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: McGRAW-EDISON

Report Number: P233969

Luminaire Tested: **CTN-6-3-D-E1-T1**

Issue Date: 3/3/2020

Report Generated By E9970913

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P233969
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1707-171-24)
Test Lab:	INNOVATION CENTER(G2)
Issue Date:	3/3/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	CTN-6-3-D-E1-T1
Description:	CELESTEON HIGH MAST LUMINAIRE
	(6) 70 CRI, 4000K LEDS AND TYPE I OPTICS
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	33376.1 lumens
Efficiency:	N/A
Efficacy:	142.6 lumens/watt
Luminous Opening:	Circular (Dia: 2.08' x H: 0')
IES Classification:	Type I - Short - Semi-Cutoff
BUG Rating:	B5 - U0 - G5

Input Watts (W):	234
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

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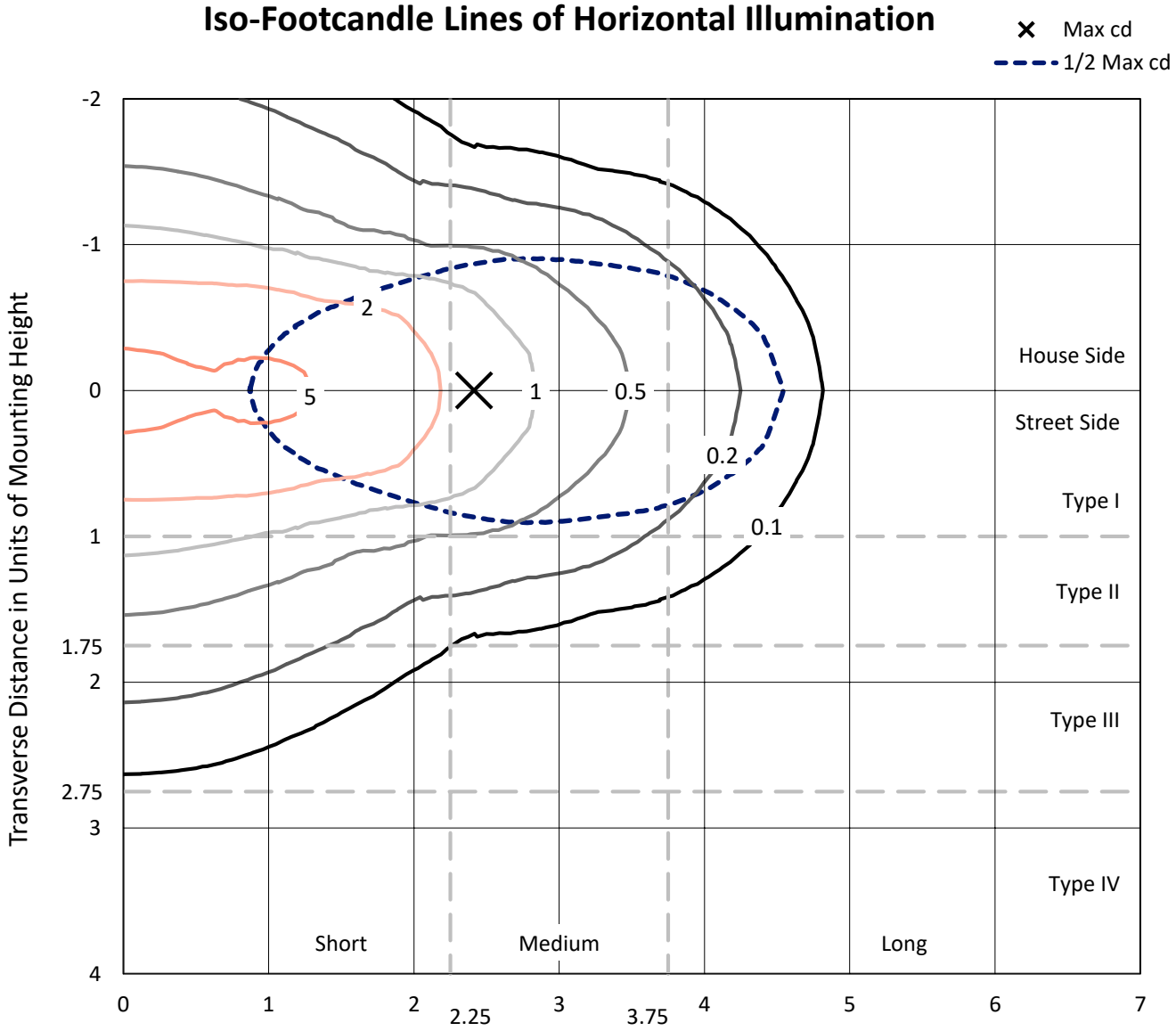
Scaled Data Report

REPORT NUMBER: P233969
CATALOG NUMBER: CTN-6-3-D-E1-T1

Iso-Footcandle Lines of Horizontal Illumination



Based on 30 foot mounting height. Maximum calculated value = 6 fc
Type I - Short - Semi-Cutoff

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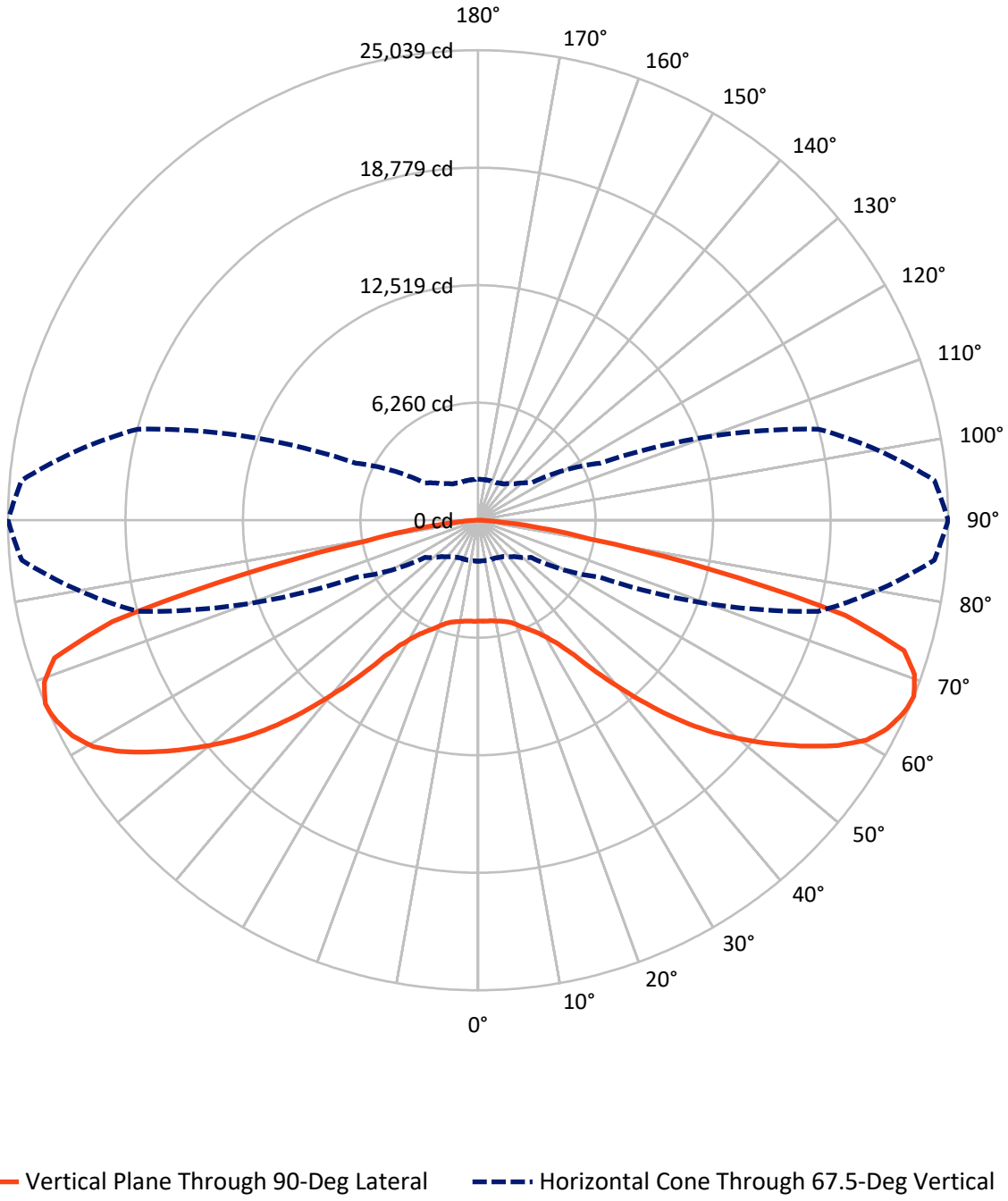
Luminous Intensity Polar Plot



