

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: METALUX

Report Number: P860178

Luminaire Tested: **SPHB-48SE-M-L735-CD**

Issue Date: 7/11/2024



Test Information

Test Method: LM-79-08
Report Number: P860178
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2404-343-1)
Test Lab: INNOVATION CENTER
Issue Date: 7/11/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: SPHB-48SE-M-L735-CD
Description: 48000 Lumen Standard Efficacy Select Pro High Bay with Medium Lens
and, 3500K 70CRI LEDs
Light Source: -
Ballast/Driver: -

Luminaire Equipment: Sample No. Condition Description

Summary

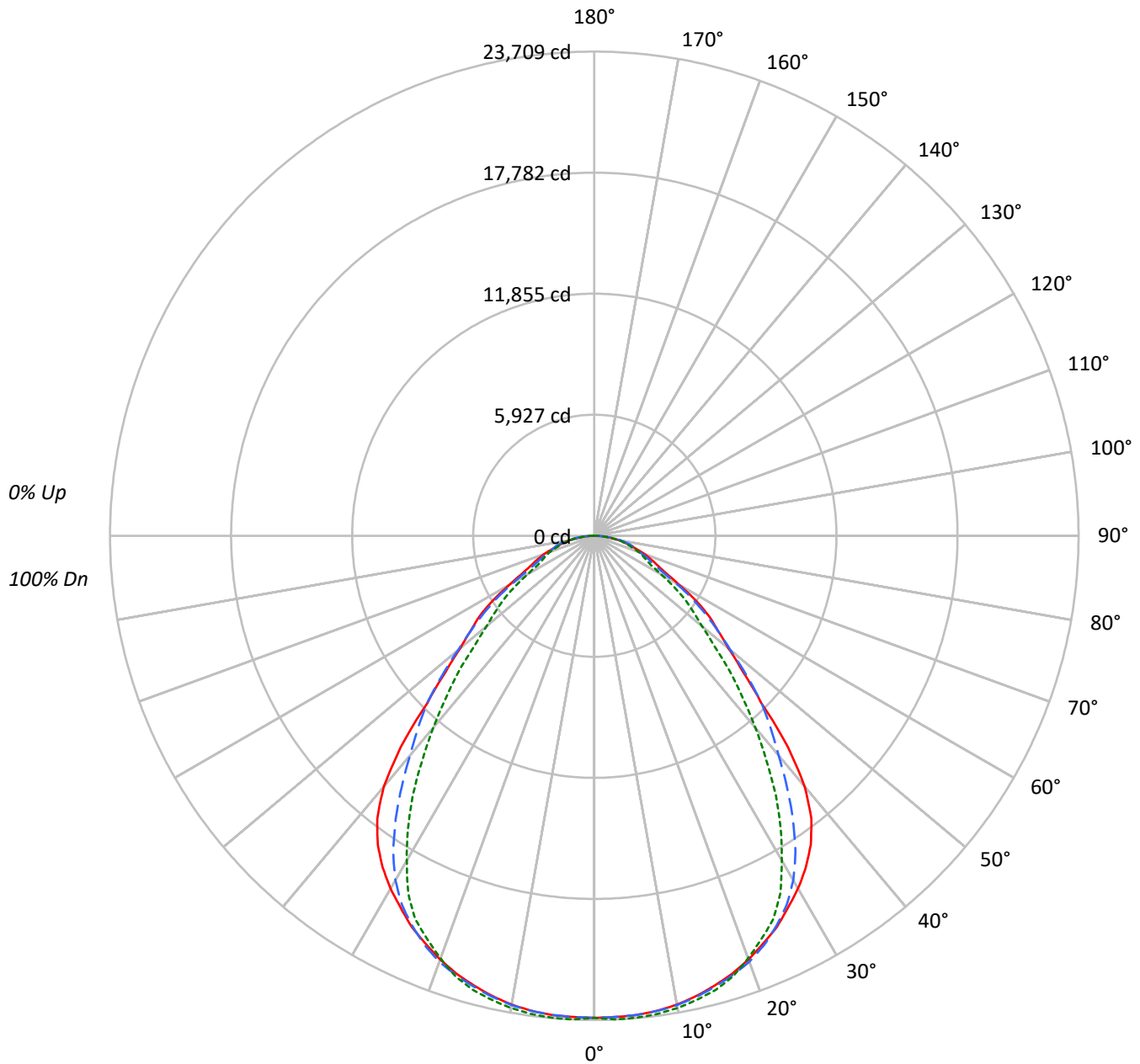
Lumens per Lamp: N/A
Luminaire Lumens: 48992.0 lumens
Efficiency: N/A
Efficacy: 160.7 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.16 / 1.22
Luminous Opening: Rectangular (W 1' x L: 3.38' x H: 0')
CIE Type: Direct

Input Watts (W): 304.9
Input Voltage (V): NR
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: P860178

CATALOG NUMBER: SPHB-48SE-M-L735-CD

Luminous Intensity Polar Plot





TEST NUMBER: P860178

CATALOG NUMBER: SPHB-48SE-M-L735-CD

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
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	110	106	103	99	108	104	101	98	100	97	95	96	94	92	92	91	89	87		
2	102	95	89	84	99	93	87	83	89	85	81	86	82	79	83	80	77	75		
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66		
4	87	76	69	63	85	75	68	62	73	66	61	70	65	61	68	64	60	58		
5	81	69	61	55	79	68	61	55	66	59	54	64	58	54	62	57	53	51		
6	75	63	55	49	73	62	54	49	60	54	48	59	53	48	57	52	48	46		
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41		
8	66	53	45	40	64	52	45	40	51	44	39	50	44	39	49	43	39	37		
9	61	49	41	36	60	48	41	36	47	41	36	46	40	36	45	40	36	34		
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	75167	75167	75167
5°	75315	75295	75723
10°	75381	75461	75924
15°	75160	75356	75879
20°	74832	75212	74611
25°	74285	74077	72819
30°	73345	71616	67529
35°	71805	65887	60187
40°	66637	58315	50977
45°	51987	52128	42187
50°	42460	43062	34070
55°	38043	36608	29937
60°	30456	28829	23952
65°	25522	23364	21183
70°	24232	22261	21565
75°	21987	23634	20799
80°	22095	24149	21923
85°	19223	22523	18313



