

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

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P1046632

Luminaire Tested: FMNL1112FS5--927

Issue Date: 07/03/2025

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

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Test Information

Test Method: LM-79-2019
Report Number: P1046632
Test Lab: Cooper lighting solutions
Issue Date: 07/03/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: FMNL1112FS5--927
Description: HALO 11 inch 90 CRI COLOR SELECTABLE flush mount White Trim FIXTURE with night light
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

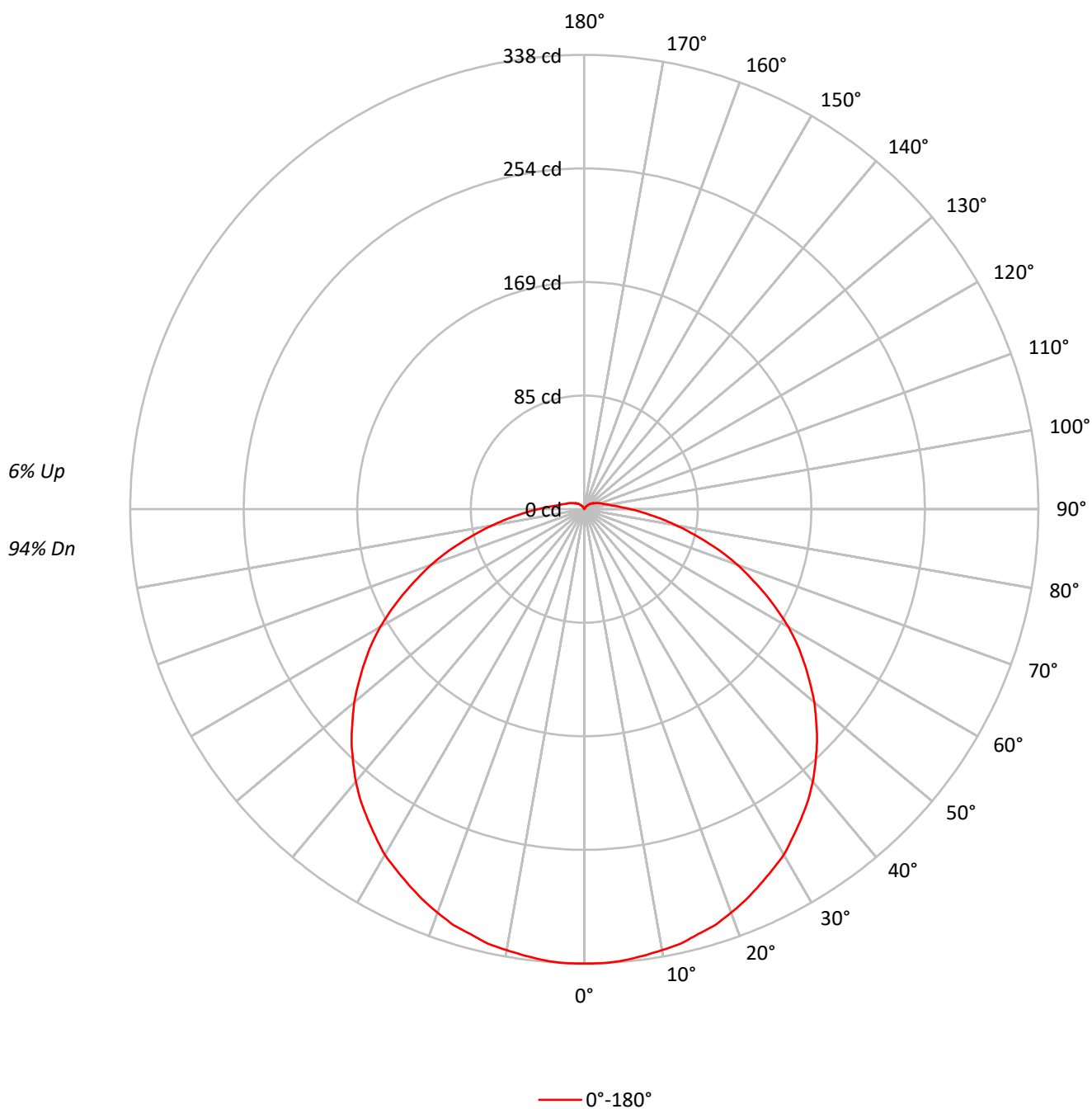
Lumens per Lamp: N/A
Luminaire Lumens: 1179.5 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.3 / 1.43
Luminous Opening: Circular (Dia: 0.9' x H: 0')
CIE Type: Direct

Input Watts (W): 12.5
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: 24 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	P3	10/30/2015	4/30/2016
Power Meter	IN0214	1/12/2016	1/12/2017
AC Power Source	IN0062	1/12/2016	1/12/2017
DC Power Supply	--	--	--
Room Thermometer	IN0145	1/13/2016	1/13/2017

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CATALOG NUMBER: FMNL1112FS5--927

Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97			94
1	106	100	96	91	102	98	93	89	92	89	85	87	84	82	83	80	78			76
2	96	87	79	73	92	84	77	72	80	74	69	76	71	67	72	68	64			62
3	87	76	67	60	84	73	65	59	70	63	57	66	60	55	63	58	54			51
4	79	67	57	50	76	65	56	50	62	54	48	59	52	47	56	50	46			43
5	73	59	50	43	70	58	49	42	55	47	41	52	46	40	50	44	39			37
6	67	53	44	37	65	52	43	37	49	42	36	47	40	35	45	39	35			32
7	62	48	39	33	60	47	38	32	45	37	32	43	36	31	41	35	30			28
8	58	44	35	29	56	43	35	29	41	34	28	39	33	28	38	32	27			25
9	54	40	32	26	52	39	31	26	38	30	25	36	30	25	35	29	24			23
10	50	37	29	23	49	36	28	23	35	28	23	33	27	23	32	26	22			20

AVERAGE LUMINANCE (cd/sqm):

	0°
0°	5721
5°	5725
10°	5725
15°	5733
20°	5753
25°	5763
30°	5803
35°	5810
40°	5844
45°	5862
50°	5883
55°	5897
60°	5935
65°	5925
70°	6011
75°	6152
80°	6782
85°	9513

