

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: STREETWORKS

Report Number: P459904

Luminaire Tested: **NVN-SA4A-AMB-U-5MQ**

Issue Date: 1/6/2021

Test Information

Test Method: LM-79-08
Report Number: P459904
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2003-697-3)
Test Lab: INNOVATION CENTER
Issue Date: 1/6/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: NVN-SA4A-AMB-U-5MQ
Description: NAVION ROADWAY AND AREA LUMINAIRE
(4) NARROW BAND AMBER, 500mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE V MEDIUM OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4281 lumens
Efficiency: N/A
Efficacy: 53.6 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type V - Short - Full Cutoff
BUG Rating: B3 - U0 - G1

Input Watts (W): 79.9
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: 28.75 FT



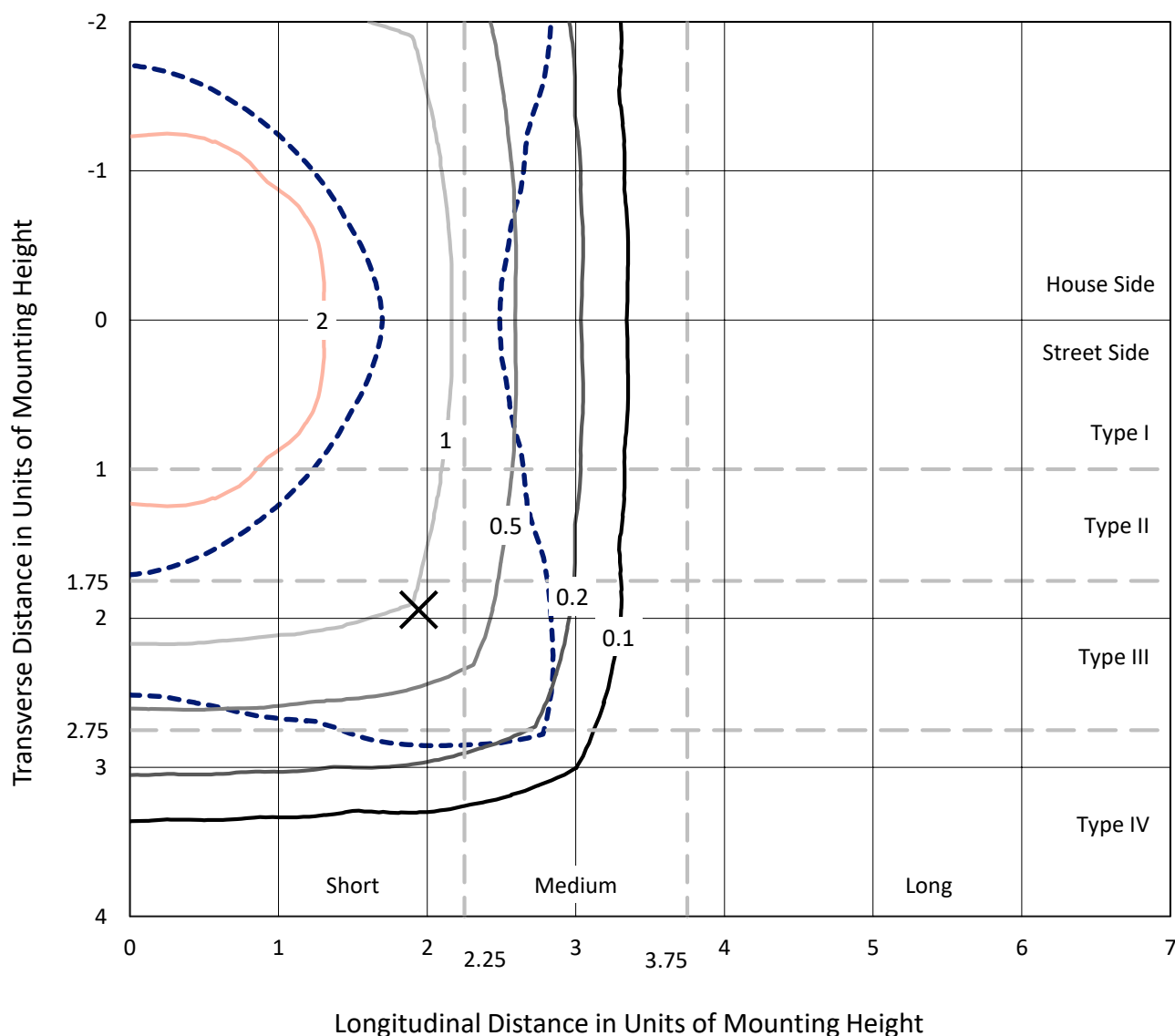
REPORT NUMBER: P459904

CATALOG NUMBER: NVN-SA4A-AMB-U-5MQ

Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

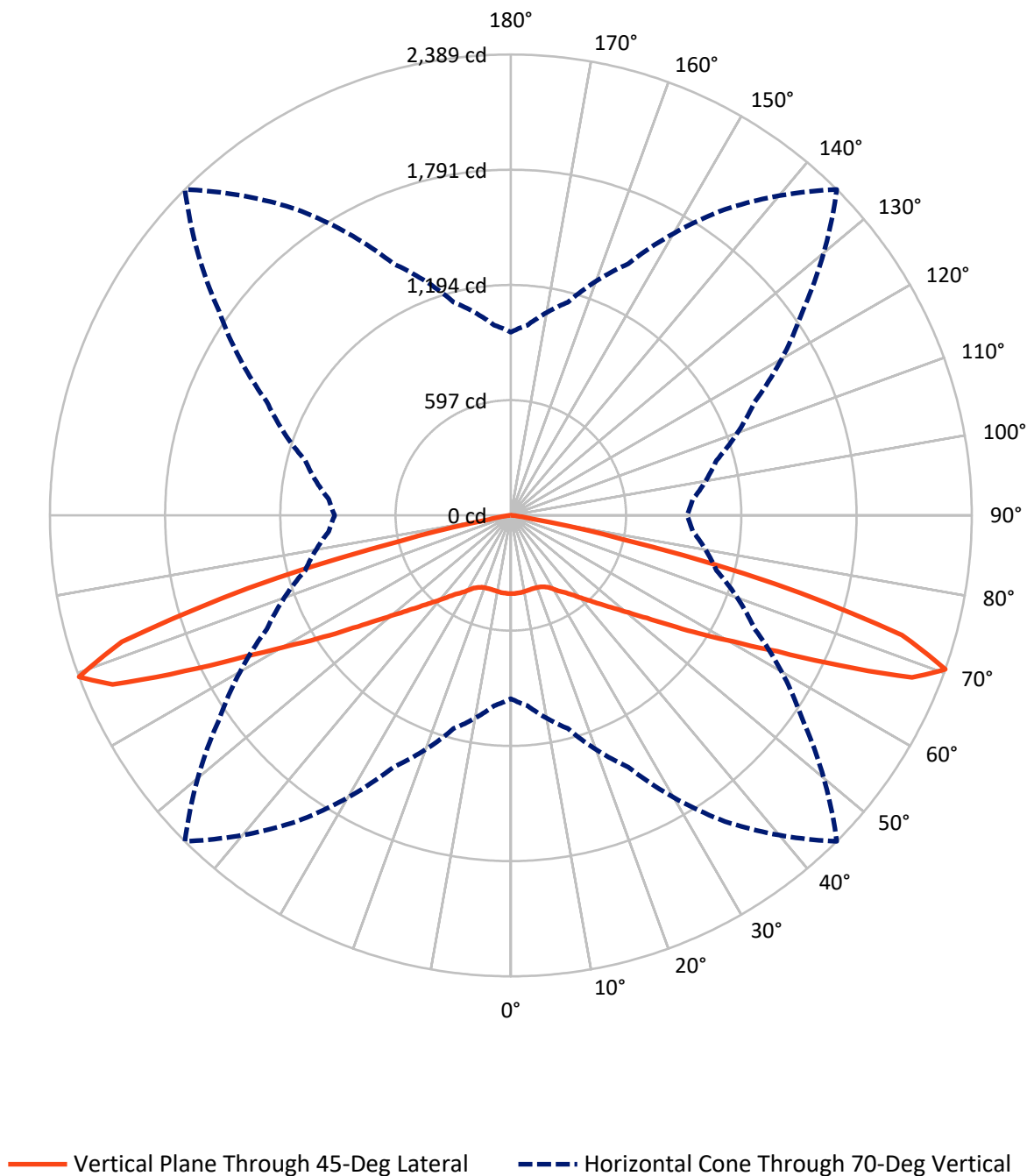


Based on 10 foot mounting height. Maximum calculated value = 4.1 fc
 Type V - Short - Full Cutoff