TEST NUMBER: P860178

CATALOG NUMBER: SPHB-48SE-M-L735-CD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	2244.3	4.6
10°-20°	6454.5	13.2
20°-30°	9635.5	19.7
30°-40°	10514.0	21.5
40°-50°	8600.9	17.6
50°-60°	5655.1	11.5
60°-70°	3244.4	6.6
70°-80°	1966.0	4.0
80°-90°	660.2	1.3
90°-100°	17.2	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°	18334.2	37.4
0°-40°	28848.2	58.9
0°-60°	43104.1	88.0
0°-90°	48974.8	100.0
90°-120°	17.2	0.0
90°-150°	17.2	0.0
90°-180°	17.0	0.0
0°-180°	48992.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	23603	23603	23603	23603	23603	
5°	23560	23522	23554	23650	23688	###
15°	22797	22794	22856	23003	23015	6435
25°	21141	21191	21082	20826	20724	9726
35°	18470	18053	16948	15793	15481	11447
45°	11543	12406	11574	10217	9367	9163
55°	6852	6665	6594	5666	5392	6035
65°	3387	3337	3101	3017	2811	3463
75°	1787	1933	1921	1843	1690	1934
85°	526	598	616	539	501	571
90°	3	44	87	103	109	25
95°	3	6	9	9	6	1
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	



TEST NUMBER: P860178

CATALOG NUMBER: SPHB-48SE-M-L735-CD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	23603.4	23603.4	23603.4	23603.4	23603.4
2.5°	23587.9	23553.6	23584.7	23681.2	23709.3
5°	23559.8	23522.5	23553.6	23650.1	23687.5
7.5°	23463.3	23441.5	23472.7	23569.2	23615.9
10°	23310.8	23285.9	23335.7	23419.7	23478.9
12.5°	23083.5	23074.2	23120.9	23242.3	23267.2
15°	22797.1	22794.0	22856.3	23002.6	23015.0
17.5°	22473.4	22470.3	22548.1	22644.6	22610.3
20°	22081.1	22102.9	22193.2	22102.9	22015.7
22.5°	21611.0	21679.5	21701.3	21418.0	21374.4
25°	21141.0	21190.8	21081.8	20826.5	20723.8
27.5°	20533.9	20593.1	20390.7	20026.5	19733.9
30°	19945.5	19889.5	19475.5	18771.9	18364.1
32.5°	19270.0	19070.8	18326.7	17355.5	16985.0
35°	18469.9	18052.8	16947.6	15792.7	15481.4
37.5°	17458.2	16695.5	15487.6	14282.8	13812.8
40°	16029.3	15148.3	14027.6	12782.3	12262.4
42.5°	14027.6	13700.7	12773.0	11372.1	10752.6
45°	11543.3	12405.6	11574.5	10217.1	9367.3
47.5°	9880.9	11079.5	10080.2	9099.6	7929.0
50°	8570.3	9395.3	8691.7	7807.6	6876.8
52.5°	7623.9	7873.0	7589.7	6618.4	6089.2
55°	6851.9	6665.1	6593.5	5665.8	5391.9
57.5°	5893.1	5790.3	5606.7	4940.5	4579.3
60°	4781.7	4999.6	4526.4	4336.5	3760.6
62.5°	3928.7	4143.5	3636.1	3623.6	3144.2
65°	3387.0	3337.2	3100.6	3016.6	2811.1
67.5°	2997.9	2842.2	2761.3	2652.3	2580.7
70°	2602.5	2537.2	2390.8	2412.6	2316.1
72.5°	2169.8	2253.9	2107.6	2148.0	1973.7
75°	1786.9	1933.2	1920.8	1842.9	1690.4
77.5°	1472.5	1628.1	1656.2	1584.6	1460.0
80°	1204.8	1310.6	1316.8	1273.3	1195.4
82.5°	884.1	946.4	993.1	918.4	868.6
85°	526.1	597.7	616.4	538.6	501.2
87.5°	171.2	239.7	267.7	277.1	280.2
90°	3.1	43.6	87.2	102.7	109.0
92.5°	3.1	12.5	18.7	28.0	31.1
95°	3.1	6.2	9.3	9.3	6.2
97.5°	0.0	0.0	0.0	0.0	0.0
100°	0.0	0.0	0.0	0.0	0.0
102.5°	0.0	0.0	0.0	0.0	0.0
105°	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P860178

CATALOG NUMBER: SPHB-48SE-M-L735-CD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	0.0	0.0	0.0	0.0
115°	0.0	0.0	0.0	0.0	0.0
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180° - - 45°-225° - - - 90°-270°







107.5°	0.0	0.0	0.0	0.0	0.0
110°	0.0	0.0	0.0	0.0	0.0



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

Report Prepared for

Cooper Lighting Solutions

METALUX

Report Number: SP1-2404-343-1

Test Date: 05/18/2024

Luminaire Tested: SPHB-24SE-M-UNV-L735-CD

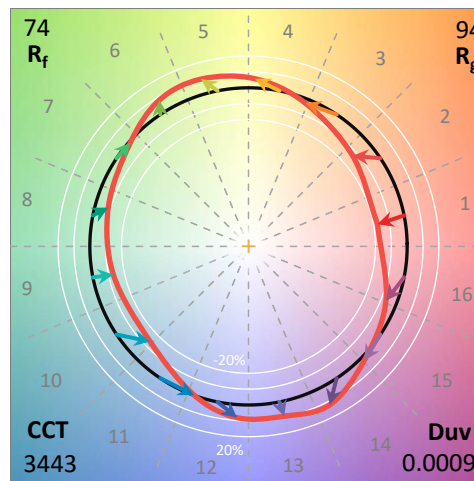
Data in this report applies to families of products SPHB-24SE-M-UNV-L735-CD.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2404-343-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 05/21/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: METALUX
 Catalog Number: **SPHB-24SE-M-UNV-L735-CD**
 Description: 18IN SPHB WITH MEDIUM LENS, 3500K/70CRI, 24K LUMENS, SE

