

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: P995462

Luminaire Tested: **LTT409FSMB-940**

Issue Date: 06/09/2025



Test Information

Test Method: LM-79-08
Report Number: P995462
Test Lab: INNOVATION CENTER (G1)
Issue Date: 06/09/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: LTT409FSMB-940
Description: HALO LT BLACK TRIM HIGH LUMENS 4 inch 90 CRI COLOR SELECTABLE
FIXTURE
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

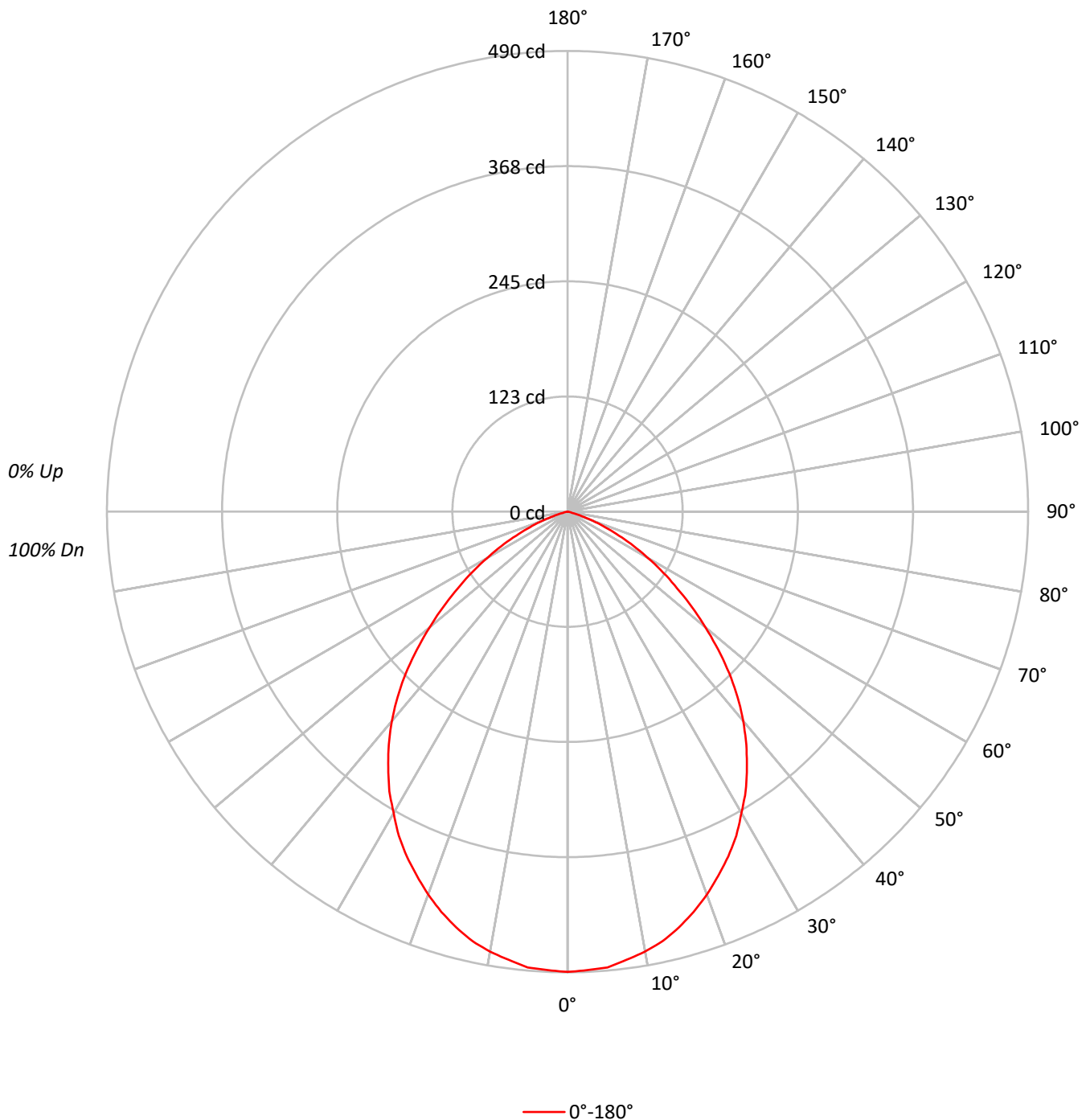
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 954.4 lumens
Efficiency: N/A
Efficacy: 100.5 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 (A_{in}): 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: P995462
CATALOG NUMBER: LTT409FSMB-940

Luminous Intensity Polar Plot





TEST NUMBER: P995462

CATALOG NUMBER: LTT409FSMB-940

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°	74540
5°	74382
10°	73463
15°	72172
20°	70233
25°	67981
30°	65059
35°	61829
40°	57807
45°	52396
50°	45367
55°	37832
60°	30242
65°	21799
70°	12823
75°	4236
80°	0
85°	0



TEST NUMBER: P995462
 CATALOG NUMBER: LTT409FSMB-940

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.0	4.8
10°-20°	128.8	13.5
20°-30°	185.9	19.5
30°-40°	207.6	21.8
40°-50°	186.7	19.6
50°-60°	128.4	13.4
60°-70°	60.8	6.4
70°-80°	10.1	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°	360.8	37.8
0°-40°	568.4	59.6
0°-60°	883.4	92.6
0°-90°	954.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	954.4	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	490	
5°	487	46
15°	458	129
25°	405	186
35°	333	208
45°	243	187
55°	142	128
65°	60	61
75°	7	10
85°	0	0
90°	0	



TEST NUMBER: P995462
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CANDELA DISTRIBUTION (FULL):

