

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: FMNL809FS5--927

Issue Date: 07/03/2025

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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: FMNL809FS5--927
 Description: HALO 8 inch 90 CRI COLOR SELECTABLE flush mount White Trim FIXTURE with night light
 Light Source: 2700K CCT, 90 CRI LEDS
 Ballast/Driver: -

Summary

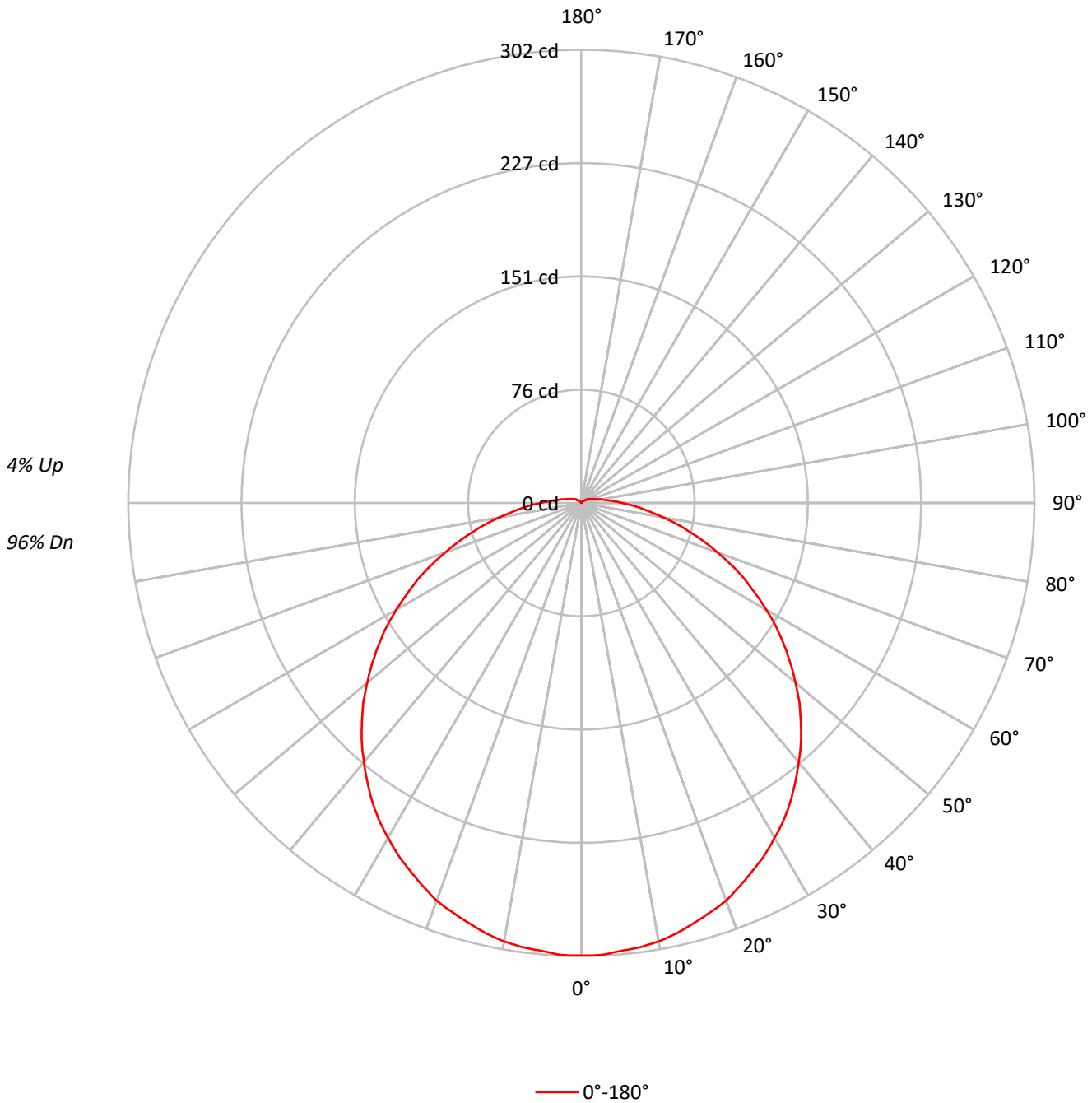
Lumens per Lamp: N/A
 Luminaire Lumens: 979.6 lumens
 Efficiency: N/A
 Efficacy: 96.0 lumens/watt
 Spacing Criteria (0/90/45): 1.27 / 1.27 / 1.39
 Luminous Opening: Circular (Dia: 0.7' x H: 0')
 CIE Type: Direct

Input Watts (W): 10.2
 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: FMNL809FS5--927

Luminous Intensity Polar Plot



TEST NUMBER: P1046632
 CATALOG NUMBER: FMNL809F55--927

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20	
RC	80				70				50				30				10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	118	118	118	118	115	115	115	115	109	109	109	103	103	103	98	98	98	96
1	106	101	96	92	103	98	94	90	93	90	86	89	86	83	84	82	80	77
2	96	87	80	74	93	85	78	73	81	75	70	77	72	68	73	69	66	63
3	87	76	68	61	85	74	66	60	71	64	58	67	62	57	64	59	55	53
4	80	67	58	51	77	66	57	51	63	55	49	60	53	48	57	52	47	45
5	73	60	51	44	71	59	50	43	56	48	43	54	47	42	51	45	41	39
6	68	54	45	38	65	53	44	38	51	43	37	48	42	36	46	40	36	34
7	63	49	40	34	61	48	39	33	46	38	33	44	37	32	42	36	32	30
8	58	45	36	30	56	44	35	30	42	35	29	40	34	29	39	33	28	26
9	54	41	32	27	53	40	32	27	39	31	26	37	31	26	36	30	26	24
10	51	38	30	24	50	37	29	24	36	29	24	34	28	23	33	27	23	21

AVERAGE LUMINANCE (cd/sqm):

	0°
0°	8436
5°	8414
10°	8427
15°	8394
20°	8397
25°	8345
30°	8323
35°	8297
40°	8233
45°	8184
50°	8111
55°	8046
60°	7971
65°	7948
70°	7900
75°	8127
80°	8955
85°	12837

