

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: FMNL1515FS5--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: FMNL1515FS5--927
Description: HALO 15 inch 90 CRI COLOR SELECTABLE flush mount White Trim FIXTURE with night light
Light Source: 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

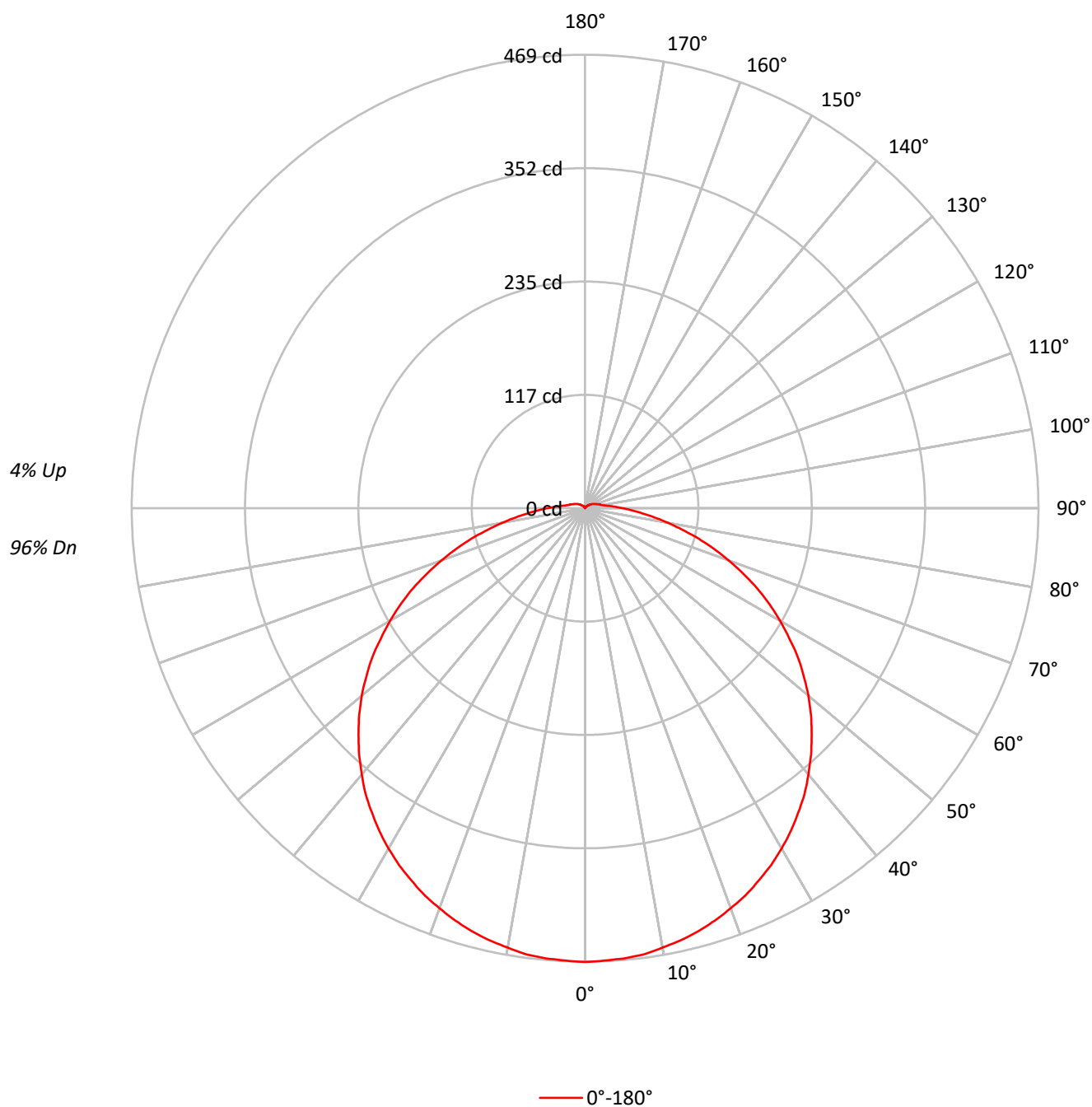
Lumens per Lamp: N/A
Luminaire Lumens: 1560.4 lumens
Efficiency: N/A
Efficacy: 93.4 lumens/watt
Spacing Criteria (0/90/45): 1.29 / 1.29 / 1.41
Luminous Opening: Circular (Dia: 1.2' x H: 0')
CIE Type: Direct

Input Watts (W): 16.7
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

TEST NUMBER: P1046632
CATALOG NUMBER: FMNL1515FS5--927

Luminous Intensity Polar Plot



TEST NUMBER: P1046632

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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	50	30	10	50	30	10		
R	C																								
0	118	118	118	118	115	115	115	115	109	109	109	103	103	103	98	98	98	98	98	98	98	98			
1	106	101	96	92	103	98	94	90	93	90	86	89	86	83	84	82	80	84	82	80	84	77			
2	96	87	80	74	93	85	78	73	81	75	70	77	72	68	73	69	66	73	69	66	73	63			
3	87	76	68	61	84	74	66	60	71	64	58	67	62	57	64	59	55	64	59	55	64	53			
4	80	67	58	51	77	66	57	50	63	55	49	60	53	48	57	52	47	57	52	47	57	45			
5	73	60	51	44	71	59	50	43	56	48	42	53	47	42	51	45	41	51	45	41	51	38			
6	68	54	45	38	65	53	44	38	50	43	37	48	41	36	46	40	36	46	40	36	46	33			
7	63	49	40	33	61	48	39	33	46	38	33	44	37	32	42	36	31	42	36	31	42	29			
8	58	44	36	30	56	43	35	29	42	34	29	40	33	29	39	33	28	39	33	28	39	26			
9	54	41	32	27	53	40	32	26	38	31	26	37	30	26	36	30	25	36	30	25	36	23			
10	51	37	29	24	49	37	29	24	35	28	24	34	28	23	33	27	23	33	27	23	33	21			

AVERAGE LUMINANCE (cd/sqm):