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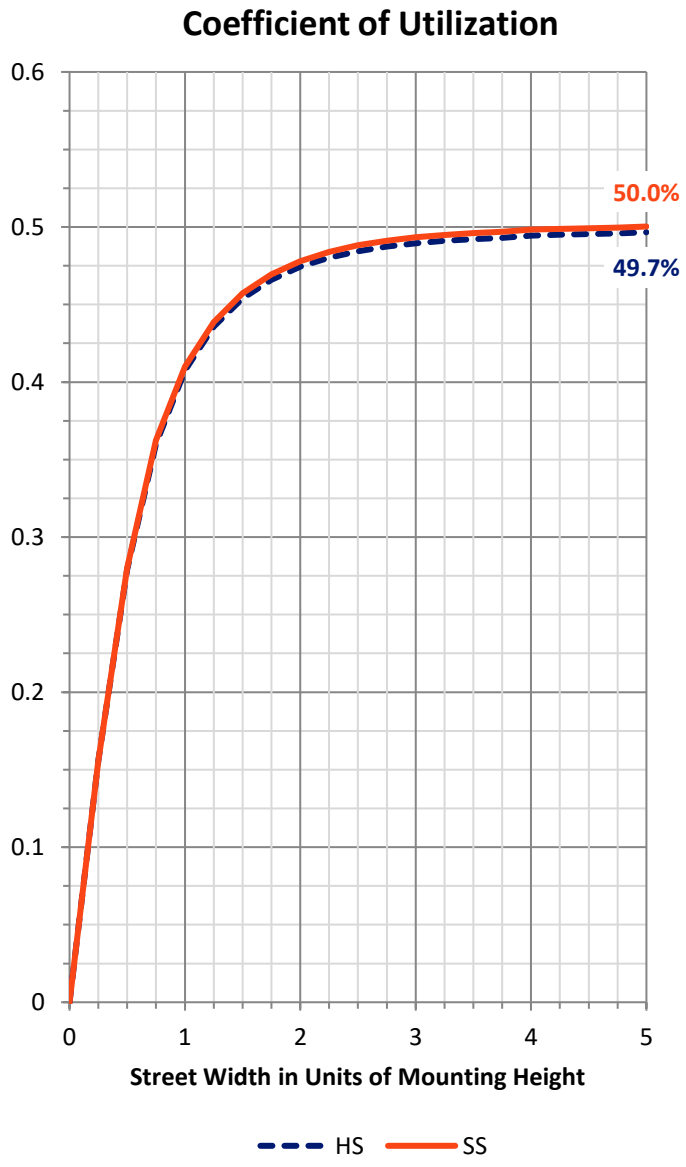
CATALOG NUMBER: CTN-6-3-D-E1-T1

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	16688.0	0.0	16688.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	16688.0	0.0	16688.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	33376.1	0.0	33376.1
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	510.9	1.5
10°-20°	1519.9	4.6
20°-30°	2514.9	7.5
30°-40°	3684.7	11.0
40°-50°	5421.0	16.2
50°-60°	7029.8	21.1
60°-70°	7471.2	22.4
70°-80°	4612.0	13.8
80°-90°	611.8	1.8
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°-90°	33376.1	100.0
0°-180°	33376.1	100.0



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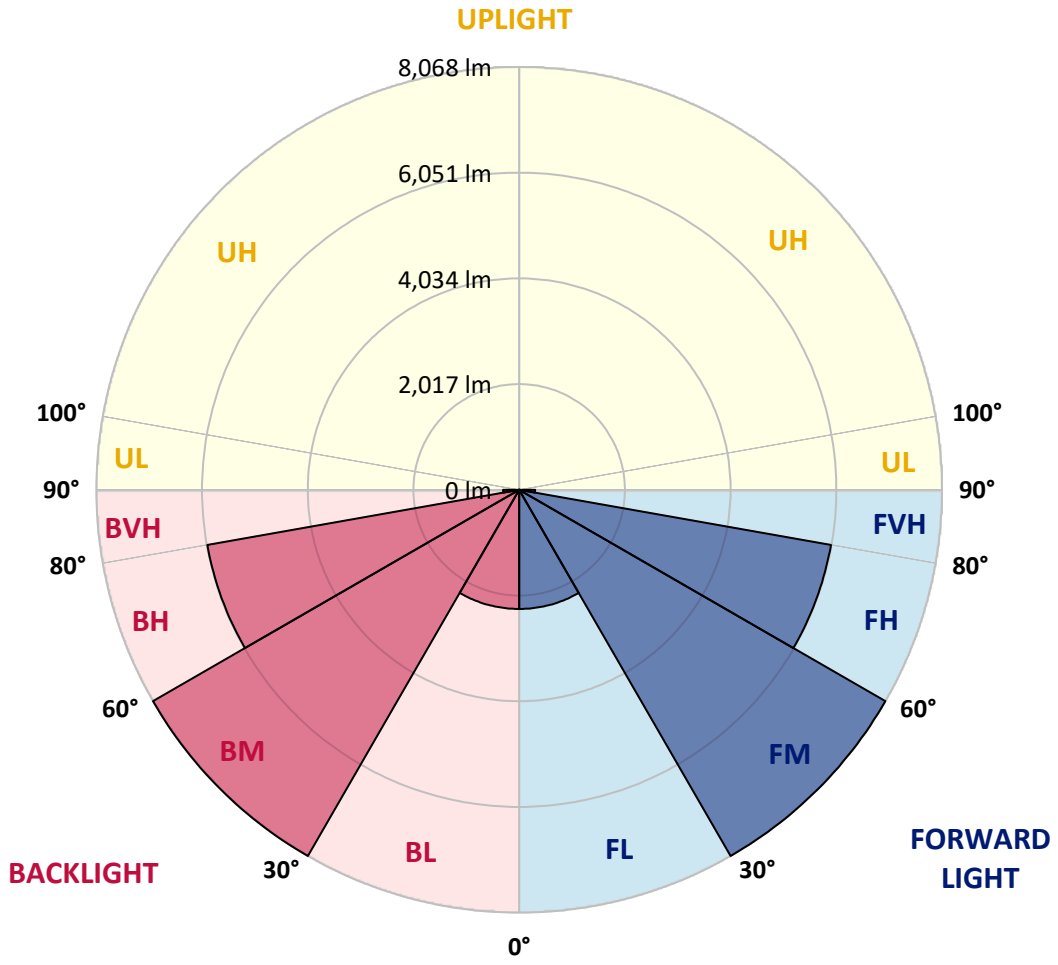
Scaled Data Report