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 87.5°
Luminance: 15981 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	32.0	2.7
10°-20°	92.6	7.8
20°-30°	142.5	12.1
30°-40°	176.2	14.9
40°-50°	188.9	16.0
50°-60°	178.9	15.2
60°-70°	146.7	12.4
70°-80°	100.0	8.5
80°-90°	54.8	4.6
90°-100°	27.3	2.3
100°-110°	16.1	1.4
110°-120°	10.7	0.9
120°-130°	6.7	0.6
130°-140°	3.8	0.3
140°-150°	1.7	0.1
150°-160°	0.5	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	267.2	22.6
0°-40°	443.4	37.6
0°-60°	811.2	68.8
0°-90°	1112.6	94.3
90°-120°	54.1	4.6
90°-150°	66.4	5.6
90°-180°	67.0	5.7
0°-180°	1179.5	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	338	
5°	337	32
15°	327	93
25°	309	143
35°	281	176
45°	245	189
55°	200	179
65°	148	147
75°	94	100
85°	49	44
90°	34	19
95°	24	19
105°	15	16
115°	11	11
125°	8	7
135°	5	4
145°	3	2
155°	1	1
165°	0	0
175°	0	0
180°	0	0

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CANDELA DISTRIBUTION (FULL):

0°	
0°	338.1
2.5°	338.1
5°	337.1
7.5°	335.2
10°	333.2
12.5°	331.3
15°	327.3
17.5°	324.4
20°	319.5
22.5°	314.6
25°	308.7
27.5°	302.8
30°	297.0
32.5°	289.1
35°	281.3
37.5°	273.4
40°	264.6
42.5°	254.8
45°	245.0
47.5°	234.2
50°	223.5
52.5°	211.7
55°	199.9
57.5°	188.2
60°	175.4
62.5°	161.7
65°	148.0
67.5°	134.3
70°	121.5
72.5°	107.8
75°	94.1
77.5°	81.3
80°	69.6
82.5°	58.8
85°	49.0
87.5°	41.2
90°	34.3
92.5°	28.4
95°	24.5
97.5°	20.6
100°	18.6
102.5°	16.7
105°	14.7
107.5°	13.7
110°	12.7

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CANDELA DISTRIBUTION (continued):

	0°
112.5°	11.8
115°	10.8
117.5°	9.8
120°	8.8
122.5°	7.8
125°	7.8
127.5°	6.9
130°	5.9
132.5°	5.9
135°	4.9
137.5°	3.9
140°	3.9
142.5°	2.9
145°	2.9
147.5°	2.0
150°	2.0
152.5°	1.0
155°	1.0
157.5°	1.0
160°	1.0
162.5°	0.0
165°	0.0
167.5°	0.0
170°	0.0
172.5°	0.0
175°	0.0
177.5°	0.0
180°	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	18.0	19.5	18.4	20.0	20.4	18.0	19.5	18.4	20.0	20.4
	3H	20.1	21.5	20.5	21.9	22.4	20.1	21.5	20.5	21.9	22.4
	4H	21.0	22.3	21.5	22.8	23.3	21.0	22.3	21.5	22.8	23.3
	6H	21.8	23.1	22.3	23.6	24.1	21.8	23.1	22.3	23.6	24.1
	8H	22.2	23.4	22.7	23.9	24.5	22.2	23.4	22.7	23.9	24.5
	12H	22.6	23.8	23.2	24.3	24.9	22.6	23.8	23.2	24.3	24.9
4H	2H	18.7	20.0	19.1	20.5	21.0	18.7	20.0	19.1	20.5	21.0
	3H	21.0	22.2	21.5	22.7	23.2	21.0	22.2	21.5	22.7	23.2
	4H	22.1	23.1	22.6	23.7	24.2	22.1	23.1	22.6	23.7	24.2
	6H	23.1	24.0	23.6	24.6	25.1	23.1	24.0	23.6	24.6	25.1
	8H	23.6	24.5	24.1	25.0	25.6	23.6	24.5	24.1	25.0	25.6
	12H	24.1	24.9	24.7	25.5	26.1	24.1	24.9	24.7	25.5	26.1
8H	4H	22.5	23.4	23.1	23.9	24.5	22.5	23.4	23.1	23.9	24.5
	6H	23.7	24.5	24.3	25.1	25.7	23.7	24.5	24.3	25.1	25.7
	8H	24.4	25.0	25.0	25.6	26.2	24.4	25.0	25.0	25.6	26.2
	12H	25.1	25.7	25.7	26.2	26.9	25.1	25.7	25.7	26.2	26.9
12H	4H	22.6	23.4	23.2	24.0	24.6	22.6	23.4	23.2	24.0	24.6
	6H	23.9	24.6	24.5	25.1	25.8	23.9	24.6	24.5	25.1	25.8
	8H	24.6	25.2	25.2	25.8	26.5	24.6	25.2	25.2	25.8	26.5

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

Report Prepared for

Cooper Lighting Solutions

Halo Home

Report Number: SP1-2506-468-7

Test Date: 07/08/2025

Luminaire Tested: FMNL1112FS5-2700K

Data in this report applies to families of products including FMNL1112FS5-2700K

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

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

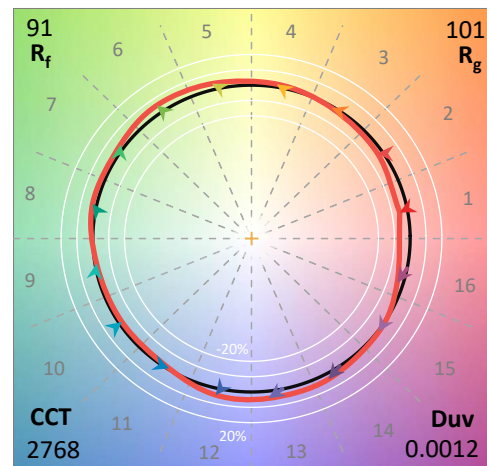
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-468-7
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 07/10/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Halo Home
 Catalog Number: **FMNL1112FS5-2700K**
 Description: HALO FLUSH MOUNT NIGHT LIGHT 11 INCH