	0°
0°	4467
5°	4464
10°	4460
15°	4462
20°	4459
25°	4462
30°	4468
35°	4467
40°	4465
45°	4462
50°	4466
55°	4460
60°	4439
65°	4427
70°	4397
75°	4464
80°	4752
85°	6421

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 87.5°

Luminance: 10517 cd/sqm

TEST NUMBER: P1046632
CATALOG NUMBER: FMNL1515FS5--927

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.4	2.8
10°-20°	127.9	8.2
20°-30°	196.1	12.6
30°-40°	240.7	15.4
40°-50°	255.9	16.4
50°-60°	239.8	15.4
60°-70°	194.2	12.4
70°-80°	128.4	8.2
80°-90°	65.9	4.2
90°-100°	29.3	1.9
100°-110°	16.1	1.0
110°-120°	10.5	0.7
120°-130°	6.1	0.4
130°-140°	3.2	0.2
140°-150°	1.4	0.1
150°-160°	0.5	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	368.4	23.6
0°-40°	609.1	39.0
0°-60°	1104.8	70.8
0°-90°	1493.3	95.7
90°-120°	55.9	3.6
90°-150°	66.6	4.3
90°-180°	67.0	4.3
0°-180°	1560.4	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	469	
5°	467	44
15°	453	128
25°	425	196
35°	384	241
45°	332	256
55°	269	240
65°	197	194
75°	121	128
85°	59	54
90°	38	22
95°	26	20
105°	15	16
115°	11	11
125°	7	6
135°	4	3
145°	2	1
155°	1	0
165°	0	0
175°	0	0
180°	0	0

TEST NUMBER: P1046632
CATALOG NUMBER: FMNL1515FS5--927

CANDELA DISTRIBUTION (FULL):

0°	
0°	469.3
2.5°	468.3
5°	467.3
7.5°	465.4
10°	461.5
12.5°	457.7
15°	452.9
17.5°	447.1
20°	440.3
22.5°	433.6
25°	424.9
27.5°	416.3
30°	406.6
32.5°	396.0
35°	384.5
37.5°	372.9
40°	359.4
42.5°	345.9
45°	331.5
47.5°	317.0
50°	301.6
52.5°	285.2
55°	268.8
57.5°	250.5
60°	233.2
62.5°	214.9
65°	196.6
67.5°	177.3
70°	158.0
72.5°	139.7
75°	121.4
77.5°	103.1
80°	86.7
82.5°	72.3
85°	58.8
87.5°	48.2
90°	38.5
92.5°	31.8
95°	26.0
97.5°	21.2
100°	18.3
102.5°	16.4
105°	15.4
107.5°	13.5
110°	12.5

TEST NUMBER: P1046632
CATALOG NUMBER: FMNL1515FS5--927

CANDELA DISTRIBUTION (continued):

	0°
112.5°	11.6
115°	10.6
117.5°	9.6
120°	8.7
122.5°	7.7
125°	6.7
127.5°	5.8
130°	4.8
132.5°	4.8
135°	3.9
137.5°	3.9
140°	2.9
142.5°	2.9
145°	1.9
147.5°	1.9
150°	1.0
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

TEST NUMBER: P1046632
CATALOG NUMBER: FMNL1515FS5--927

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	17.0	18.6	17.5	19.0	19.5	17.0	18.6	17.5	19.0	19.5
	3H	19.1	20.5	19.5	21.0	21.4	19.1	20.5	19.5	21.0	21.4
	4H	20.0	21.3	20.4	21.8	22.3	20.0	21.3	20.4	21.8	22.3
	6H	20.7	22.0	21.2	22.5	23.0	20.7	22.0	21.2	22.5	23.0
	8H	21.1	22.3	21.6	22.8	23.3	21.1	22.3	21.6	22.8	23.3
	12H	21.5	22.6	22.0	23.1	23.6	21.5	22.6	22.0	23.1	23.6
4H	2H	17.7	19.1	18.2	19.5	20.0	17.7	19.1	18.2	19.5	20.0
	3H	20.0	21.2	20.5	21.7	22.2	20.0	21.2	20.5	21.7	22.2
	4H	21.1	22.1	21.6	22.6	23.1	21.1	22.1	21.6	22.6	23.1
	6H	22.0	22.9	22.5	23.5	24.0	22.0	22.9	22.5	23.5	24.0
	8H	22.4	23.3	23.0	23.8	24.4	22.4	23.3	23.0	23.8	24.4
	12H	22.9	23.7	23.5	24.3	24.8	22.9	23.7	23.5	24.3	24.8
8H	4H	21.5	22.4	22.0	22.9	23.4	21.5	22.4	22.0	22.9	23.4
	6H	22.6	23.3	23.2	23.9	24.5	22.6	23.3	23.2	23.9	24.5
	8H	23.2	23.8	23.8	24.4	25.0	23.2	23.8	23.8	24.4	25.0
	12H	23.8	24.4	24.4	25.0	25.6	23.8	24.4	24.4	25.0	25.6
12H	4H	21.5	22.3	22.1	22.9	23.5	21.5	22.3	22.1	22.9	23.5
	6H	22.7	23.4	23.3	24.0	24.6	22.7	23.4	23.3	24.0	24.6
	8H	23.4	24.0	24.0	24.6	25.2	23.4	24.0	24.0	24.6	25.2

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

Report Prepared for

Cooper Lighting Solutions

Halo Home

Report Number: SP1-2506-468-13

Test Date: 07/09/2025

Luminaire Tested: FMNL1515FS5-2700K

Data in this report applies to families of products including FMNL1515FS5-2700K

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

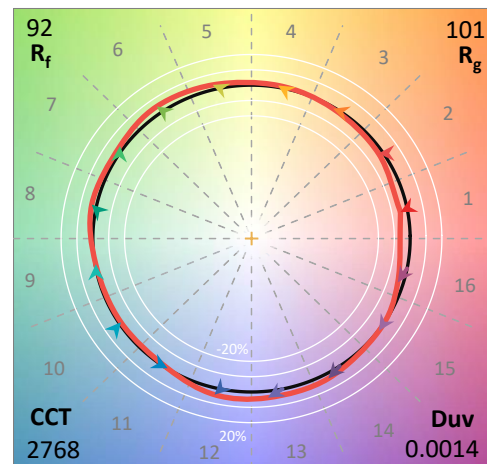
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-468-13
 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: **FMNL1515FS5-2700K**
 Description: HALO FLUSH MOUNT NIGHT LIGHT 15 INCH