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 87.5°
 Luminance: 21288 cd/sqm

TEST NUMBER: P1046632
 CATALOG NUMBER: FMNL809FS5--927

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	28.5	2.9
10°-20°	81.9	8.4
20°-30°	124.8	12.7
30°-40°	151.9	15.5
40°-50°	159.7	16.3
50°-60°	147.5	15.1
60°-70°	118.5	12.1
70°-80°	79.9	8.2
80°-90°	44.0	4.5
90°-100°	21.0	2.1
100°-110°	10.9	1.1
110°-120°	6.2	0.6
120°-130°	3.2	0.3
130°-140°	1.3	0.1
140°-150°	0.3	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	235.2	24.0
0°-40°	387.1	39.5
0°-60°	694.3	70.9
0°-90°	936.7	95.6
90°-120°	38.1	3.9
90°-150°	42.9	4.4
90°-180°	43.0	4.4
0°-180°	979.6	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	302	
5°	300	29
15°	290	82
25°	270	125
35°	243	152
45°	207	160
55°	165	148
65°	120	119
75°	75	80
85°	40	36
90°	27	15
95°	18	14
105°	10	11
115°	6	6
125°	4	3
135°	2	1
145°	0	0
155°	0	0
165°	0	0
175°	0	0
180°	0	0

TEST NUMBER: P1046632
CATALOG NUMBER: FMNL809FS5--927

CANDELA DISTRIBUTION (FULL):

0°	
0°	301.6
2.5°	301.6
5°	299.7
7.5°	298.7
10°	296.7
12.5°	293.8
15°	289.9
17.5°	286.0
20°	282.1
22.5°	276.2
25°	270.4
27.5°	264.5
30°	257.7
32.5°	250.9
35°	243.0
37.5°	234.3
40°	225.5
42.5°	216.7
45°	206.9
47.5°	197.2
50°	186.4
52.5°	175.7
55°	165.0
57.5°	154.2
60°	142.5
62.5°	130.8
65°	120.1
67.5°	108.3
70°	96.6
72.5°	85.9
75°	75.2
77.5°	65.4
80°	55.6
82.5°	46.9
85°	40.0
87.5°	33.2
90°	27.3
92.5°	22.5
95°	18.5
97.5°	15.6
100°	13.7
102.5°	11.7
105°	9.8
107.5°	8.8
110°	7.8

TEST NUMBER: P1046632
CATALOG NUMBER: FMNL809FS5--927

CANDELA DISTRIBUTION (continued):

	0°
112.5°	6.8
115°	5.9
117.5°	5.9
120°	4.9
122.5°	3.9
125°	3.9
127.5°	2.9
130°	2.0
132.5°	2.0
135°	2.0
137.5°	1.0
140°	1.0
142.5°	1.0
145°	0.0
147.5°	0.0
150°	0.0
152.5°	0.0
155°	0.0
157.5°	0.0
160°	0.0
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: FMNL809F55--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	19.0	20.6	19.5	21.0	21.4	19.0	20.6	19.5	21.0	21.4
	3H	21.1	22.5	21.5	22.9	23.4	21.1	22.5	21.5	22.9	23.4
	4H	22.0	23.3	22.4	23.8	24.2	22.0	23.3	22.4	23.8	24.2
	6H	22.8	24.1	23.3	24.5	25.0	22.8	24.1	23.3	24.5	25.0
	8H	23.2	24.4	23.7	24.9	25.4	23.2	24.4	23.7	24.9	25.4
	12H	23.6	24.8	24.1	25.2	25.8	23.6	24.8	24.1	25.2	25.8
4H	2H	19.7	21.1	20.2	21.5	22.0	19.7	21.1	20.2	21.5	22.0
	3H	22.0	23.2	22.5	23.6	24.1	22.0	23.2	22.5	23.6	24.1
	4H	23.0	24.1	23.5	24.6	25.1	23.0	24.1	23.5	24.6	25.1
	6H	24.0	25.0	24.6	25.5	26.0	24.0	25.0	24.6	25.5	26.0
	8H	24.5	25.4	25.0	25.9	26.5	24.5	25.4	25.0	25.9	26.5
	12H	25.1	25.8	25.6	26.4	27.0	25.1	25.8	25.6	26.4	27.0
8H	4H	23.5	24.3	24.0	24.9	25.4	23.5	24.3	24.0	24.9	25.4
	6H	24.7	25.4	25.2	26.0	26.5	24.7	25.4	25.2	26.0	26.5
	8H	25.3	26.0	25.9	26.5	27.1	25.3	26.0	25.9	26.5	27.1
	12H	26.0	26.6	26.6	27.2	27.8	26.0	26.6	26.6	27.2	27.8
12H	4H	23.6	24.3	24.1	24.9	25.5	23.6	24.3	24.1	24.9	25.5
	6H	24.8	25.5	25.4	26.0	26.7	24.8	25.5	25.4	26.0	26.7
	8H	25.5	26.1	26.1	26.7	27.3	25.5	26.1	26.1	26.7	27.3

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

Report Prepared for

Cooper Lighting Solutions

Halo Home

Report Number: SP1-2506-468-1

Test Date: 07/08/2025

Luminaire Tested: FMNL809FS5-2700K

Data in this report applies to families of products including FMNL809FS5-2700K

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

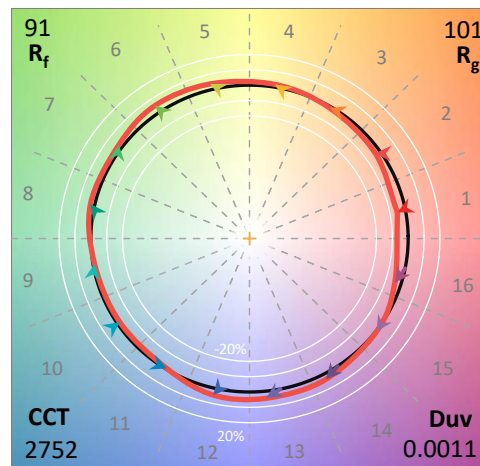
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-468-1
 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: **FMNL809F55-2700K**
 Description: HALO FLUSH MOUNT NIGHT LIGHT 8 INCH