Spectral Parameters

CCT (K): 2768
 CIE u' : 0.2592
 CIE v' : 0.5278
 Duv: 0.0012
 CIE x: 0.4564
 CIE y: 0.4130
 CIE z: 0.1306
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 583
 Purity: 60.97732
 R_f: 91.1
 R_g: 101.2

CRI (Ra): 93.9
 R1: 95.6
 R2: 95.9
 R3: 95.4
 R4: 96.0
 R5: 95.0
 R6: 97.3
 R7: 92.7
 R8: 83.6
 R9: 60.2
 R10: 89.1
 R11: 96.2
 R12: 87.8
 R13: 95.2
 R14: 96.0
 R15: 90.2



Test Conditions

Stabilization Time: 22M
 Operation Time: 1H 22M
 Sphere Temperature (°C): 24.0

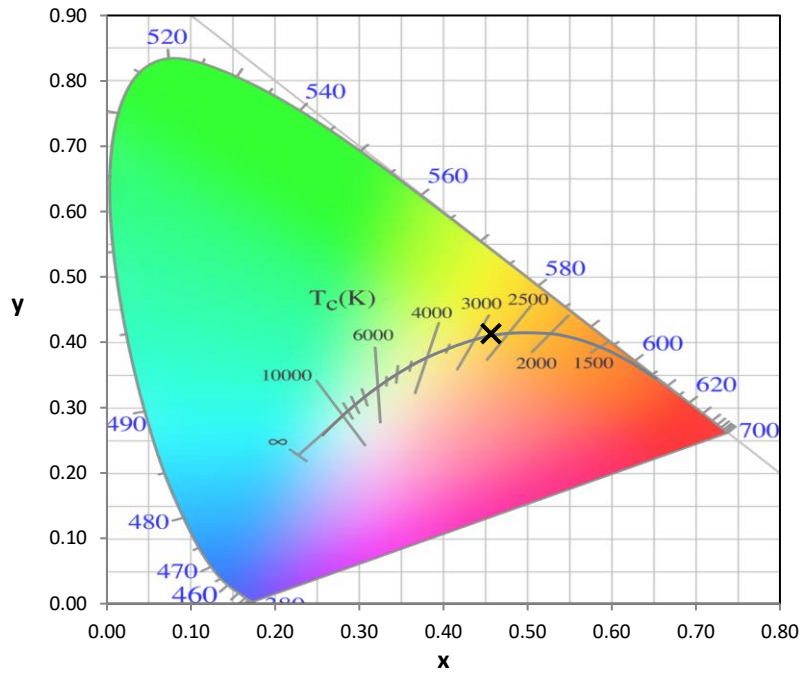
REPORT NUMBER: SP1-2506-468-7

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	6/16/2025	12/16/2025
Power Meter	XITRON INXT2011004	1/21/2025	1/21/2026
AC Power Source	CHROMA 61603 IN0063	10/22/2024	10/22/2025
DC Power Source	AGILENT E3634A IN0208	10/22/2024	10/22/2025
Sphere Thermometer	ONSET IN0085	10/22/2024	10/22/2025
Room Thermometer	ONSET IN0046	10/22/2024	10/22/2025

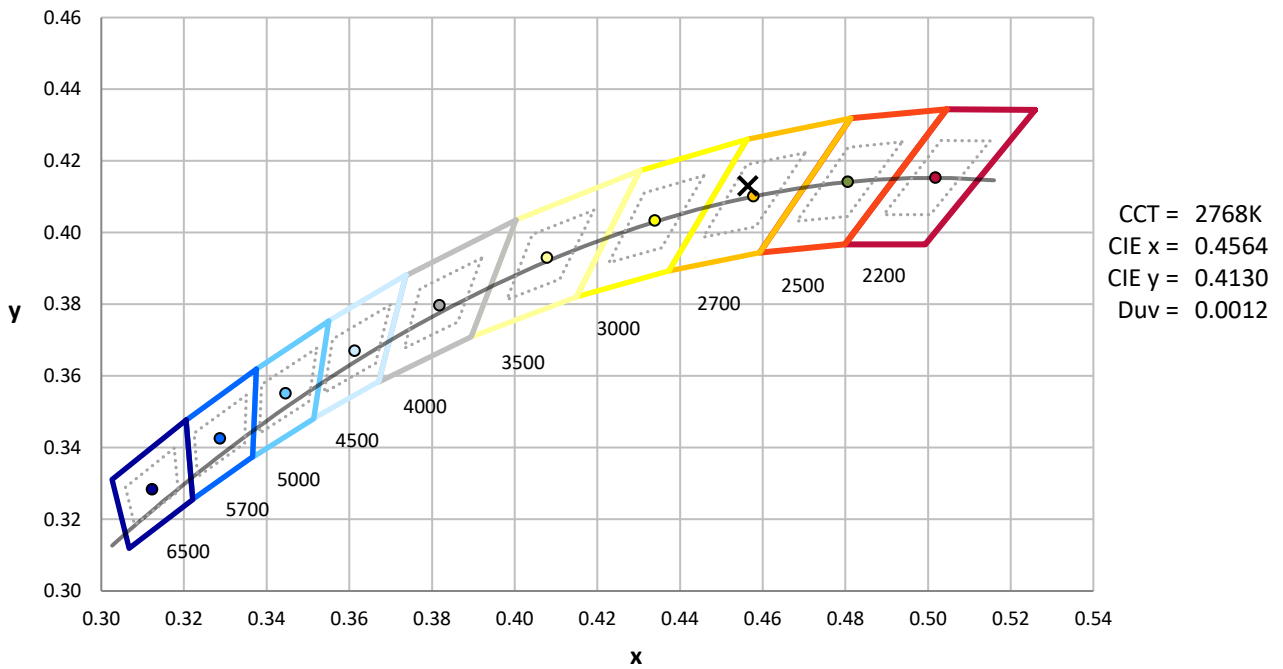
Sample Number	Condition	Description
P2506-468-LM.2	Good	HALO FLUSH MOUNT NIGHT LIGHT 11 INCH

