

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: HALO

Report Number: P995461

Luminaire Tested: **LTT409FSMB-935**

Issue Date: 06/09/2025



Test Information

Test Method: LM-79-08
Report Number: P995461
Test Lab: INNOVATION CENTER (G1)
Issue Date: 06/09/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: LTT409FSMB-935
Description: HALO LT BLACK TRIM HIGH LUMENS 4 inch 90 CRI COLOR SELECTABLE
FIXTURE
Light Source: 3500K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

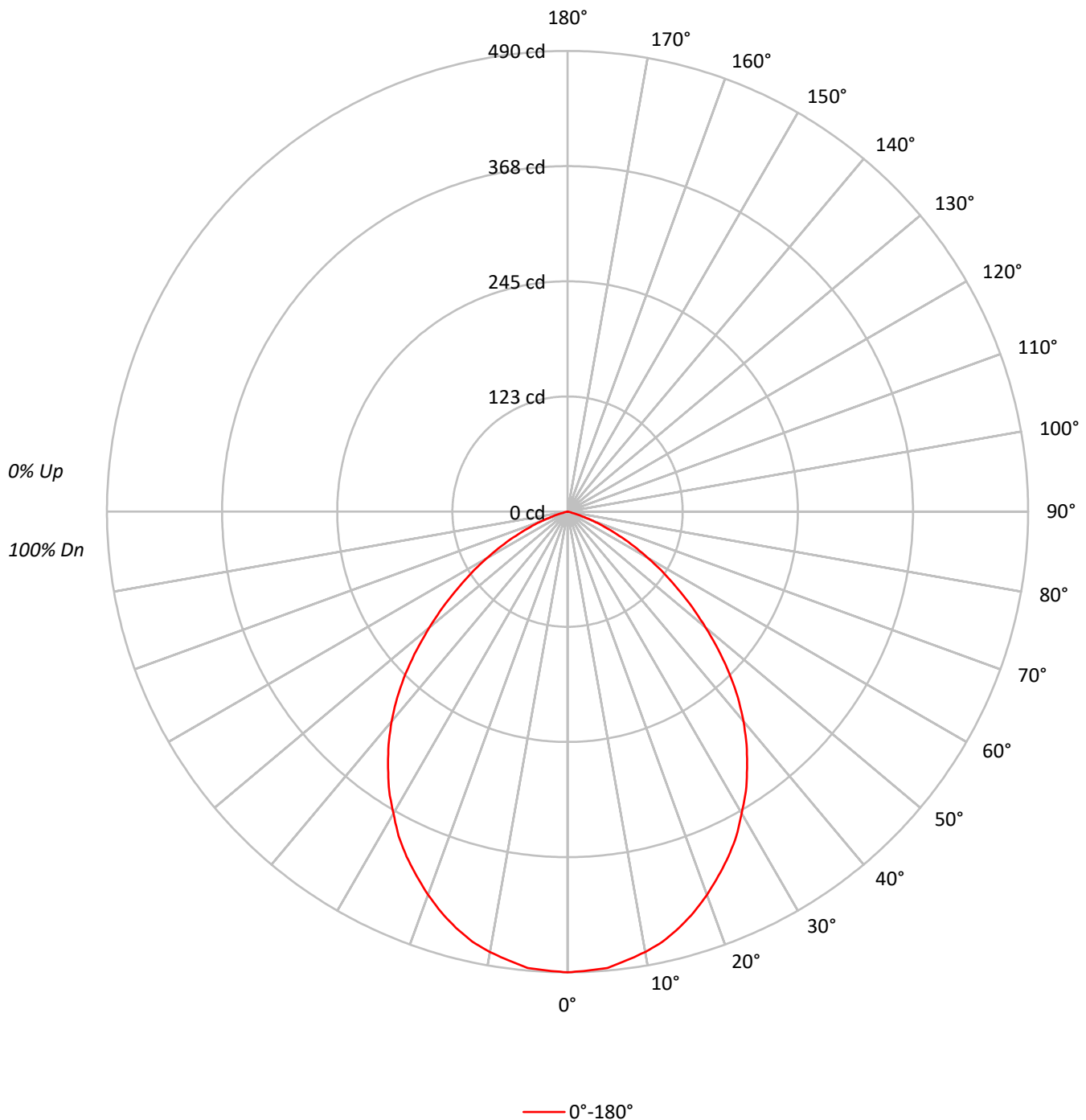
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 955.4 lumens
Efficiency: N/A
Efficacy: 100.6 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 1.14 / 1.22
Luminous Opening: Circular (Dia: 0.3' x H: 0')
CIE Type: Direct

Input Watts (W): 9.5
Input Voltage (V): 120
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

TEST NUMBER: P995461
CATALOG NUMBER: LTT409FSMB-935

Luminous Intensity Polar Plot





TEST NUMBER: P995461

CATALOG NUMBER: LTT409FSMB-935

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20
RC	80					70					50					30					10
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	111	108	104	101		109	105	102	100		101	99	97		97	96	94		94	92	91
2	103	96	91	86		101	95	90	85		91	87	83		88	85	82		85	82	80
3	95	87	80	74		93	85	79	74		82	77	72		80	75	71		77	73	70
4	88	78	70	65		86	77	70	64		74	68	63		72	67	63		70	66	62
5	82	71	63	57		80	70	62	57		68	61	56		66	60	56		64	59	55
6	76	64	56	51		74	63	56	50		62	55	50		60	54	50		59	53	49
7	71	59	51	45		69	58	50	45		56	50	45		55	49	45		54	48	44
8	66	54	46	41		65	53	46	41		52	45	41		51	45	40		50	44	40
9	62	50	42	37		61	49	42	37		48	42	37		47	41	37		46	41	37
10	58	46	39	34		57	46	39	34		45	38	34		44	38	34		43	37	33

AVERAGE LUMINANCE (cd/sqm):