Spectral Parameters

CCT (K): 2768
 CIE u' : 0.2591
 CIE v' : 0.5280
 Duv: 0.0014
 CIE x: 0.4567
 CIE y: 0.4135
 CIE z: 0.1298
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 583
 Purity: 61.20994
 R_f: 92
 R_g: 101.2

CRI (Ra): 94.9
 R1: 97.0
 R2: 96.7
 R3: 95.6
 R4: 96.7
 R5: 96.5
 R6: 97.8
 R7: 93.4
 R8: 85.5
 R9: 64.2
 R10: 90.9
 R11: 95.1
 R12: 89.6
 R13: 96.5
 R14: 96.0
 R15: 91.5



Test Conditions

Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 24.0

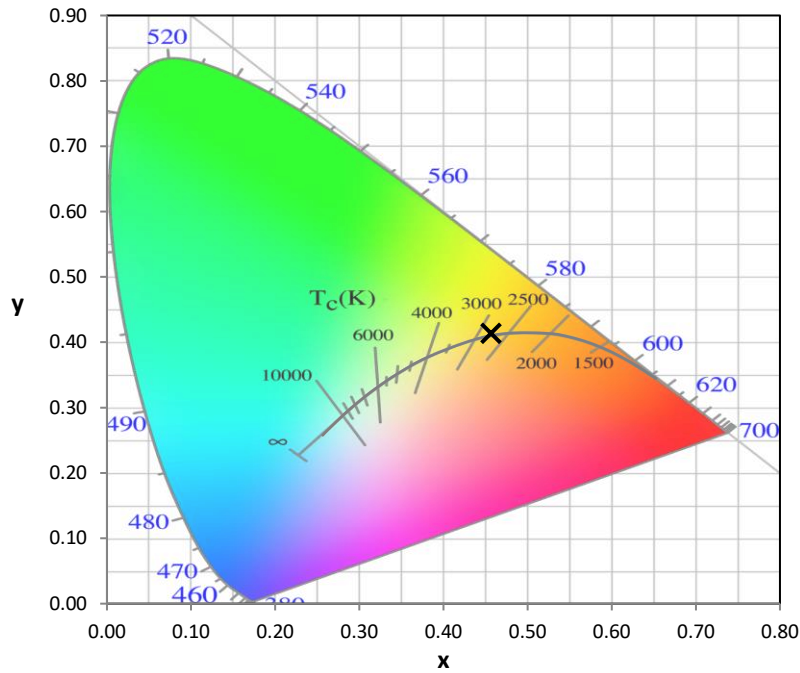
REPORT NUMBER: SP1-2506-468-13

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

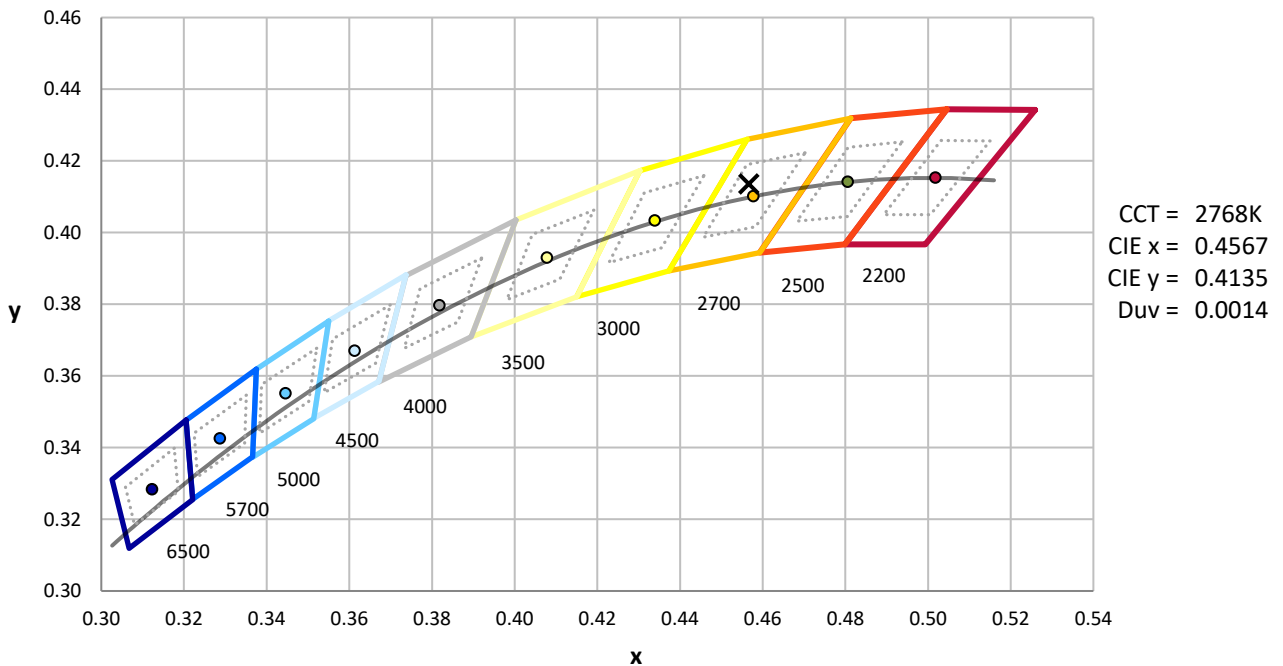
Sample Number	Condition	Description
P2506-468-LM.3	Good	HALO FLUSH MOUNT NIGHT LIGHT 15 INCH

