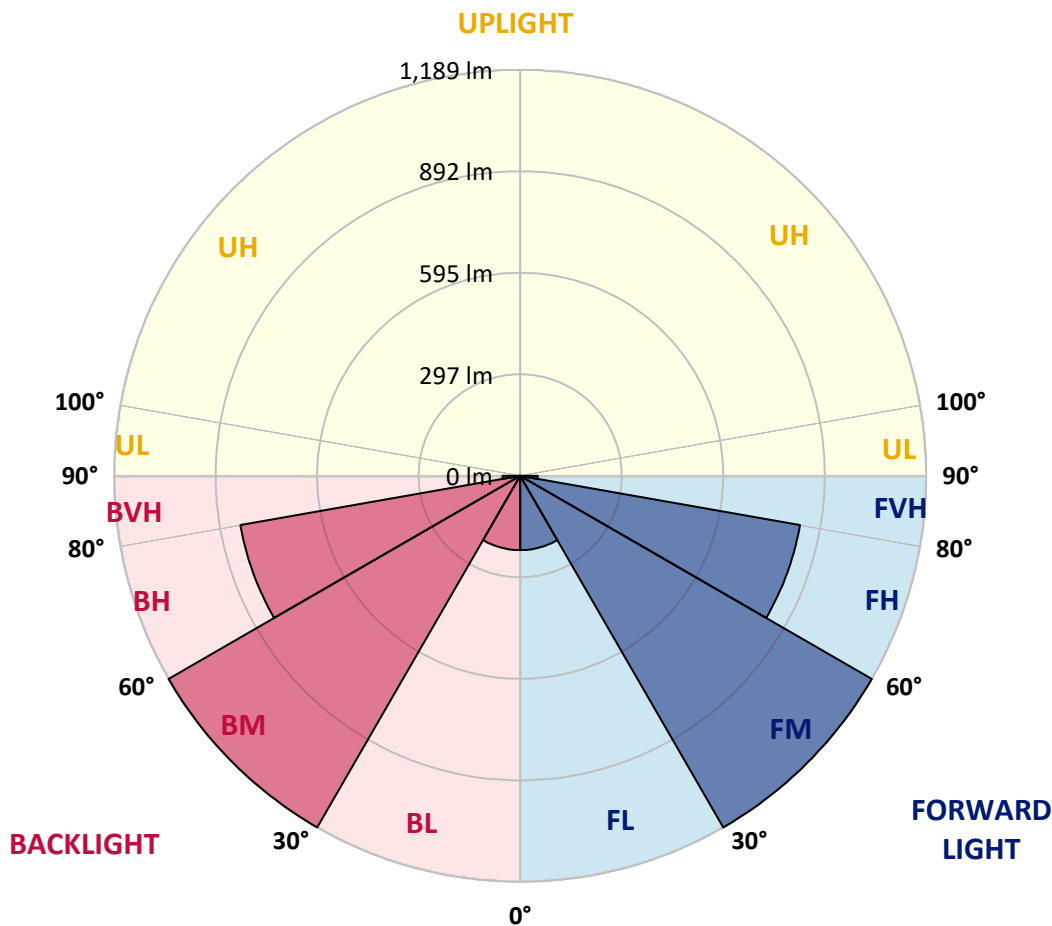
CATALOG NUMBER: TTN-D2-735-U-RW-CG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	217.7	4.8			
FM (30°-60°)	1189.3	26.0			
FH (60°-80°)	832.3	18.2			G1/1800
FVH (80°-90°)	51.7	1.1			G1/100
BL (0°-30°)	217.7	4.8	B1/500		
BM (30°-60°)	1189.3	26.0	B2/2500		
BH (60°-80°)	832.3	18.2	B2/1000		G2/1000
BVH (80°-90°)	51.7	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-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	412.3	412.3	412.3	412.3	412.3	412.3	412.3	412.3	412.3	412.3	412.3
2.5°	412.3	412.3	412.3	412.3	408.1	408.1	408.1	404.0	404.0	404.0	404.0
5°	412.3	412.3	412.3	416.4	416.4	416.4	412.3	412.3	412.3	412.3	412.3
7.5°	412.3	416.4	416.4	412.3	412.3	408.1	408.1	408.1	404.0	404.0	404.0
10°	412.3	412.3	412.3	412.3	408.1	408.1	412.3	412.3	416.4	416.4	416.4
12.5°	408.1	408.1	412.3	412.3	412.3	416.4	424.6	428.8	432.9	437.0	437.0
15°	412.3	412.3	416.4	420.5	424.6	432.9	445.2	457.6	465.9	470.0	465.9
17.5°	412.3	416.4	420.5	428.8	441.1	453.5	474.1	490.6	507.1	511.2	515.3
20°	420.5	420.5	424.6	441.1	461.7	482.3	511.2	540.1	560.7	568.9	568.9
22.5°	424.6	428.8	432.9	453.5	486.5	519.5	560.7	593.7	622.5	639.0	643.1
25°	437.0	437.0	445.2	474.1	515.3	564.8	618.4	667.9	705.0	725.6	729.7
27.5°	445.2	449.4	461.7	498.8	552.4	614.3	688.5	746.2	791.5	816.3	820.4
30°	453.5	457.6	482.3	523.6	589.5	663.7	750.3	824.5	882.2	911.1	915.2
32.5°	465.9	470.0	498.8	544.2	622.5	713.2	812.2	902.9	985.3	1010.0	1014.2
35°	478.2	482.3	515.3	568.9	659.6	762.7	878.1	985.3	1084.3	1117.2	1125.5
37.5°	490.6	494.7	527.7	593.7	696.7	816.3	952.3	1080.1	1187.3	1232.7	1245.0