	0°
0°	74616
5°	74473
10°	73541
15°	72251
20°	70298
25°	68048
30°	65130
35°	61885
40°	57866
45°	52460
50°	45414
55°	37885
60°	30273
65°	21799
70°	12823
75°	4236
80°	0
85°	0

TEST NUMBER: P995461
 CATALOG NUMBER: LTT409FSMB-935

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.1	4.8
10°-20°	128.9	13.5
20°-30°	186.1	19.5
30°-40°	207.8	21.8
40°-50°	186.9	19.6
50°-60°	128.5	13.5
60°-70°	60.9	6.4
70°-80°	10.2	1.1
80°-90°	0.0	0.0
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°-30°	361.1	37.8
0°-40°	569.0	59.6
0°-60°	884.4	92.6
0°-90°	955.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	955.4	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	490	
5°	487	46
15°	458	129
25°	405	186
35°	333	208
45°	244	187
55°	143	129
65°	60	61
75°	7	10
85°	0	0
90°	0	



TEST NUMBER: P995461
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CANDELA DISTRIBUTION (FULL):

0°	
0°	490.0
2.5°	488.6
5°	487.2
7.5°	481.4
10°	475.6
12.5°	468.4
15°	458.3
17.5°	446.8
20°	433.8
22.5°	419.4
25°	405.0
27.5°	389.1
30°	370.4
32.5°	353.1
35°	332.9
37.5°	312.8
40°	291.1
42.5°	268.1
45°	243.6
47.5°	217.6
50°	191.7
52.5°	167.2
55°	142.7
57.5°	121.1
60°	99.4
62.5°	79.3
65°	60.5
67.5°	43.2
70°	28.8
72.5°	15.9
75°	7.2
77.5°	1.4
80°	0.0
82.5°	0.0
85°	0.0
87.5°	0.0
90°	0.0

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	23.75	25.18	24.12	25.49	25.81	23.75	25.18	24.12	25.49	25.81
	3H	24.21	25.48	24.59	25.80	26.17	24.21	25.48	24.59	25.80	26.17
	4H	24.19	25.37	24.59	25.72	26.10	24.19	25.37	24.59	25.72	26.10
	6H	24.12	25.20	24.53	25.57	25.96	24.12	25.20	24.53	25.57	25.96
	8H	24.08	25.10	24.50	25.49	25.90	24.08	25.10	24.50	25.49	25.90
	12H	24.04	25.02	24.47	25.40	25.83	24.04	25.02	24.47	25.40	25.83
4H	2H	23.97	25.15	24.37	25.50	25.88	23.97	25.15	24.37	25.50	25.88
	3H	24.49	25.45	24.90	25.85	26.25	24.49	25.45	24.90	25.85	26.25
	4H	24.46	25.32	24.90	25.73	26.18	24.46	25.32	24.90	25.73	26.18
	6H	24.39	25.13	24.85	25.57	26.04	24.39	25.13	24.85	25.57	26.04
	8H	24.34	25.03	24.81	25.47	25.94	24.34	25.03	24.81	25.47	25.94
	12H	24.30	24.91	24.79	25.39	25.86	24.30	24.91	24.79	25.39	25.86
8H	4H	24.37	25.06	24.84	25.50	25.97	24.37	25.06	24.84	25.50	25.97
	6H	24.28	24.84	24.78	25.34	25.82	24.28	24.84	24.78	25.34	25.82
	8H	24.22	24.73	24.74	25.24	25.73	24.22	24.73	24.74	25.24	25.73
	12H	24.18	24.63	24.70	25.12	25.69	24.18	24.63	24.70	25.12	25.69
12H	4H	24.33	24.94	24.82	25.42	25.89	24.33	24.94	24.82	25.42	25.89
	6H	24.22	24.73	24.74	25.24	25.73	24.22	24.73	24.74	25.24	25.73
	8H	24.18	24.63	24.70	25.12	25.69	24.18	24.63	24.70	25.12	25.69

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

Report Prepared for

Cooper Lighting Solutions

Halo Recessed

Report Number: SP2-2504-410-3

Test Date: 05/22/2025

Luminaire Tested: LTT5607FSMBSS-3500K

Data in this report applies to families of products including LTT5607FSMBSS-3500K

The results of this test have not been influenced by sources from within Eaton or from external interests.

Report Generated By FNC07603 / LDUCLS01DT447
Version: v7.04

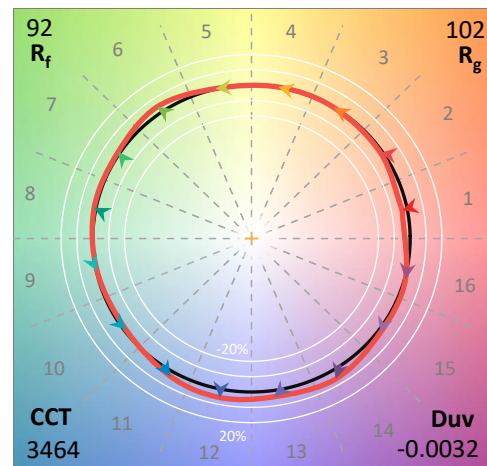
Test Information

Test Method: LM-79-2019
 Report Number: SP2-2504-410-3
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP2 - 165CM SPHERE
 Measurement Geometry: 4π
 Issue Date: 05/22/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Halo Recessed
 Catalog Number: **LTT5607FSMBSS-3500K**
 Description: HALO LT BLACK LED TRIM 6 INCH SMOOTH

Spectral Parameters

CCT (K): 3464
 CIE u' : 0.2381
 CIE v' : 0.5078
 Duv: -0.0032
 CIE x: 0.4040
 CIE y: 0.3830
 CIE z: 0.2130
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 582
 Purity: 36.19283
 R_f: 92
 R_g: 102.2

CRI (Ra): 96.5
 R1: 99.2
 R2: 98.1
 R3: 93.7
 R4: 96.3
 R5: 98.8
 R6: 95.5
 R7: 95.8
 R8: 94.2
 R9: 83.7
 R10: 92.7
 R11: 94.6
 R12: 81.0
 R13: 99.4
 R14: 95.0
 R15: 98.9