REPORT NUMBER: SP1-2506-468-7

CIE 1931 Chromaticity Diagram



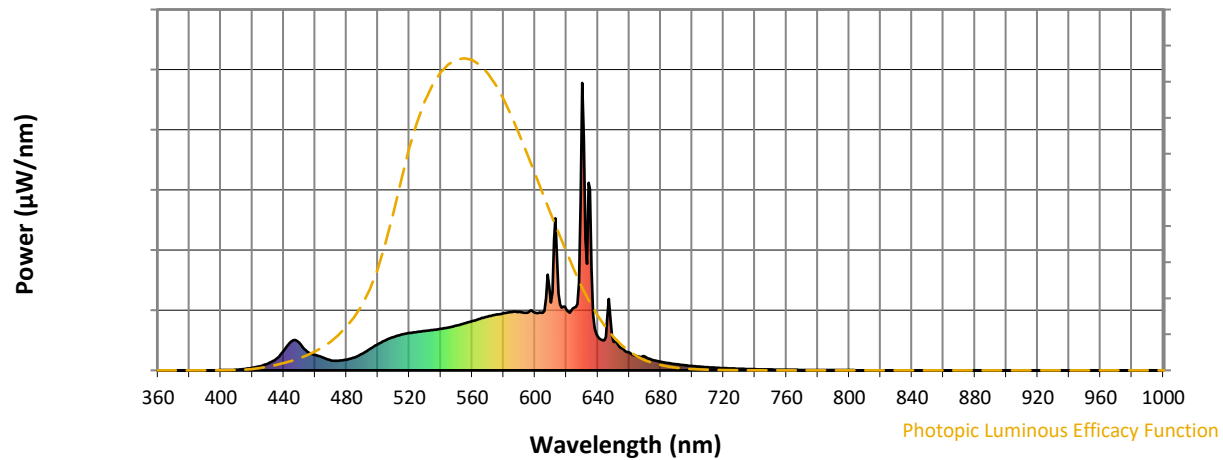
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength

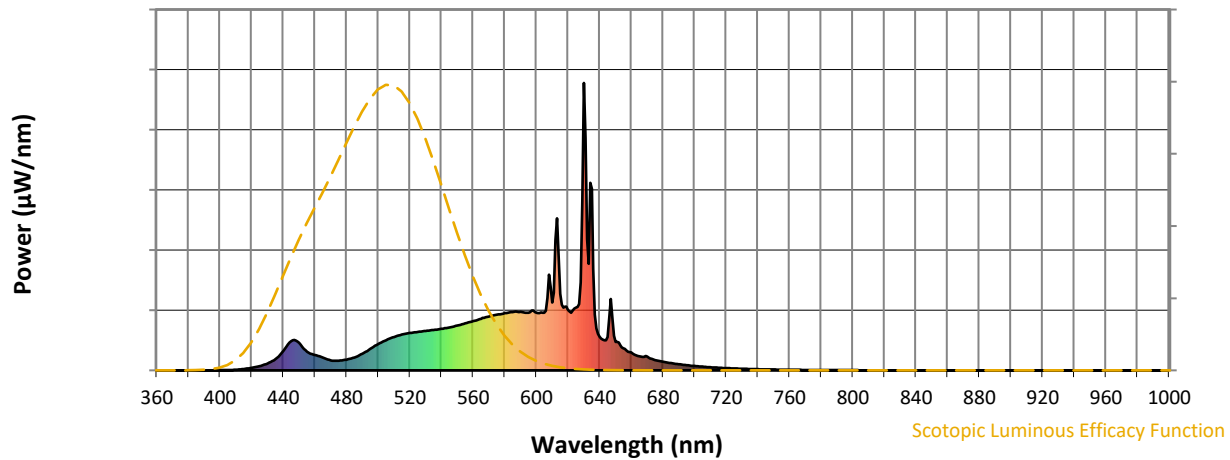


Photopic Lumens: NR

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	58	NR	620	210	NR	750	3	NR	880	0	NR
365	0	NR	495	75	NR	625	218	NR	755	2	NR	885	0	NR
370	0	NR	500	91	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	105	NR	635	632	NR	765	2	NR	895	0	NR
380	0	NR	510	116	NR	640	117	NR	770	2	NR	900	0	NR
385	0	NR	515	125	NR	645	116	NR	775	1	NR	905	0	NR
390	0	NR	520	130	NR	650	99	NR	780	1	NR	910	0	NR
395	0	NR	525	134	NR	655	77	NR	785	1	NR	915	0	NR
400	1	NR	530	137	NR	660	62	NR	790	1	NR	920	0	NR
405	1	NR	535	141	NR	665	49	NR	795	1	NR	925	0	NR
410	2	NR	540	144	NR	670	48	NR	800	1	NR	930	0	NR
415	5	NR	545	149	NR	675	36	NR	805	1	NR	935	0	NR
420	9	NR	550	156	NR	680	30	NR	810	0	NR	940	0	NR
425	15	NR	555	163	NR	685	25	NR	815	0	NR	945	0	NR
430	24	NR	560	172	NR	690	21	NR	820	0	NR	950	0	NR
435	39	NR	565	179	NR	695	18	NR	825	0	NR	955	0	NR
440	68	NR	570	187	NR	700	15	NR	830	0	NR	960	0	NR
445	102	NR	575	193	NR	705	13	NR	835	0	NR	965	0	NR
450	96	NR	580	199	NR	710	11	NR	840	0	NR	970	0	NR
455	65	NR	585	203	NR	715	9	NR	845	0	NR	975	0	NR
460	53	NR	590	203	NR	720	8	NR	850	0	NR	980	0	NR
465	44	NR	595	200	NR	725	7	NR	855	0	NR	985	0	NR
470	35	NR	600	201	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	201	NR	735	5	NR	865	0	NR	995	0	NR
480	37	NR	610	236	NR	740	4	NR	870	0	NR	1000	0	NR
485	45	NR	615	266	NR	745	3	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