40°	503.0	507.1	544.2	618.4	733.8	874.0	1030.7	1170.8	1294.5	1348.1	1356.3
42.5°	511.2	515.3	556.6	639.0	770.9	927.6	1113.1	1269.8	1401.7	1471.8	1480.0
45°	523.6	527.7	573.0	667.9	803.9	989.4	1191.4	1381.1	1533.6	1611.9	1620.2
47.5°	531.8	535.9	585.4	684.4	841.0	1047.1	1273.9	1480.0	1661.4	1743.9	1768.6
50°	535.9	540.1	593.7	700.8	865.8	1088.4	1339.9	1579.0	1772.7	1875.8	1888.2
52.5°	535.9	544.2	597.8	713.2	882.2	1125.5	1393.4	1661.4	1879.9	1995.4	1999.5
55°	531.8	535.9	593.7	709.1	890.5	1142.0	1430.6	1710.9	1954.1	2065.4	2102.5
57.5°	515.3	519.5	577.2	696.7	874.0	1133.7	1422.3	1723.3	1970.6	2077.8	2123.2
60°	490.6	498.8	552.4	667.9	849.3	1104.9	1397.6	1698.5	1945.9	2077.8	2081.9
62.5°	461.7	465.9	519.5	630.8	812.2	1059.5	1352.2	1649.0	1888.2	2024.2	2020.1
65°	420.5	424.6	470.0	585.4	746.2	972.9	1261.5	1570.7	1776.9	1921.1	1908.8
67.5°	375.2	379.3	420.5	523.6	667.9	878.1	1137.8	1438.8	1620.2	1768.6	1760.4
70°	325.7	325.7	362.8	449.4	585.4	770.9	1001.8	1265.6	1447.0	1570.7	1574.8
72.5°	268.0	268.0	301.0	375.2	490.6	647.3	845.1	1080.1	1228.5	1335.7	1344.0
75°	210.3	206.1	235.0	296.8	387.5	515.3	667.9	869.9	985.3	1088.4	1084.3
77.5°	148.4	148.4	164.9	214.4	280.3	383.4	494.7	655.5	733.8	820.4	803.9
80°	94.8	94.8	103.1	140.2	185.5	255.6	325.7	445.2	498.8	564.8	544.2
82.5°	49.5	45.3	53.6	74.2	98.9	140.2	181.4	259.7	284.5	333.9	317.4
85°	16.5	16.5	16.5	24.7	37.1	53.6	70.1	111.3	115.4	148.4	136.0
87.5°	4.1	0.0	0.0	4.1	4.1	4.1	4.1	12.4	12.4	24.7	16.5
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
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LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-1