Spectral Parameters

CCT (K):	3443	CRI (Ra):	71.3		
CIE u':	0.2367	R1:	67.5	R9:	-34.0
CIE v':	0.5135	R2:	79.7	R10:	52.8
Duv:	0.0009	R3:	90.1	R11:	63.2
CIE x:	0.4094	R4:	68.5	R12:	44.0
CIE y:	0.3948	R5:	66.9	R13:	69.5
CIE z:	0.1959	R6:	71.2	R14:	94.3
Peak Wavelength (nm):	588	R7:	79.3		
Dominant Wavelength (nm):	580	R8:	47.0		
Purity:	41.6				
Rf:	74.2				
Rg:	93.7				



Test Conditions

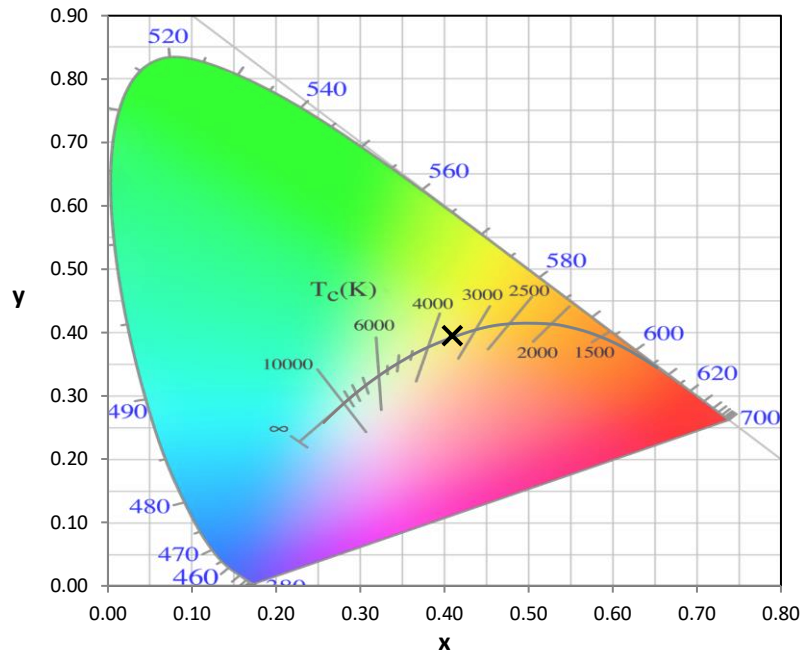
Stabilization Time: 23M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0/42%
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2404-343-1

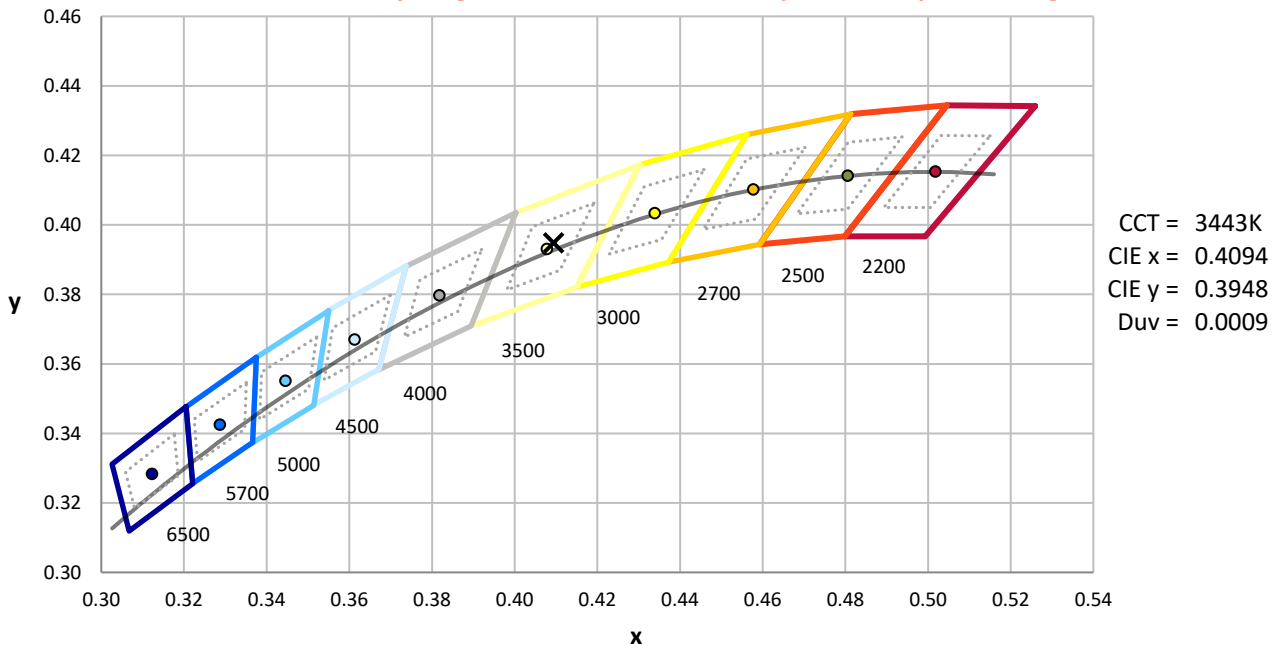
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	2/12/2024	8/12/2024
Power Meter	XITRON 2801 IN0071	10/23/2023	10/23/2024
AC Power Source	CHROMA 61603 IN0063	10/24/2023	10/24/2024
DC Power Source	AGILENT E3634A IN0208	10/24/2023	10/24/2024
Sphere Thermometer	ONSET IN0085	10/24/2023	10/24/2024
Room Thermometer	ONSET IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2404-343-1