0°	
0°	489.5
2.5°	488.1
5°	486.6
7.5°	480.9
10°	475.1
12.5°	467.9
15°	457.8
17.5°	446.3
20°	433.4
22.5°	419.0
25°	404.6
27.5°	388.7
30°	370.0
32.5°	352.7
35°	332.6
37.5°	312.4
40°	290.8
42.5°	267.8
45°	243.3
47.5°	217.4
50°	191.5
52.5°	167.0
55°	142.5
57.5°	120.9
60°	99.3
62.5°	79.2
65°	60.5
67.5°	43.2
70°	28.8
72.5°	15.8
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	23.74	25.17	24.11	25.49	25.80	23.74	25.17	24.11	25.49	25.80
	3H	24.20	25.47	24.58	25.80	26.16	24.20	25.47	24.58	25.80	26.16
	4H	24.18	25.36	24.58	25.71	26.09	24.18	25.36	24.58	25.71	26.09
	6H	24.11	25.19	24.52	25.56	25.95	24.11	25.19	24.52	25.56	25.95
	8H	24.07	25.10	24.50	25.49	25.89	24.07	25.10	24.50	25.49	25.89
	12H	24.03	25.01	24.46	25.40	25.83	24.03	25.01	24.46	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	25.44	24.90	25.85	26.25	24.49	25.44	24.90	25.85	26.25
	4H	24.46	25.31	24.89	25.73	26.17	24.46	25.31	24.89	25.73	26.17
	6H	24.39	25.12	24.85	25.57	26.03	24.39	25.12	24.85	25.57	26.03
	8H	24.34	25.02	24.80	25.47	25.94	24.34	25.02	24.80	25.47	25.94
	12H	24.30	24.90	24.78	25.38	25.86	24.30	24.90	24.78	25.38	25.86
8H	4H	24.37	25.05	24.84	25.50	25.97	24.37	25.05	24.84	25.50	25.97
	6H	24.28	24.84	24.78	25.33	25.81	24.28	24.84	24.78	25.33	25.81
	8H	24.22	24.72	24.74	25.23	25.72	24.22	24.72	24.74	25.23	25.72
	12H	24.18	24.62	24.69	25.12	25.68	24.18	24.62	24.69	25.12	25.68
12H	4H	24.33	24.93	24.81	25.42	25.89	24.33	24.93	24.81	25.42	25.89
	6H	24.22	24.72	24.74	25.23	25.72	24.22	24.72	24.74	25.23	25.72
	8H	24.18	24.62	24.69	25.12	25.68	24.18	24.62	24.69	25.12	25.68

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

Report Prepared for

Cooper Lighting Solutions

Halo Recessed

Report Number: SP2-2504-410-4

Test Date: 05/22/2025

Luminaire Tested: LTT5607FSMBSS-4000K

Data in this report applies to families of products including LTT5607FSMBSS-4000K

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

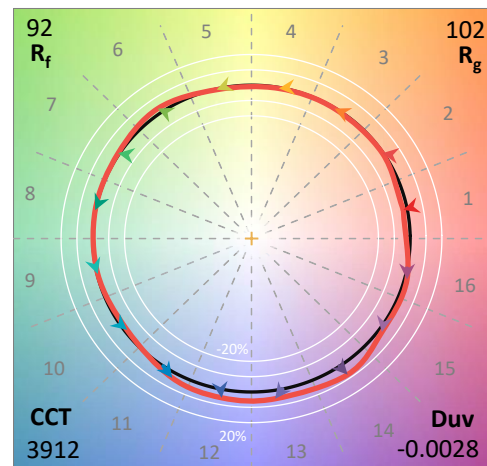
Test Information

Test Method: LM-79-2019
 Report Number: SP2-2504-410-4
 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-4000K**
 Description: HALO LT BLACK LED TRIM 6 INCH SMOOTH

Spectral Parameters

CCT (K): 3912
 CIE u' : 0.2283
 CIE v' : 0.4998
 Duv: -0.0028
 CIE x: 0.3824
 CIE y: 0.3720
 CIE z: 0.2456
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 581
 Purity: 26.37733
 R_f: 92
 R_g: 102.2

CRI (Ra): 96.7
 R1: 98.8
 R2: 97.8
 R3: 92.4
 R4: 96.5
 R5: 98.7
 R6: 94.9
 R7: 97.2
 R8: 97.1
 R9: 89.6
 R10: 91.8
 R11: 94.4
 R12: 77.0
 R13: 99.7
 R14: 94.4
 R15: 98.9