REPORT NUMBER: P233969
CATALOG NUMBER: CTN-6-3-D-E1-T1

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	2272.8	6.8			
FM	(30°-60°)	8067.8	24.2			
FH	(60°-80°)	6041.6	18.1			G3/7500
FVH	(80°-90°)	305.9	0.9			G3/500
BL	(0°-30°)	2272.8	6.8	B3/2500		
BM	(30°-60°)	8067.8	24.2	B4/8500		
BH	(60°-80°)	6041.6	18.1	B5		G5
BVH	(80°-90°)	305.9	0.9			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B5-U0-G5
Type I Short



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REPORT NUMBER: P233969
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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	5375	5375	5375	5375	5375	5375	5375	5375	5375	5375	5375
2.5°	5390	5373	5380	5405	5314	5359	5343	5383	5362	5380	5389
5°	5352	5331	5341	5388	5305	5351	5339	5384	5357	5382	5392
7.5°	5319	5297	5315	5354	5291	5342	5332	5393	5371	5403	5413
10°	5298	5274	5291	5334	5267	5347	5338	5419	5408	5452	5464
12.5°	5246	5221	5233	5290	5260	5343	5365	5458	5455	5508	5521
15°	5153	5128	5144	5220	5231	5346	5414	5524	5542	5595	5606
17.5°	5036	5018	5042	5143	5212	5387	5485	5625	5669	5723	5738
20°	4876	4866	4909	5047	5179	5417	5570	5767	5847	5935	5946
22.5°	4658	4646	4736	4930	5120	5424	5653	5914	6062	6175	6204
25°	4413	4409	4532	4787	5040	5419	5734	6071	6297	6446	6478
27.5°	4172	4184	4333	4634	4974	5430	5827	6272	6591	6777	6791
30°	3967	3977	4138	4483	4911	5443	5942	6512	6957	7208	7249
32.5°	3774	3797	3961	4319	4841	5468	6091	6825	7406	7802	7853
35°	3615	3635	3795	4152	4730	5488	6288	7221	8075	8734	8813
37.5°	3474	3498	3636	3998	4598	5495	6484	7709	8981	10030	10276
40°	3372	3391	3510	3844	4456	5463	6708	8255	9999	11577	11847
42.5°	3288	3304	3402	3693	4296	5400	6917	8799	11075	13216	13568
45°	3203	3207	3301	3563	4134	5300	7074	9320	12208	14888	15300
47.5°	3127	3122	3196	3435	3960	5132	7135	9752	13309	16455	16905
50°	3056	3035	3099	3313	3791	4891	7058	10051	14467	17969	18368
52.5°	2950	2940	3001	3193	3622	4603	6804	10209	15702	19403	19820
55°	2855	2848	2911	3071	3456	4310	6366	10166	16919	20786	21248
57.5°	2750	2745	2804	2938	3273	4038	5824	9888	18006	21980	22633
60°	2647	2650	2688	2803	3087	3738	5206	9404	18873	23061	23774
62.5°	2527	2524	2552	2648	2874	3414	4597	8733	19381	24005	24461
65°	2365	2354	2386	2447	2616	3082	3997	7921	19394	24474	24862
66°	2296	2284	2313	2356	2515	2948	3776	7577	19195	24488	24970
67.5°	2189	2175	2194	2214	2357	2734	3452	7187	18759	24400	25039
70°	1923	1925	1945	1938	2011	2258	2851	6463	16656	24044	24669
72.5°	1497	1480	1451	1423	1458	1675	2159	5424	13639	22509	23724
75°	966	963	962	996	1001	1148	1668	4376	10632	18472	20221
77.5°	604	599	642	725	738	742	1094	3326	7686	11820	12737
80°	433	433	436	447	517	528	756	2088	4371	5762	6054
82.5°	328	323	324	329	335	360	455	927	1746	2920	3304
85°	237	244	256	247	223	226	258	319	671	1131	1223
87.5°	86	99	102	106	102	103	106	100	136	279	322
90°	0	0	0	0	0	0	0	0	0	0	0

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LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

STREETWORKS

Report Number: SP1-2104-215-1

Luminaire Tested: CST-CA6-230-740-U-T4

Test Date: 04/20/2021

Report Generated By controller / USPTCWHP6086842

Test Information

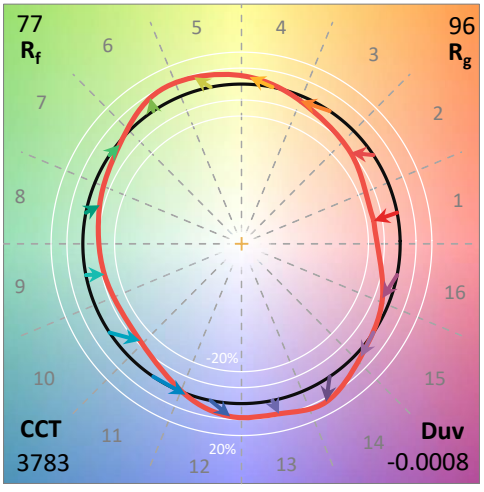
Test Method:	LM-79-08
Report Number:	SP1-2104-215-1
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1
Measurement Geometry:	4π
Issue Date:	04/20/2021
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	**CST-CA6-230-740-U-T4**
Description:	STREETWORKS HIGH MAST LUMINAIRE

230W

Spectral Parameters

CCT (K):	3783	CRI (Ra):	75.1		
CIE u':	0.2297	R1:	72.8	R9:	-19.0
CIE v':	0.5046	R2:	81.9	R10:	57.0
Duv:	-0.0008	R3:	89.0	R11:	70.7
CIE x:	0.3897	R4:	74.1	R12:	48.2
CIE y:	0.3804	R5:	72.3	R13:	74.4
CIE z:	0.2299	R6:	74.5	R14:	93.7
Peak Wavelength (nm):	450	R7:	81.7		
Dominant Wavelength (nm):	580	R8:	54.6		
Purity:	31.3				

Rf:	76.5
Rg:	95.6



Test Conditions

Stabilization Time:	47M
Operation Time:	12H
Room Temperature (°C) / RH%:	25.5/39%
Sphere Temperature (°C):	24.0