REPORT NUMBER: SP1-2506-468-13

CIE 1931 Chromaticity Diagram



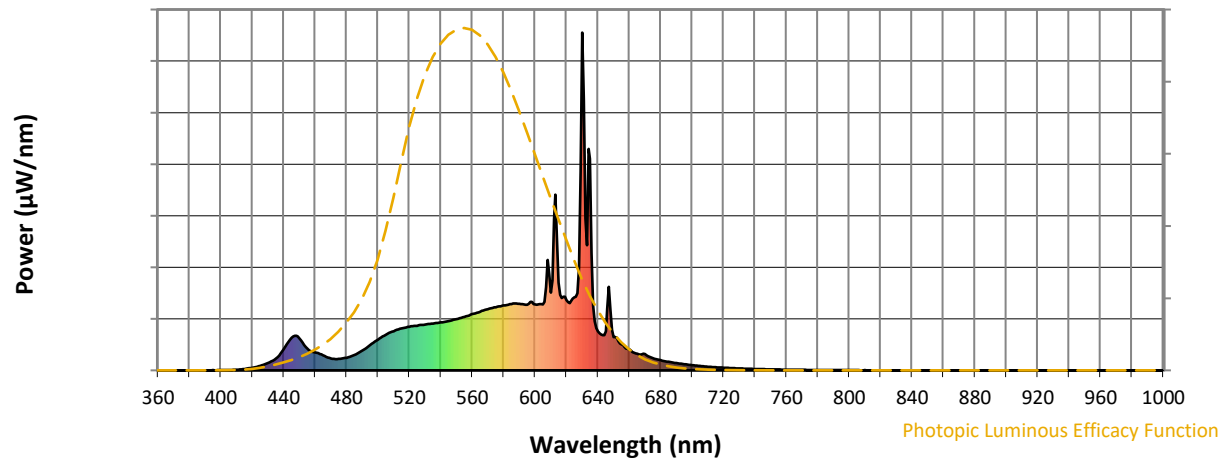
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2506-468-13

Photopic Flux vs. Wavelength

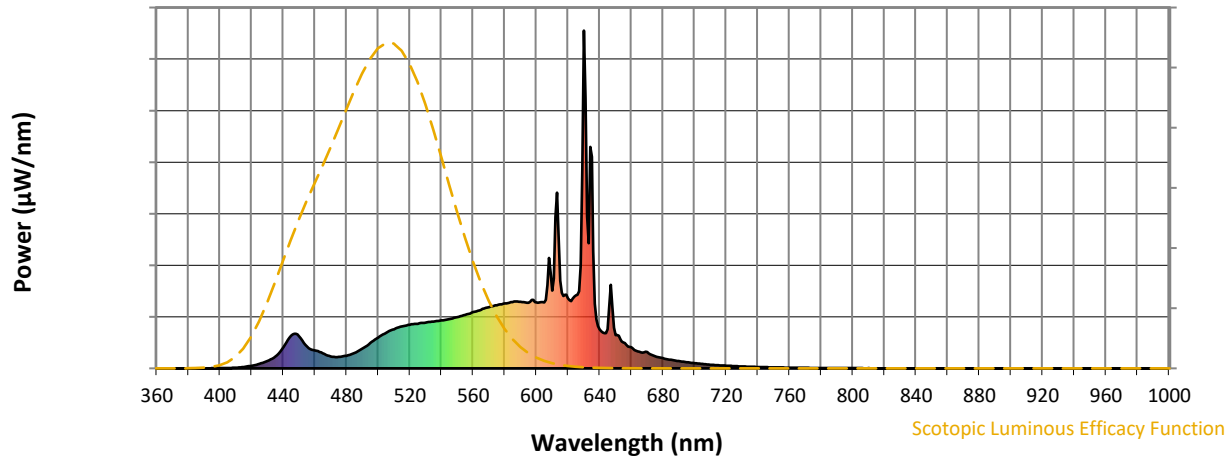


Photopic Lumens: NR

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	59	NR	620	208	NR	750	3	NR	880	0	NR
365	0	NR	495	75	NR	625	216	NR	755	3	NR	885	0	NR
370	0	NR	500	91	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	106	NR	635	626	NR	765	2	NR	895	0	NR
380	0	NR	510	116	NR	640	116	NR	770	2	NR	900	0	NR
385	0	NR	515	124	NR	645	116	NR	775	1	NR	905	0	NR
390	0	NR	520	129	NR	650	99	NR	780	1	NR	910	0	NR
395	1	NR	525	132	NR	655	77	NR	785	1	NR	915	0	NR
400	1	NR	530	135	NR	660	63	NR	790	1	NR	920	0	NR
405	1	NR	535	139	NR	665	49	NR	795	1	NR	925	0	NR
410	2	NR	540	142	NR	670	48	NR	800	1	NR	930	0	NR
415	4	NR	545	146	NR	675	36	NR	805	1	NR	935	0	NR
420	8	NR	550	152	NR	680	30	NR	810	1	NR	940	0	NR
425	13	NR	555	158	NR	685	25	NR	815	0	NR	945	0	NR
430	22	NR	560	166	NR	690	22	NR	820	0	NR	950	0	NR
435	35	NR	565	174	NR	695	18	NR	825	0	NR	955	0	NR
440	62	NR	570	181	NR	700	15	NR	830	0	NR	960	0	NR
445	96	NR	575	187	NR	705	13	NR	835	0	NR	965	0	NR
450	95	NR	580	193	NR	710	11	NR	840	0	NR	970	0	NR
455	64	NR	585	197	NR	715	9	NR	845	0	NR	975	0	NR
460	53	NR	590	197	NR	720	8	NR	850	0	NR	980	0	NR
465	45	NR	595	194	NR	725	7	NR	855	0	NR	985	0	NR
470	35	NR	600	195	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	196	NR	735	5	NR	865	0	NR	995	0	NR
480	37	NR	610	230	NR	740	4	NR	870	0	NR	1000	0	NR
485	45	NR	615	260	NR	745	3	NR	875	0	NR			