REPORT NUMBER: P459904

CATALOG NUMBER: NVN-SA4A-AMB-U-5MQ

Luminous Intensity Polar Plot



REPORT NUMBER: P459904

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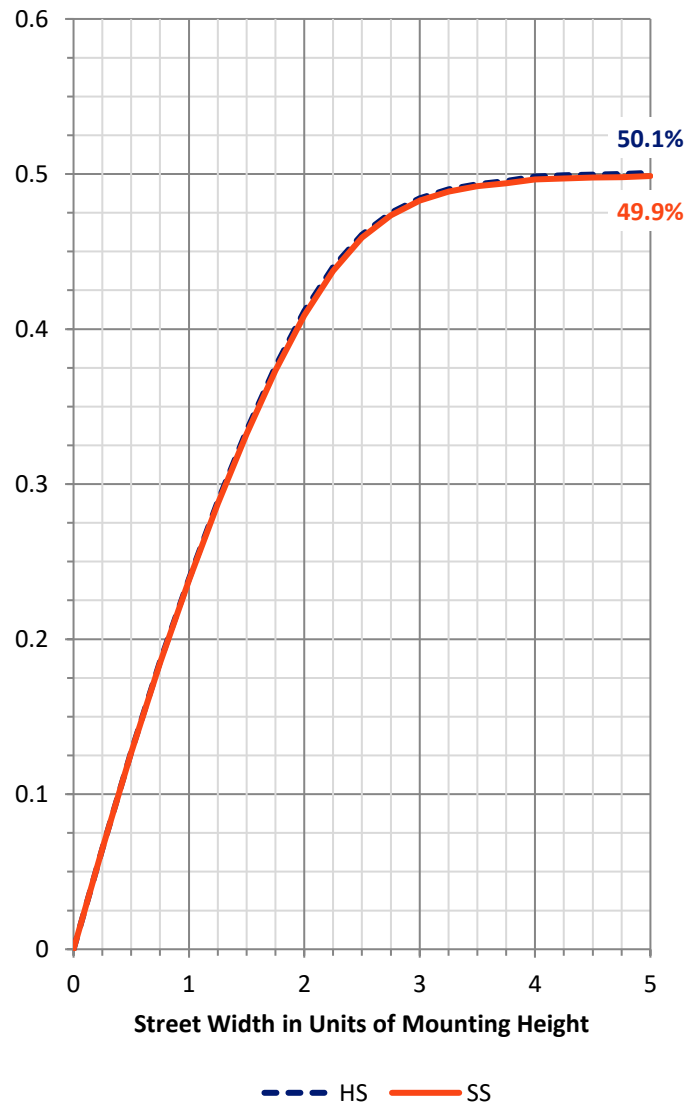
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2140.5	0.0	2140.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2140.5	0.0	2140.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	4281.0	0.0	4281.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.5	0.9
10°-20°	111.7	2.6
20°-30°	189.4	4.4
30°-40°	310.5	7.3
40°-50°	519.1	12.1
50°-60°	911.4	21.3
60°-70°	1497.3	35.0
70°-80°	675.0	15.8
80°-90°	28.1	0.7
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°	4281.0	100.0
0°-180°	4281.0	100.0

Coefficient of Utilization



REPORT NUMBER: P459904

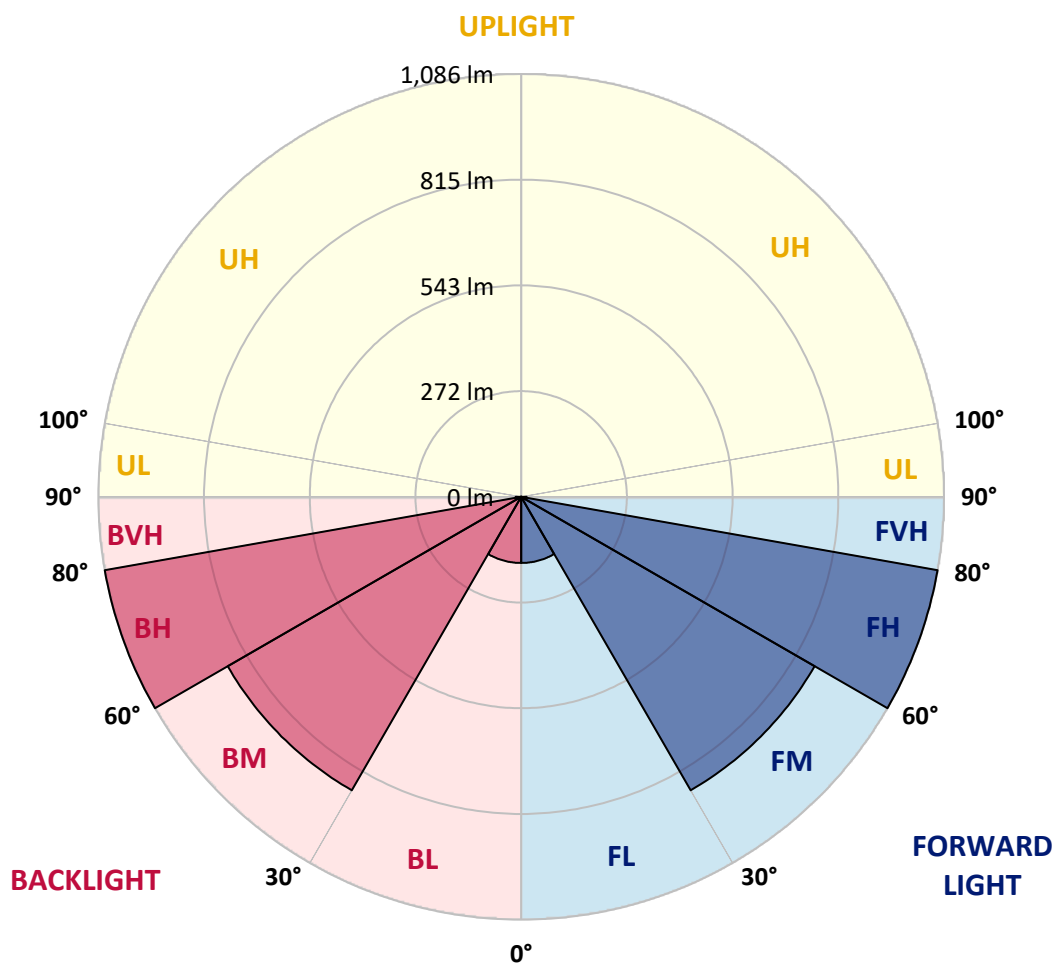
CATALOG NUMBER: NVN-SA4A-AMB-U-5MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	169.8	4.0			
FM	(30°-60°)	870.5	20.3			
FH	(60°-80°)	1086.1	25.4			G1/1800
FVH	(80°-90°)	14.0	0.3			G1/100
BL	(0°-30°)	169.8	4.0	B1/500		
BM	(30°-60°)	870.5	20.3	B1/1000		
BH	(60°-80°)	1086.1	25.4	B3/2500		G1/1800
BVH	(80°-90°)	14.0	0.3			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G1