Test Conditions

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

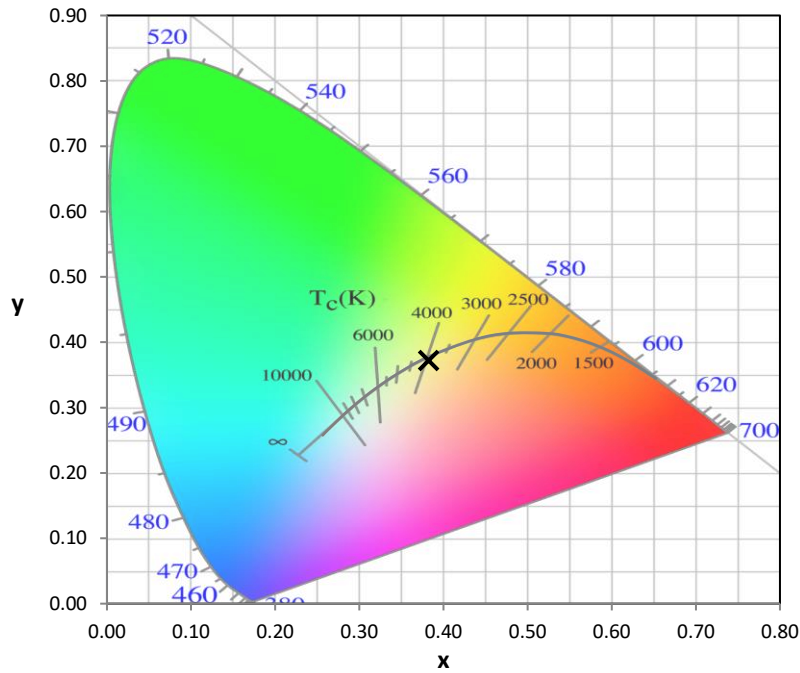
REPORT NUMBER: SP2-2504-410-4

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

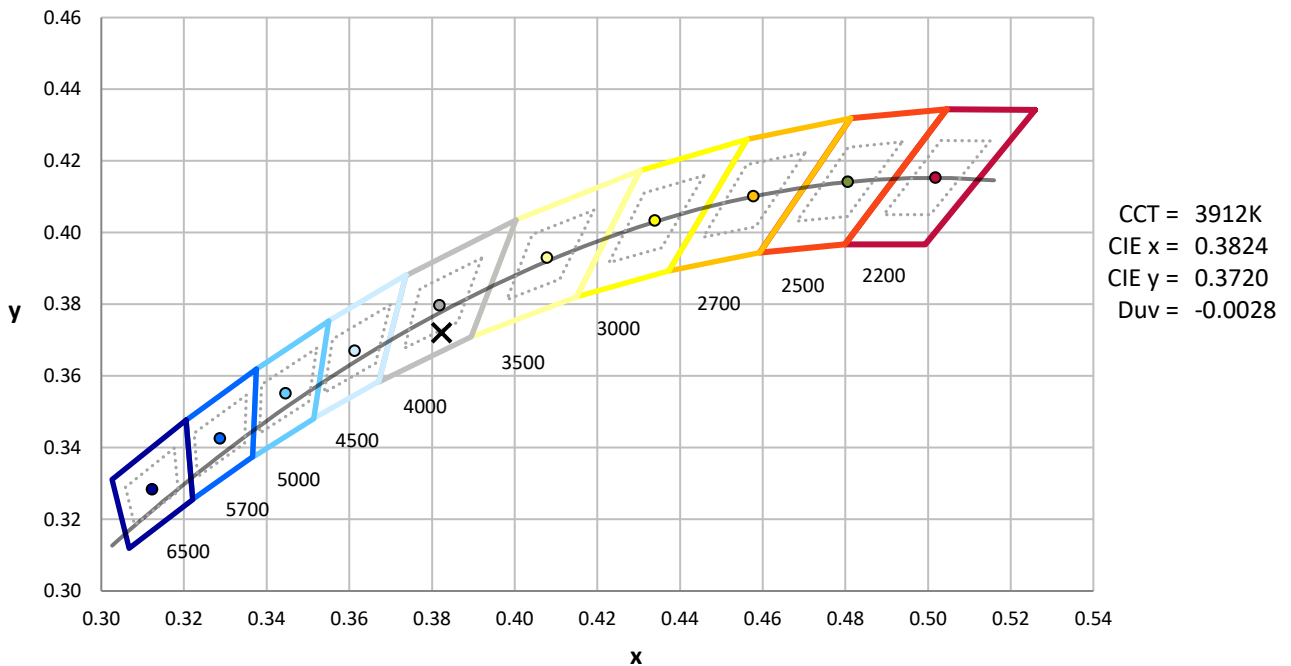
Sample Number	Condition	Description
P2504-410-LM.1	Good	HALO LT BLACK LED TRIM 6 INCH SMOOTH

REPORT NUMBER: SP2-2504-410-4

CIE 1931 Chromaticity Diagram



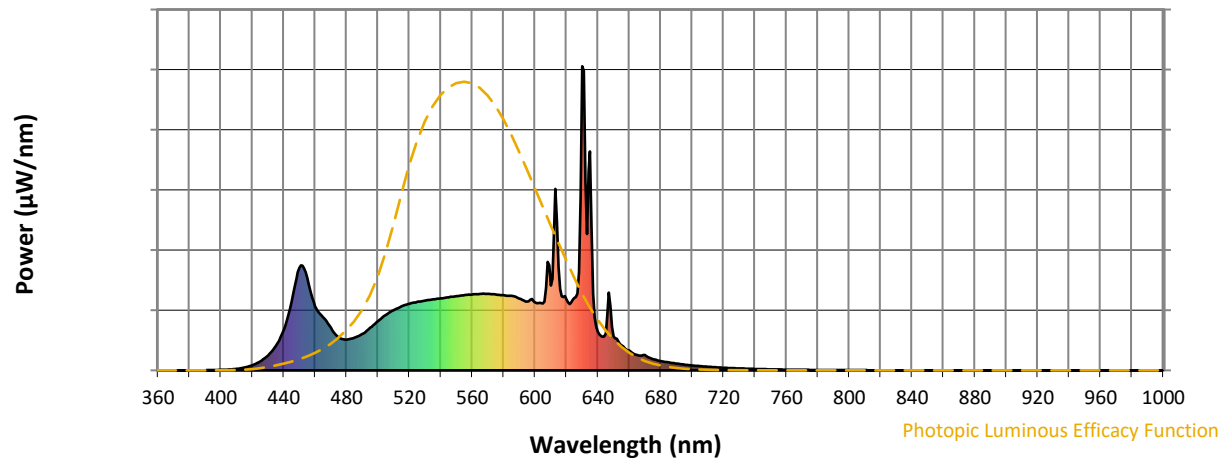
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 7-step quadrangle

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Photopic Flux vs. Wavelength