CIE 1931 Chromaticity Diagram



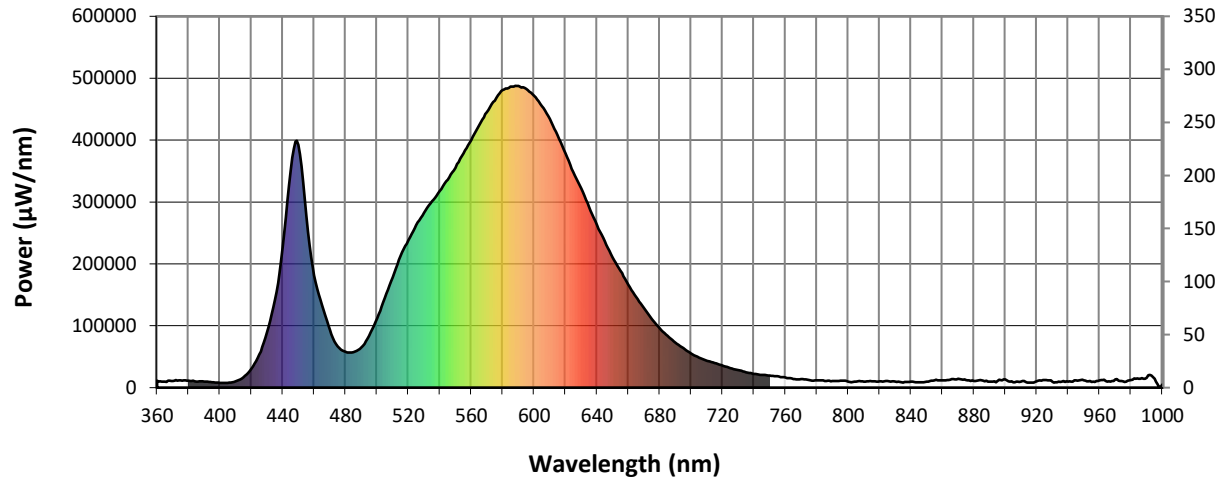
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2404-343-1

Photopic Flux vs. Wavelength

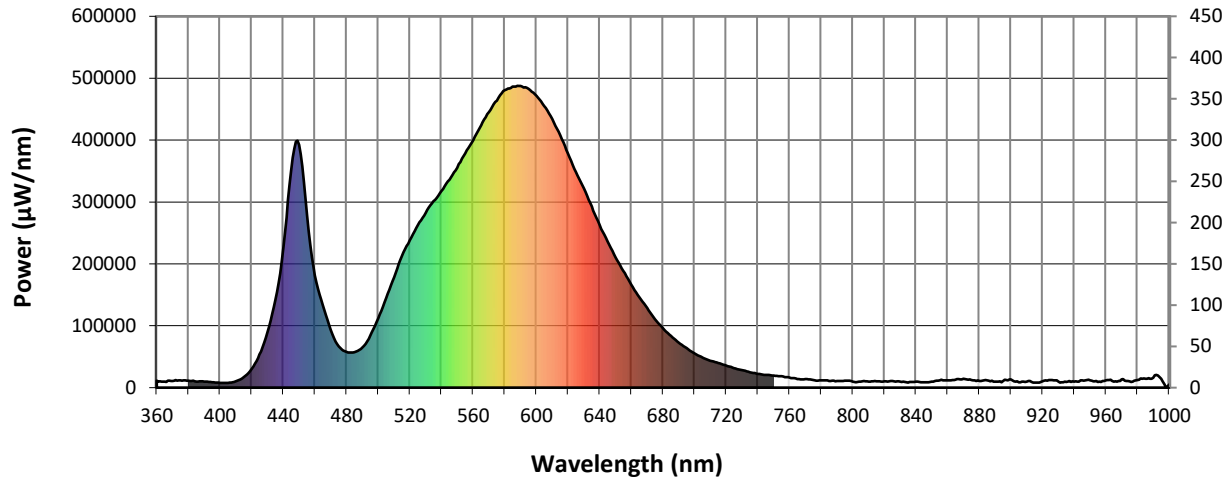


#####

λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	11069	NR	490	64826	NR	620	378287	NR	750	19405	NR	880	10598	NR
365	9532	NR	495	83788	NR	625	348295	NR	755	18362	NR	885	11768	NR
370	10973	NR	500	111516	NR	630	321786	NR	760	16477	NR	890	9466	NR
375	11762	NR	505	144674	NR	635	292338	NR	765	14099	NR	895	10985	NR
380	11270	NR	510	178210	NR	640	263074	NR	770	13754	NR	900	13336	NR
385	9763	NR	515	212444	NR	645	236032	NR	775	12358	NR	905	8557	NR
390	9964	NR	520	238043	NR	650	210183	NR	780	11829	NR	910	9683	NR
395	8870	NR	525	262630	NR	655	188533	NR	785	10905	NR	915	8102	NR
400	7833	NR	530	282711	NR	660	166359	NR	790	10518	NR	920	10188	NR
405	7894	NR	535	301137	NR	665	146164	NR	795	11147	NR	925	12355	NR
410	10280	NR	540	317875	NR	670	128599	NR	800	9675	NR	930	9904	NR
415	16727	NR	545	336094	NR	675	110738	NR	805	9859	NR	935	9277	NR
420	30410	NR	550	355114	NR	680	95972	NR	810	9869	NR	940	9862	NR
425	53420	NR	555	378403	NR	685	83465	NR	815	10276	NR	945	11594	NR
430	89156	NR	560	399679	NR	690	72721	NR	820	10232	NR	950	11887	NR
435	142197	NR	565	423645	NR	695	63911	NR	825	10857	NR	955	8965	NR
440	226845	NR	570	445147	NR	700	55055	NR	830	9619	NR	960	11572	NR
445	350540	NR	575	463862	NR	705	48705	NR	835	8389	NR	965	9869	NR
450	392129	NR	580	480777	NR	710	43400	NR	840	9682	NR	970	13235	NR
455	277676	NR	585	486479	NR	715	39918	NR	845	8871	NR	975	10310	NR
460	181452	NR	590	487337	NR	720	35595	NR	850	9686	NR	980	12444	NR
465	133159	NR	595	482847	NR	725	31639	NR	855	11822	NR	985	14597	NR
470	92882	NR	600	471286	NR	730	28555	NR	860	11731	NR	990	16092	NR
475	66501	NR	605	455024	NR	735	24821	NR	865	12816	NR	995	14551	NR
480	57816	NR	610	434209	NR	740	22145	NR	870	14159	NR	1000	5319	NR
485	57380	NR	615	407697	NR	745	20684	NR	875	12561	NR			