Test Date: 11/15/2024

Luminaire Tested: TTN-D0-735-U-WQ

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

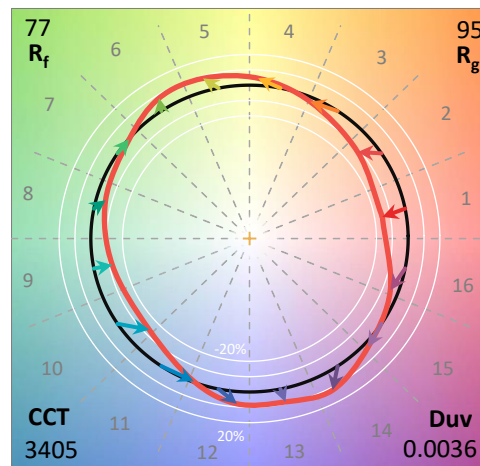
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2411-284-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 11/15/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **TTN-D0-735-U-WQ**
 Description: TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 3500K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K): 3405
 CIE u': 0.2365
 CIE v': 0.5180
 Duv: 0.0036
 CIE x: 0.4148
 CIE y: 0.4038
 CIE z: 0.1814
 Peak Wavelength (nm): 596
 Dominant Wavelength (nm): 579
 Purity: 45.70672
 Rf: 76.6
 Rg: 95.4

CRI (Ra):	73.9		
R1:	71.3	R9:	-18.0
R2:	80.3	R10:	53.1
R3:	87.8	R11:	68.6
R4:	73.2	R12:	42.6
R5:	69.8	R13:	72.5
R6:	71.8	R14:	92.7
R7:	82.8	R15:	64.3
R8:	54.1		