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.7

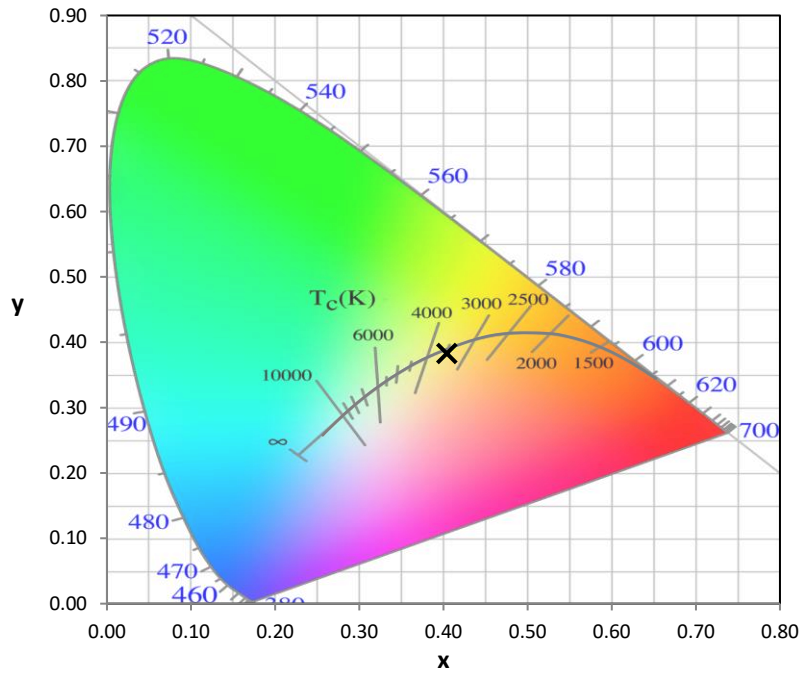
REPORT NUMBER: SP2-2504-410-3

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN2187	1/6/2025	7/6/2025
Power Meter	INXT2011002	1/21/2025	1/21/2026
AC Power Source	IN0458	10/22/2024	10/22/2025
DC Power Source	IN0212	10/22/2024	10/22/2025
Sphere Thermometer	IN4036B	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

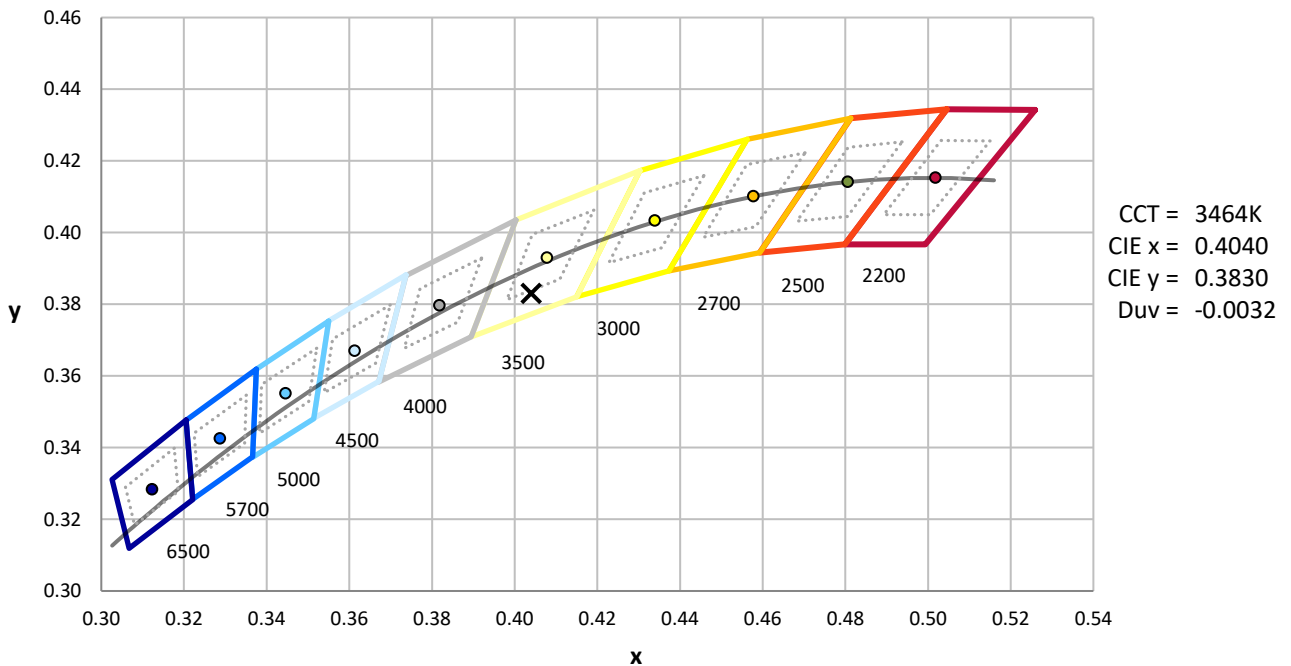
Sample Number	Condition	Description
P2504-410-LM.1	Good	HALO LT BLACK LED TRIM 6 INCH SMOOTH