REPORT NUMBER: SP1-2506-468-13

Scotopic Flux vs. Wavelength



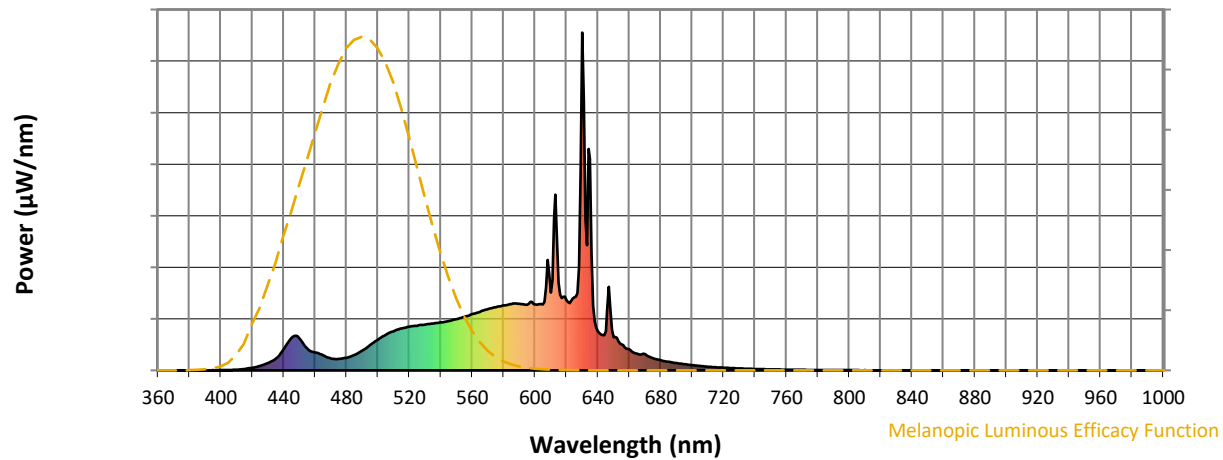
Scotopic Lumens: NR

S/P: 1.31

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	59	NR	620	208	NR	750	3	NR	880	0	NR
365	0	NR	495	75	NR	625	216	NR	755	3	NR	885	0	NR
370	0	NR	500	91	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	106	NR	635	626	NR	765	2	NR	895	0	NR
380	0	NR	510	116	NR	640	116	NR	770	2	NR	900	0	NR
385	0	NR	515	124	NR	645	116	NR	775	1	NR	905	0	NR
390	0	NR	520	129	NR	650	99	NR	780	1	NR	910	0	NR
395	1	NR	525	132	NR	655	77	NR	785	1	NR	915	0	NR
400	1	NR	530	135	NR	660	63	NR	790	1	NR	920	0	NR
405	1	NR	535	139	NR	665	49	NR	795	1	NR	925	0	NR
410	2	NR	540	142	NR	670	48	NR	800	1	NR	930	0	NR
415	4	NR	545	146	NR	675	36	NR	805	1	NR	935	0	NR
420	8	NR	550	152	NR	680	30	NR	810	1	NR	940	0	NR
425	13	NR	555	158	NR	685	25	NR	815	0	NR	945	0	NR
430	22	NR	560	166	NR	690	22	NR	820	0	NR	950	0	NR
435	35	NR	565	174	NR	695	18	NR	825	0	NR	955	0	NR
440	62	NR	570	181	NR	700	15	NR	830	0	NR	960	0	NR
445	96	NR	575	187	NR	705	13	NR	835	0	NR	965	0	NR
450	95	NR	580	193	NR	710	11	NR	840	0	NR	970	0	NR
455	64	NR	585	197	NR	715	9	NR	845	0	NR	975	0	NR
460	53	NR	590	197	NR	720	8	NR	850	0	NR	980	0	NR
465	45	NR	595	194	NR	725	7	NR	855	0	NR	985	0	NR
470	35	NR	600	195	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	196	NR	735	5	NR	865	0	NR	995	0	NR
480	37	NR	610	230	NR	740	4	NR	870	0	NR	1000	0	NR
485	45	NR	615	260	NR	745	3	NR	875	0	NR			

REPORT NUMBER: SP1-2506-468-13

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.45

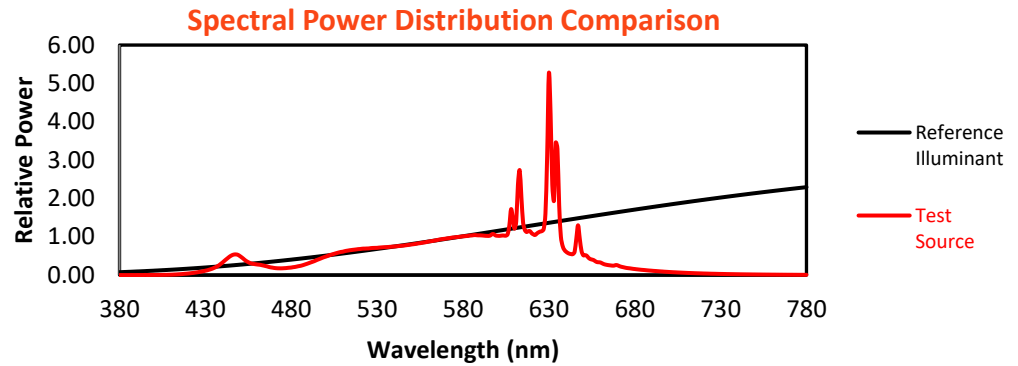
λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^{\wedge}/\text{nm}$	Lumens (ϕ/nm)
360	0	NR	490	59	NR	620	208	NR	750	3	NR	880	0	NR
365	0	NR	495	75	NR	625	216	NR	755	3	NR	885	0	NR
370	0	NR	500	91	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	106	NR	635	626	NR	765	2	NR	895	0	NR
380	0	NR	510	116	NR	640	116	NR	770	2	NR	900	0	NR
385	0	NR	515	124	NR	645	116	NR	775	1	NR	905	0	NR
390	0	NR	520	129	NR	650	99	NR	780	1	NR	910	0	NR
395	1	NR	525	132	NR	655	77	NR	785	1	NR	915	0	NR
400	1	NR	530	135	NR	660	63	NR	790	1	NR	920	0	NR
405	1	NR	535	139	NR	665	49	NR	795	1	NR	925	0	NR
410	2	NR	540	142	NR	670	48	NR	800	1	NR	930	0	NR
415	4	NR	545	146	NR	675	36	NR	805	1	NR	935	0	NR
420	8	NR	550	152	NR	680	30	NR	810	1	NR	940	0	NR
425	13	NR	555	158	NR	685	25	NR	815	0	NR	945	0	NR
430	22	NR	560	166	NR	690	22	NR	820	0	NR	950	0	NR
435	35	NR	565	174	NR	695	18	NR	825	0	NR	955	0	NR
440	62	NR	570	181	NR	700	15	NR	830	0	NR	960	0	NR
445	96	NR	575	187	NR	705	13	NR	835	0	NR	965	0	NR
450	95	NR	580	193	NR	710	11	NR	840	0	NR	970	0	NR
455	64	NR	585	197	NR	715	9	NR	845	0	NR	975	0	NR
460	53	NR	590	197	NR	720	8	NR	850	0	NR	980	0	NR
465	45	NR	595	194	NR	725	7	NR	855	0	NR	985	0	NR
470	35	NR	600	195	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	196	NR	735	5	NR	865	0	NR	995	0	NR
480	37	NR	610	230	NR	740	4	NR	870	0	NR	1000	0	NR
485	45	NR	615	260	NR	745	3	NR	875	0	NR			