Test Conditions

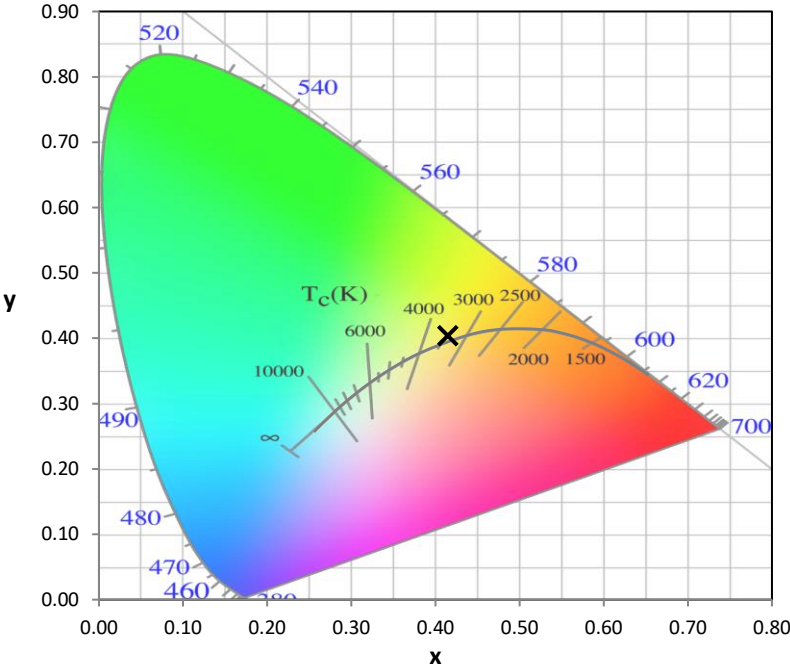
Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.9

REPORT NUMBER: SP1-2411-284-1

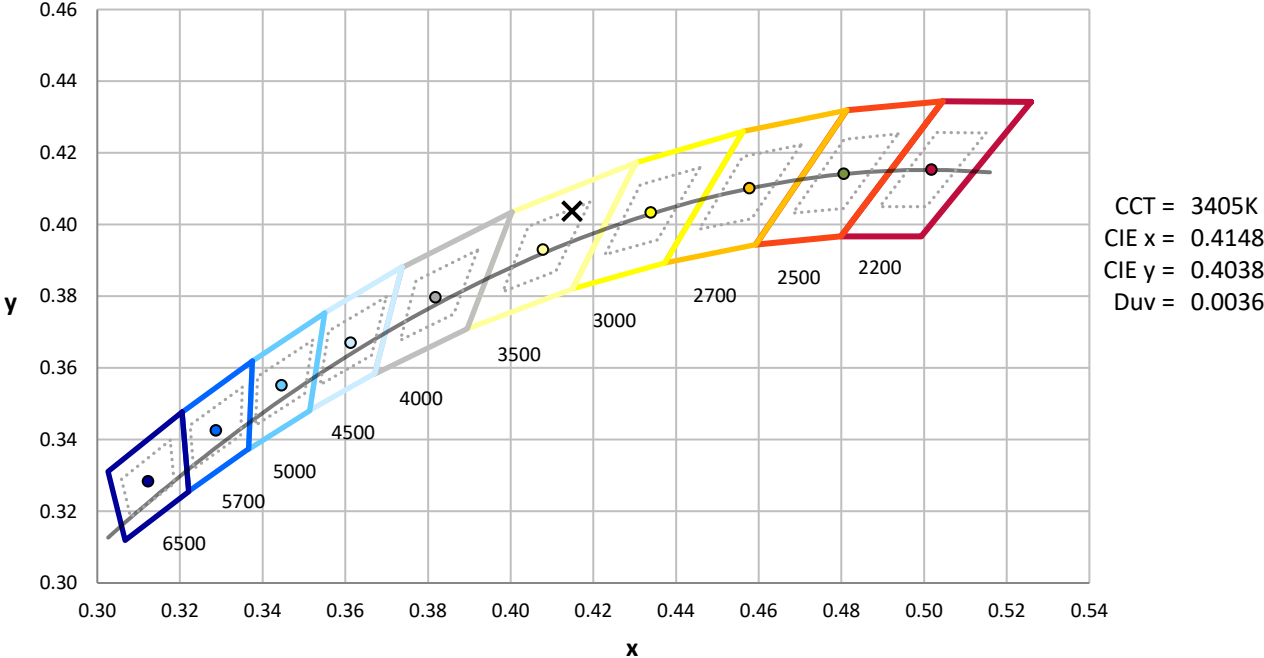
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