REPORT NUMBER: SP1-2104-215-1

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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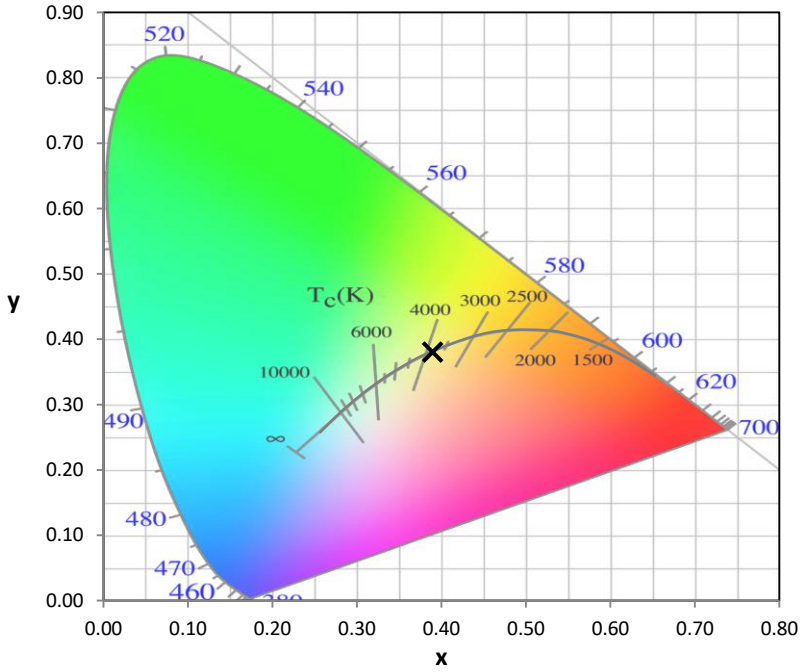
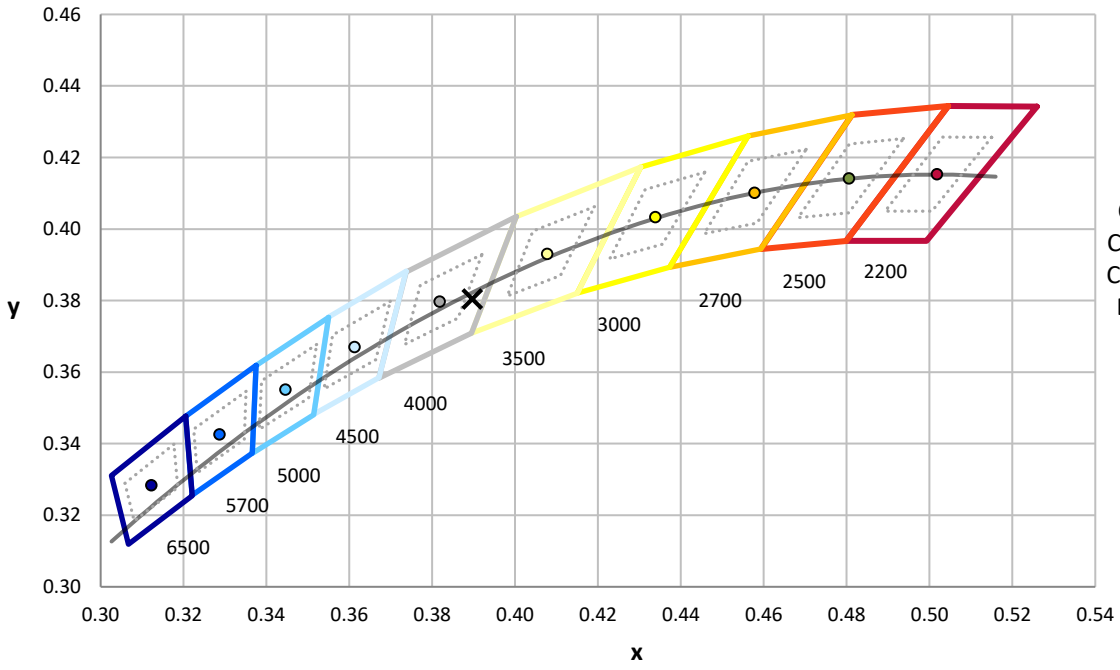
CIE 1931 Chromaticity Diagram