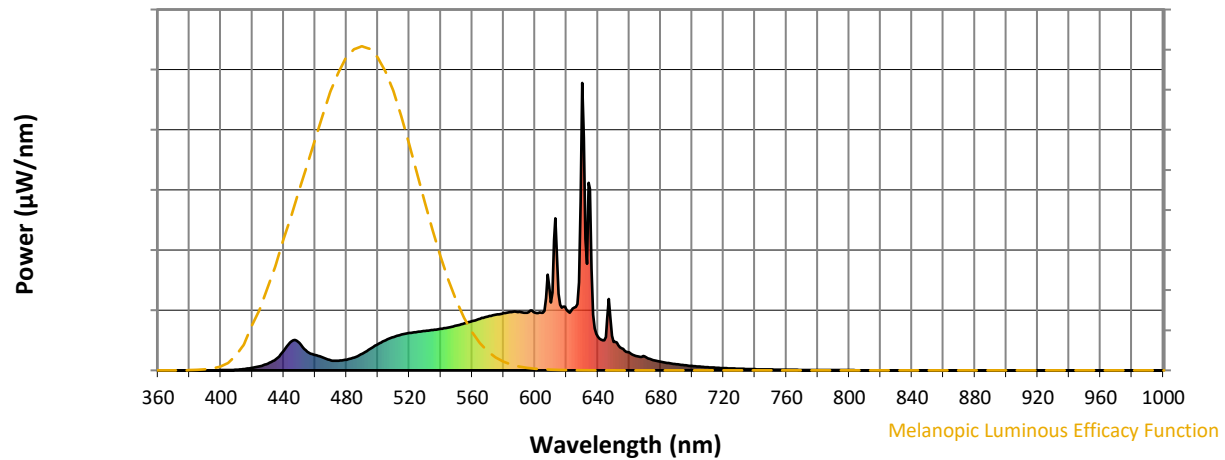
Scotopic Lumens: NR

S/P: 1.3

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	58	NR	620	210	NR	750	3	NR	880	0	NR
365	0	NR	495	75	NR	625	218	NR	755	2	NR	885	0	NR
370	0	NR	500	91	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	105	NR	635	632	NR	765	2	NR	895	0	NR
380	0	NR	510	116	NR	640	117	NR	770	2	NR	900	0	NR
385	0	NR	515	125	NR	645	116	NR	775	1	NR	905	0	NR
390	0	NR	520	130	NR	650	99	NR	780	1	NR	910	0	NR
395	0	NR	525	134	NR	655	77	NR	785	1	NR	915	0	NR
400	1	NR	530	137	NR	660	62	NR	790	1	NR	920	0	NR
405	1	NR	535	141	NR	665	49	NR	795	1	NR	925	0	NR
410	2	NR	540	144	NR	670	48	NR	800	1	NR	930	0	NR
415	5	NR	545	149	NR	675	36	NR	805	1	NR	935	0	NR
420	9	NR	550	156	NR	680	30	NR	810	0	NR	940	0	NR
425	15	NR	555	163	NR	685	25	NR	815	0	NR	945	0	NR
430	24	NR	560	172	NR	690	21	NR	820	0	NR	950	0	NR
435	39	NR	565	179	NR	695	18	NR	825	0	NR	955	0	NR
440	68	NR	570	187	NR	700	15	NR	830	0	NR	960	0	NR
445	102	NR	575	193	NR	705	13	NR	835	0	NR	965	0	NR
450	96	NR	580	199	NR	710	11	NR	840	0	NR	970	0	NR
455	65	NR	585	203	NR	715	9	NR	845	0	NR	975	0	NR
460	53	NR	590	203	NR	720	8	NR	850	0	NR	980	0	NR
465	44	NR	595	200	NR	725	7	NR	855	0	NR	985	0	NR
470	35	NR	600	201	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	201	NR	735	5	NR	865	0	NR	995	0	NR
480	37	NR	610	236	NR	740	4	NR	870	0	NR	1000	0	NR
485	45	NR	615	266	NR	745	3	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.42

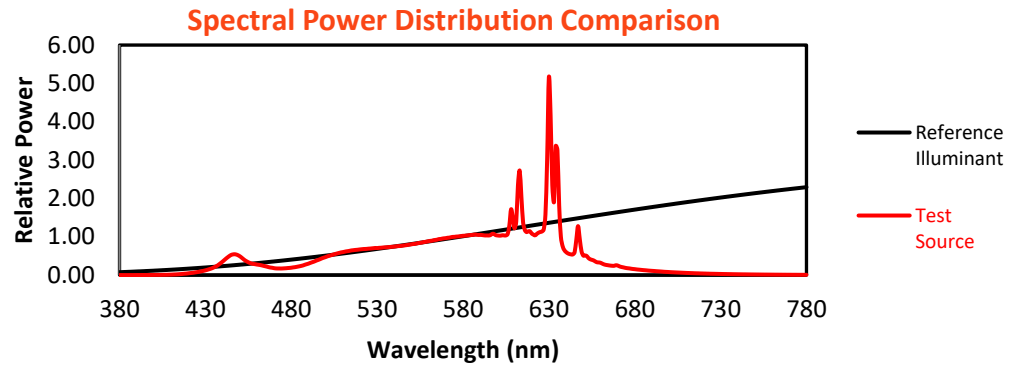
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	58	NR	620	210	NR	750	3	NR	880	0	NR
365	0	NR	495	75	NR	625	218	NR	755	2	NR	885	0	NR
370	0	NR	500	91	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	105	NR	635	632	NR	765	2	NR	895	0	NR
380	0	NR	510	116	NR	640	117	NR	770	2	NR	900	0	NR
385	0	NR	515	125	NR	645	116	NR	775	1	NR	905	0	NR
390	0	NR	520	130	NR	650	99	NR	780	1	NR	910	0	NR
395	0	NR	525	134	NR	655	77	NR	785	1	NR	915	0	NR
400	1	NR	530	137	NR	660	62	NR	790	1	NR	920	0	NR
405	1	NR	535	141	NR	665	49	NR	795	1	NR	925	0	NR
410	2	NR	540	144	NR	670	48	NR	800	1	NR	930	0	NR
415	5	NR	545	149	NR	675	36	NR	805	1	NR	935	0	NR
420	9	NR	550	156	NR	680	30	NR	810	0	NR	940	0	NR
425	15	NR	555	163	NR	685	25	NR	815	0	NR	945	0	NR
430	24	NR	560	172	NR	690	21	NR	820	0	NR	950	0	NR
435	39	NR	565	179	NR	695	18	NR	825	0	NR	955	0	NR
440	68	NR	570	187	NR	700	15	NR	830	0	NR	960	0	NR
445	102	NR	575	193	NR	705	13	NR	835	0	NR	965	0	NR
450	96	NR	580	199	NR	710	11	NR	840	0	NR	970	0	NR
455	65	NR	585	203	NR	715	9	NR	845	0	NR	975	0	NR
460	53	NR	590	203	NR	720	8	NR	850	0	NR	980	0	NR
465	44	NR	595	200	NR	725	7	NR	855	0	NR	985	0	NR
470	35	NR	600	201	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	201	NR	735	5	NR	865	0	NR	995	0	NR
480	37	NR	610	236	NR	740	4	NR	870	0	NR	1000	0	NR
485	45	NR	615	266	NR	745	3	NR	875	0	NR			