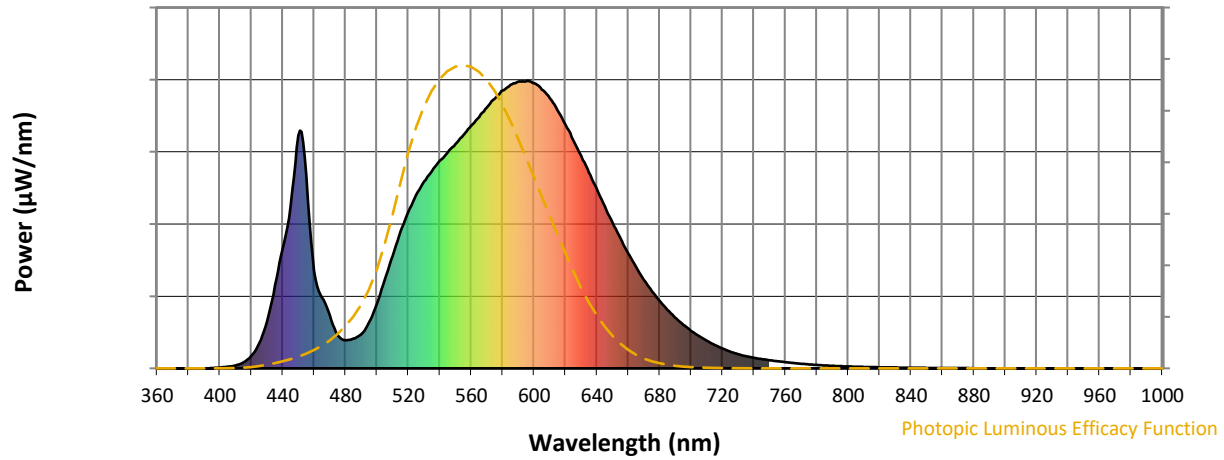
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

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Photopic Flux vs. Wavelength

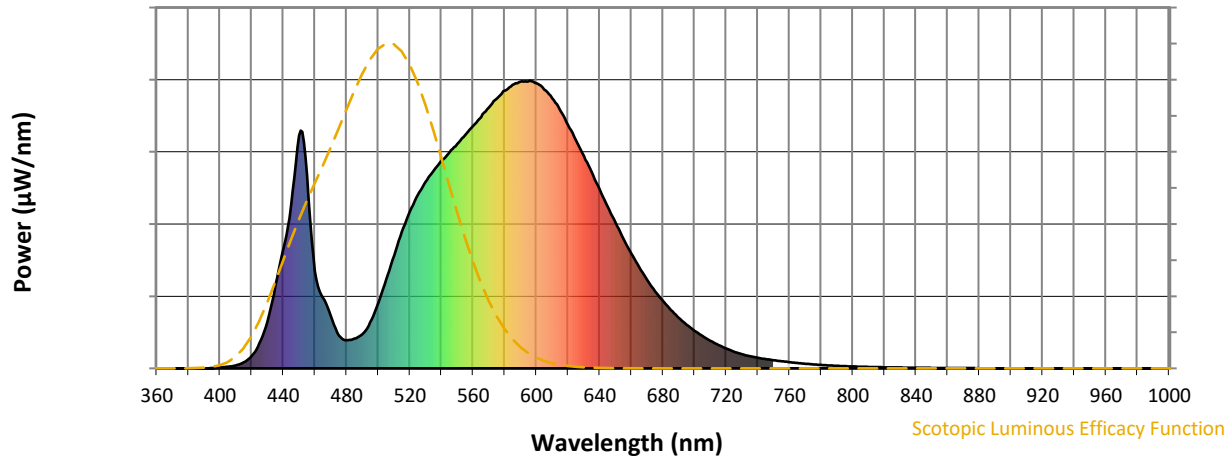


Photopic Lumens: NR

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	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

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Scotopic Flux vs. Wavelength



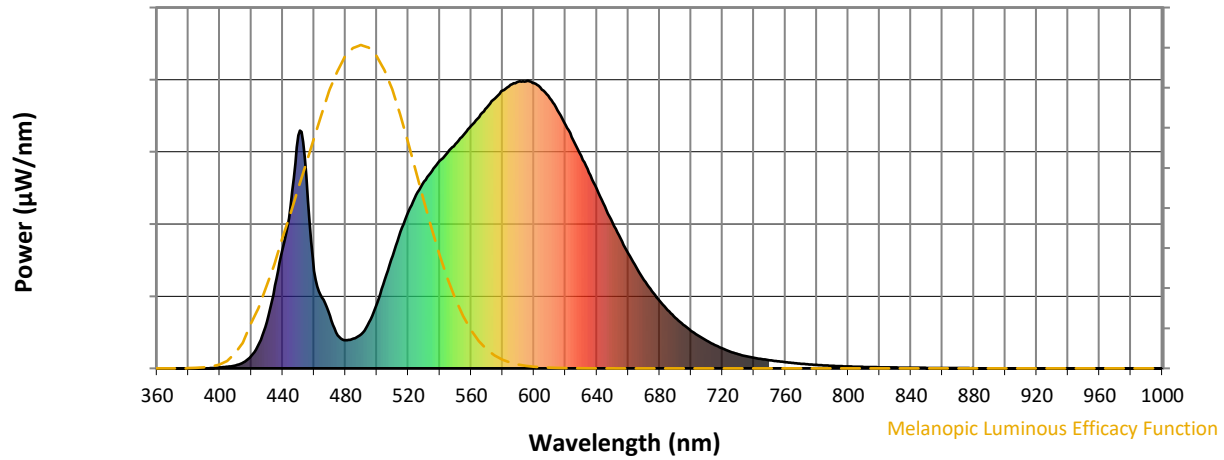
Scotopic Lumens: NR

S/P: 1.33

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	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