REPORT NUMBER: SP1-2506-468-13

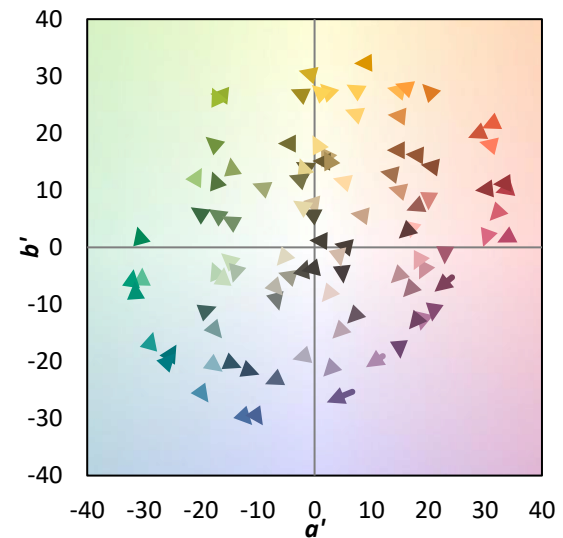
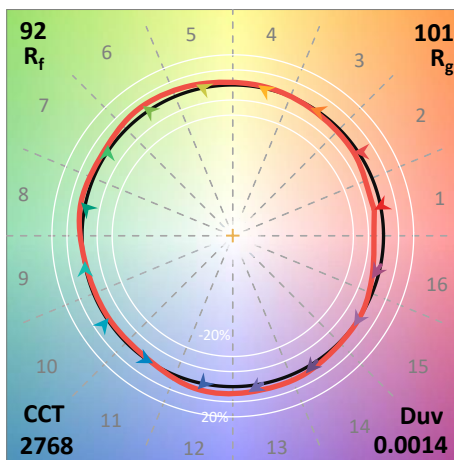
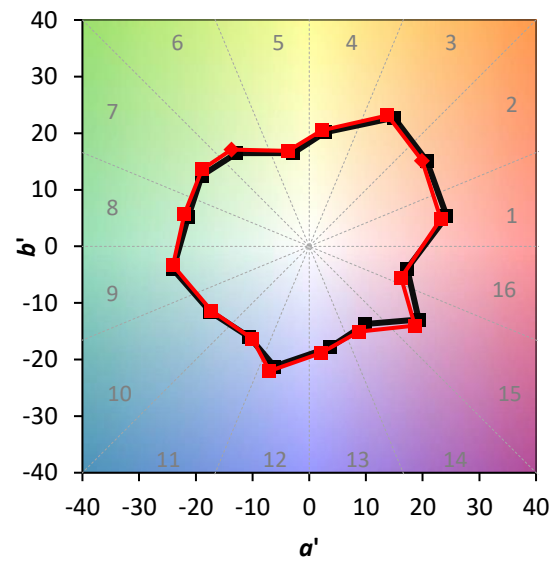
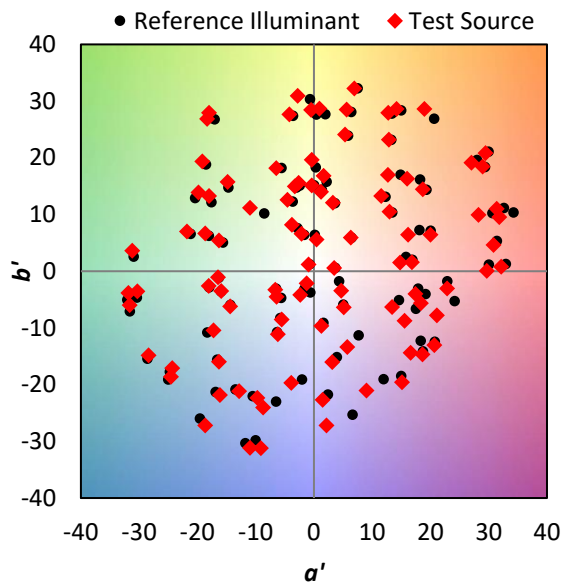
TM-30-18