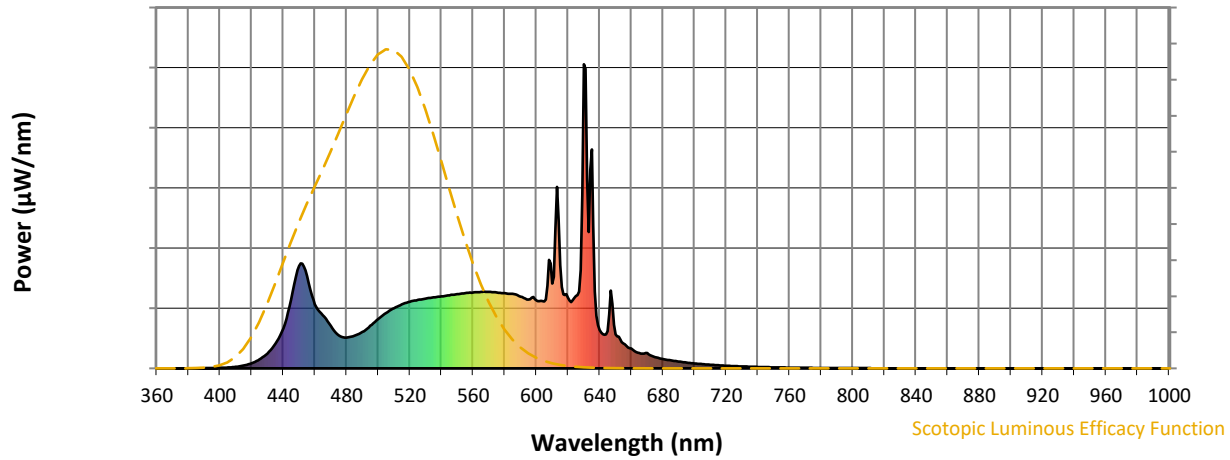


Photopic Lumens: NR

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	120	NR	620	233	NR	750	3	NR	880	0	NR
365	0	NR	495	140	NR	625	238	NR	755	3	NR	885	0	NR
370	0	NR	500	162	NR	630	1000	NR	760	3	NR	890	0	NR
375	0	NR	505	182	NR	635	720	NR	765	2	NR	895	0	NR
380	0	NR	510	198	NR	640	126	NR	770	2	NR	900	0	NR
385	0	NR	515	211	NR	645	122	NR	775	2	NR	905	0	NR
390	1	NR	520	219	NR	650	111	NR	780	1	NR	910	0	NR
395	1	NR	525	225	NR	655	82	NR	785	1	NR	915	0	NR
400	2	NR	530	230	NR	660	65	NR	790	1	NR	920	0	NR
405	3	NR	535	233	NR	665	50	NR	795	1	NR	925	0	NR
410	5	NR	540	237	NR	670	50	NR	800	1	NR	930	0	NR
415	9	NR	545	240	NR	675	37	NR	805	1	NR	935	0	NR
420	17	NR	550	244	NR	680	31	NR	810	1	NR	940	0	NR
425	29	NR	555	247	NR	685	26	NR	815	0	NR	945	0	NR
430	49	NR	560	249	NR	690	22	NR	820	0	NR	950	0	NR
435	81	NR	565	251	NR	695	19	NR	825	0	NR	955	0	NR
440	132	NR	570	251	NR	700	16	NR	830	0	NR	960	0	NR
445	226	NR	575	250	NR	705	14	NR	835	0	NR	965	0	NR
450	337	NR	580	247	NR	710	12	NR	840	0	NR	970	0	NR
455	303	NR	585	245	NR	715	10	NR	845	0	NR	975	0	NR
460	211	NR	590	236	NR	720	9	NR	850	0	NR	980	0	NR
465	175	NR	595	226	NR	725	7	NR	855	0	NR	985	0	NR
470	140	NR	600	223	NR	730	6	NR	860	0	NR	990	0	NR
475	108	NR	605	220	NR	735	5	NR	865	0	NR	995	0	NR
480	101	NR	610	279	NR	740	5	NR	870	0	NR	1000	0	NR
485	108	NR	615	339	NR	745	4	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