Spectral Parameters

CCT (K): 2752
 CIE u': 0.2599
 CIE v': 0.5280
 Duv: 0.0011
 CIE x: 0.4576
 CIE y: 0.4131
 CIE z: 0.1293
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 583
 Purity: 61.35604
 Rf: 91.2
 Rg: 101.1

CRI (Ra):	93.9		
R1:	95.5	R9:	58.8
R2:	96.0	R10:	89.6
R3:	96.0	R11:	96.3
R4:	96.1	R12:	88.3
R5:	95.1	R13:	95.2
R6:	97.4	R14:	96.3
R7:	92.3	R15:	89.8
R8:	82.8		



Test Conditions

Stabilization Time: 28M
 Operation Time: 1H 28M
 Sphere Temperature (°C): 24.0

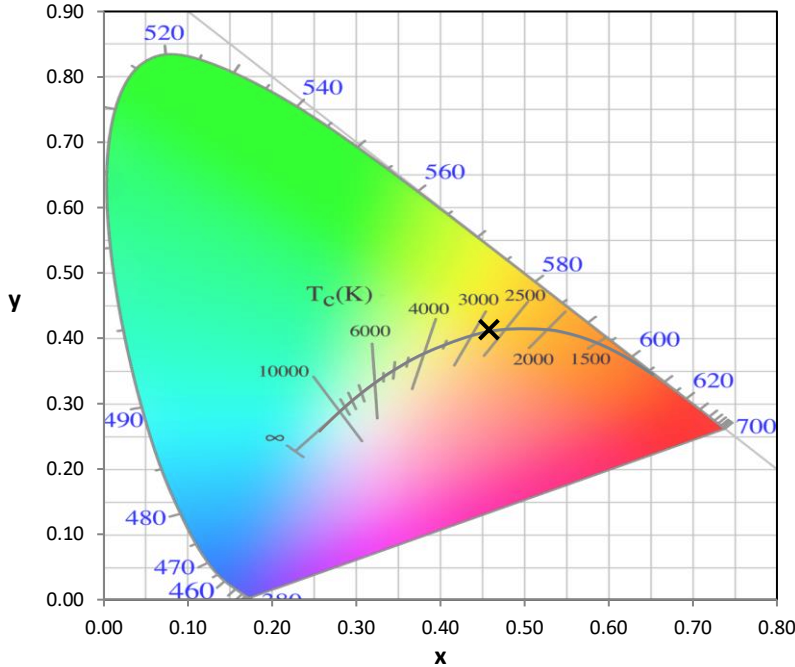
REPORT NUMBER: SP1-2506-468-1

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

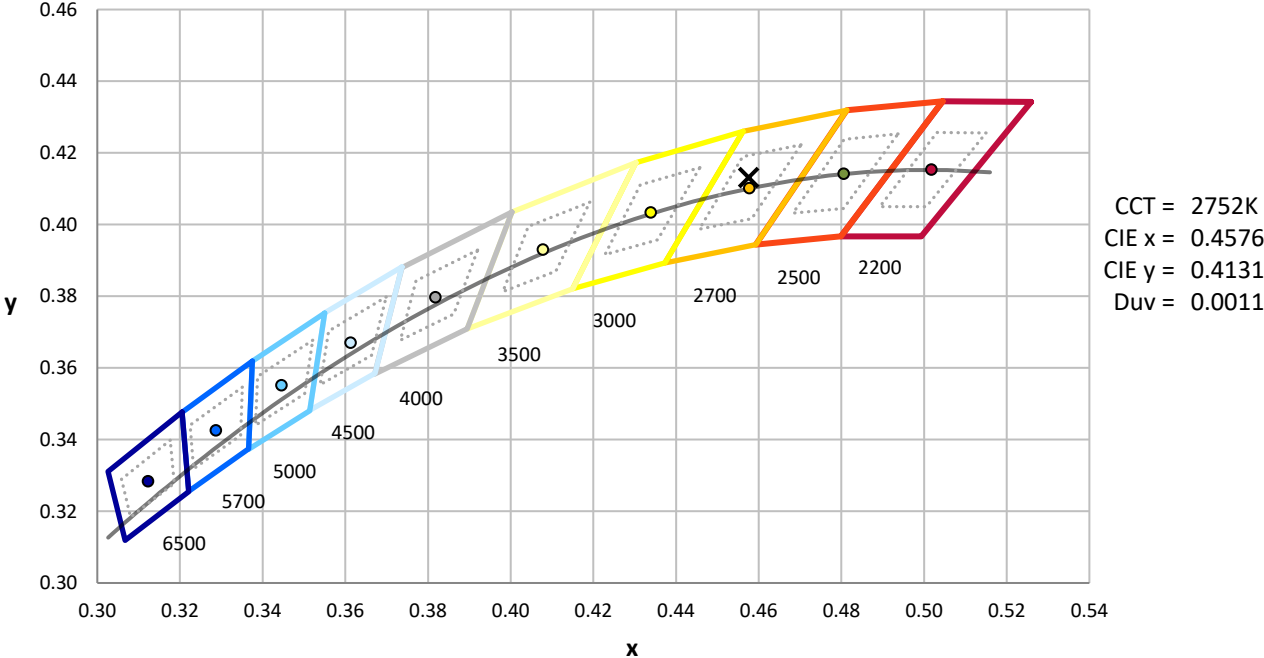
Sample Number	Condition	Description
P2506-468-LM.1	Good	HALO FLUSH MOUNT NIGHT LIGHT 8 INCH