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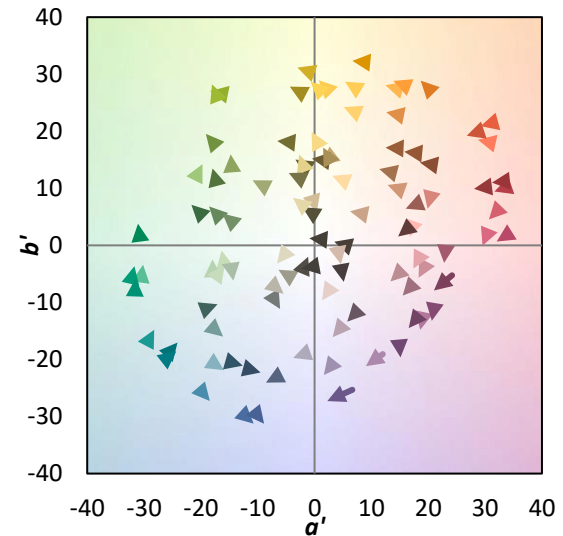
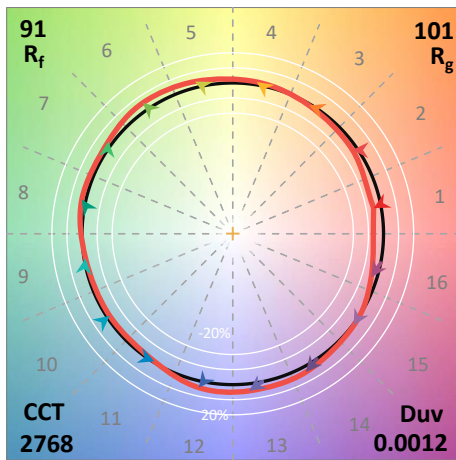
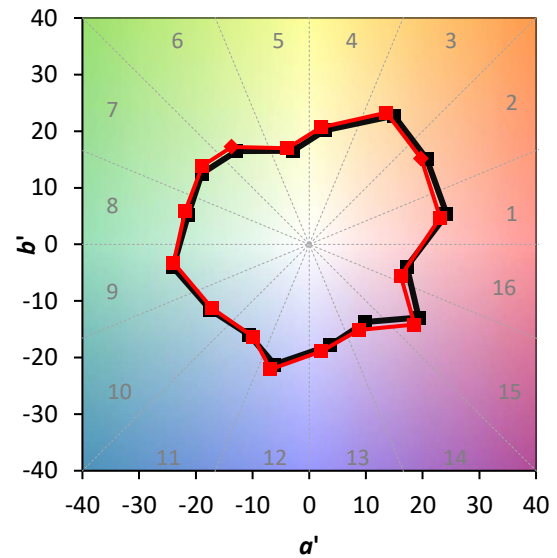
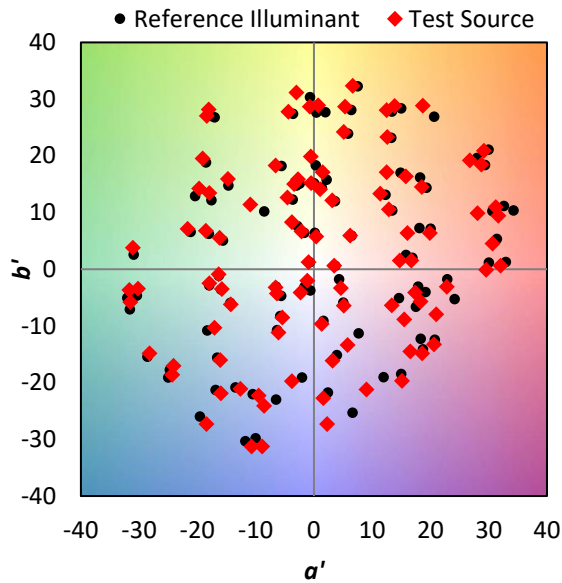
TM-30-18