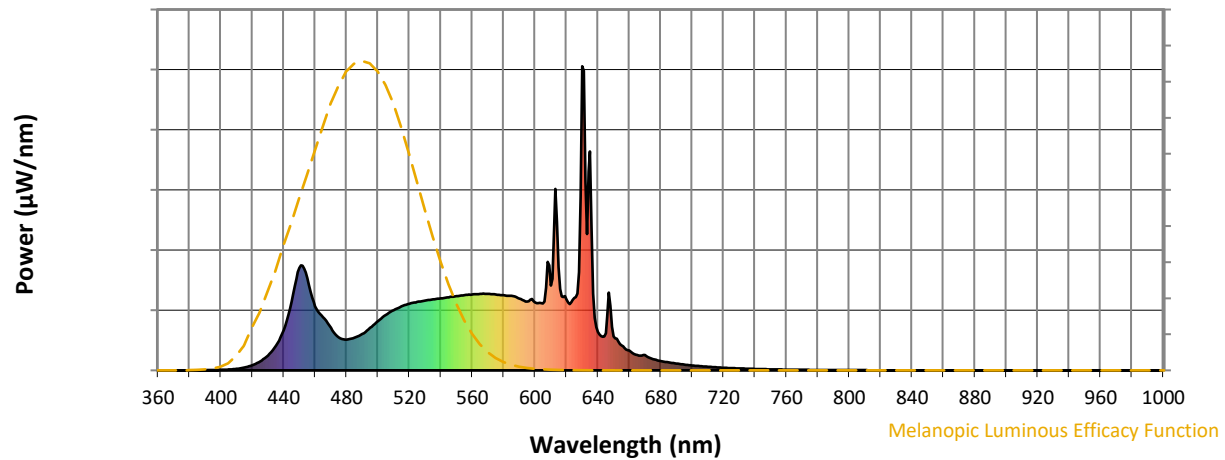
Scotopic Lumens: NR

S/P: 1.78

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	120	NR	620	233	NR	750	3	NR	880	0	NR
365	0	NR	495	140	NR	625	238	NR	755	3	NR	885	0	NR
370	0	NR	500	162	NR	630	1000	NR	760	3	NR	890	0	NR
375	0	NR	505	182	NR	635	720	NR	765	2	NR	895	0	NR
380	0	NR	510	198	NR	640	126	NR	770	2	NR	900	0	NR
385	0	NR	515	211	NR	645	122	NR	775	2	NR	905	0	NR
390	1	NR	520	219	NR	650	111	NR	780	1	NR	910	0	NR
395	1	NR	525	225	NR	655	82	NR	785	1	NR	915	0	NR
400	2	NR	530	230	NR	660	65	NR	790	1	NR	920	0	NR
405	3	NR	535	233	NR	665	50	NR	795	1	NR	925	0	NR
410	5	NR	540	237	NR	670	50	NR	800	1	NR	930	0	NR
415	9	NR	545	240	NR	675	37	NR	805	1	NR	935	0	NR
420	17	NR	550	244	NR	680	31	NR	810	1	NR	940	0	NR
425	29	NR	555	247	NR	685	26	NR	815	0	NR	945	0	NR
430	49	NR	560	249	NR	690	22	NR	820	0	NR	950	0	NR
435	81	NR	565	251	NR	695	19	NR	825	0	NR	955	0	NR
440	132	NR	570	251	NR	700	16	NR	830	0	NR	960	0	NR
445	226	NR	575	250	NR	705	14	NR	835	0	NR	965	0	NR
450	337	NR	580	247	NR	710	12	NR	840	0	NR	970	0	NR
455	303	NR	585	245	NR	715	10	NR	845	0	NR	975	0	NR
460	211	NR	590	236	NR	720	9	NR	850	0	NR	980	0	NR
465	175	NR	595	226	NR	725	7	NR	855	0	NR	985	0	NR
470	140	NR	600	223	NR	730	6	NR	860	0	NR	990	0	NR
475	108	NR	605	220	NR	735	5	NR	865	0	NR	995	0	NR
480	101	NR	610	279	NR	740	5	NR	870	0	NR	1000	0	NR
485	108	NR	615	339	NR	745	4	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.7

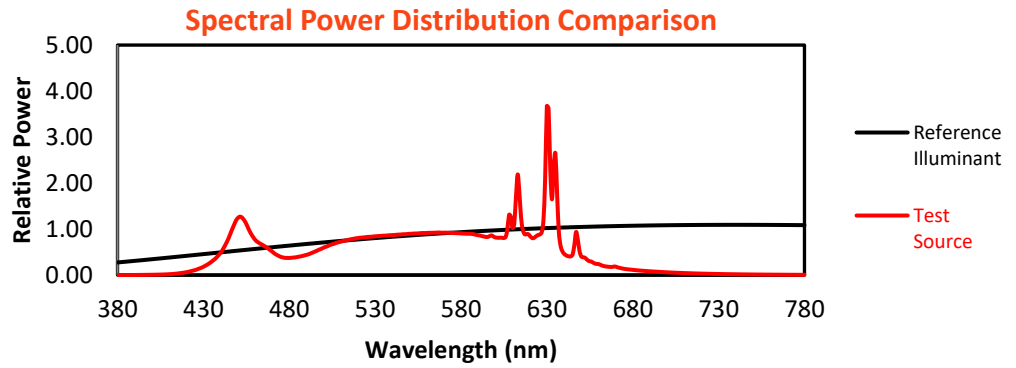
λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)
360	0	NR	490	120	NR	620	233	NR	750	3	NR	880	0	NR
365	0	NR	495	140	NR	625	238	NR	755	3	NR	885	0	NR
370	0	NR	500	162	NR	630	1000	NR	760	3	NR	890	0	NR
375	0	NR	505	182	NR	635	720	NR	765	2	NR	895	0	NR
380	0	NR	510	198	NR	640	126	NR	770	2	NR	900	0	NR
385	0	NR	515	211	NR	645	122	NR	775	2	NR	905	0	NR
390	1	NR	520	219	NR	650	111	NR	780	1	NR	910	0	NR
395	1	NR	525	225	NR	655	82	NR	785	1	NR	915	0	NR
400	2	NR	530	230	NR	660	65	NR	790	1	NR	920	0	NR
405	3	NR	535	233	NR	665	50	NR	795	1	NR	925	0	NR
410	5	NR	540	237	NR	670	50	NR	800	1	NR	930	0	NR
415	9	NR	545	240	NR	675	37	NR	805	1	NR	935	0	NR
420	17	NR	550	244	NR	680	31	NR	810	1	NR	940	0	NR
425	29	NR	555	247	NR	685	26	NR	815	0	NR	945	0	NR
430	49	NR	560	249	NR	690	22	NR	820	0	NR	950	0	NR
435	81	NR	565	251	NR	695	19	NR	825	0	NR	955	0	NR
440	132	NR	570	251	NR	700	16	NR	830	0	NR	960	0	NR
445	226	NR	575	250	NR	705	14	NR	835	0	NR	965	0	NR
450	337	NR	580	247	NR	710	12	NR	840	0	NR	970	0	NR
455	303	NR	585	245	NR	715	10	NR	845	0	NR	975	0	NR
460	211	NR	590	236	NR	720	9	NR	850	0	NR	980	0	NR
465	175	NR	595	226	NR	725	7	NR	855	0	NR	985	0	NR
470	140	NR	600	223	NR	730	6	NR	860	0	NR	990	0	NR
475	108	NR	605	220	NR	735	5	NR	865	0	NR	995	0	NR
480	101	NR	610	279	NR	740	5	NR	870	0	NR	1000	0	NR
485	108	NR	615	339	NR	745	4	NR	875	0	NR			