REPORT NUMBER: SP1-2506-468-1

CIE 1931 Chromaticity Diagram



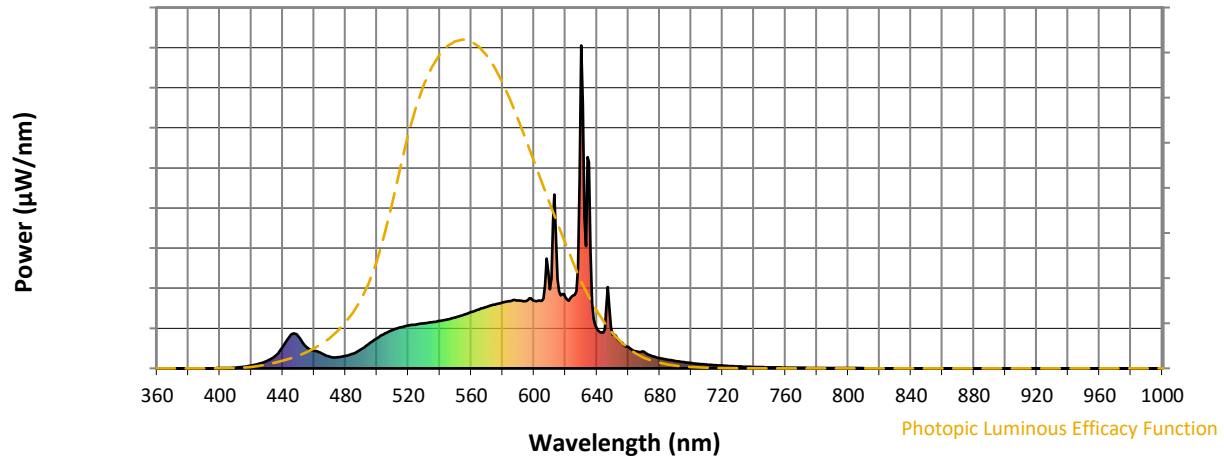
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

REPORT NUMBER: SP1-2506-468-1

Photopic Flux vs. Wavelength

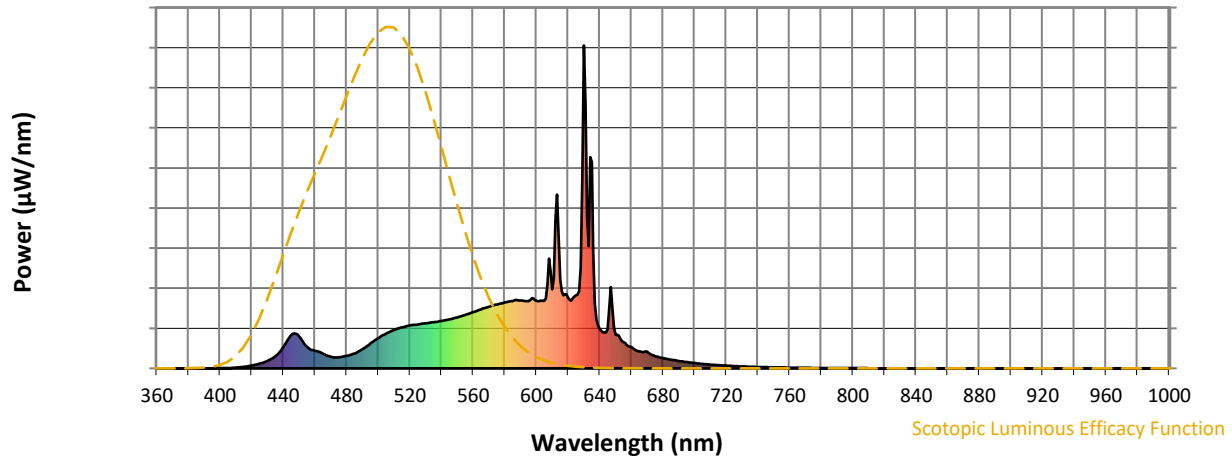


Photopic Lumens: NR

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	219	NR	750	3	NR	880	0	NR
365	0	NR	495	76	NR	625	226	NR	755	3	NR	885	0	NR
370	0	NR	500	93	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	108	NR	635	639	NR	765	2	NR	895	0	NR
380	0	NR	510	119	NR	640	123	NR	770	2	NR	900	0	NR
385	0	NR	515	127	NR	645	121	NR	775	1	NR	905	0	NR
390	0	NR	520	133	NR	650	104	NR	780	1	NR	910	0	NR
395	0	NR	525	136	NR	655	82	NR	785	1	NR	915	0	NR
400	1	NR	530	139	NR	660	66	NR	790	1	NR	920	0	NR
405	1	NR	535	143	NR	665	52	NR	795	1	NR	925	0	NR
410	2	NR	540	147	NR	670	51	NR	800	1	NR	930	0	NR
415	5	NR	545	151	NR	675	38	NR	805	1	NR	935	0	NR
420	9	NR	550	158	NR	680	32	NR	810	1	NR	940	0	NR
425	14	NR	555	166	NR	685	27	NR	815	0	NR	945	0	NR
430	23	NR	560	174	NR	690	23	NR	820	0	NR	950	0	NR
435	38	NR	565	183	NR	695	20	NR	825	0	NR	955	0	NR
440	66	NR	570	191	NR	700	16	NR	830	0	NR	960	0	NR
445	103	NR	575	198	NR	705	14	NR	835	0	NR	965	0	NR
450	99	NR	580	204	NR	710	12	NR	840	0	NR	970	0	NR
455	66	NR	585	208	NR	715	10	NR	845	0	NR	975	0	NR
460	55	NR	590	210	NR	720	8	NR	850	0	NR	980	0	NR
465	46	NR	595	208	NR	725	7	NR	855	0	NR	985	0	NR
470	36	NR	600	209	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	209	NR	735	5	NR	865	0	NR	995	0	NR
480	38	NR	610	245	NR	740	4	NR	870	0	NR	1000	0	NR
485	46	NR	615	276	NR	745	4	NR	875	0	NR			