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Melanopic Flux vs. Wavelength



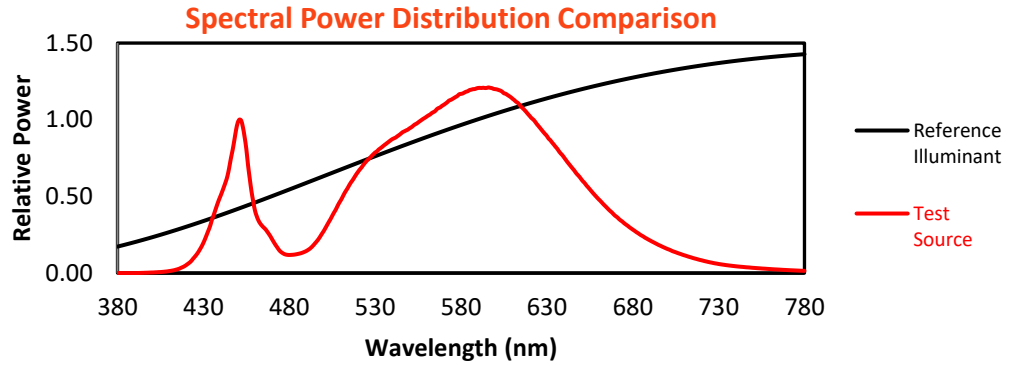
Melanopic Lumens: NR

M/P: 2.47

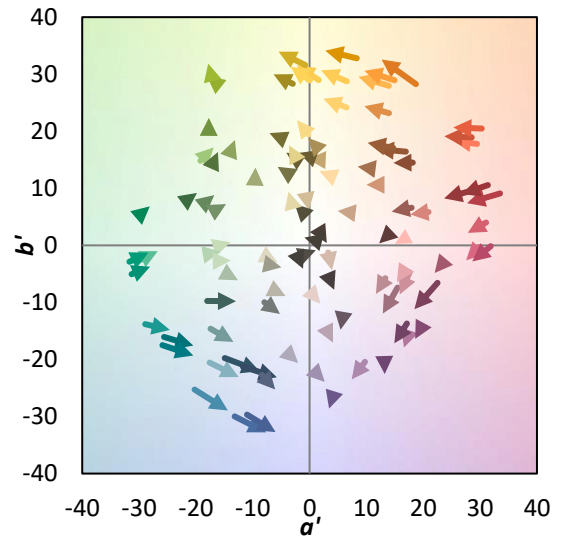
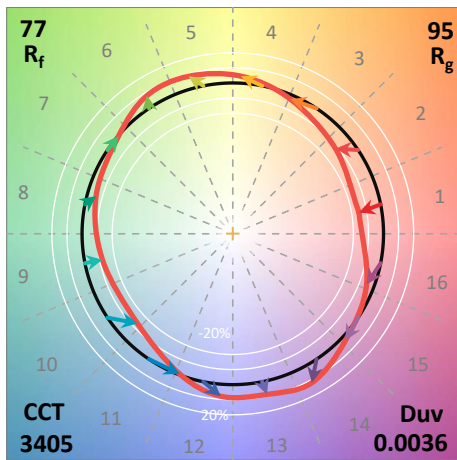
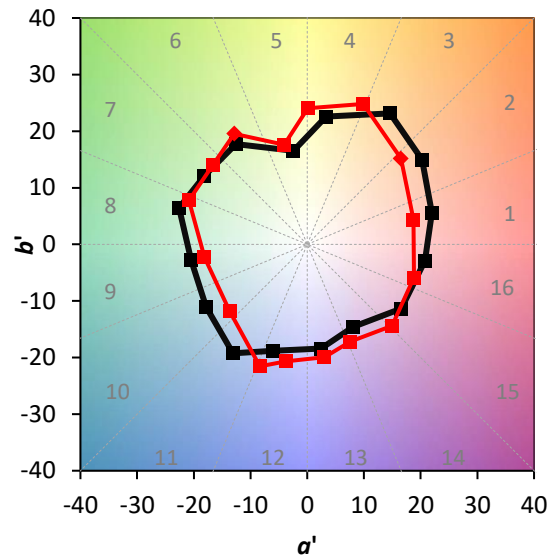
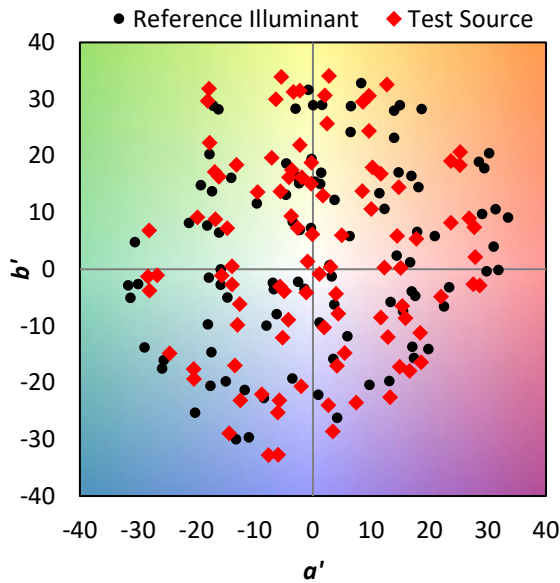
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	119	NR	620	846	NR	750	28	NR	880	1	NR
365	0	NR	495	160	NR	625	793	NR	755	25	NR	885	0	NR
370	0	NR	500	225	NR	630	739	NR	760	22	NR	890	0	NR
375	0	NR	505	308	NR	635	681	NR	765	19	NR	895	0	NR
380	0	NR	510	392	NR	640	623	NR	770	16	NR	900	0	NR
385	0	NR	515	474	NR	645	563	NR	775	14	NR	905	0	NR
390	0	NR	520	545	NR	650	506	NR	780	12	NR	910	0	NR
395	1	NR	525	603	NR	655	451	NR	785	10	NR	915	0	NR
400	3	NR	530	649	NR	660	399	NR	790	9	NR	920	0	NR
405	5	NR	535	687	NR	665	352	NR	795	8	NR	925	0	NR
410	11	NR	540	721	NR	670	307	NR	800	6	NR	930	0	NR
415	21	NR	545	751	NR	675	268	NR	805	6	NR	935	0	NR
420	43	NR	550	779	NR	680	234	NR	810	5	NR	940	0	NR
425	88	NR	555	811	NR	685	203	NR	815	4	NR	945	0	NR
430	163	NR	560	843	NR	690	176	NR	820	4	NR	950	0	NR
435	288	NR	565	873	NR	695	152	NR	825	3	NR	955	0	NR
440	416	NR	570	907	NR	700	131	NR	830	3	NR	960	0	NR
445	566	NR	575	938	NR	705	112	NR	835	3	NR	965	0	NR
450	810	NR	580	965	NR	710	96	NR	840	2	NR	970	0	NR
455	669	NR	585	986	NR	715	81	NR	845	2	NR	975	0	NR
460	338	NR	590	997	NR	720	69	NR	850	2	NR	980	0	NR
465	246	NR	595	997	NR	725	58	NR	855	1	NR	985	0	NR
470	182	NR	600	991	NR	730	49	NR	860	1	NR	990	0	NR
475	115	NR	605	968	NR	735	42	NR	865	1	NR	995	0	NR
480	97	NR	610	939	NR	740	37	NR	870	1	NR	1000	0	NR
485	103	NR	615	896	NR	745	32	NR	875	1	NR			