REPORT NUMBER: SP2-2504-410-3

CIE 1931 Chromaticity Diagram



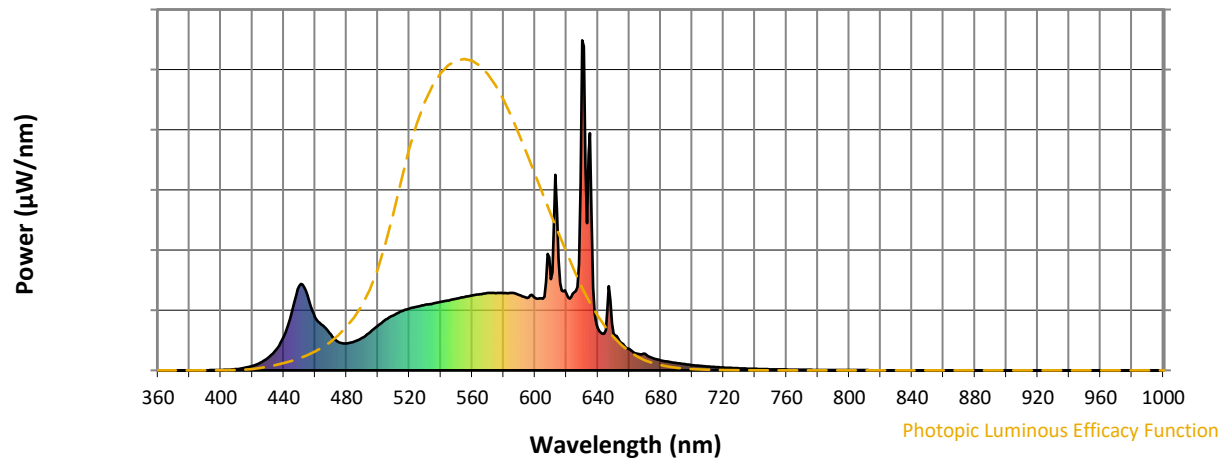
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 7-step quadrangle

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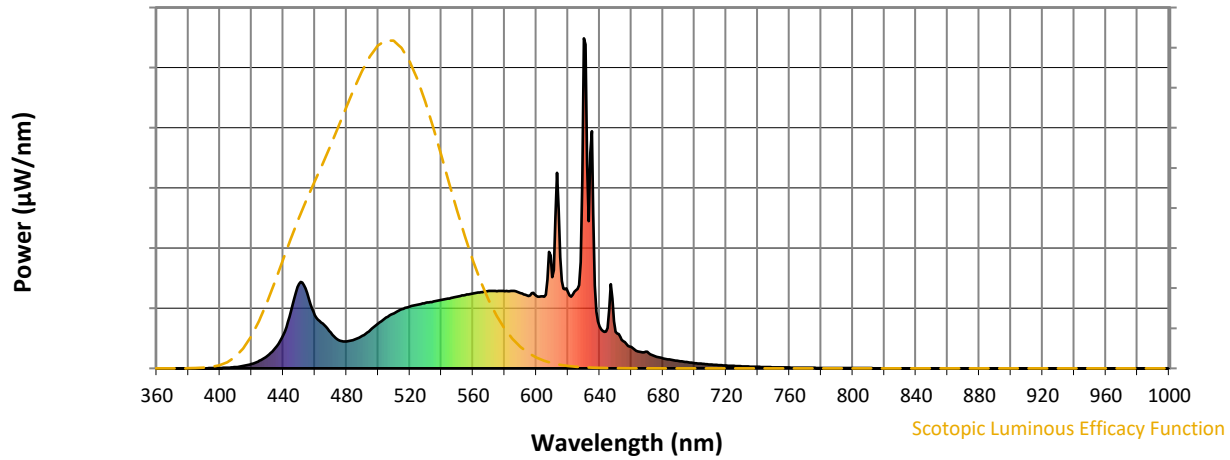
Photopic Flux vs. Wavelength



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	99	NR	620	231	NR	750	3	NR	880	0	NR
365	0	NR	495	115	NR	625	237	NR	755	3	NR	885	0	NR
370	0	NR	500	136	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	154	NR	635	719	NR	765	2	NR	895	0	NR
380	0	NR	510	167	NR	640	127	NR	770	2	NR	900	0	NR
385	0	NR	515	179	NR	645	122	NR	775	2	NR	905	0	NR
390	0	NR	520	187	NR	650	111	NR	780	1	NR	910	0	NR
395	1	NR	525	193	NR	655	82	NR	785	1	NR	915	0	NR
400	1	NR	530	198	NR	660	65	NR	790	1	NR	920	0	NR
405	2	NR	535	203	NR	665	50	NR	795	1	NR	925	0	NR
410	4	NR	540	207	NR	670	50	NR	800	1	NR	930	0	NR
415	7	NR	545	212	NR	675	37	NR	805	1	NR	935	0	NR
420	13	NR	550	217	NR	680	30	NR	810	1	NR	940	0	NR
425	23	NR	555	222	NR	685	26	NR	815	0	NR	945	0	NR
430	38	NR	560	227	NR	690	22	NR	820	0	NR	950	0	NR
435	62	NR	565	231	NR	695	19	NR	825	0	NR	955	0	NR
440	102	NR	570	234	NR	700	16	NR	830	0	NR	960	0	NR
445	175	NR	575	234	NR	705	14	NR	835	0	NR	965	0	NR
450	256	NR	580	234	NR	710	12	NR	840	0	NR	970	0	NR
455	229	NR	585	234	NR	715	10	NR	845	0	NR	975	0	NR
460	161	NR	590	228	NR	720	9	NR	850	0	NR	980	0	NR
465	135	NR	595	220	NR	725	7	NR	855	0	NR	985	0	NR
470	108	NR	600	219	NR	730	6	NR	860	0	NR	990	0	NR
475	86	NR	605	217	NR	735	5	NR	865	0	NR	995	0	NR
480	82	NR	610	276	NR	740	5	NR	870	0	NR	1000	0	NR
485	88	NR	615	337	NR	745	4	NR	875	0	NR			