Type V Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1
2.5°	406.8	406.8	406.8	406.8	405.1	405.1	405.1	405.1	405.1	405.1	405.1
5°	406.8	406.8	406.8	405.1	405.1	403.3	405.1	403.3	403.3	403.3	405.1
7.5°	406.8	406.8	406.8	405.1	405.1	403.3	403.3	401.6	401.6	401.6	401.6
10°	401.6	401.6	401.6	401.6	401.6	399.8	399.8	398.1	398.1	398.1	398.1
12.5°	396.3	398.1	396.3	396.3	398.1	398.1	396.3	394.6	392.8	392.8	394.6
15°	392.8	392.8	392.8	392.8	396.3	396.3	396.3	392.8	391.1	391.1	391.1
17.5°	389.4	389.4	389.4	392.8	394.6	396.3	394.6	392.8	391.1	387.6	387.6
20°	387.6	387.6	389.4	392.8	396.3	398.1	398.1	394.6	391.1	387.6	387.6
22.5°	387.6	387.6	391.1	396.3	399.8	401.6	401.6	398.1	394.6	391.1	391.1
25°	394.6	392.8	396.3	403.3	408.6	410.3	412.1	406.8	401.6	398.1	396.3
27.5°	405.1	406.8	410.3	417.3	424.3	422.5	424.3	420.8	417.3	412.1	412.1
30°	426.0	426.0	431.3	438.2	443.5	445.2	445.2	441.7	436.5	433.0	431.3
32.5°	450.5	450.5	455.7	464.4	467.9	469.7	467.9	464.4	457.4	452.2	450.5
35°	474.9	474.9	481.9	492.4	495.9	492.4	494.1	490.6	485.4	481.9	480.1
37.5°	504.6	504.6	513.3	522.0	527.3	523.8	529.0	527.3	520.3	516.8	515.1
40°	539.5	541.3	550.0	560.5	560.5	562.2	567.4	569.2	562.2	558.7	555.2
42.5°	583.2	586.6	593.6	604.1	605.9	605.9	612.8	614.6	611.1	604.1	600.6
45°	635.5	639.0	649.5	660.0	660.0	656.5	667.0	675.7	668.7	658.2	654.7
47.5°	696.6	700.1	714.1	722.8	726.3	717.6	733.3	743.8	735.1	728.1	721.1
50°	770.0	777.0	790.9	804.9	801.4	790.9	811.9	824.1	818.9	803.1	797.9
52.5°	848.5	853.8	881.7	895.7	895.7	883.5	911.4	921.9	906.2	885.2	878.2
55°	955.0	953.3	972.5	1003.9	1016.2	1003.9	1026.6	1030.1	1009.2	991.7	979.5
57.5°	1065.0	1068.5	1094.7	1124.4	1141.9	1155.8	1155.8	1147.1	1117.4	1084.3	1077.3
60°	1192.5	1203.0	1234.4	1272.8	1307.7	1326.9	1297.3	1279.8	1234.4	1206.5	1196.0
62.5°	1333.9	1347.9	1395.0	1457.9	1513.8	1552.2	1503.3	1454.4	1396.8	1353.1	1346.1
65°	1377.6	1389.8	1482.3	1618.5	1782.6	1873.4	1718.0	1601.1	1464.9	1374.1	1363.6
67.5°	1281.5	1286.8	1403.8	1637.7	1967.7	2241.8	1899.6	1606.3	1398.5	1267.6	1260.6
70°	949.8	990.0	1143.6	1438.7	1936.3	2388.5	1845.5	1395.0	1103.5	946.3	913.1
72.5°	557.0	548.2	665.2	955.0	1581.9	2119.6	1501.5	946.3	679.2	560.5	534.3
75°	218.2	221.7	277.6	441.7	895.7	1412.5	899.2	445.2	247.9	202.5	200.8
77.5°	75.1	76.8	83.8	106.5	288.1	583.2	296.8	108.3	82.1	87.3	89.0
80°	47.1	45.4	50.6	52.4	62.9	115.2	68.1	55.9	54.1	54.1	55.9
82.5°	24.4	26.2	34.9	36.7	38.4	43.6	43.6	41.9	36.7	27.9	24.4
85°	15.7	12.2	24.4	26.2	24.4	22.7	27.9	31.4	27.9	15.7	17.5
87.5°	7.0	7.0	12.2	12.2	12.2	8.7	12.2	17.5	17.5	7.0	7.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	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