REPORT NUMBER: SP1-2506-468-1

Scotopic Flux vs. Wavelength



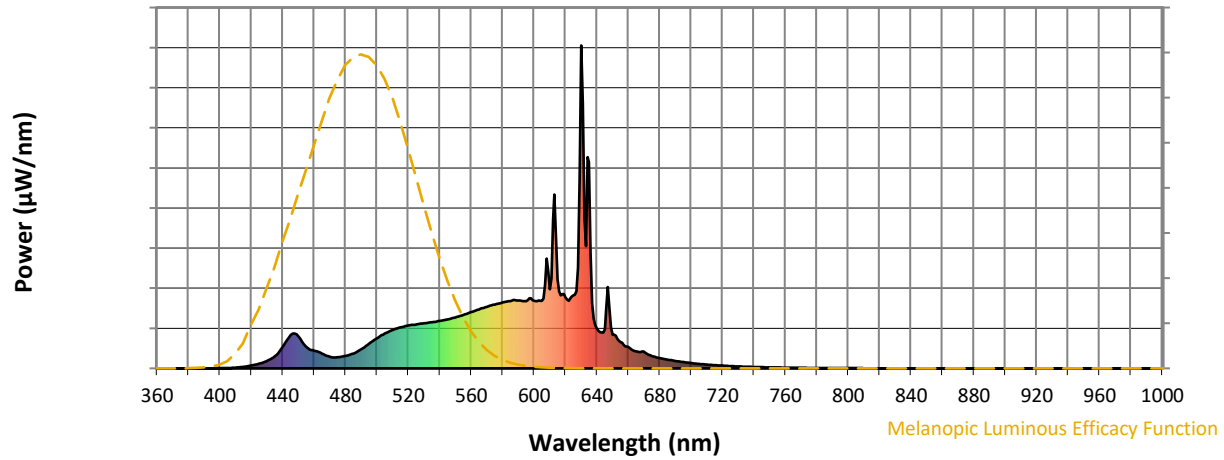
Scotopic Lumens: NR

S/P: 1.29

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	219	NR	750	3	NR	880	0	NR
365	0	NR	495	76	NR	625	226	NR	755	3	NR	885	0	NR
370	0	NR	500	93	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	108	NR	635	639	NR	765	2	NR	895	0	NR
380	0	NR	510	119	NR	640	123	NR	770	2	NR	900	0	NR
385	0	NR	515	127	NR	645	121	NR	775	1	NR	905	0	NR
390	0	NR	520	133	NR	650	104	NR	780	1	NR	910	0	NR
395	0	NR	525	136	NR	655	82	NR	785	1	NR	915	0	NR
400	1	NR	530	139	NR	660	66	NR	790	1	NR	920	0	NR
405	1	NR	535	143	NR	665	52	NR	795	1	NR	925	0	NR
410	2	NR	540	147	NR	670	51	NR	800	1	NR	930	0	NR
415	5	NR	545	151	NR	675	38	NR	805	1	NR	935	0	NR
420	9	NR	550	158	NR	680	32	NR	810	1	NR	940	0	NR
425	14	NR	555	166	NR	685	27	NR	815	0	NR	945	0	NR
430	23	NR	560	174	NR	690	23	NR	820	0	NR	950	0	NR
435	38	NR	565	183	NR	695	20	NR	825	0	NR	955	0	NR
440	66	NR	570	191	NR	700	16	NR	830	0	NR	960	0	NR
445	103	NR	575	198	NR	705	14	NR	835	0	NR	965	0	NR
450	99	NR	580	204	NR	710	12	NR	840	0	NR	970	0	NR
455	66	NR	585	208	NR	715	10	NR	845	0	NR	975	0	NR
460	55	NR	590	210	NR	720	8	NR	850	0	NR	980	0	NR
465	46	NR	595	208	NR	725	7	NR	855	0	NR	985	0	NR
470	36	NR	600	209	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	209	NR	735	5	NR	865	0	NR	995	0	NR
480	38	NR	610	245	NR	740	4	NR	870	0	NR	1000	0	NR
485	46	NR	615	276	NR	745	4	NR	875	0	NR			