Summary

$R_f = 91.1$
 $R_g = 101.2$
 $CIE R_a = 93.9$
 $R_9 = 60.2$

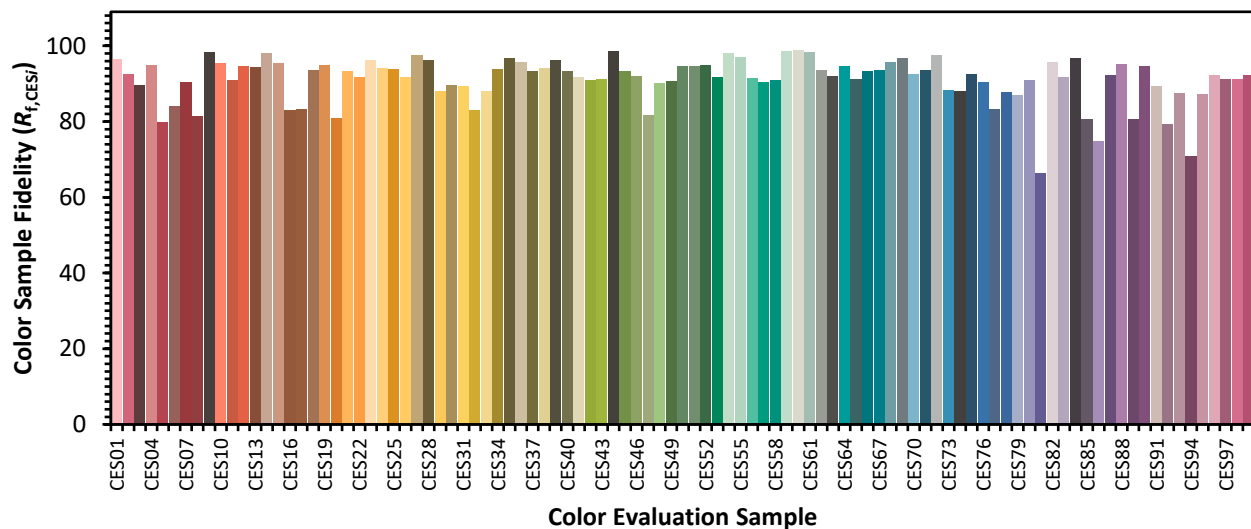


Color Vector Graphics

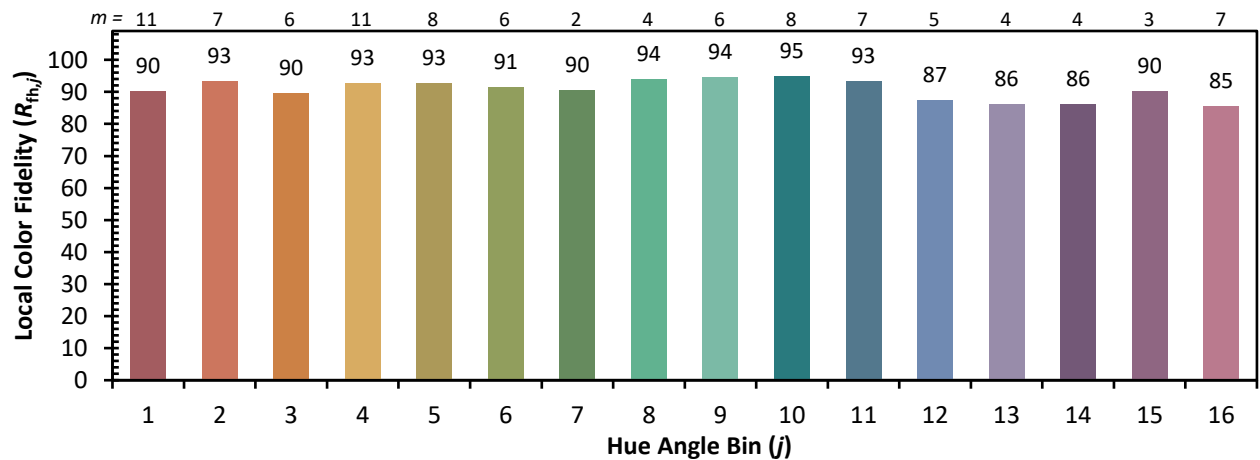
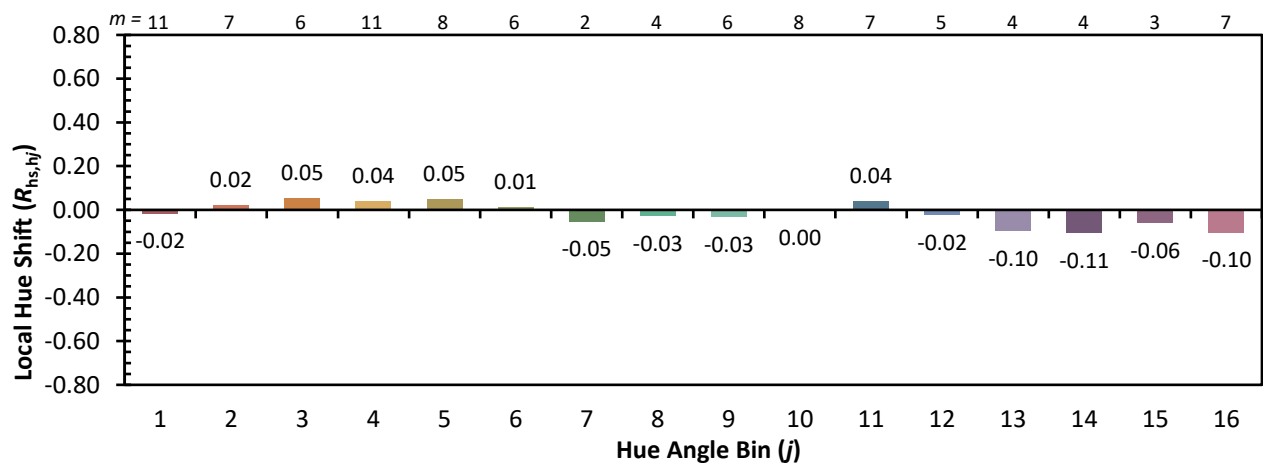
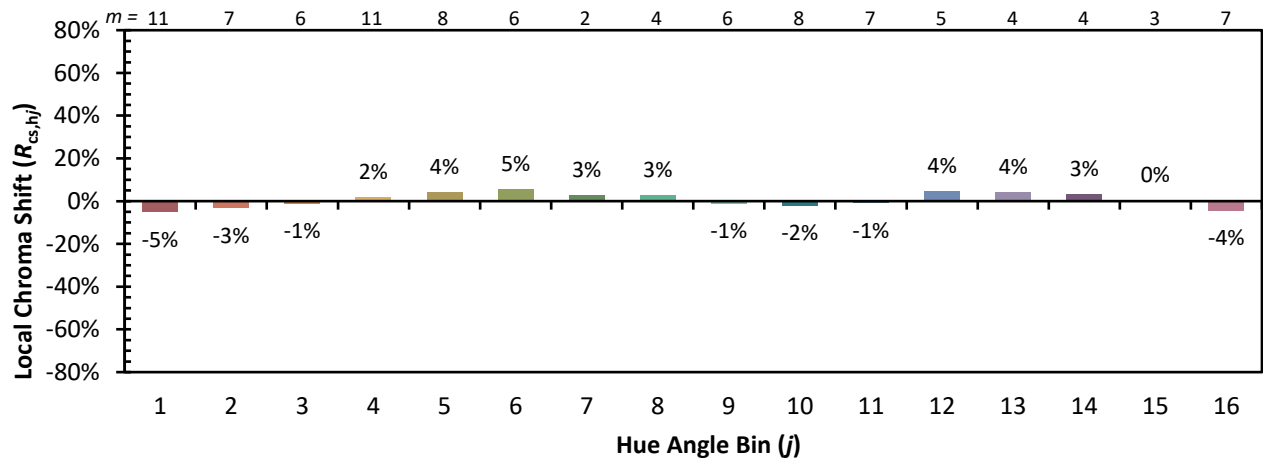