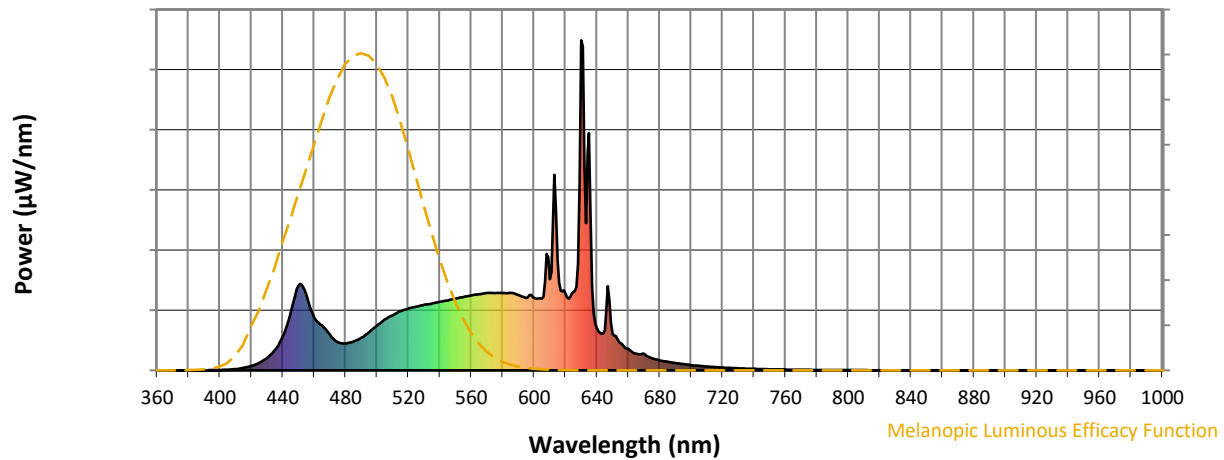
REPORT NUMBER: SP2-2504-410-3

Scotopic Flux vs. Wavelength

Scotopic Lumens: NR
S/P: 1.63

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	99	NR	620	231	NR	750	3	NR	880	0	NR
365	0	NR	495	115	NR	625	237	NR	755	3	NR	885	0	NR
370	0	NR	500	136	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	154	NR	635	719	NR	765	2	NR	895	0	NR
380	0	NR	510	167	NR	640	127	NR	770	2	NR	900	0	NR
385	0	NR	515	179	NR	645	122	NR	775	2	NR	905	0	NR
390	0	NR	520	187	NR	650	111	NR	780	1	NR	910	0	NR
395	1	NR	525	193	NR	655	82	NR	785	1	NR	915	0	NR
400	1	NR	530	198	NR	660	65	NR	790	1	NR	920	0	NR
405	2	NR	535	203	NR	665	50	NR	795	1	NR	925	0	NR
410	4	NR	540	207	NR	670	50	NR	800	1	NR	930	0	NR
415	7	NR	545	212	NR	675	37	NR	805	1	NR	935	0	NR
420	13	NR	550	217	NR	680	30	NR	810	1	NR	940	0	NR
425	23	NR	555	222	NR	685	26	NR	815	0	NR	945	0	NR
430	38	NR	560	227	NR	690	22	NR	820	0	NR	950	0	NR
435	62	NR	565	231	NR	695	19	NR	825	0	NR	955	0	NR
440	102	NR	570	234	NR	700	16	NR	830	0	NR	960	0	NR
445	175	NR	575	234	NR	705	14	NR	835	0	NR	965	0	NR
450	256	NR	580	234	NR	710	12	NR	840	0	NR	970	0	NR
455	229	NR	585	234	NR	715	10	NR	845	0	NR	975	0	NR
460	161	NR	590	228	NR	720	9	NR	850	0	NR	980	0	NR
465	135	NR	595	220	NR	725	7	NR	855	0	NR	985	0	NR
470	108	NR	600	219	NR	730	6	NR	860	0	NR	990	0	NR
475	86	NR	605	217	NR	735	5	NR	865	0	NR	995	0	NR
480	82	NR	610	276	NR	740	5	NR	870	0	NR	1000	0	NR
485	88	NR	615	337	NR	745	4	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.31

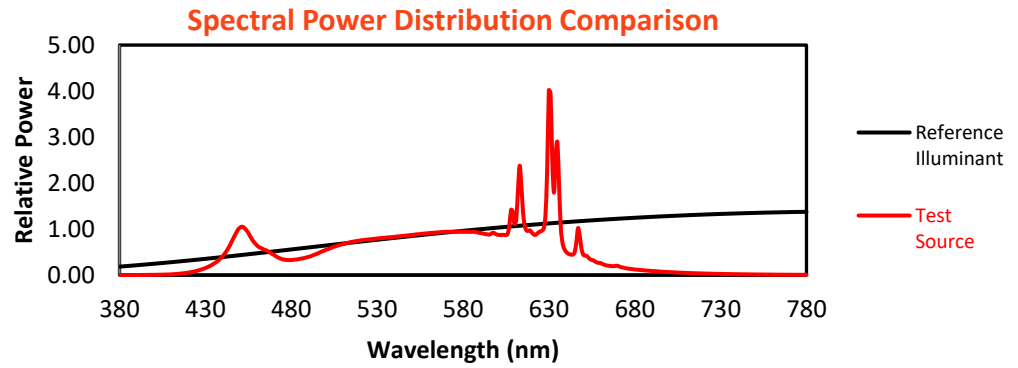
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360	0	NR	490	99	NR	620	231	NR	750	3	NR	880	0	NR
365	0	NR	495	115	NR	625	237	NR	755	3	NR	885	0	NR
370	0	NR	500	136	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	154	NR	635	719	NR	765	2	NR	895	0	NR
380	0	NR	510	167	NR	640	127	NR	770	2	NR	900	0	NR
385	0	NR	515	179	NR	645	122	NR	775	2	NR	905	0	NR
390	0	NR	520	187	NR	650	111	NR	780	1	NR	910	0	NR
395	1	NR	525	193	NR	655	82	NR	785	1	NR	915	0	NR
400	1	NR	530	198	NR	660	65	NR	790	1	NR	920	0	NR
405	2	NR	535	203	NR	665	50	NR	795	1	NR	925	0	NR
410	4	NR	540	207	NR	670	50	NR	800	1	NR	930	0	NR
415	7	NR	545	212	NR	675	37	NR	805	1	NR	935	0	NR
420	13	NR	550	217	NR	680	30	NR	810	1	NR	940	0	NR
425	23	NR	555	222	NR	685	26	NR	815	0	NR	945	0	NR
430	38	NR	560	227	NR	690	22	NR	820	0	NR	950	0	NR
435	62	NR	565	231	NR	695	19	NR	825	0	NR	955	0	NR
440	102	NR	570	234	NR	700	16	NR	830	0	NR	960	0	NR
445	175	NR	575	234	NR	705	14	NR	835	0	NR	965	0	NR
450	256	NR	580	234	NR	710	12	NR	840	0	NR	970	0	NR
455	229	NR	585	234	NR	715	10	NR	845	0	NR	975	0	NR
460	161	NR	590	228	NR	720	9	NR	850	0	NR	980	0	NR
465	135	NR	595	220	NR	725	7	NR	855	0	NR	985	0	NR
470	108	NR	600	219	NR	730	6	NR	860	0	NR	990	0	NR
475	86	NR	605	217	NR	735	5	NR	865	0	NR	995	0	NR
480	82	NR	610	276	NR	740	5	NR	870	0	NR	1000	0	NR
485	88	NR	615	337	NR	745	4	NR	875	0	NR			