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

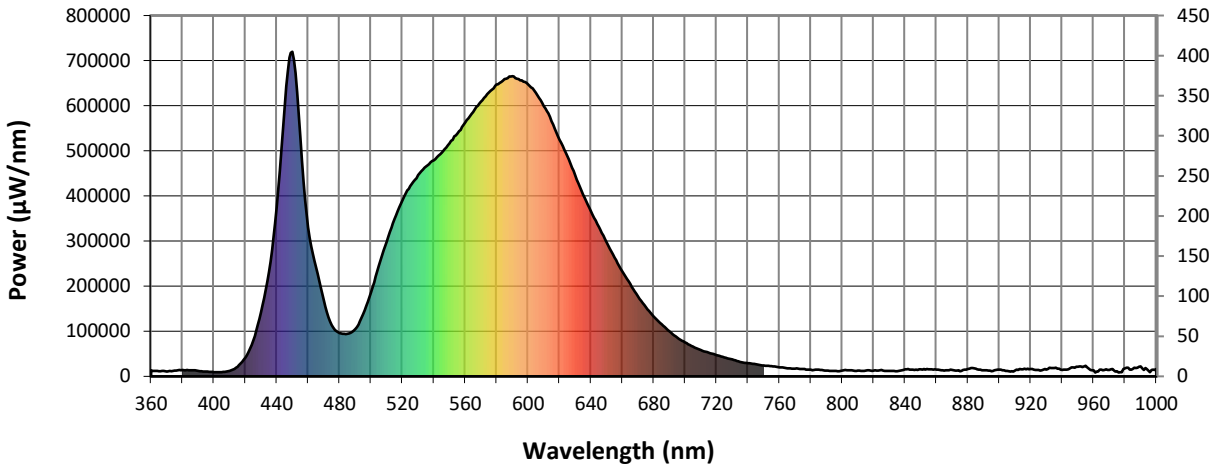


CCT = 3783K
CIE x = 0.3897
CIE y = 0.3804
Duv = -0.0008

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2104-215-1

Photopic Flux vs. Wavelength

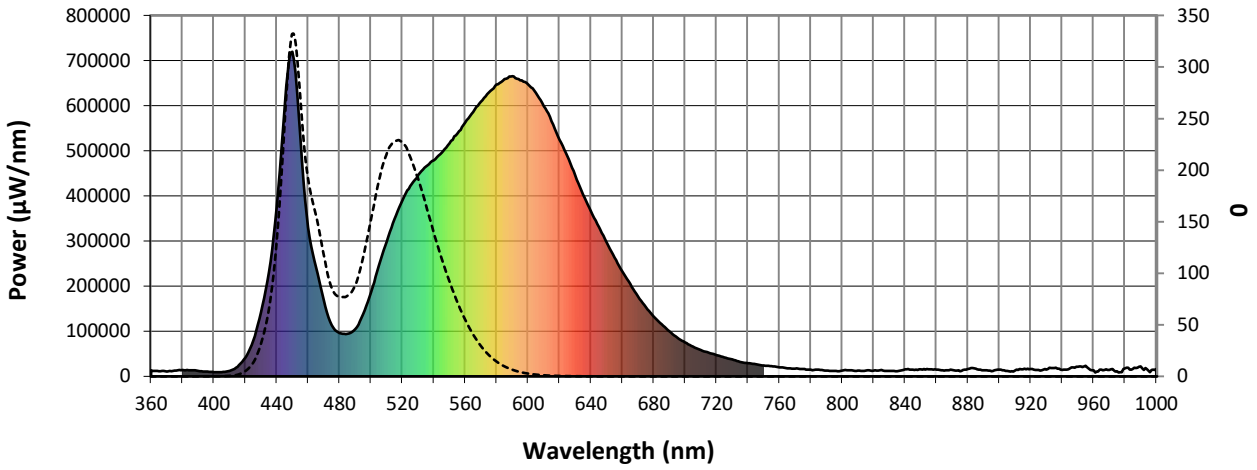


######

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	13329	0.0	490	105235	15.0	620	524343	136.4	750	24224	0.0	880	16135	0.0
365	11697	0.0	495	137678	25.0	625	488932	107.9	755	22376	0.0	885	16876	0.0
370	10917	0.0	500	186689	41.2	630	445400	80.6	760	20109	0.0	890	13554	0.0
375	12548	0.0	505	244611	68.4	635	403534	60.6	765	18097	0.0	895	11525	0.0
380	13932	0.0	510	298987	102.7	640	366414	43.8	770	17366	0.0	900	14656	0.0
385	13265	0.0	515	348170	144.2	645	331272	31.9	775	16226	0.0	905	11999	0.0
390	11808	0.0	520	390427	189.3	650	297360	21.7	780	14803	0.0	910	12965	0.0
395	10395	0.0	525	421211	226.1	655	263291	15.1	785	15199	0.0	915	15939	0.0
400	9348	0.0	530	446063	262.6	660	232931	9.7	790	12989	0.0	920	16238	0.0
405	9479	0.0	535	465110	288.4	665	204719	6.5	795	12106	0.0	925	14419	0.0
410	12414	0.0	540	479189	312.2	670	177096	3.9	800	12942	0.0	930	14788	0.0
415	21574	0.0	545	495864	330.0	675	153254	2.6	805	13253	0.0	935	18619	0.0
420	41448	0.1	550	516625	351.1	680	132874	1.5	810	12808	0.0	940	13995	0.0
425	79385	0.4	555	538555	367.8	685	115378	1.0	815	12903	0.0	945	18047	0.0
430	141845	1.1	560	562412	382.2	690	100157	0.6	820	12621	0.0	950	21418	0.0
435	231290	2.7	565	585835	389.5	695	85561	0.4	825	13903	0.0	955	23138	0.0
440	374482	5.9	570	608681	395.8	700	75396	0.2	830	11870	0.0	960	13665	0.0
445	596715	12.4	575	629563	391.7	705	65658	0.1	835	11069	0.0	965	14793	0.0
450	719656	18.7	580	646820	384.3	710	58172	0.1	840	15291	0.0	970	14396	0.0
455	530438	17.8	585	659231	366.3	715	52563	0.1	845	15125	0.0	975	11155	0.0
460	330446	13.5	590	665630	344.2	720	47085	0.0	850	15336	0.0	980	17987	0.0
465	241999	12.5	595	656228	311.1	725	41741	0.0	855	15791	0.0	985	16185	0.0
470	167096	10.4	600	646946	278.8	730	37415	0.0	860	14660	0.0	990	22120	0.0
475	113791	8.9	605	628643	243.4	735	32125	0.0	865	12528	0.0	995	11943	0.0
480	96126	9.1	610	599057	205.8	740	29322	0.0	870	14089	0.0	1000	16020	0.0
485	94467	11.2	615	565669	170.8	745	26862	0.0	875	11732	0.0			

REPORT NUMBER: SP1-2104-215-1

Scotopic Flux vs. Wavelength

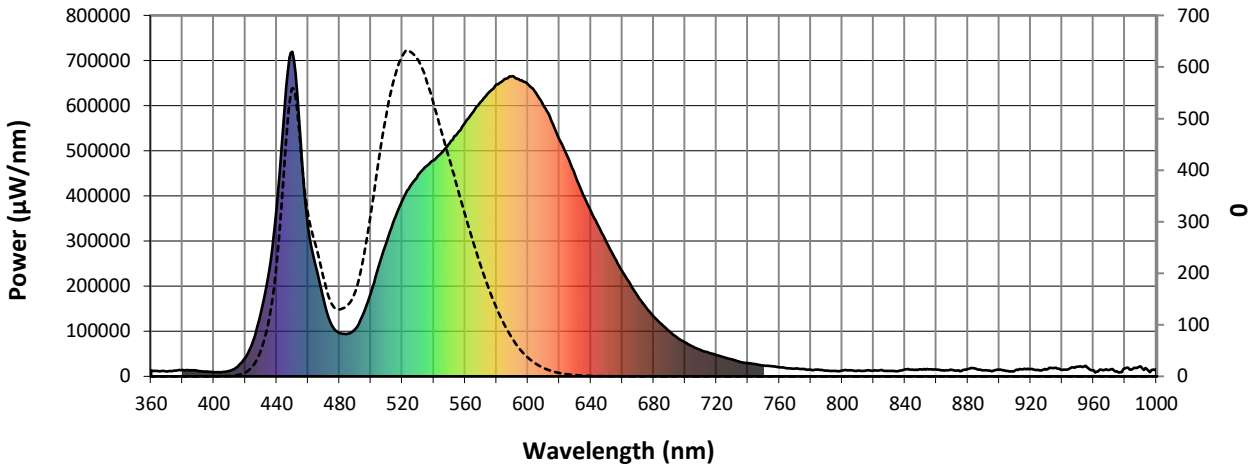


Scotopic Lumens: 54268.8 **S/P: 1.5**

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	13329	0.0	490	105235	162.0	620	524343	6.6	750	24224	0.0	880	16135	0.0
365	11697	0.0	495	137678	222.6	625	488932	4.1	755	22376	0.0	885	16876	0.0
370	10917	0.0	500	186689	312.3	630	445400	2.5	760	20109	0.0	890	13554	0.0
375	12548	0.0	505	244611	415.8	635	403534	1.5	765	18097	0.0	895	11525	0.0
380	13932	0.0	510	298987	506.8	640	366414	0.9	770	17366	0.0	900	14656	0.0
385	13265	0.0	515	348170	577.1	645	331272	0.6	775	16226	0.0	905	11999	0.0
390	11808	0.0	520	390427	620.6	650	297360	0.3	780	14803	0.0	910	12965	0.0
395	10395	0.1	525	421211	630.1	655	263291	0.2	785	15199	0.0	915	15939	0.0
400	9348	0.1	530	446063	615.0	660	232931	0.1	790	12989	0.0	920	16238	0.0
405	9479	0.3	535	465110	579.6	665	204719	0.1	795	12106	0.0	925	14419	0.0
410	12414	0.7	540	479189	529.5	670	177096	0.0	800	12942	0.0	930	14788	0.0
415	21574	2.2	545	495864	475.4	675	153254	0.0	805	13253	0.0	935	18619	0.0
420	41448	6.8	550	516625	422.4	680	132874	0.0	810	12808	0.0	940	13995	0.0
425	79385	19.4	555	538555	368.0	685	115378	0.0	815	12903	0.0	945	18047	0.0
430	141845	48.3	560	562412	314.4	690	100157	0.0	820	12621	0.0	950	21418	0.0
435	231290	103.4	565	585835	262.8	695	85561	0.0	825	13903	0.0	955	23138	0.0
440	374482	209.3	570	608681	214.8	700	75396	0.0	830	11870	0.0	960	13665	0.0
445	596715	399.6	575	629563	171.5	705	65658	0.0	835	11069	0.0	965	14793	0.0
450	719656	557.8	580	646820	133.3	710	58172	0.0	840	15291	0.0	970	14396	0.0
455	530438	463.5	585	659231	100.8	715	52563	0.0	845	15125	0.0	975	11155	0.0
460	330446	319.2	590	665630	74.1	720	47085	0.0	850	15336	0.0	980	17987	0.0
465	241999	255.6	595	656228	52.3	725	41741	0.0	855	15791	0.0	985	16185	0.0
470	167096	192.4	600	646946	36.5	730	37415	0.0	860	14660	0.0	990	22120	0.0
475	113791	142.3	605	628643	24.7	735	32125	0.0	865	12528	0.0	995	11943	0.0
480	96126	129.8	610	599057	16.2	740	29322	0.0	870	14089	0.0	1000	16020	0.0
485	94467	136.9	615	565669	10.5	745	26862	0.0	875	11732	0.0			