Individual Sample Fidelity Index ($R_{f,i}$)

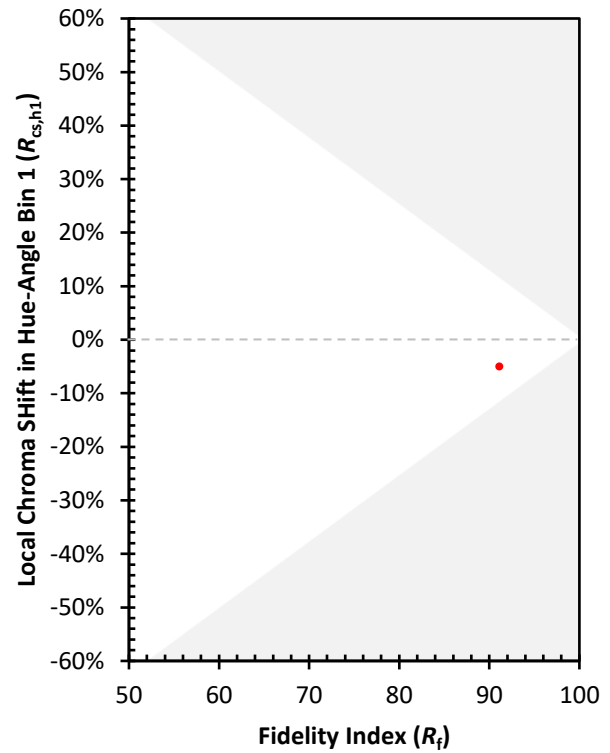
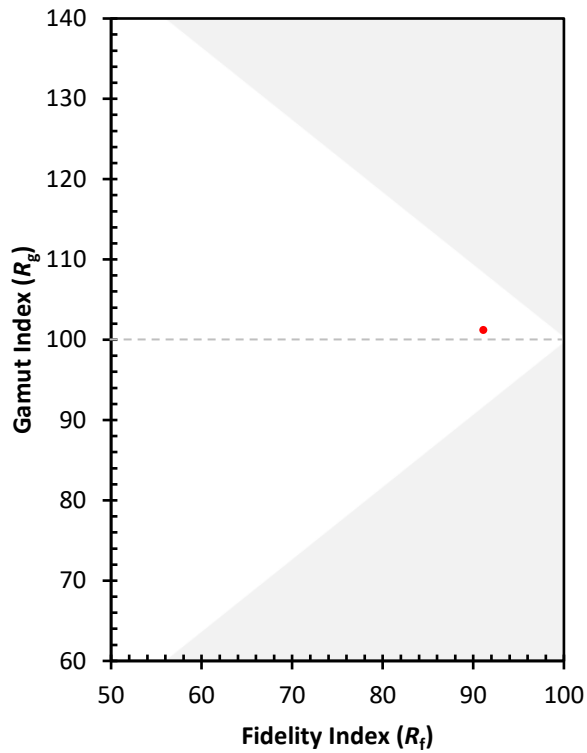
CES01 = 86	CES26 = 92	CES51 = 95	CES76 = 90
CES02 = 64	CES27 = 97	CES52 = 95	CES77 = 83
CES03 = 32	CES28 = 96	CES53 = 92	CES78 = 88
CES04 = 70	CES29 = 88	CES54 = 98	CES79 = 87
CES05 = 51	CES30 = 90	CES55 = 97	CES80 = 91
CES06 = 51	CES31 = 89	CES56 = 92	CES81 = 66
CES07 = 44	CES32 = 83	CES57 = 90	CES82 = 96
CES08 = 43	CES33 = 88	CES58 = 91	CES83 = 92
CES09 = 29	CES34 = 94	CES59 = 99	CES84 = 97
CES10 = 76	CES35 = 97	CES60 = 99	CES85 = 81
CES11 = 59	CES36 = 96	CES61 = 98	CES86 = 75
CES12 = 66	CES37 = 93	CES62 = 94	CES87 = 92
CES13 = 44	CES38 = 94	CES63 = 92	CES88 = 95
CES14 = 74	CES39 = 96	CES64 = 95	CES89 = 81
CES15 = 72	CES40 = 93	CES65 = 91	CES90 = 95
CES16 = 48	CES41 = 92	CES66 = 93	CES91 = 89
CES17 = 50	CES42 = 91	CES67 = 94	CES92 = 79
CES18 = 57	CES43 = 91	CES68 = 96	CES93 = 88
CES19 = 72	CES44 = 98	CES69 = 97	CES94 = 71
CES20 = 68	CES45 = 93	CES70 = 93	CES95 = 87
CES21 = 87	CES46 = 92	CES71 = 93	CES96 = 92
CES22 = 79	CES47 = 82	CES72 = 97	CES97 = 91
CES23 = 92	CES48 = 90	CES73 = 88	CES98 = 91
CES24 = 91	CES49 = 91	CES74 = 88	CES99 = 92
CES25 = 72	CES50 = 95	CES75 = 92	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)