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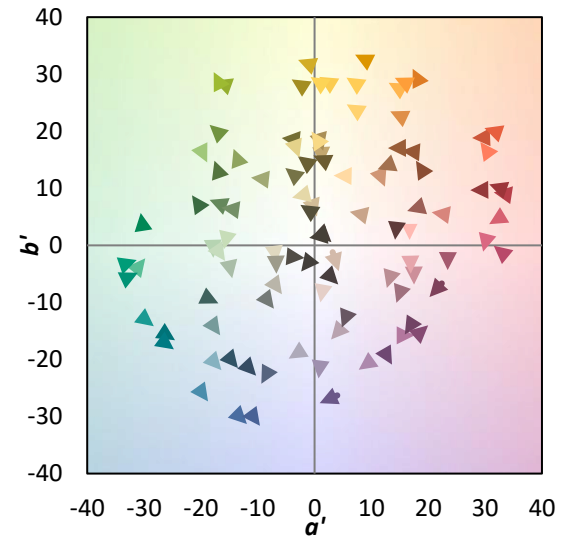
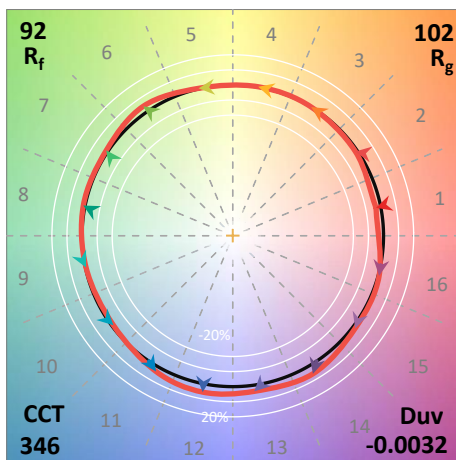
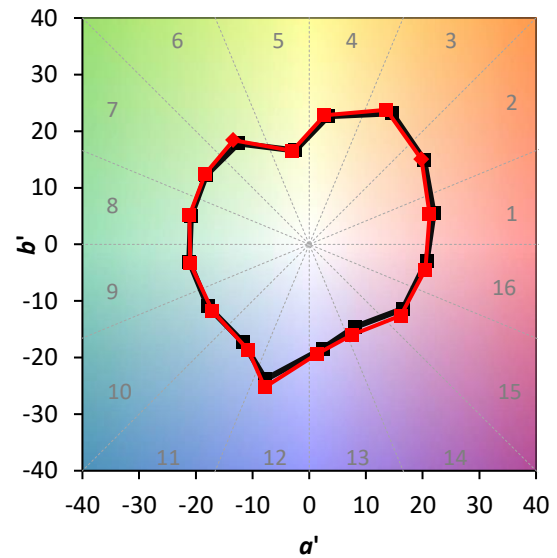
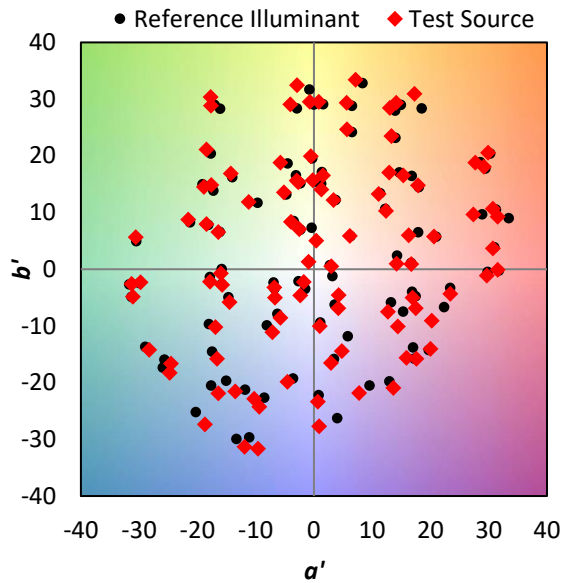
TM-30-18