Summary

$R_f = 76.6$
 $R_g = 95.4$
 $CIE R_a = 73.9$
 $R_g = -18.0$

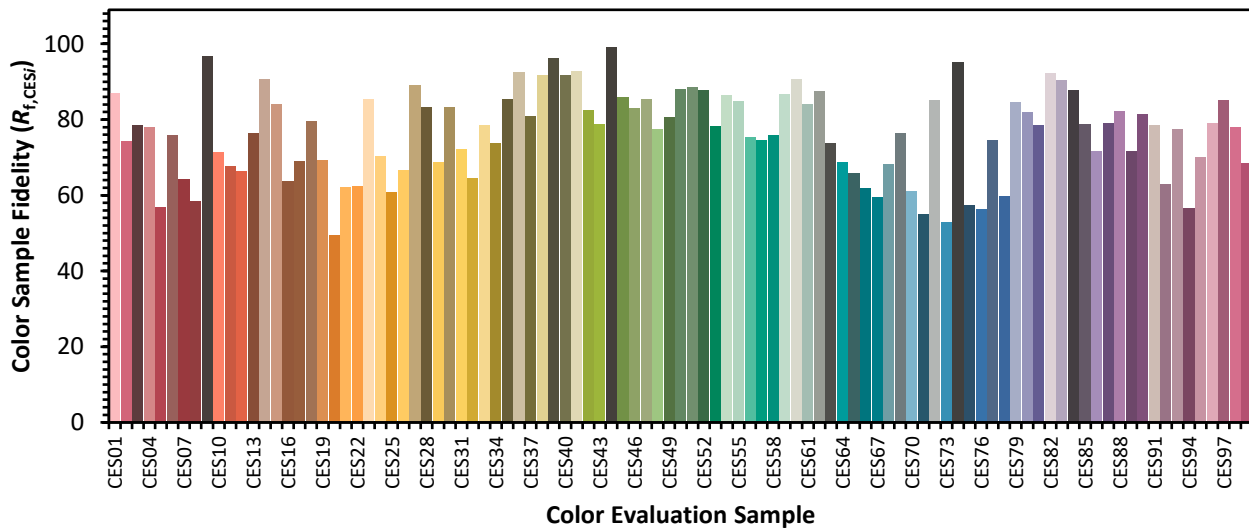


Color Vector Graphics

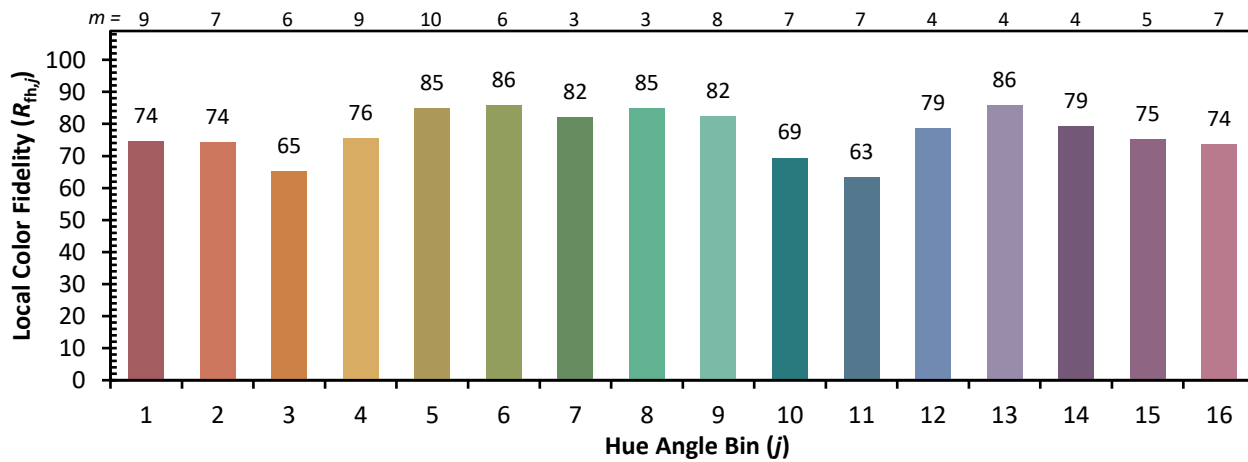
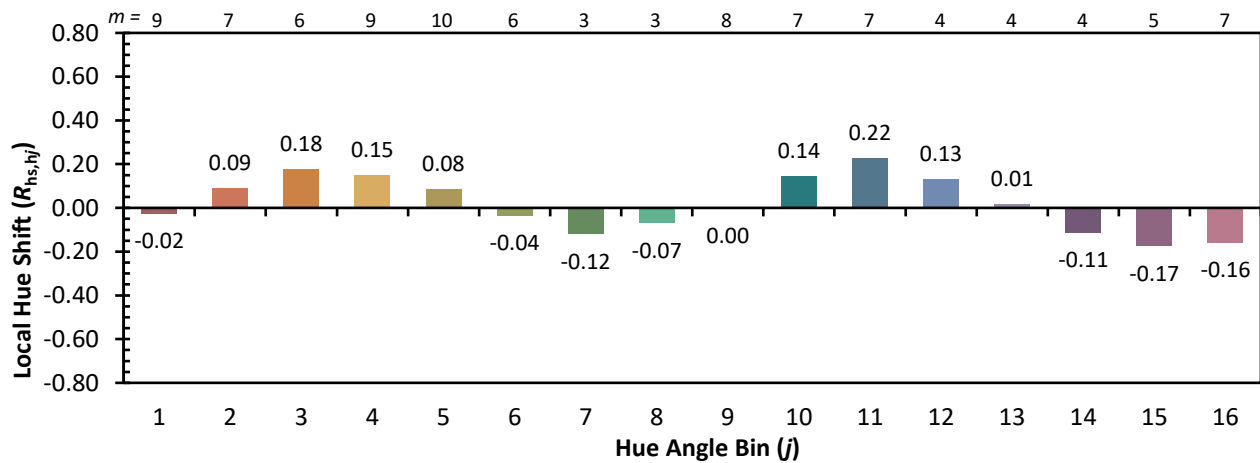
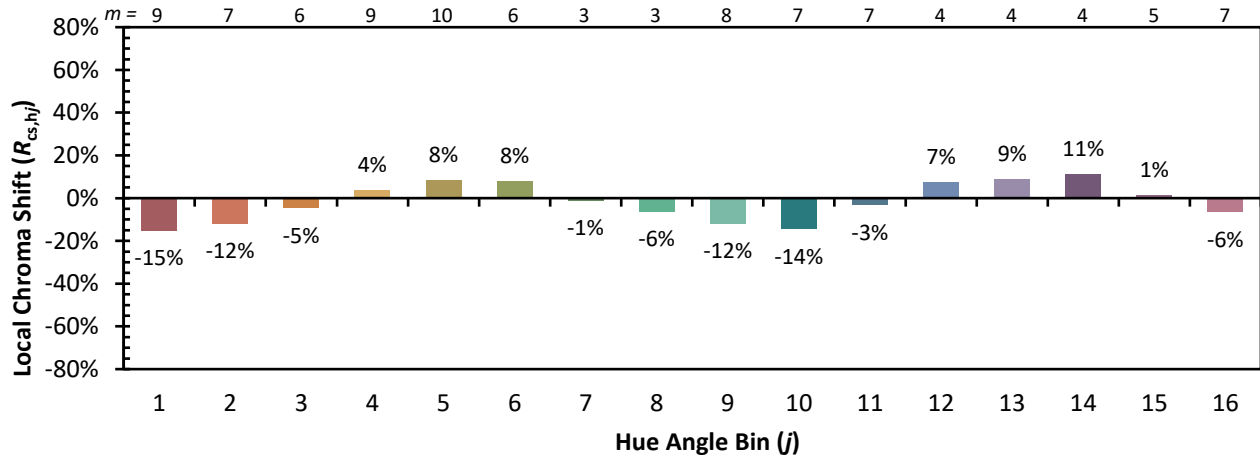