Summary

$R_f = 92$
 $R_g = 101.2$
 $CIE R_a = 94.9$
 $R_9 = 64.2$

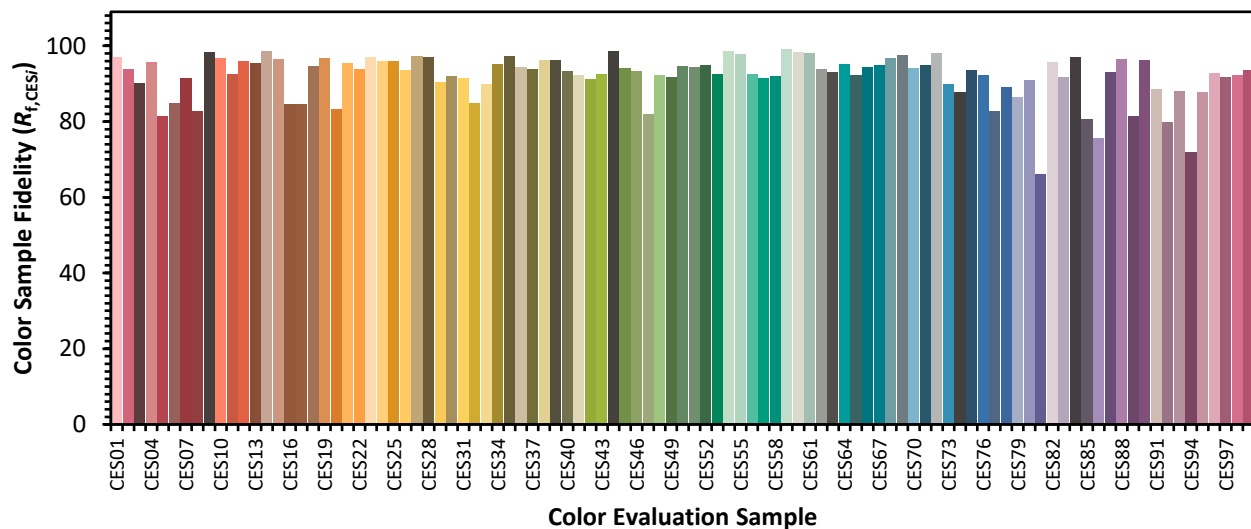


Color Vector Graphics

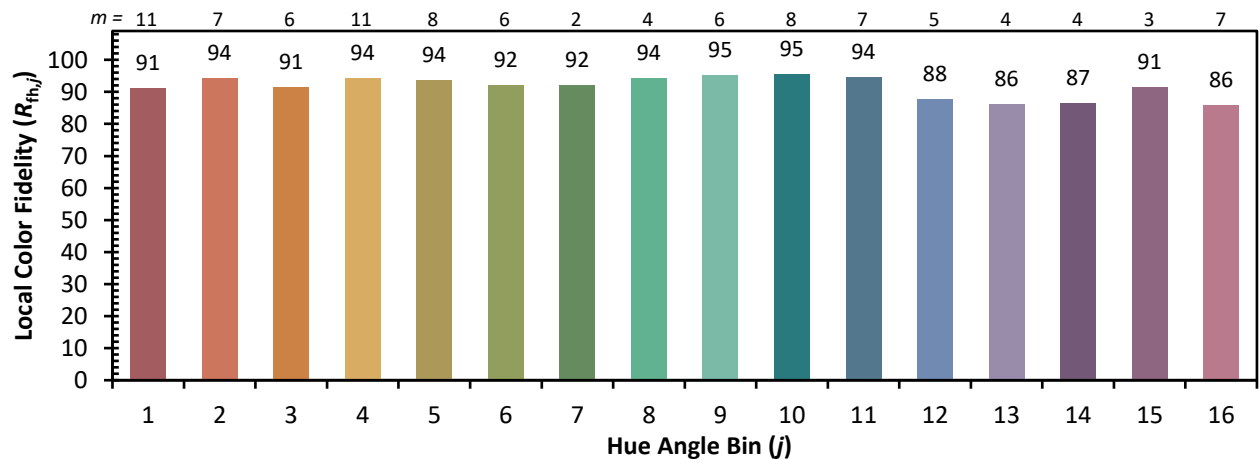
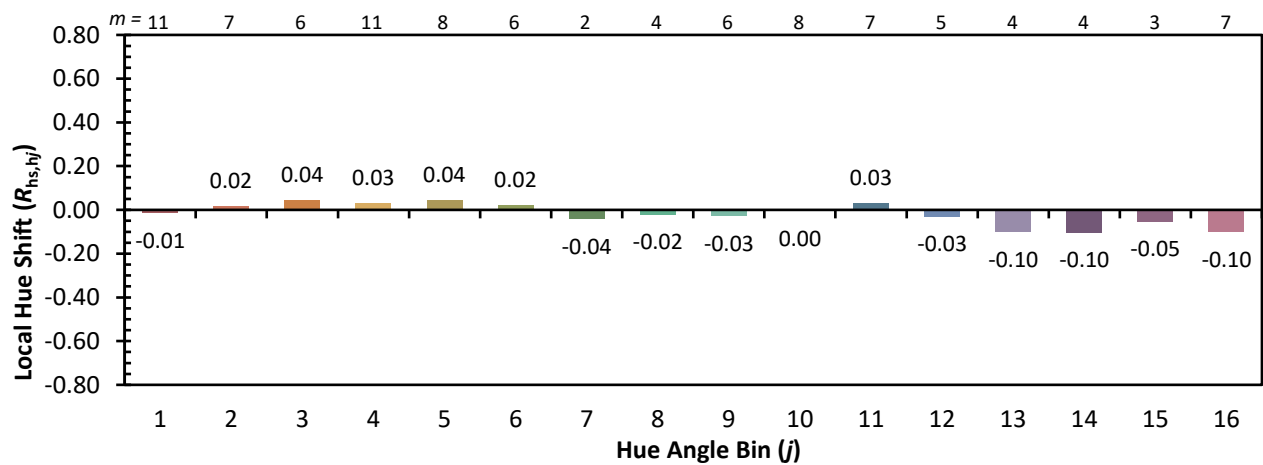
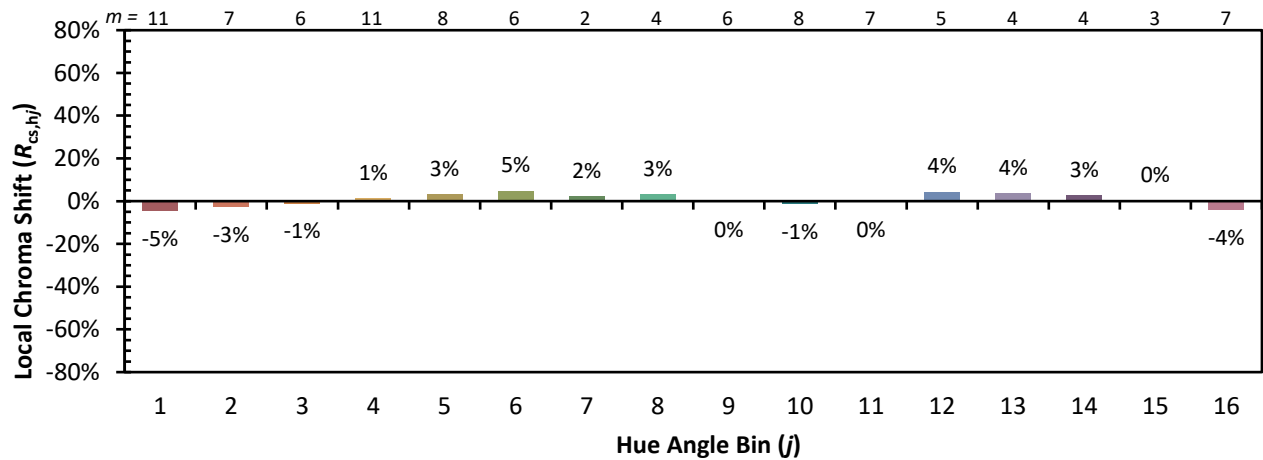