REPORT NUMBER: SP1-2104-215-1

Melanopic Flux vs. Wavelength



Melanopic Lumens: 20938.3 M/P: 0.58

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	13329	0.0	490	105235	87.6	620	524343	0.4	750	24224	0.0	880	16135	0.0
365	11697	0.0	495	137678	113.7	625	488932	0.3	755	22376	0.0	885	16876	0.0
370	10917	0.0	500	186689	150.1	630	445400	0.2	760	20109	0.0	890	13554	0.0
375	12548	0.0	505	244611	187.7	635	403534	0.1	765	18097	0.0	895	11525	0.0
380	13932	0.0	510	298987	214.7	640	366414	0.1	770	17366	0.0	900	14656	0.0
385	13265	0.0	515	348170	227.5	645	331272	0.0	775	16226	0.0	905	11999	0.0
390	11808	0.0	520	390427	227.3	650	297360	0.0	780	14803	0.0	910	12965	0.0
395	10395	0.1	525	421211	213.6	655	263291	0.0	785	15199	0.0	915	15939	0.0
400	9348	0.1	530	446063	192.8	660	232931	0.0	790	12989	0.0	920	16238	0.0
405	9479	0.2	535	465110	167.4	665	204719	0.0	795	12106	0.0	925	14419	0.0
410	12414	0.5	540	479189	140.2	670	177096	0.0	800	12942	0.0	930	14788	0.0
415	21574	1.4	545	495864	115.2	675	153254	0.0	805	13253	0.0	935	18619	0.0
420	41448	4.7	550	516625	92.7	680	132874	0.0	810	12808	0.0	940	13995	0.0
425	79385	12.4	555	538555	72.6	685	115378	0.0	815	12903	0.0	945	18047	0.0
430	141845	30.0	560	562412	55.5	690	100157	0.0	820	12621	0.0	950	21418	0.0
435	231290	61.7	565	585835	41.1	695	85561	0.0	825	13903	0.0	955	23138	0.0
440	374482	125.1	570	608681	29.7	700	75396	0.0	830	11870	0.0	960	13665	0.0
445	596715	235.4	575	629563	21.0	705	65658	0.0	835	11069	0.0	965	14793	0.0
450	719656	331.6	580	646820	14.5	710	58172	0.0	840	15291	0.0	970	14396	0.0
455	530438	277.9	585	659231	9.8	715	52563	0.0	845	15125	0.0	975	11155	0.0
460	330446	194.7	590	665630	6.5	720	47085	0.0	850	15336	0.0	980	17987	0.0
465	241999	158.1	595	656228	4.2	725	41741	0.0	855	15791	0.0	985	16185	0.0
470	167096	119.6	600	646946	2.7	730	37415	0.0	860	14660	0.0	990	22120	0.0
475	113791	86.9	605	628643	1.7	735	32125	0.0	865	12528	0.0	995	11943	0.0
480	96126	77.2	610	599057	1.1	740	29322	0.0	870	14089	0.0	1000	16020	0.0
485	94467	77.9	615	565669	0.7	745	26862	0.0	875	11732	0.0			

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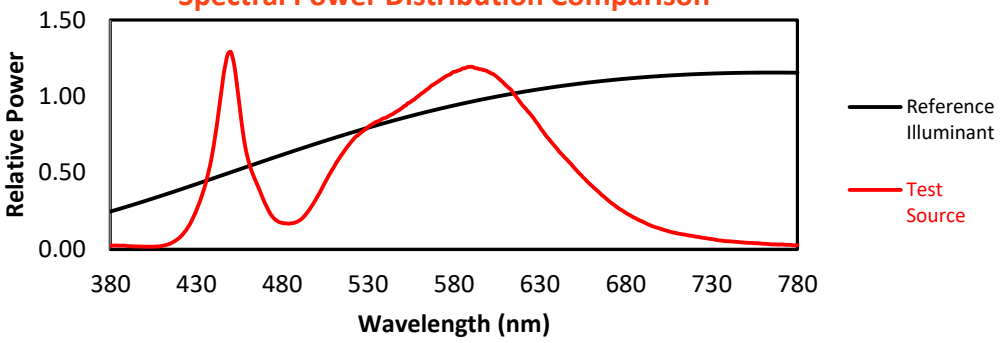
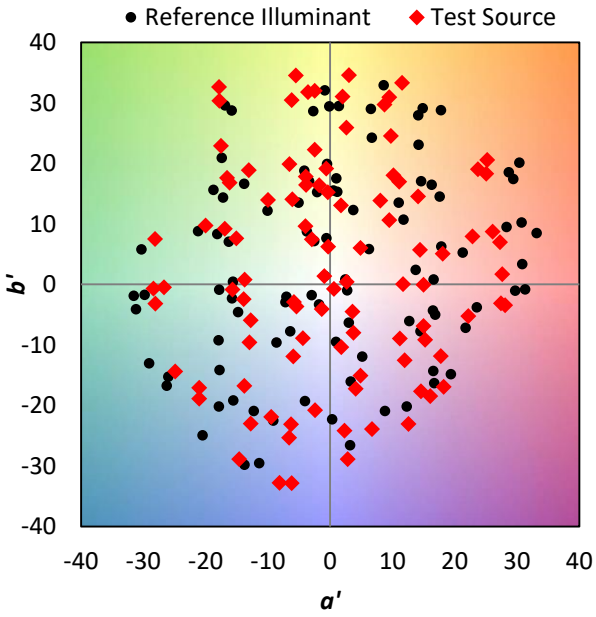
Summary

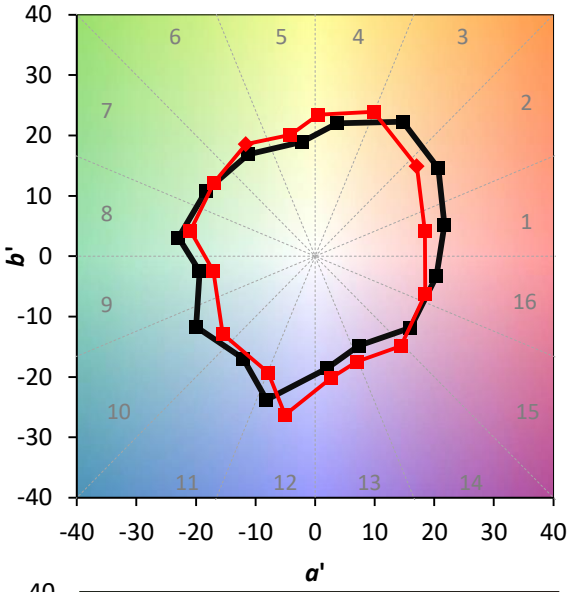
R_f = 76.5
R_g = 95.6
CIE R_a = 75.1
R_9 = -19.0