REPORT NUMBER: SP1-2506-468-1

Melanopic Flux vs. Wavelength



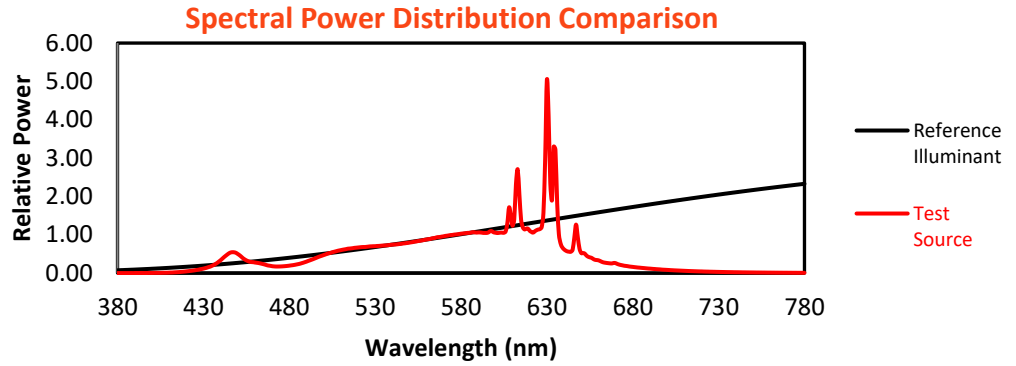
Melanopic Lumens: NR

M/P: 2.41

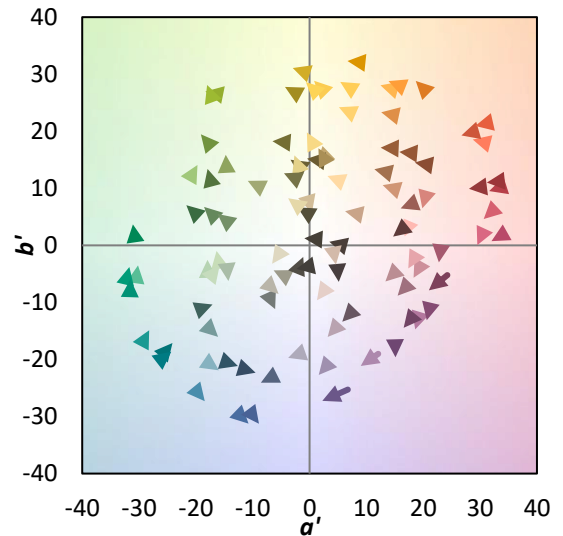
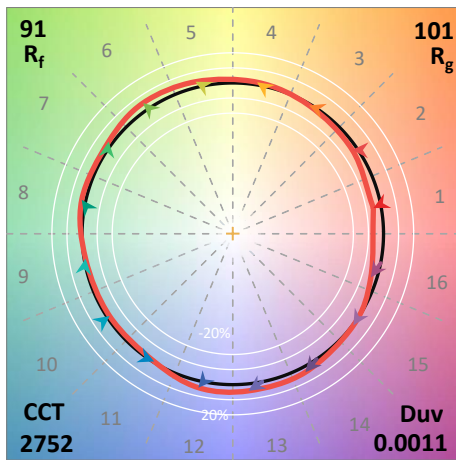
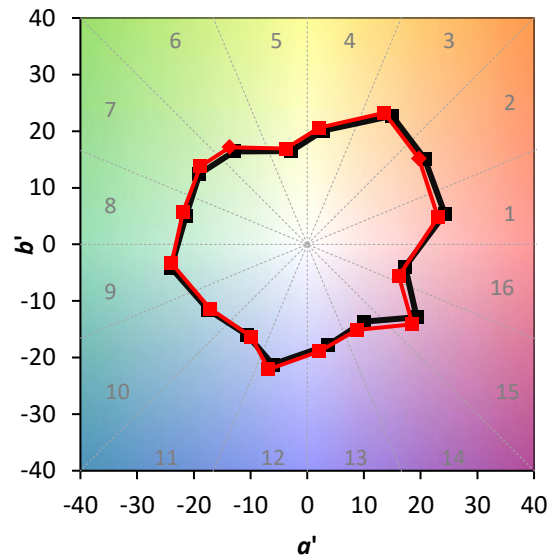
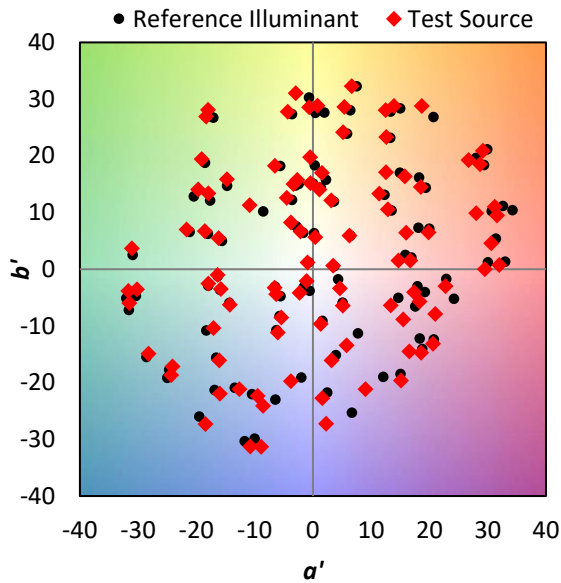
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	59	NR	620	219	NR	750	3	NR	880	0	NR
365	0	NR	495	76	NR	625	226	NR	755	3	NR	885	0	NR
370	0	NR	500	93	NR	630	1000	NR	760	2	NR	890	0	NR
375	0	NR	505	108	NR	635	639	NR	765	2	NR	895	0	NR
380	0	NR	510	119	NR	640	123	NR	770	2	NR	900	0	NR
385	0	NR	515	127	NR	645	121	NR	775	1	NR	905	0	NR
390	0	NR	520	133	NR	650	104	NR	780	1	NR	910	0	NR
395	0	NR	525	136	NR	655	82	NR	785	1	NR	915	0	NR
400	1	NR	530	139	NR	660	66	NR	790	1	NR	920	0	NR
405	1	NR	535	143	NR	665	52	NR	795	1	NR	925	0	NR
410	2	NR	540	147	NR	670	51	NR	800	1	NR	930	0	NR
415	5	NR	545	151	NR	675	38	NR	805	1	NR	935	0	NR
420	9	NR	550	158	NR	680	32	NR	810	1	NR	940	0	NR
425	14	NR	555	166	NR	685	27	NR	815	0	NR	945	0	NR
430	23	NR	560	174	NR	690	23	NR	820	0	NR	950	0	NR
435	38	NR	565	183	NR	695	20	NR	825	0	NR	955	0	NR
440	66	NR	570	191	NR	700	16	NR	830	0	NR	960	0	NR
445	103	NR	575	198	NR	705	14	NR	835	0	NR	965	0	NR
450	99	NR	580	204	NR	710	12	NR	840	0	NR	970	0	NR
455	66	NR	585	208	NR	715	10	NR	845	0	NR	975	0	NR
460	55	NR	590	210	NR	720	8	NR	850	0	NR	980	0	NR
465	46	NR	595	208	NR	725	7	NR	855	0	NR	985	0	NR
470	36	NR	600	209	NR	730	6	NR	860	0	NR	990	0	NR
475	34	NR	605	209	NR	735	5	NR	865	0	NR	995	0	NR
480	38	NR	610	245	NR	740	4	NR	870	0	NR	1000	0	NR
485	46	NR	615	276	NR	745	4	NR	875	0	NR			