REPORT NUMBER: SP1-2404-343-1

Scotopic Flux vs. Wavelength



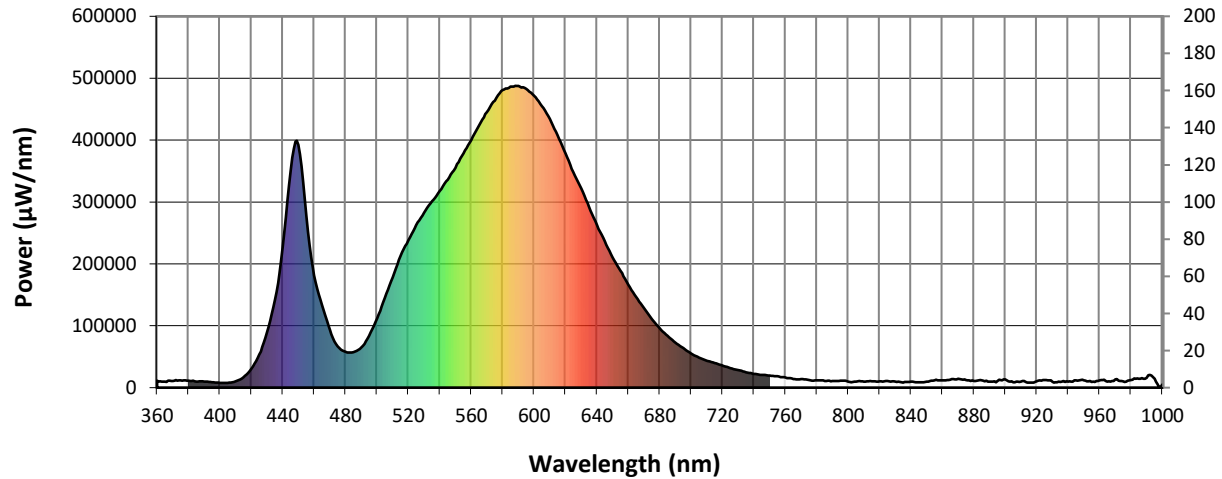
Scotopic Lumens: 34063.8

S/P: 1.35

λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	11069	NR	490	64826	NR	620	378287	NR	750	19405	NR	880	10598	NR
365	9532	NR	495	83788	NR	625	348295	NR	755	18362	NR	885	11768	NR
370	10973	NR	500	111516	NR	630	321786	NR	760	16477	NR	890	9466	NR
375	11762	NR	505	144674	NR	635	292338	NR	765	14099	NR	895	10985	NR
380	11270	NR	510	178210	NR	640	263074	NR	770	13754	NR	900	13336	NR
385	9763	NR	515	212444	NR	645	236032	NR	775	12358	NR	905	8557	NR
390	9964	NR	520	238043	NR	650	210183	NR	780	11829	NR	910	9683	NR
395	8870	NR	525	262630	NR	655	188533	NR	785	10905	NR	915	8102	NR
400	7833	NR	530	282711	NR	660	166359	NR	790	10518	NR	920	10188	NR
405	7894	NR	535	301137	NR	665	146164	NR	795	11147	NR	925	12355	NR
410	10280	NR	540	317875	NR	670	128599	NR	800	9675	NR	930	9904	NR
415	16727	NR	545	336094	NR	675	110738	NR	805	9859	NR	935	9277	NR
420	30410	NR	550	355114	NR	680	95972	NR	810	9869	NR	940	9862	NR
425	53420	NR	555	378403	NR	685	83465	NR	815	10276	NR	945	11594	NR
430	89156	NR	560	399679	NR	690	72721	NR	820	10232	NR	950	11887	NR
435	142197	NR	565	423645	NR	695	63911	NR	825	10857	NR	955	8965	NR
440	226845	NR	570	445147	NR	700	55055	NR	830	9619	NR	960	11572	NR
445	350540	NR	575	463862	NR	705	48705	NR	835	8389	NR	965	9869	NR
450	392129	NR	580	480777	NR	710	43400	NR	840	9682	NR	970	13235	NR
455	277676	NR	585	486479	NR	715	39918	NR	845	8871	NR	975	10310	NR
460	181452	NR	590	487337	NR	720	35595	NR	850	9686	NR	980	12444	NR
465	133159	NR	595	482847	NR	725	31639	NR	855	11822	NR	985	14597	NR
470	92882	NR	600	471286	NR	730	28555	NR	860	11731	NR	990	16092	NR
475	66501	NR	605	455024	NR	735	24821	NR	865	12816	NR	995	14551	NR
480	57816	NR	610	434209	NR	740	22145	NR	870	14159	NR	1000	5319	NR
485	57380	NR	615	407697	NR	745	20684	NR	875	12561	NR			