STREETWORKS

Report Number: SP1-2005-791-1-R5

Test Date: 05/26/2020

Luminaire Tested: Light Squares Family Amber Color

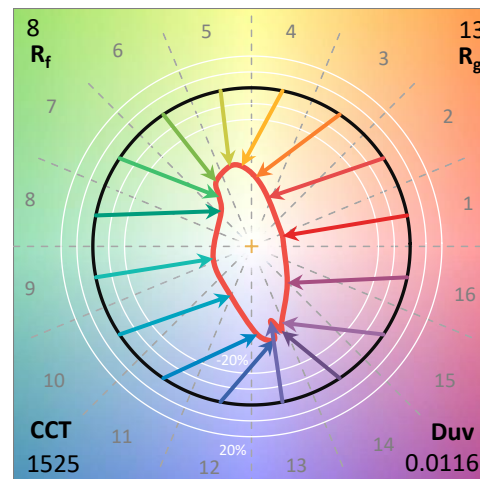
Data in this report applies to families of products including Light Squares Family Amber Color

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2005-791-1-R5
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 02/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: STREETWORKS
 Catalog Number: **Light Squares Family Amber Color**
 Description: Light Squares Family Amber Color

Spectral Parameters

CCT (K):	1525	CRI (Ra):	-20.7		
CIE u':	0.3546	R1:	-32.5	R9:	-382.8
CIE v':	0.5459	R2:	55.0	R10:	34.9
Duv:	0.0116	R3:	15.4	R11:	-92.4
CIE x:	0.5918	R4:	-67.7	R12:	2.7
CIE y:	0.4049	R5:	-38.7	R13:	-12.7
CIE z:	0.0033	R6:	47.4	R14:	45.0
Peak Wavelength (nm):	597	R7:	-9.2		
Dominant Wavelength (nm):	593	R8:	-135.0		
Purity:	99.6				
Rf:	8.4				
Rg:	12.9				



Test Conditions

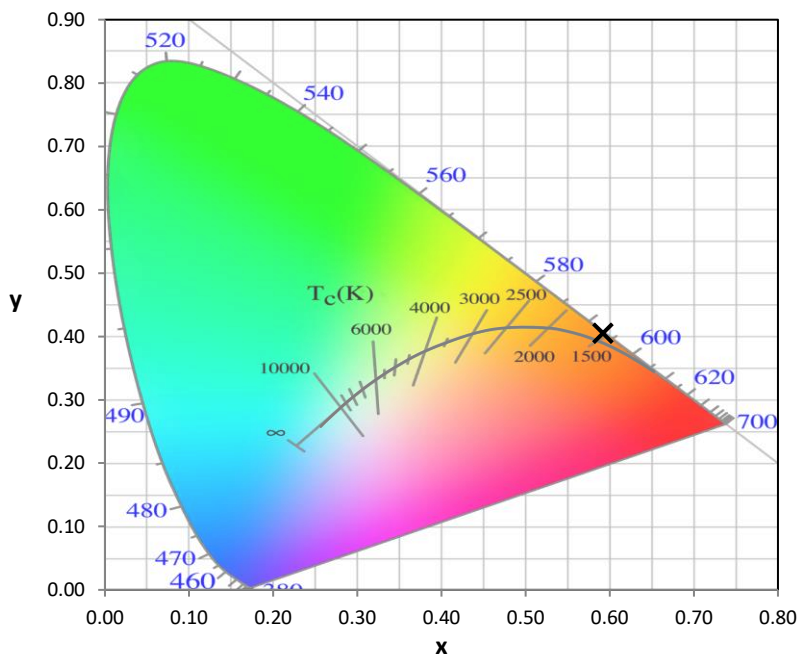
Stabilization Time: 65M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.6/42%
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2005-791-1-R5