Summary

$R_f = 92$
 $R_g = 102.2$
 $CIE R_a = 96.5$
 $R_g = 83.7$

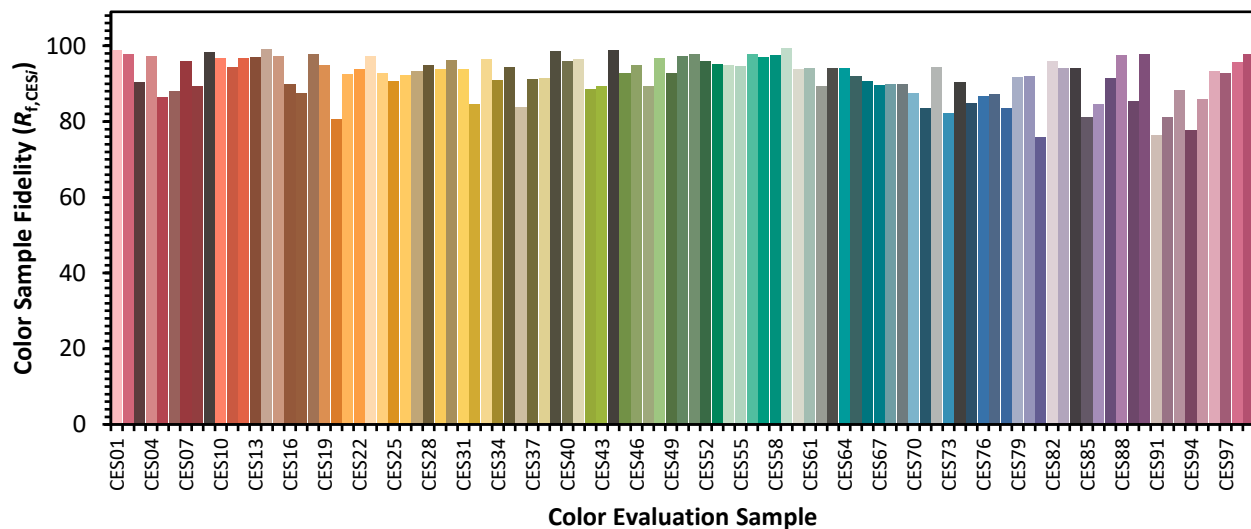


Color Vector Graphics

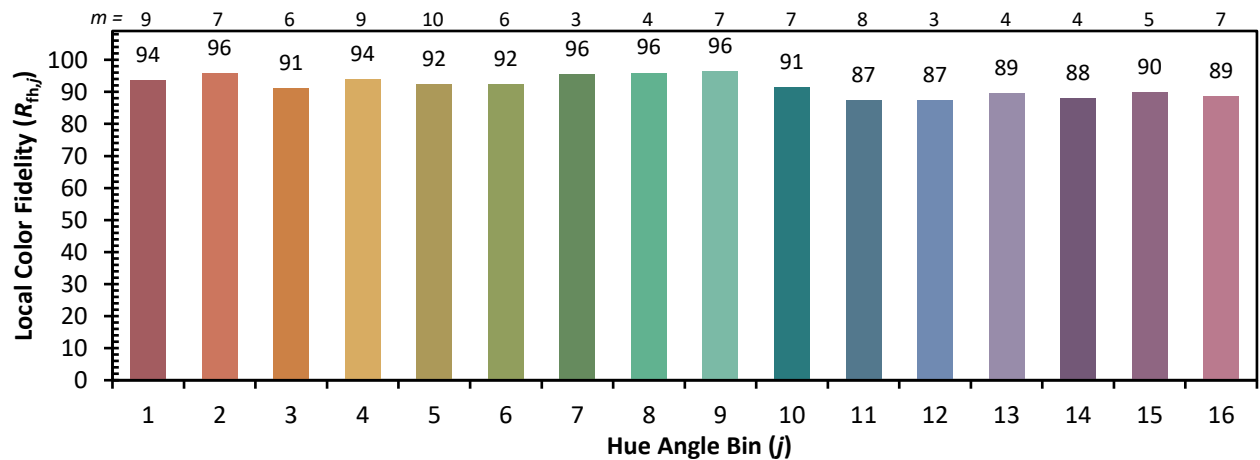
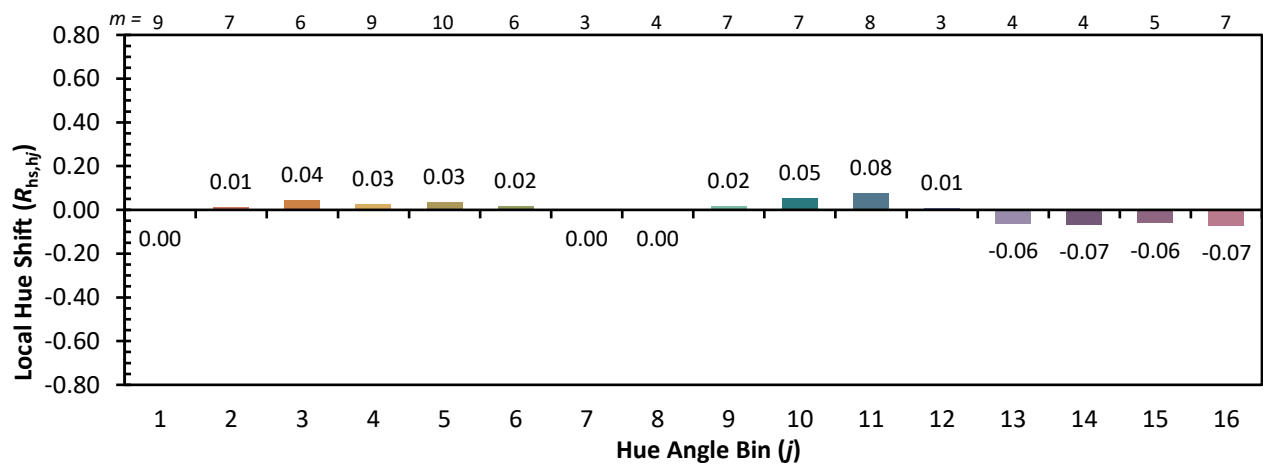
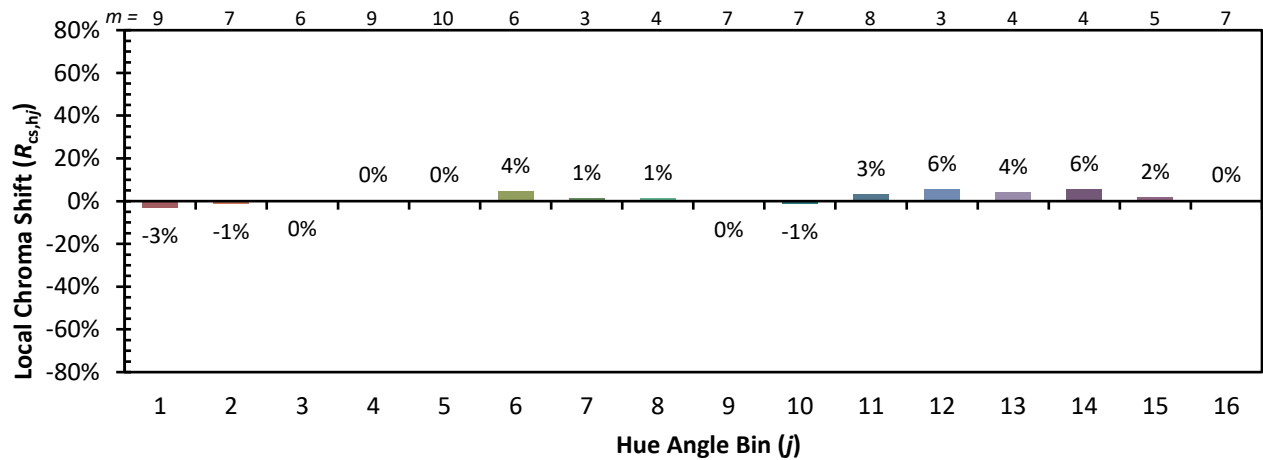