Individual Sample Fidelity Index ($R_{f,i}$)

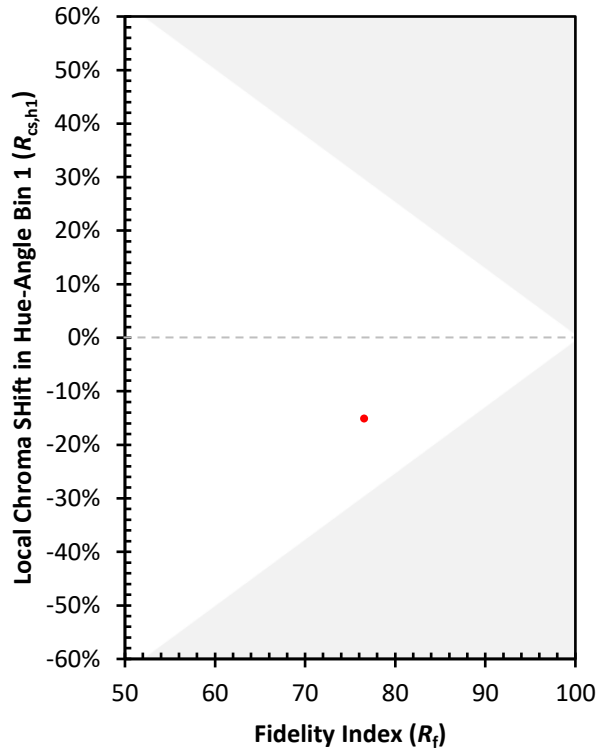
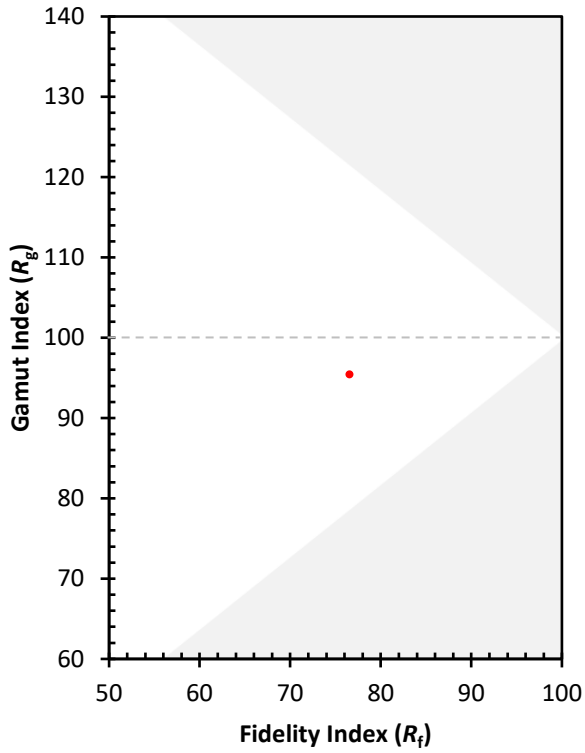
CES01 = 86	CES26 = 67	CES51 = 88	CES76 = 56
CES02 = 62	CES27 = 89	CES52 = 88	CES77 = 75
CES03 = 31	CES28 = 83	CES53 = 78	CES78 = 60
CES04 = 70	CES29 = 69	CES54 = 86	CES79 = 85
CES05 = 48	CES30 = 83	CES55 = 85	CES80 = 82
CES06 = 51	CES31 = 72	CES56 = 75	CES81 = 78
CES07 = 41	CES32 = 65	CES57 = 75	CES82 = 92
CES08 = 40	CES33 = 78	CES58 = 76	CES83 = 90
CES09 = 29	CES34 = 74	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 86	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 93	CES61 = 84	CES86 = 72
CES12 = 64	CES37 = 81	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 92	CES63 = 74	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 72
CES15 = 71	CES40 = 92	CES65 = 66	CES90 = 82
CES16 = 47	CES41 = 93	CES66 = 62	CES91 = 79
CES17 = 50	CES42 = 83	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 79	CES68 = 68	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 86	CES70 = 61	CES95 = 70
CES21 = 86	CES46 = 83	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 85	CES72 = 85	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 53	CES98 = 78
CES24 = 91	CES49 = 81	CES74 = 95	CES99 = 68
CES25 = 72	CES50 = 88	CES75 = 57	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)