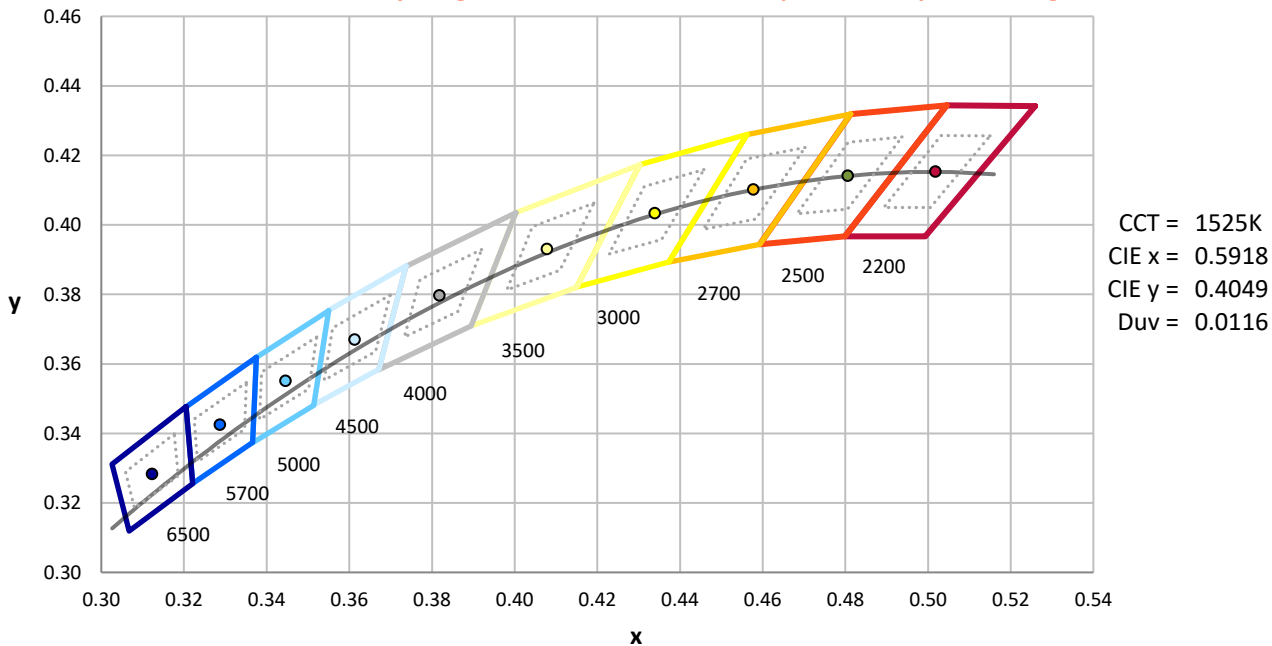
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	1/17/2020	7/17/2020
Power Meter	XITRON 2801 IN0071	12/3/2019	12/3/2020
AC Power Source	CHROMA 61603 IN0063	12/3/2019	12/3/2020
DC Power Source	AGILENT E3634A IN0208	12/3/2019	12/3/2020
Sphere Thermometer	ONSET IN0085	12/3/2019	12/3/2020
Room Thermometer	ONSET IN0046	12/3/2019	12/3/2020

REPORT NUMBER: SP1-2005-791-1-R5

CIE 1931 Chromaticity Diagram



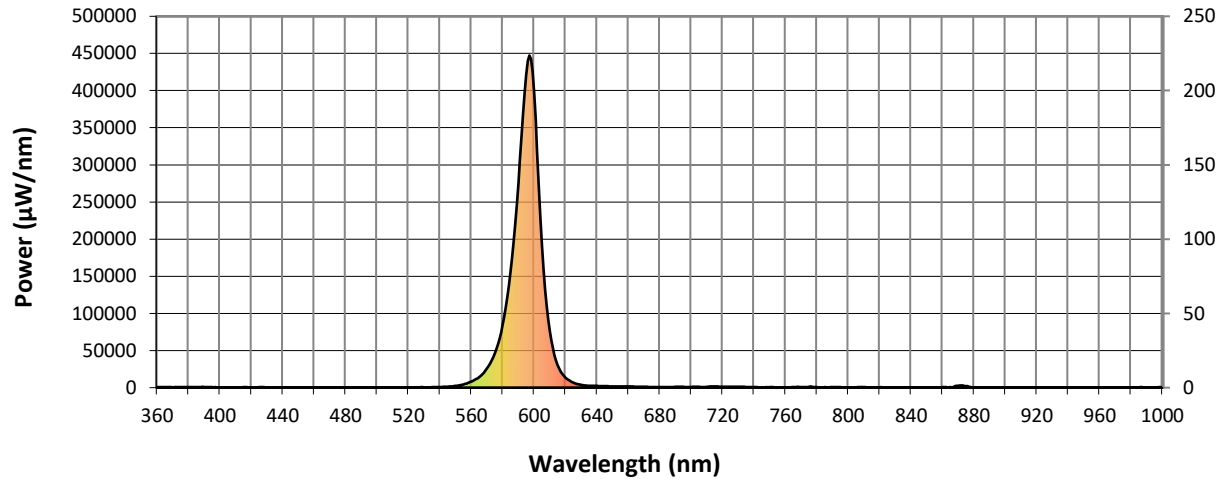
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies outside the range