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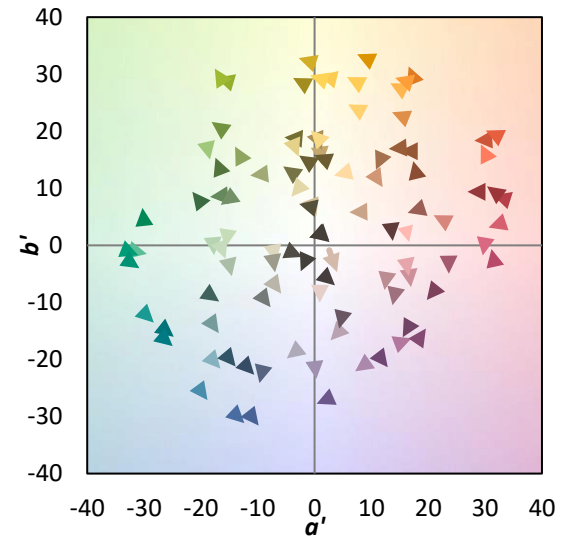
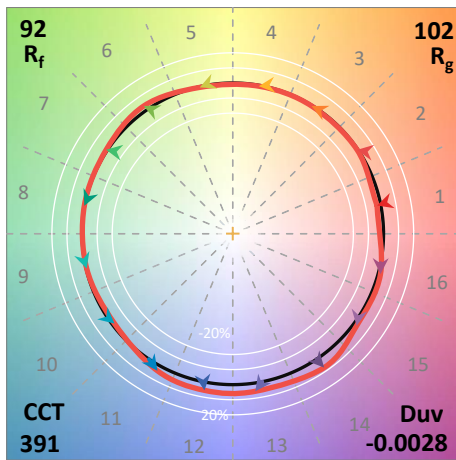
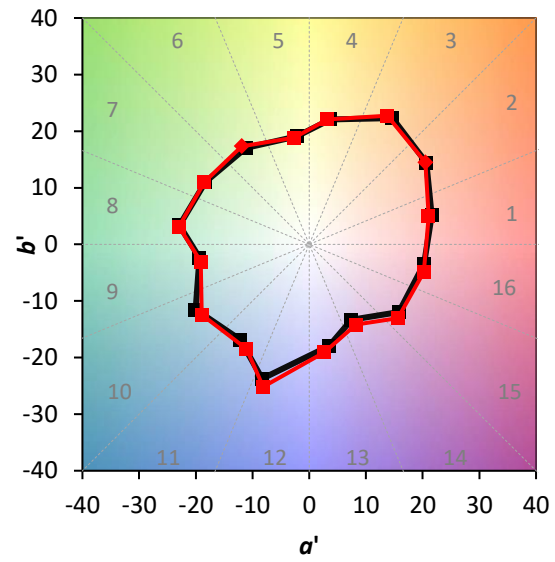
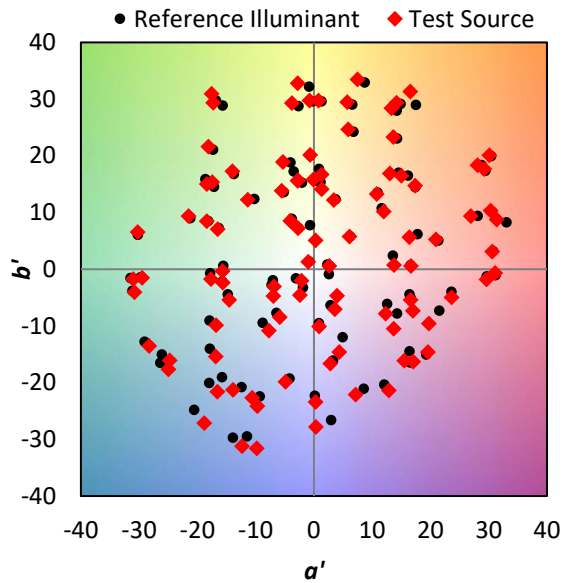
TM-30-18