REPORT NUMBER: SP1-2404-343-1

Melanopic Flux vs. Wavelength



Melanopic Lumens: 12664.2 M/P: 0.5

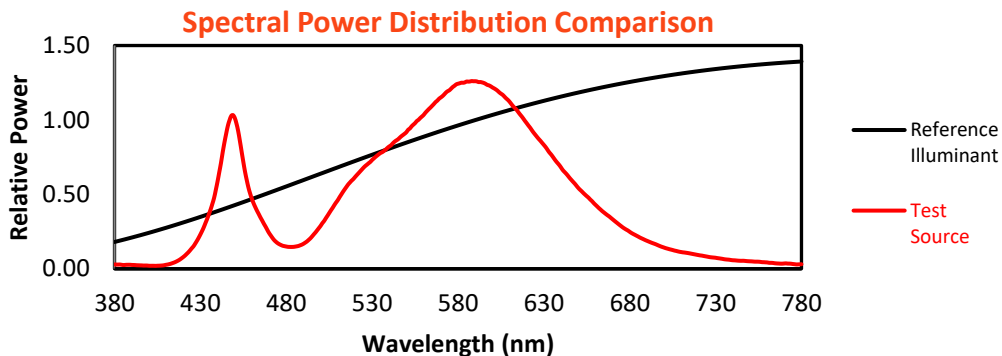
λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	11069	NR	490	64826	NR	620	378287	NR	750	19405	NR	880	10598	NR
365	9532	NR	495	83788	NR	625	348295	NR	755	18362	NR	885	11768	NR
370	10973	NR	500	111516	NR	630	321786	NR	760	16477	NR	890	9466	NR
375	11762	NR	505	144674	NR	635	292338	NR	765	14099	NR	895	10985	NR
380	11270	NR	510	178210	NR	640	263074	NR	770	13754	NR	900	13336	NR
385	9763	NR	515	212444	NR	645	236032	NR	775	12358	NR	905	8557	NR
390	9964	NR	520	238043	NR	650	210183	NR	780	11829	NR	910	9683	NR
395	8870	NR	525	262630	NR	655	188533	NR	785	10905	NR	915	8102	NR
400	7833	NR	530	282711	NR	660	166359	NR	790	10518	NR	920	10188	NR
405	7894	NR	535	301137	NR	665	146164	NR	795	11147	NR	925	12355	NR
410	10280	NR	540	317875	NR	670	128599	NR	800	9675	NR	930	9904	NR
415	16727	NR	545	336094	NR	675	110738	NR	805	9859	NR	935	9277	NR
420	30410	NR	550	355114	NR	680	95972	NR	810	9869	NR	940	9862	NR
425	53420	NR	555	378403	NR	685	83465	NR	815	10276	NR	945	11594	NR
430	89156	NR	560	399679	NR	690	72721	NR	820	10232	NR	950	11887	NR
435	142197	NR	565	423645	NR	695	63911	NR	825	10857	NR	955	8965	NR
440	226845	NR	570	445147	NR	700	55055	NR	830	9619	NR	960	11572	NR
445	350540	NR	575	463862	NR	705	48705	NR	835	8389	NR	965	9869	NR
450	392129	NR	580	480777	NR	710	43400	NR	840	9682	NR	970	13235	NR
455	277676	NR	585	486479	NR	715	39918	NR	845	8871	NR	975	10310	NR
460	181452	NR	590	487337	NR	720	35595	NR	850	9686	NR	980	12444	NR
465	133159	NR	595	482847	NR	725	31639	NR	855	11822	NR	985	14597	NR
470	92882	NR	600	471286	NR	730	28555	NR	860	11731	NR	990	16092	NR
475	66501	NR	605	455024	NR	735	24821	NR	865	12816	NR	995	14551	NR
480	57816	NR	610	434209	NR	740	22145	NR	870	14159	NR	1000	5319	NR
485	57380	NR	615	407697	NR	745	20684	NR	875	12561	NR			

REPORT NUMBER: SP1-2404-343-1

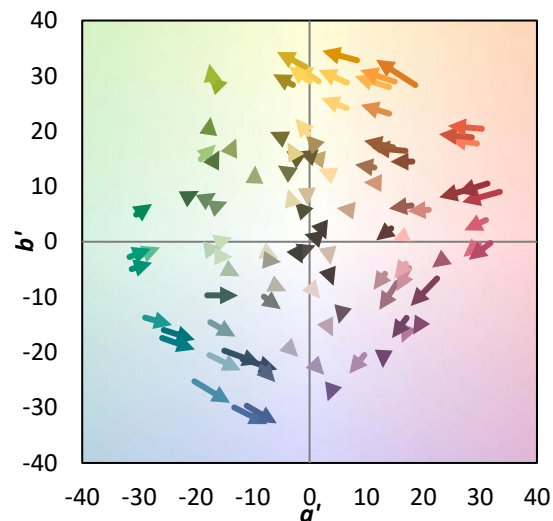
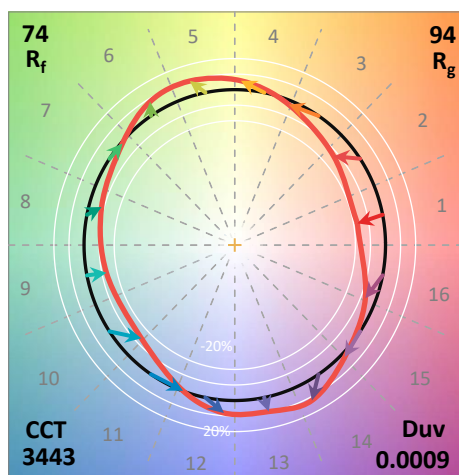
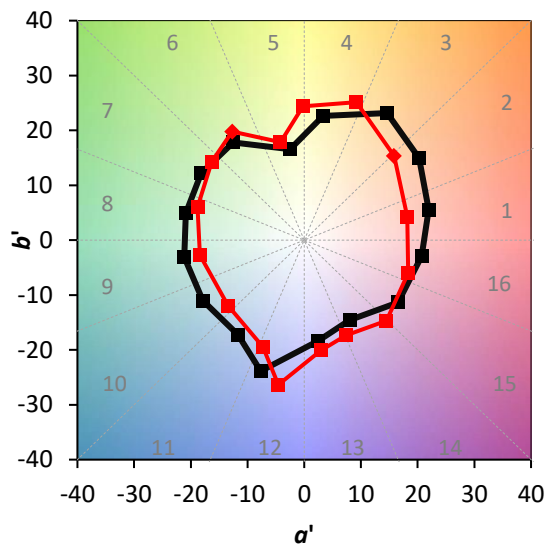
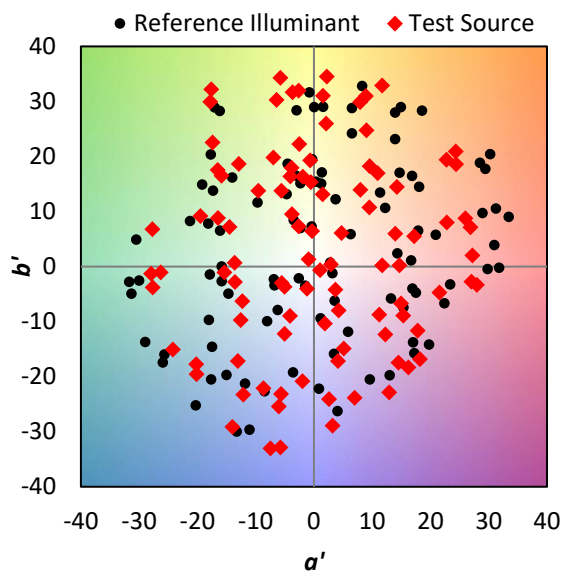
TM-30-18