REPORT NUMBER: SP1-2005-791-1-R5

Photopic Flux vs. Wavelength

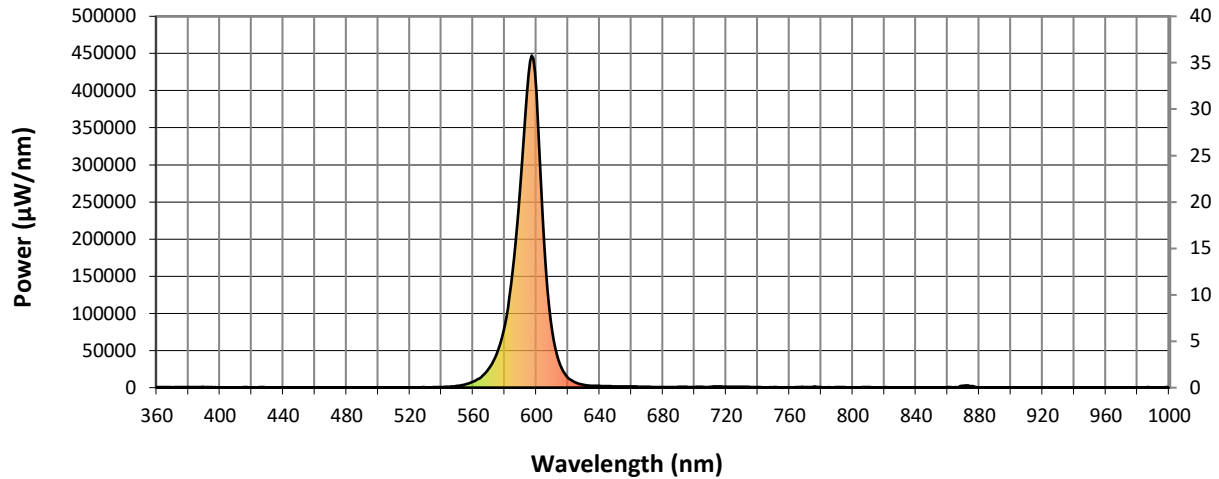


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λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	818	NR	490	224	NR	620	13485	NR	750	666	NR	880	467	NR
365	765	NR	495	377	NR	625	6667	NR	755	63	NR	885	232	NR
370	529	NR	500	342	NR	630	3617	NR	760	170	NR	890	396	NR
375	859	NR	505	327	NR	635	2624	NR	765	772	NR	895	250	NR
380	838	NR	510	403	NR	640	2321	NR	770	684	NR	900	194	NR
385	931	NR	515	396	NR	645	2019	NR	775	1108	NR	905	303	NR
390	814	NR	520	478	NR	650	1694	NR	780	562	NR	910	335	NR
395	695	NR	525	468	NR	655	1437	NR	785	582	NR	915	255	NR
400	338	NR	530	527	NR	660	1541	NR	790	675	NR	920	182	NR
405	555	NR	535	574	NR	665	1318	NR	795	578	NR	925	228	NR
410	491	NR	540	823	NR	670	1092	NR	800	147	NR	930	239	NR
415	563	NR	545	1340	NR	675	936	NR	805	559	NR	935	148	NR
420	360	NR	550	2313	NR	680	727	NR	810	727	NR	940	308	NR
425	598	NR	555	4294	NR	685	833	NR	815	444	NR	945	313	NR
430	464	NR	560	8017	NR	690	1005	NR	820	479	NR	950	345	NR
435	440	NR	565	14123	NR	695	1012	NR	825	224	NR	955	229	NR
440	368	NR	570	25560	NR	700	962	NR	830	333	NR	960	363	NR
445	428	NR	575	45938	NR	705	994	NR	835	379	NR	965	412	NR
450	279	NR	580	84007	NR	710	1014	NR	840	285	NR	970	272	NR
455	407	NR	585	155807	NR	715	1458	NR	845	333	NR	975	345	NR
460	365	NR	590	275552	NR	720	1076	NR	850	385	NR	980	449	NR
465	328	NR	595	421402	NR	725	1113	NR	855	558	NR	985	501	NR
470	249	NR	600	396839	NR	730	1144	NR	860	663	NR	990	343	NR
475	277	NR	605	193475	NR	735	799	NR	865	591	NR	995	152	NR
480	229	NR	610	75719	NR	740	692	NR	870	2634	NR	1000	132	NR
485	185	NR	615	30466	NR	745	414	NR	875	2146	NR			