Summary

$R_f = 92$
 $R_g = 102.2$
 $CIE R_a = 96.7$
 $R_9 = 89.6$

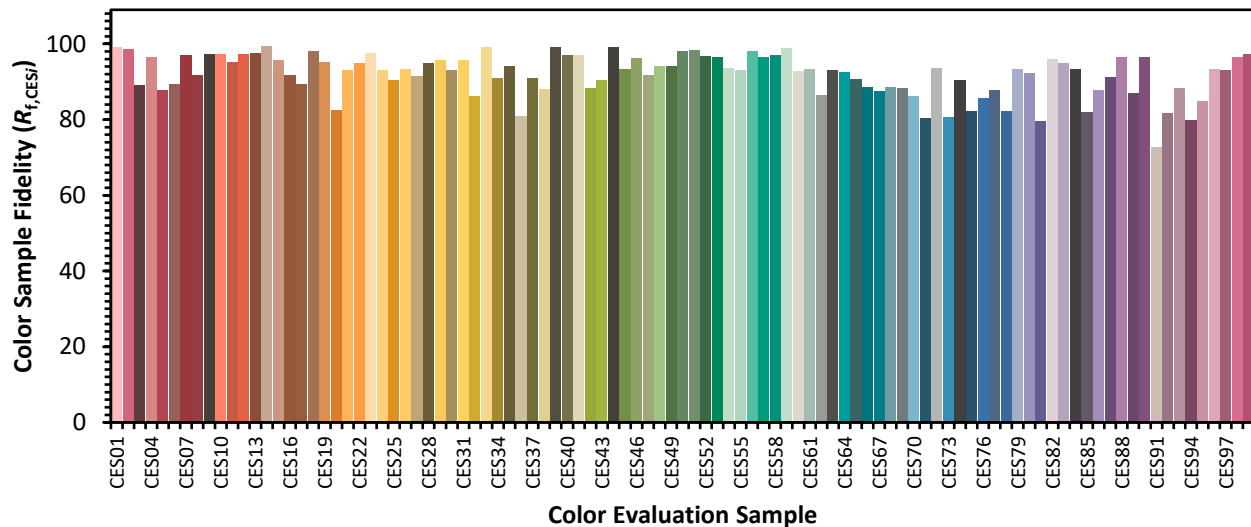


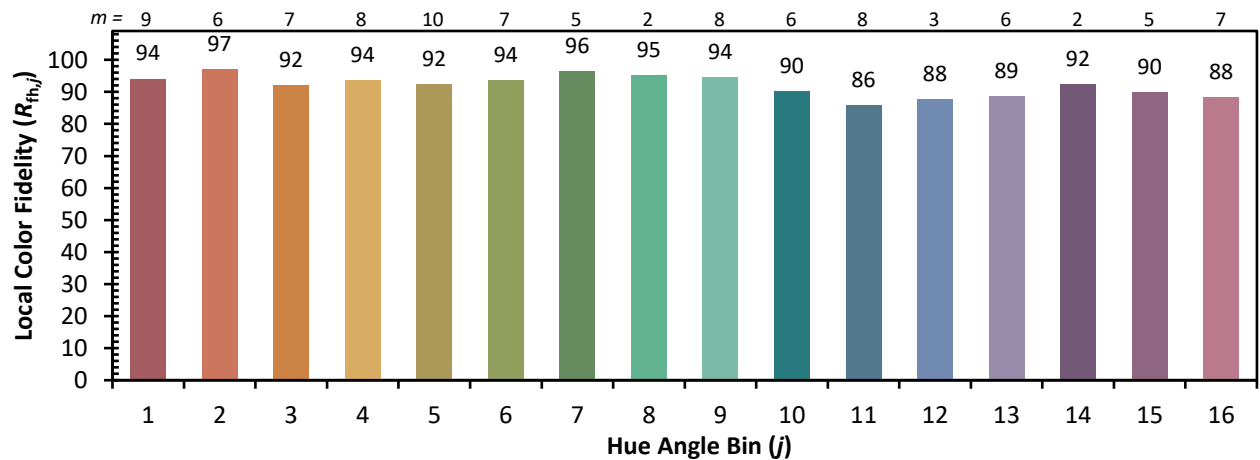
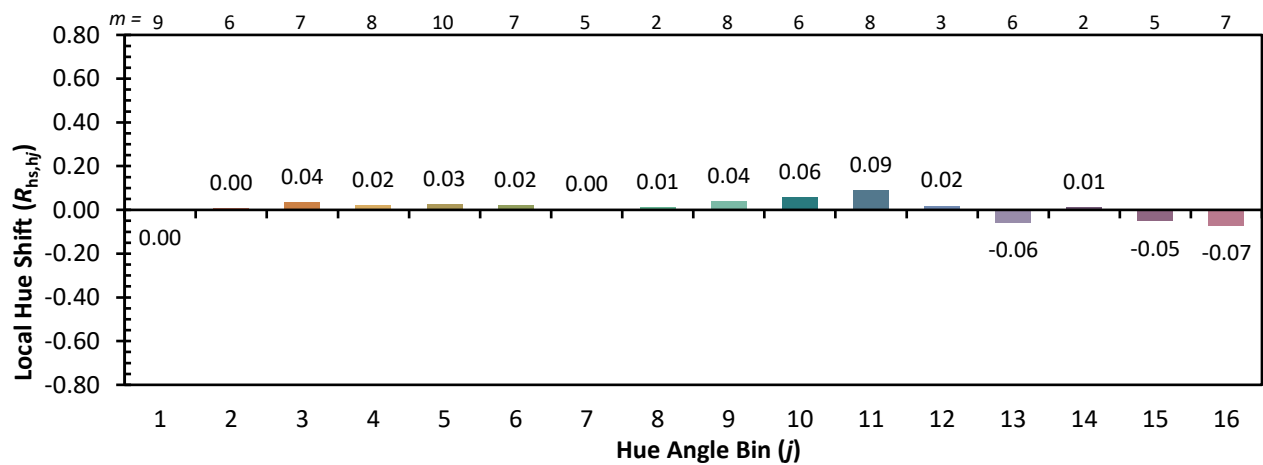
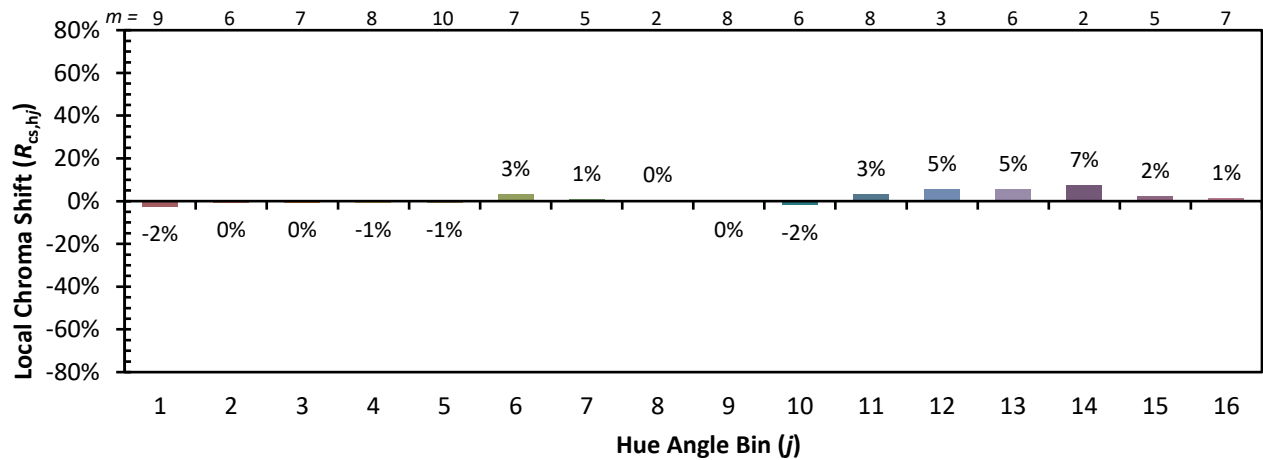
Color Vector Graphics