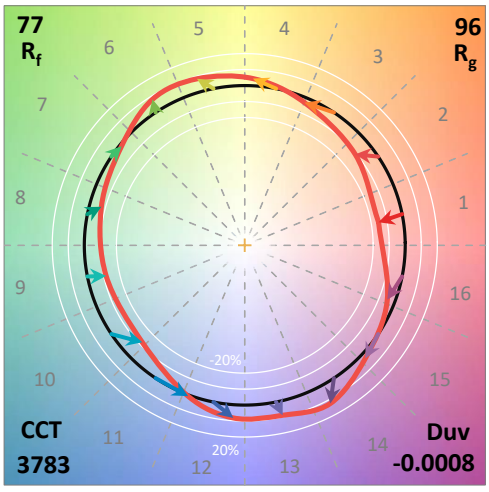
Spectral Power Distribution Comparison

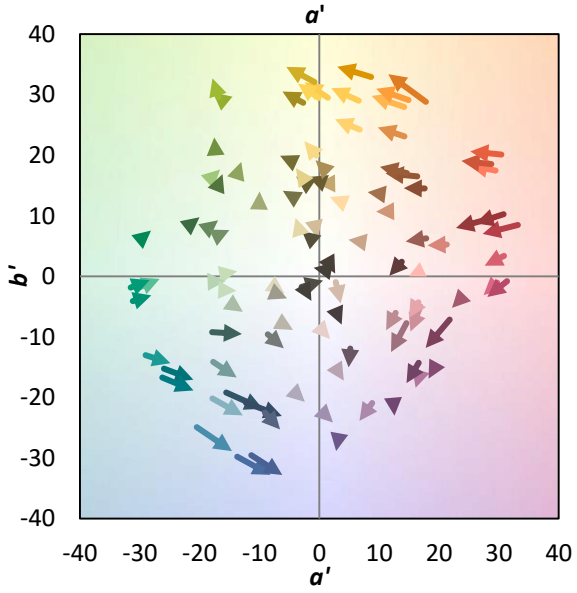


Color Vector Graphics









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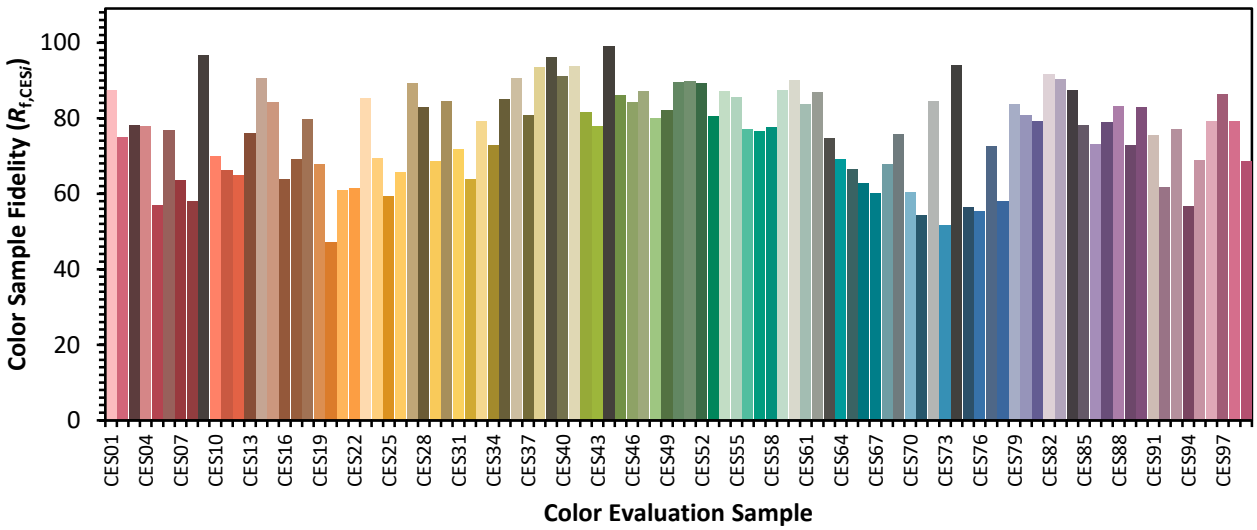
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 66	CES51 = 90	CES76 = 56
CES02 = 61	CES27 = 89	CES52 = 89	CES77 = 73
CES03 = 31	CES28 = 83	CES53 = 81	CES78 = 58
CES04 = 70	CES29 = 69	CES54 = 87	CES79 = 84
CES05 = 48	CES30 = 84	CES55 = 86	CES80 = 81
CES06 = 51	CES31 = 72	CES56 = 77	CES81 = 79
CES07 = 40	CES32 = 64	CES57 = 77	CES82 = 92
CES08 = 39	CES33 = 79	CES58 = 77	CES83 = 90
CES09 = 29	CES34 = 73	CES59 = 87	CES84 = 87
CES10 = 74	CES35 = 85	CES60 = 90	CES85 = 78
CES11 = 57	CES36 = 91	CES61 = 84	CES86 = 73
CES12 = 63	CES37 = 81	CES62 = 87	CES87 = 79
CES13 = 42	CES38 = 94	CES63 = 75	CES88 = 83
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 73
CES15 = 71	CES40 = 91	CES65 = 66	CES90 = 83
CES16 = 47	CES41 = 94	CES66 = 63	CES91 = 76
CES17 = 49	CES42 = 82	CES67 = 60	CES92 = 62
CES18 = 56	CES43 = 78	CES68 = 68	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 57
CES20 = 65	CES45 = 86	CES70 = 60	CES95 = 69
CES21 = 86	CES46 = 84	CES71 = 54	CES96 = 79
CES22 = 78	CES47 = 87	CES72 = 85	CES97 = 86
CES23 = 92	CES48 = 80	CES73 = 52	CES98 = 79
CES24 = 91	CES49 = 82	CES74 = 94	CES99 = 69
CES25 = 72	CES50 = 90	CES75 = 56	