Summary

$R_f = 91.2$
 $R_g = 101.1$
 $CIE R_a = 93.9$
 $R_9 = 58.8$

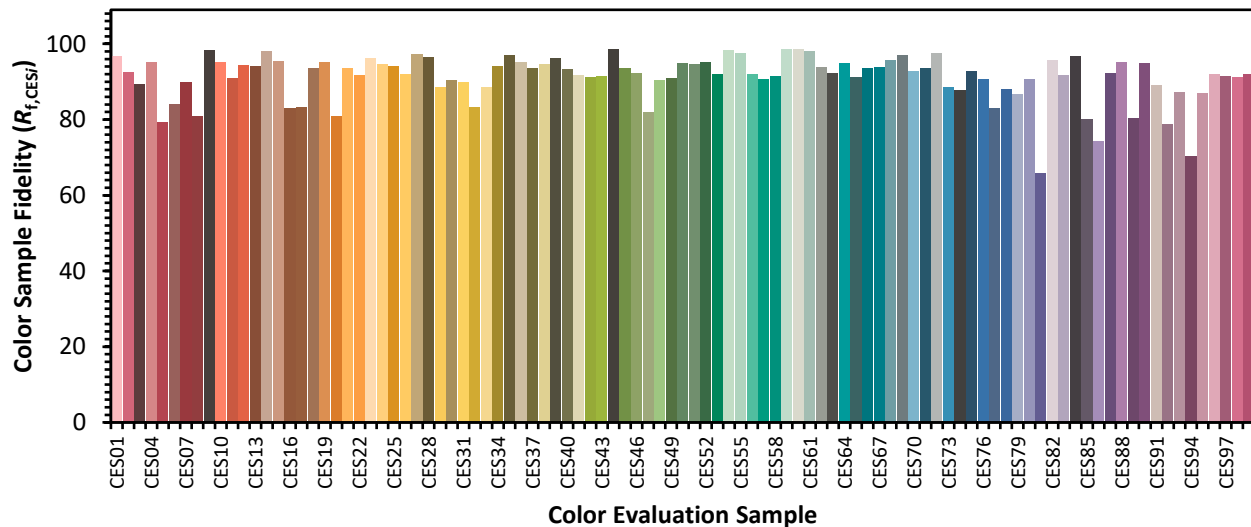


Color Vector Graphics

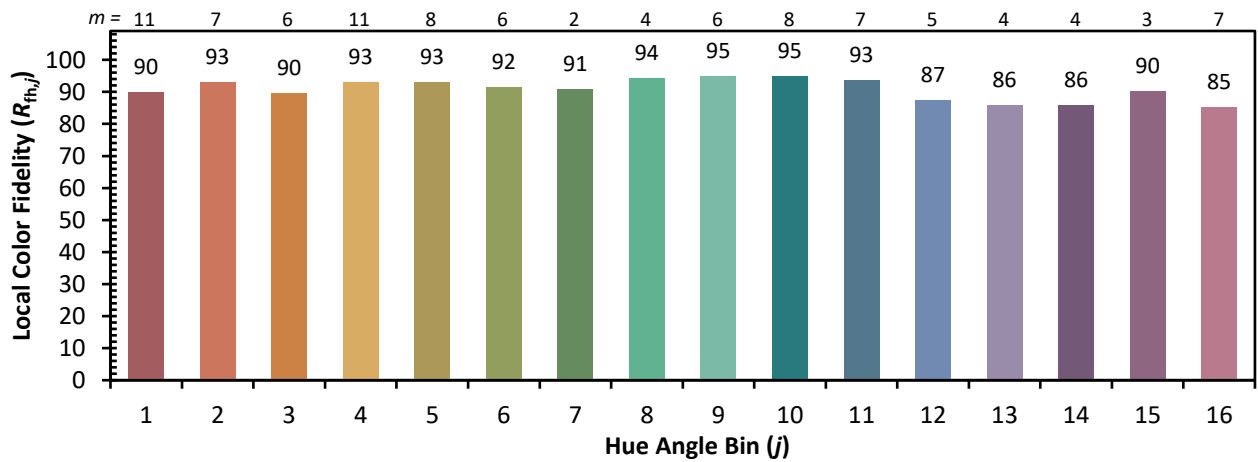
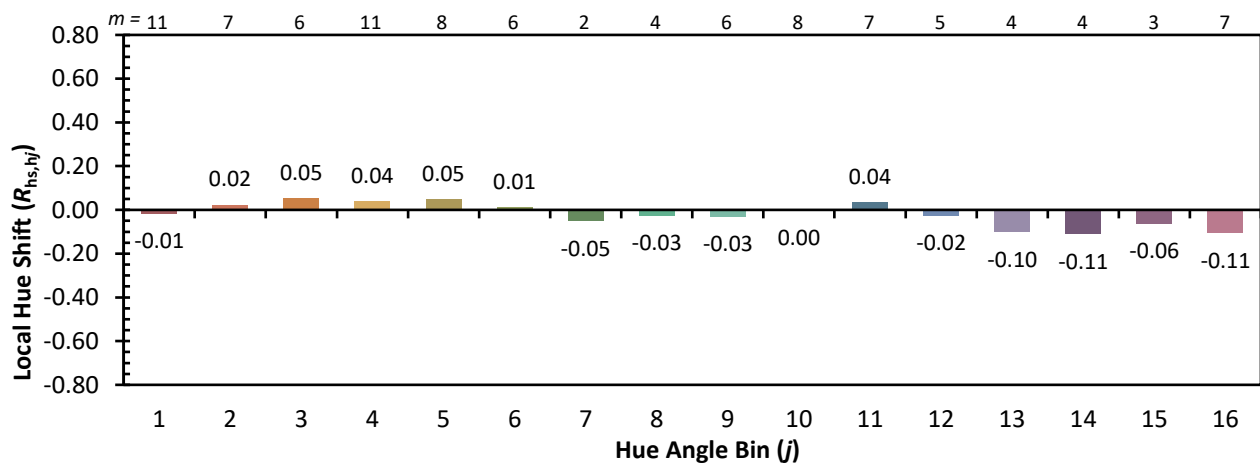
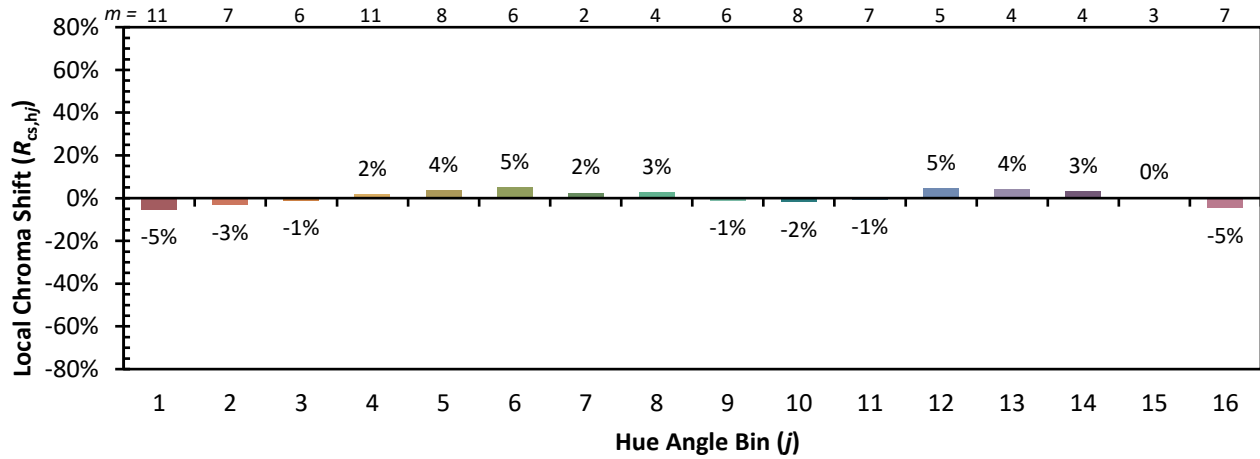