Summary

$R_f = 74.2$
 $R_g = 93.7$
 CIE $R_a = 71.3$
 $R_g = -34.0$



Color Vector Graphics

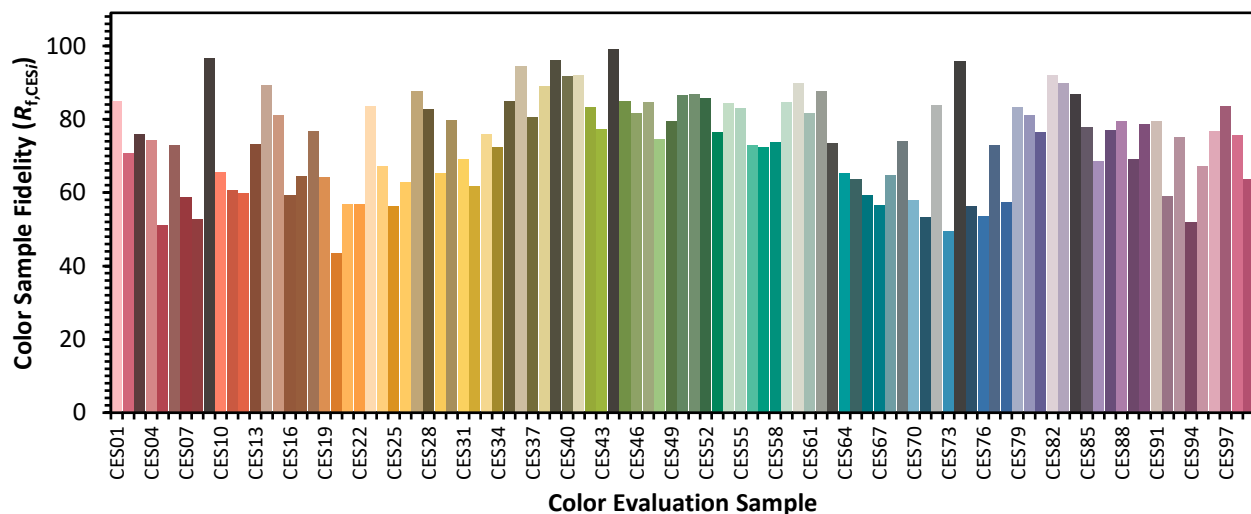


REPORT NUMBER: SP1-2404-343-1

TM-30-18

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

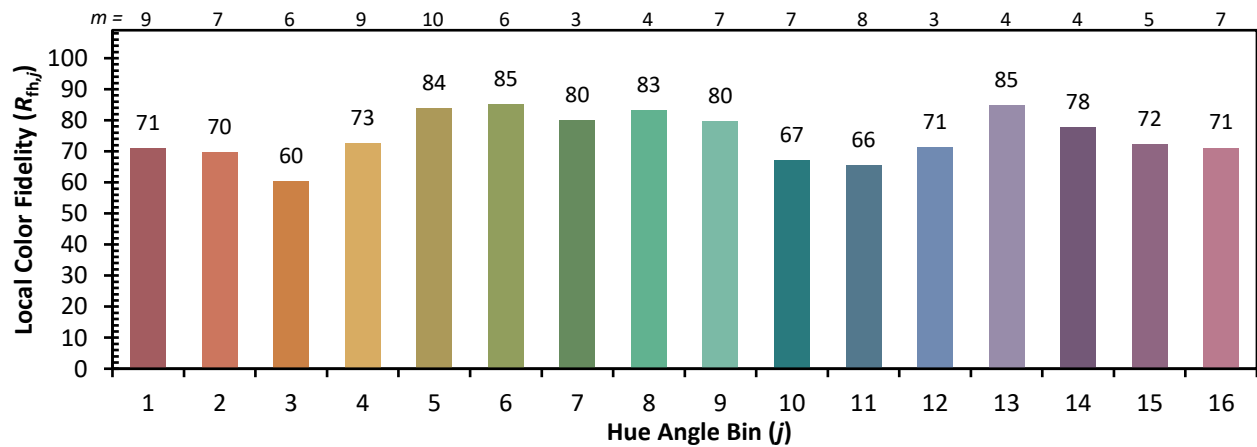
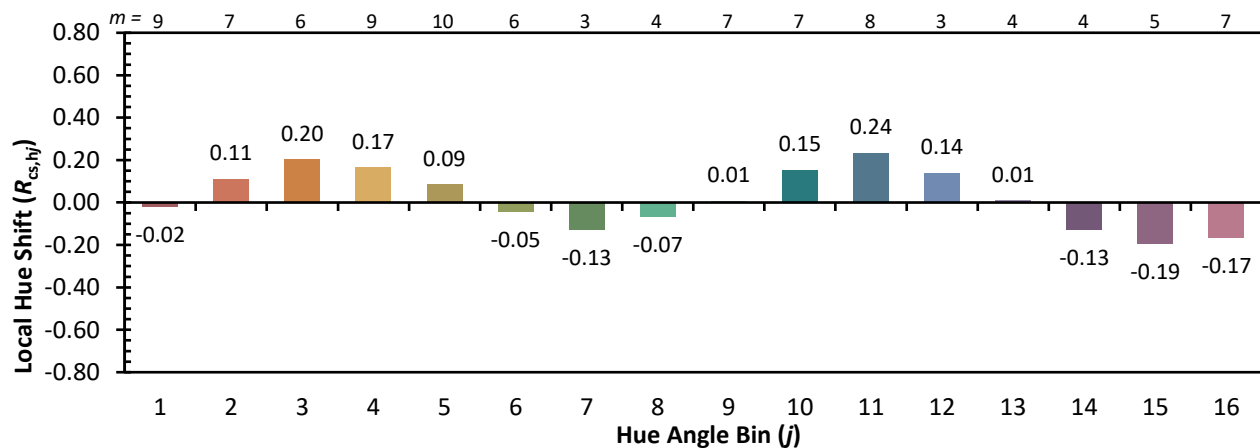
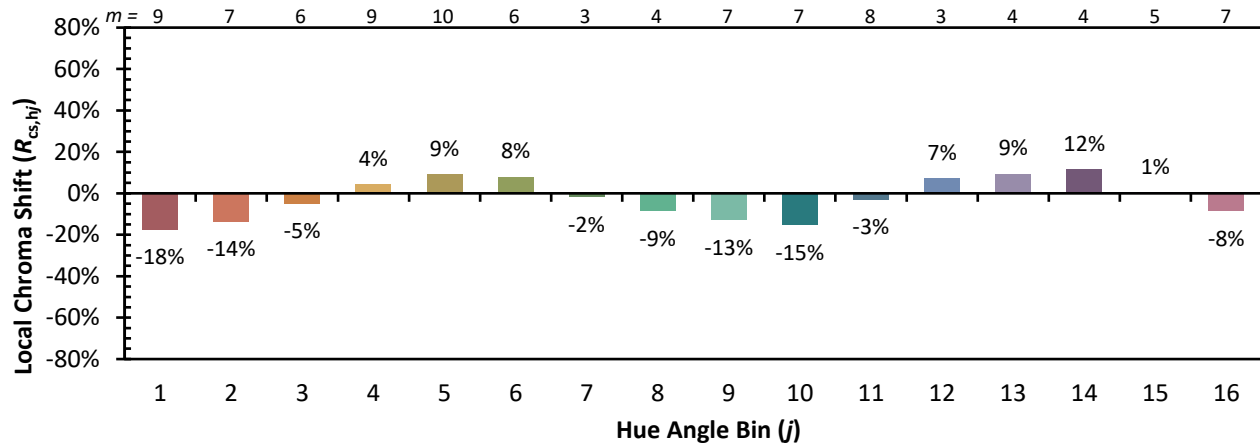
CES01 = 86	CES26 = 63	CES51 = 87	CES76 = 54
CES02 = 62	CES27 = 88	CES52 = 86	CES77 = 73
CES03 = 31	CES28 = 83	CES53 = 76	CES78 = 57
CES04 = 70	CES29 = 65	CES54 = 84	CES79 = 83
CES05 = 48	CES30 = 80	CES55 = 83	CES80 = 81
CES06 = 51	CES31 = 69	CES56 = 73	CES81 = 76
CES07 = 40	CES32 = 62	CES57 = 72	CES82 = 92
CES08 = 39	CES33 = 76	CES58 = 74	CES83 = 90
CES09 = 29	CES34 = 72	CES59 = 85	CES84 = 87
CES10 = 75	CES35 = 85	CES60 = 90	CES85 = 78
CES11 = 58	CES36 = 94	CES61 = 82	CES86 = 69
CES12 = 64	CES37 = 81	CES62 = 88	CES87 = 77
CES13 = 42	CES38 = 89	CES63 = 73	CES88 = 79
CES14 = 74	CES39 = 96	CES64 = 65	CES89 = 69
CES15 = 71	CES40 = 92	CES65 = 64	CES90 = 79
CES16 = 47	CES41 = 92	CES66 = 59	CES91 = 80
CES17 = 50	CES42 = 83	CES67 = 57	CES92 = 59
CES18 = 56	CES43 = 77	CES68 = 65	CES93 = 75
CES19 = 72	CES44 = 99	CES69 = 74	CES94 = 52
CES20 = 65	CES45 = 85	CES70 = 58	CES95 = 67
CES21 = 87	CES46 = 82	CES71 = 53	CES96 = 77
CES22 = 79	CES47 = 85	CES72 = 84	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 49	CES98 = 76
CES24 = 91	CES49 = 79	CES74 = 96	CES99 = 64
CES25 = 72	CES50 = 86	CES75 = 56	