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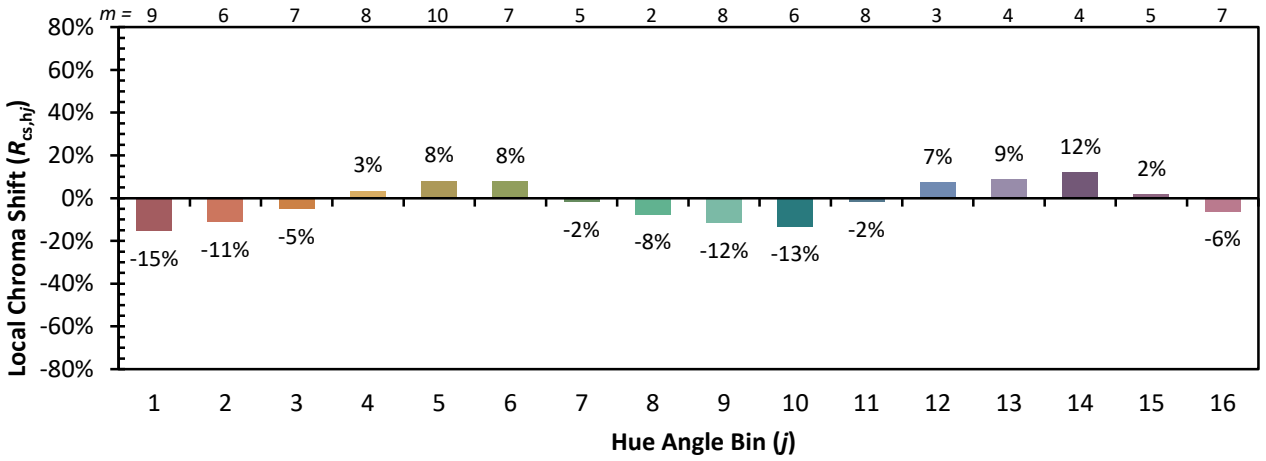
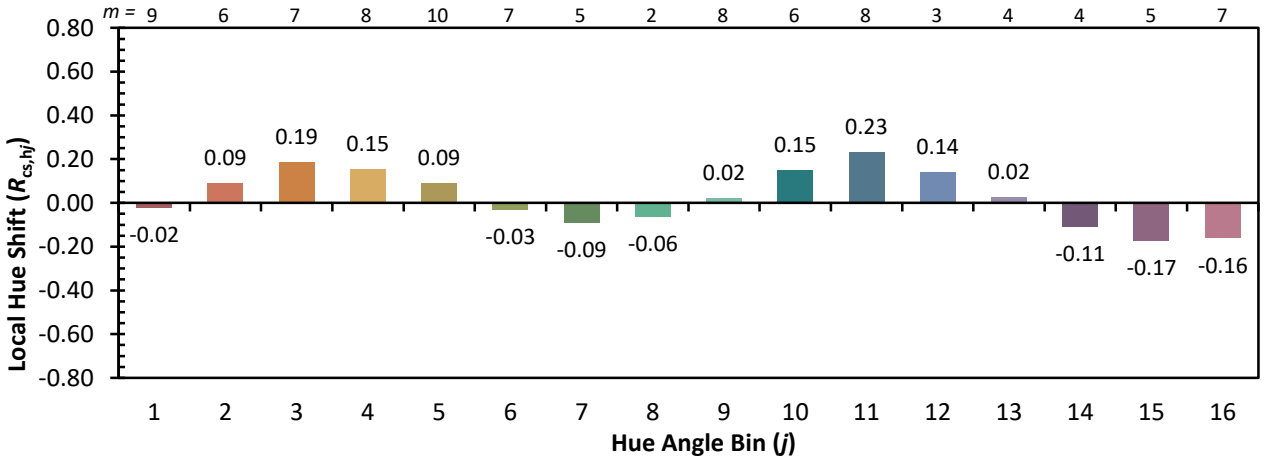
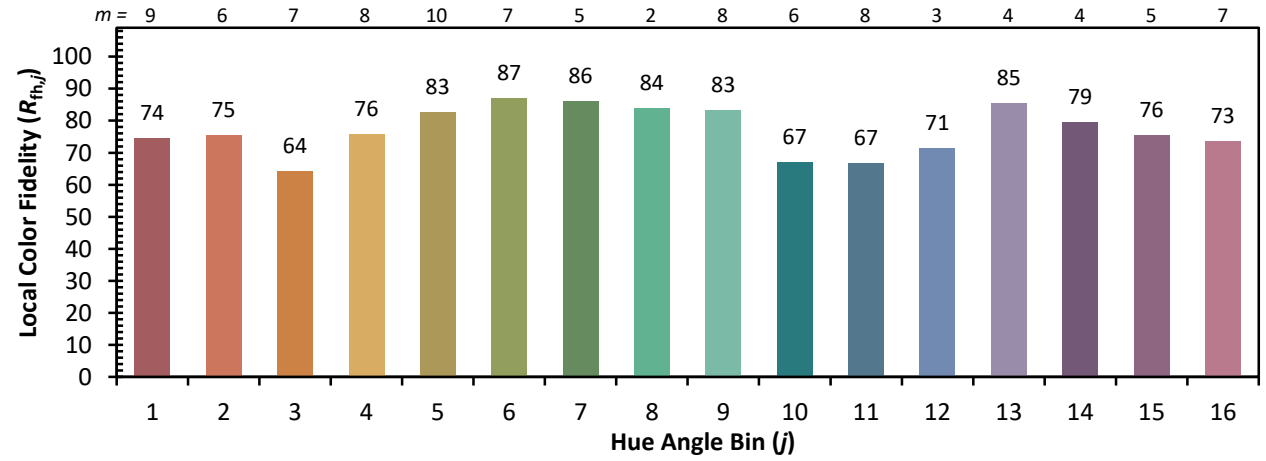
Color Rendition by Hue-Angle Bin







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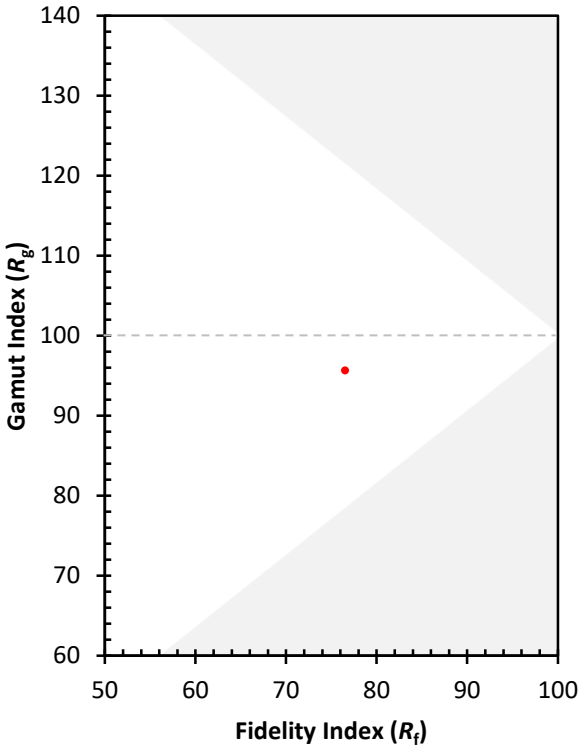
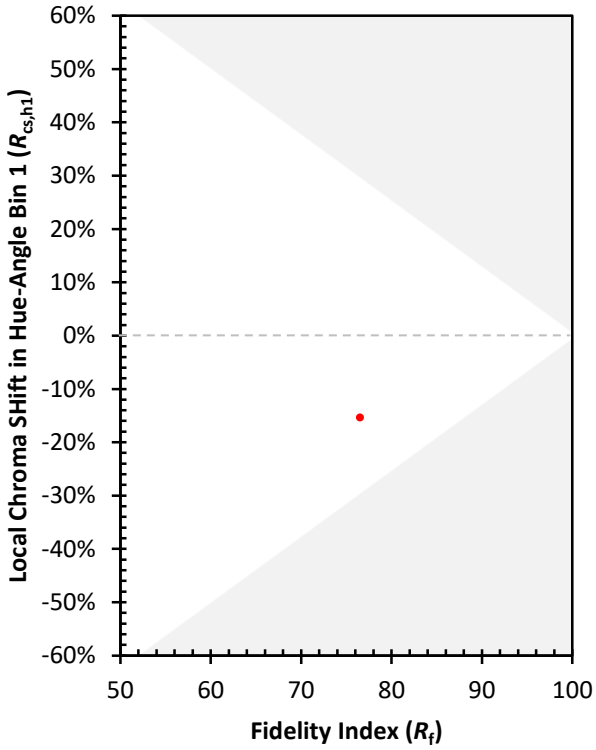
Measure Comparisons





(END OF REPORT)