Individual Sample Fidelity Index ($R_{f,i}$)

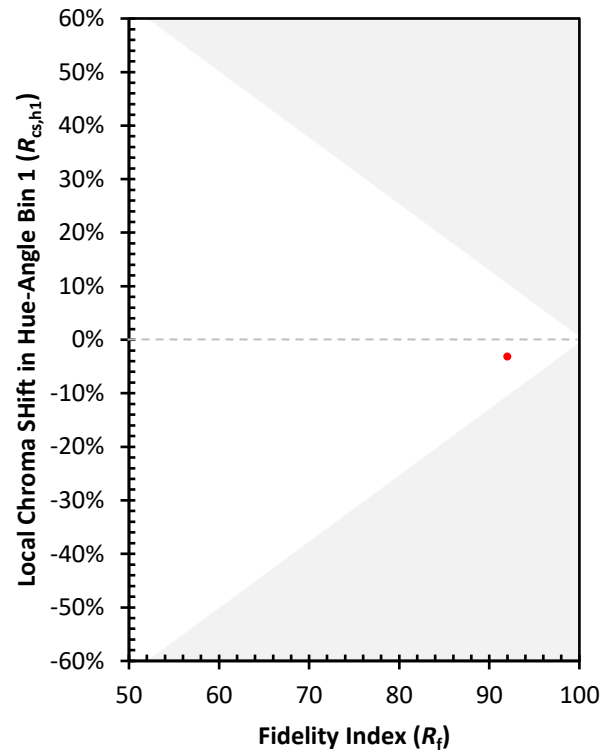
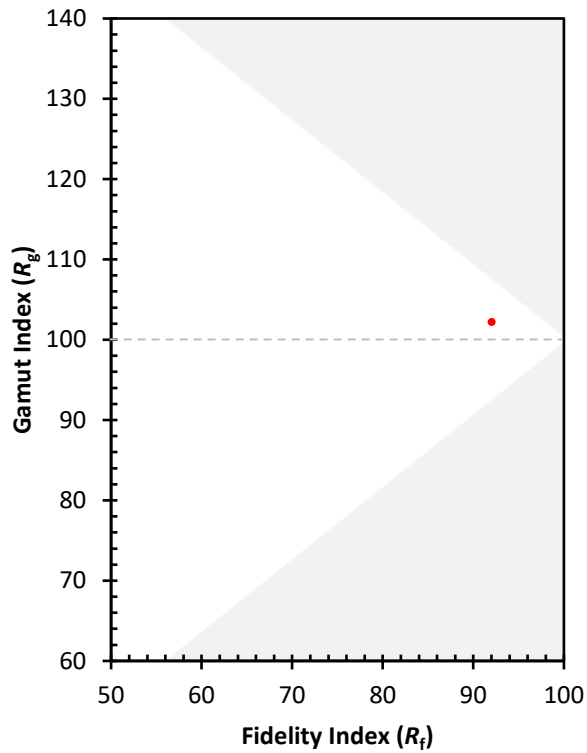
CES01 = 86	CES26 = 92	CES51 = 98	CES76 = 87
CES02 = 62	CES27 = 93	CES52 = 96	CES77 = 87
CES03 = 32	CES28 = 95	CES53 = 95	CES78 = 83
CES04 = 70	CES29 = 94	CES54 = 95	CES79 = 92
CES05 = 50	CES30 = 96	CES55 = 95	CES80 = 92
CES06 = 51	CES31 = 94	CES56 = 98	CES81 = 76
CES07 = 43	CES32 = 85	CES57 = 97	CES82 = 96
CES08 = 42	CES33 = 97	CES58 = 98	CES83 = 94
CES09 = 29	CES34 = 91	CES59 = 99	CES84 = 94
CES10 = 75	CES35 = 94	CES60 = 94	CES85 = 81
CES11 = 58	CES36 = 84	CES61 = 94	CES86 = 85
CES12 = 64	CES37 = 91	CES62 = 89	CES87 = 92
CES13 = 44	CES38 = 92	CES63 = 94	CES88 = 97
CES14 = 74	CES39 = 99	CES64 = 94	CES89 = 85
CES15 = 72	CES40 = 96	CES65 = 92	CES90 = 98
CES16 = 48	CES41 = 97	CES66 = 91	CES91 = 76
CES17 = 49	CES42 = 88	CES67 = 90	CES92 = 81
CES18 = 56	CES43 = 89	CES68 = 90	CES93 = 88
CES19 = 71	CES44 = 99	CES69 = 90	CES94 = 78
CES20 = 67	CES45 = 93	CES70 = 87	CES95 = 86
CES21 = 86	CES46 = 95	CES71 = 84	CES96 = 93
CES22 = 78	CES47 = 89	CES72 = 94	CES97 = 93
CES23 = 91	CES48 = 97	CES73 = 82	CES98 = 96
CES24 = 90	CES49 = 93	CES74 = 90	CES99 = 98
CES25 = 71	CES50 = 97	CES75 = 85	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)