REPORT NUMBER: SP1-2404-343-1

TM-30-18

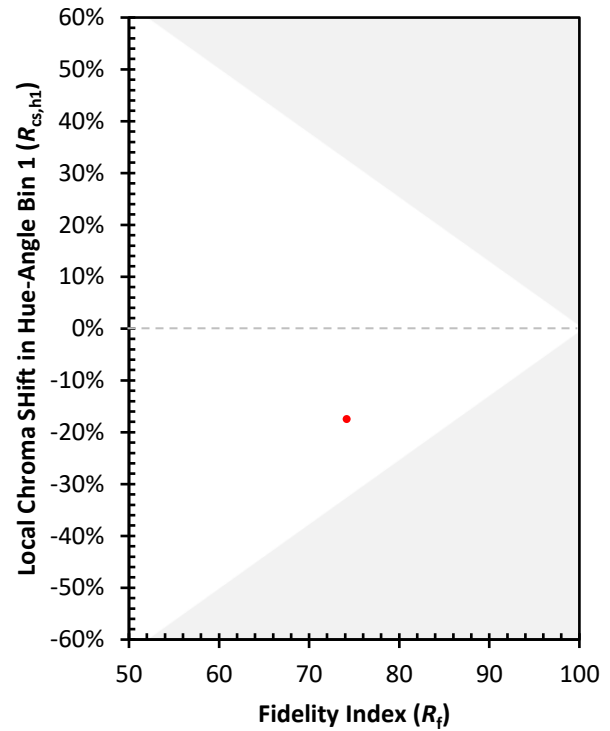
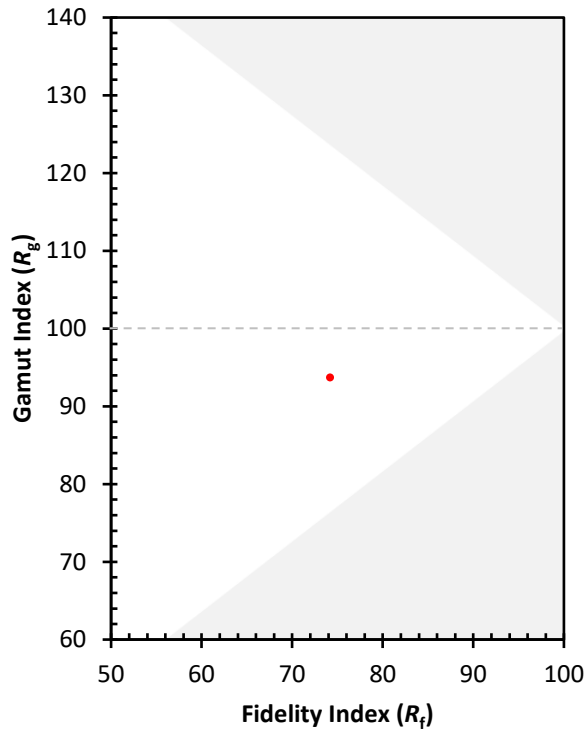
Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-2404-343-1

TM-30-18

Measure Comparisons



(END OF REPORT)