Individual Sample Fidelity Index ($R_{f,i}$)

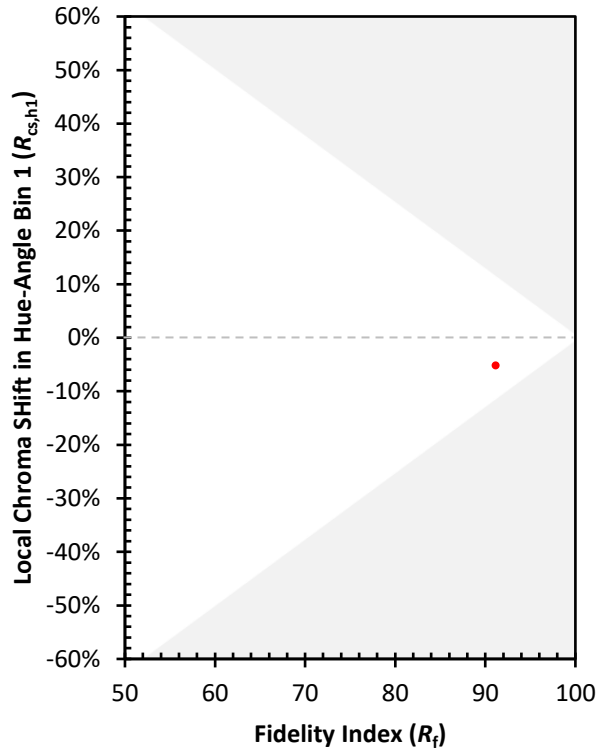
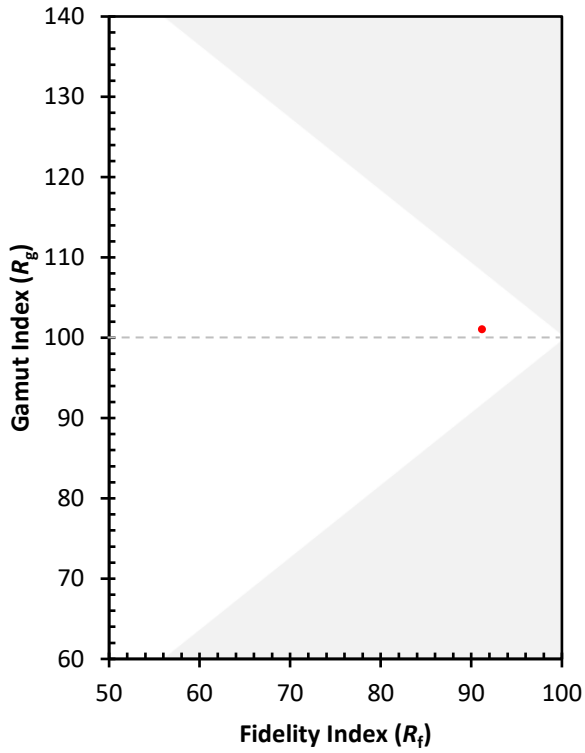
CES01 = 86	CES26 = 92	CES51 = 95	CES76 = 91
CES02 = 64	CES27 = 97	CES52 = 95	CES77 = 83
CES03 = 32	CES28 = 97	CES53 = 92	CES78 = 88
CES04 = 70	CES29 = 89	CES54 = 98	CES79 = 87
CES05 = 51	CES30 = 90	CES55 = 97	CES80 = 91
CES06 = 51	CES31 = 90	CES56 = 92	CES81 = 66
CES07 = 44	CES32 = 83	CES57 = 91	CES82 = 96
CES08 = 43	CES33 = 89	CES58 = 91	CES83 = 92
CES09 = 29	CES34 = 94	CES59 = 99	CES84 = 97
CES10 = 77	CES35 = 97	CES60 = 99	CES85 = 80
CES11 = 59	CES36 = 95	CES61 = 98	CES86 = 74
CES12 = 66	CES37 = 94	CES62 = 94	CES87 = 92
CES13 = 44	CES38 = 95	CES63 = 92	CES88 = 95
CES14 = 74	CES39 = 96	CES64 = 95	CES89 = 80
CES15 = 72	CES40 = 93	CES65 = 91	CES90 = 95
CES16 = 48	CES41 = 92	CES66 = 94	CES91 = 89
CES17 = 50	CES42 = 91	CES67 = 94	CES92 = 79
CES18 = 57	CES43 = 91	CES68 = 96	CES93 = 87
CES19 = 72	CES44 = 98	CES69 = 97	CES94 = 70
CES20 = 68	CES45 = 94	CES70 = 93	CES95 = 87
CES21 = 87	CES46 = 92	CES71 = 94	CES96 = 92
CES22 = 79	CES47 = 82	CES72 = 98	CES97 = 92
CES23 = 92	CES48 = 90	CES73 = 89	CES98 = 91
CES24 = 91	CES49 = 91	CES74 = 88	CES99 = 92
CES25 = 72	CES50 = 95	CES75 = 93	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)