Individual Sample Fidelity Index ($R_{f,i}$)

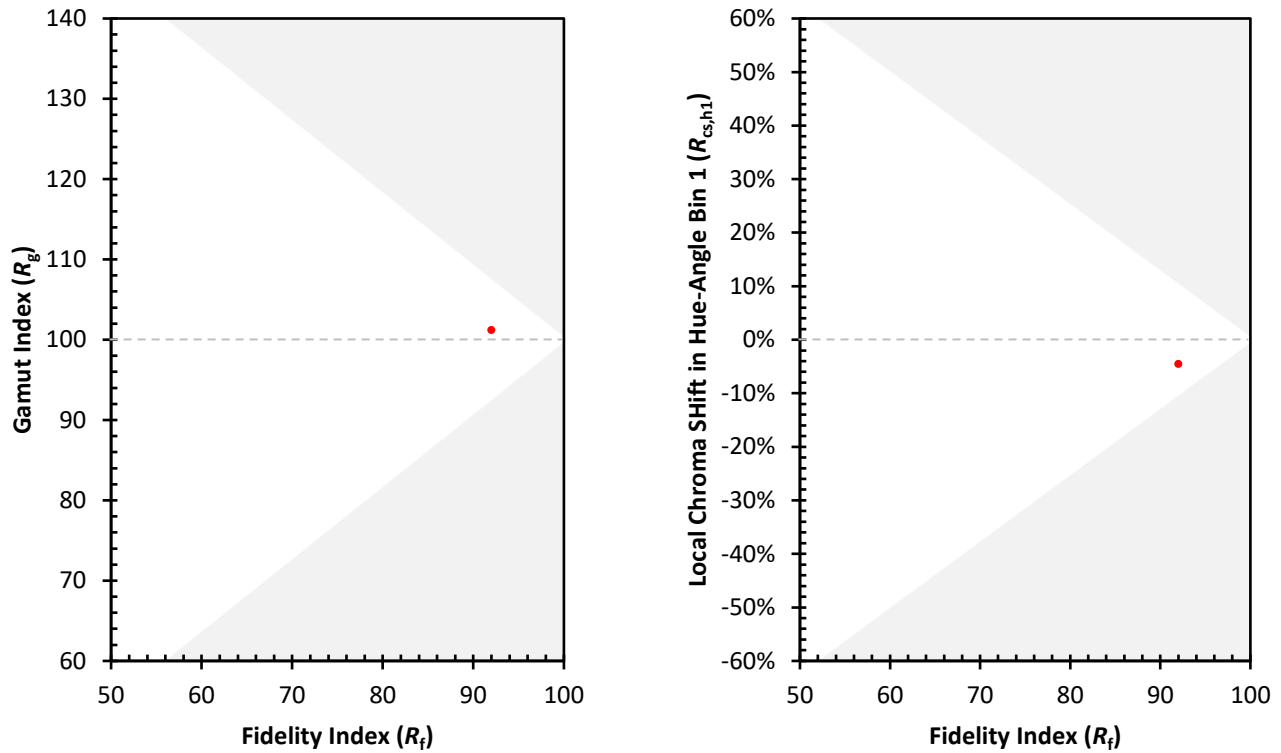
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CES02 = 64	CES27 = 97	CES52 = 95	CES77 = 83
CES03 = 32	CES28 = 97	CES53 = 93	CES78 = 89
CES04 = 70	CES29 = 90	CES54 = 99	CES79 = 86
CES05 = 51	CES30 = 92	CES55 = 98	CES80 = 91
CES06 = 51	CES31 = 92	CES56 = 93	CES81 = 66
CES07 = 44	CES32 = 85	CES57 = 92	CES82 = 96
CES08 = 43	CES33 = 90	CES58 = 92	CES83 = 92
CES09 = 29	CES34 = 95	CES59 = 99	CES84 = 97
CES10 = 76	CES35 = 97	CES60 = 98	CES85 = 81
CES11 = 59	CES36 = 94	CES61 = 98	CES86 = 76
CES12 = 66	CES37 = 94	CES62 = 94	CES87 = 93
CES13 = 44	CES38 = 96	CES63 = 93	CES88 = 96
CES14 = 74	CES39 = 96	CES64 = 95	CES89 = 81
CES15 = 72	CES40 = 93	CES65 = 92	CES90 = 96
CES16 = 48	CES41 = 92	CES66 = 94	CES91 = 89
CES17 = 50	CES42 = 91	CES67 = 95	CES92 = 80
CES18 = 57	CES43 = 92	CES68 = 97	CES93 = 88
CES19 = 72	CES44 = 98	CES69 = 97	CES94 = 72
CES20 = 68	CES45 = 94	CES70 = 94	CES95 = 88
CES21 = 87	CES46 = 93	CES71 = 95	CES96 = 93
CES22 = 79	CES47 = 82	CES72 = 98	CES97 = 92
CES23 = 92	CES48 = 92	CES73 = 90	CES98 = 92
CES24 = 91	CES49 = 92	CES74 = 88	CES99 = 94
CES25 = 72	CES50 = 95	CES75 = 94	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)