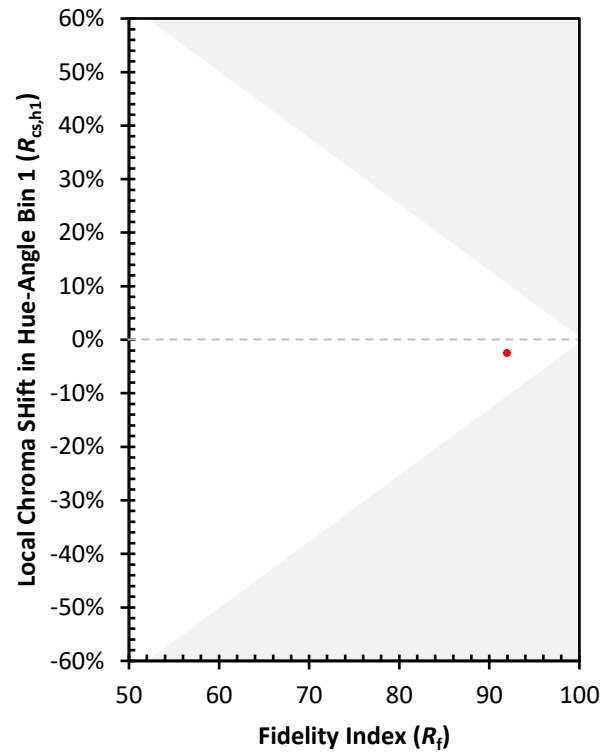
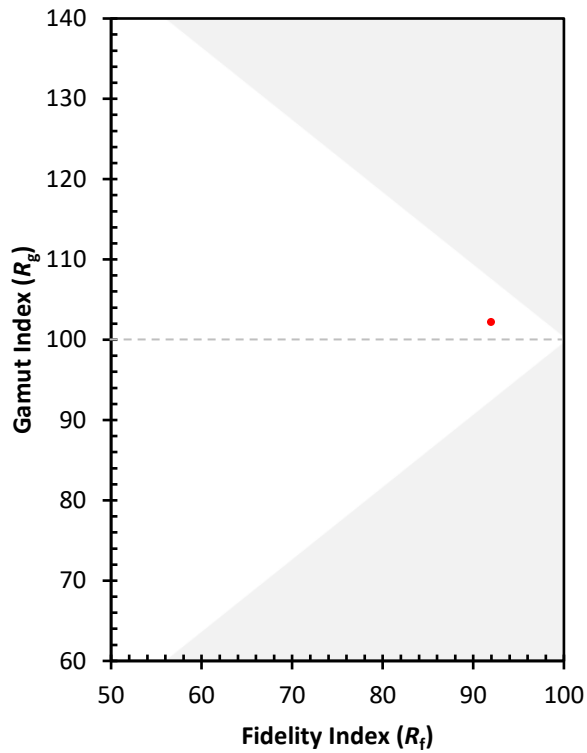
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 93	CES51 = 98	CES76 = 86
CES02 = 62	CES27 = 92	CES52 = 97	CES77 = 88
CES03 = 31	CES28 = 95	CES53 = 97	CES78 = 82
CES04 = 69	CES29 = 96	CES54 = 94	CES79 = 93
CES05 = 49	CES30 = 93	CES55 = 93	CES80 = 92
CES06 = 50	CES31 = 96	CES56 = 98	CES81 = 80
CES07 = 43	CES32 = 86	CES57 = 97	CES82 = 96
CES08 = 41	CES33 = 99	CES58 = 97	CES83 = 95
CES09 = 29	CES34 = 91	CES59 = 99	CES84 = 93
CES10 = 74	CES35 = 94	CES60 = 93	CES85 = 82
CES11 = 57	CES36 = 81	CES61 = 93	CES86 = 88
CES12 = 63	CES37 = 91	CES62 = 86	CES87 = 91
CES13 = 43	CES38 = 88	CES63 = 93	CES88 = 96
CES14 = 74	CES39 = 99	CES64 = 92	CES89 = 87
CES15 = 71	CES40 = 97	CES65 = 91	CES90 = 96
CES16 = 47	CES41 = 97	CES66 = 89	CES91 = 73
CES17 = 49	CES42 = 88	CES67 = 87	CES92 = 82
CES18 = 56	CES43 = 90	CES68 = 89	CES93 = 88
CES19 = 71	CES44 = 99	CES69 = 88	CES94 = 80
CES20 = 66	CES45 = 93	CES70 = 86	CES95 = 85
CES21 = 85	CES46 = 96	CES71 = 80	CES96 = 93
CES22 = 78	CES47 = 92	CES72 = 94	CES97 = 93
CES23 = 91	CES48 = 94	CES73 = 81	CES98 = 96
CES24 = 90	CES49 = 94	CES74 = 91	CES99 = 97
CES25 = 71	CES50 = 98	CES75 = 82	



Color Rendition by Hue-Angle Bin


Measure Comparisons



(END OF REPORT)