REPORT NUMBER: SP1-2005-791-1-R5

Scotopic Flux vs. Wavelength



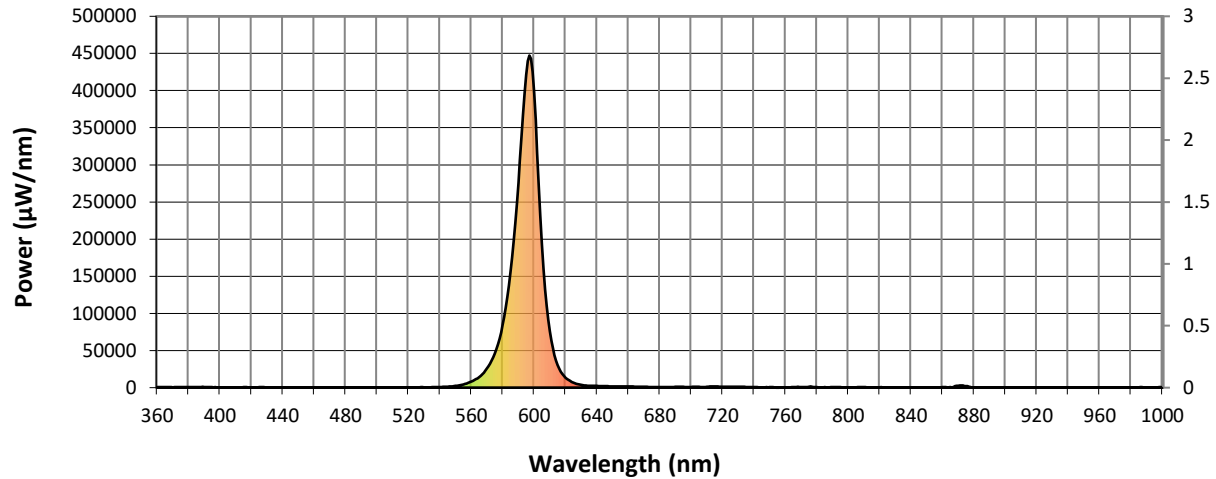
Scotopic Lumens: 939.9

S/P: 0.23

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	818	NR	490	224	NR	620	13485	NR	750	666	NR	880	467	NR
365	765	NR	495	377	NR	625	6667	NR	755	63	NR	885	232	NR
370	529	NR	500	342	NR	630	3617	NR	760	170	NR	890	396	NR
375	859	NR	505	327	NR	635	2624	NR	765	772	NR	895	250	NR
380	838	NR	510	403	NR	640	2321	NR	770	684	NR	900	194	NR
385	931	NR	515	396	NR	645	2019	NR	775	1108	NR	905	303	NR
390	814	NR	520	478	NR	650	1694	NR	780	562	NR	910	335	NR
395	695	NR	525	468	NR	655	1437	NR	785	582	NR	915	255	NR
400	338	NR	530	527	NR	660	1541	NR	790	675	NR	920	182	NR
405	555	NR	535	574	NR	665	1318	NR	795	578	NR	925	228	NR
410	491	NR	540	823	NR	670	1092	NR	800	147	NR	930	239	NR
415	563	NR	545	1340	NR	675	936	NR	805	559	NR	935	148	NR
420	360	NR	550	2313	NR	680	727	NR	810	727	NR	940	308	NR
425	598	NR	555	4294	NR	685	833	NR	815	444	NR	945	313	NR
430	464	NR	560	8017	NR	690	1005	NR	820	479	NR	950	345	NR
435	440	NR	565	14123	NR	695	1012	NR	825	224	NR	955	229	NR
440	368	NR	570	25560	NR	700	962	NR	830	333	NR	960	363	NR
445	428	NR	575	45938	NR	705	994	NR	835	379	NR	965	412	NR
450	279	NR	580	84007	NR	710	1014	NR	840	285	NR	970	272	NR
455	407	NR	585	155807	NR	715	1458	NR	845	333	NR	975	345	NR
460	365	NR	590	275552	NR	720	1076	NR	850	385	NR	980	449	NR
465	328	NR	595	421402	NR	725	1113	NR	855	558	NR	985	501	NR
470	249	NR	600	396839	NR	730	1144	NR	860	663	NR	990	343	NR
475	277	NR	605	193475	NR	735	799	NR	865	591	NR	995	152	NR
480	229	NR	610	75719	NR	740	692	NR	870	2634	NR	1000	132	NR
485	185	NR	615	30466	NR	745	414	NR	875	2146	NR			

REPORT NUMBER: SP1-2005-791-1-R5

Melanopic Flux vs. Wavelength



Melanopic Lumens: 115.1

M/P: 0.03

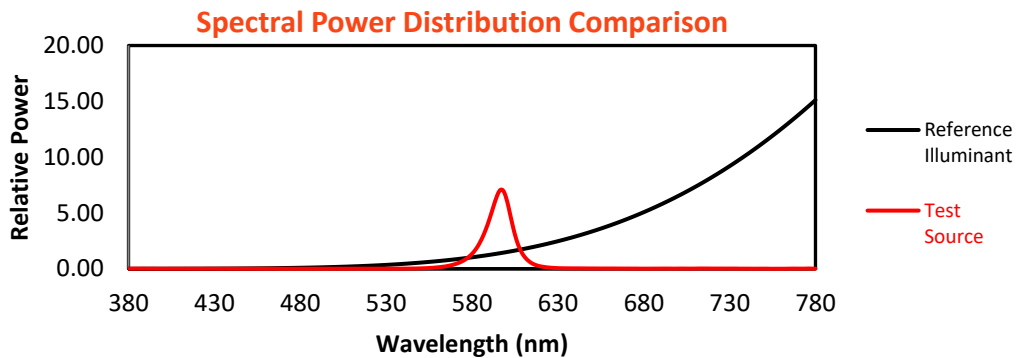
λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	818	NR	490	224	NR	620	13485	NR	750	666	NR	880	467	NR
365	765	NR	495	377	NR	625	6667	NR	755	63	NR	885	232	NR
370	529	NR	500	342	NR	630	3617	NR	760	170	NR	890	396	NR
375	859	NR	505	327	NR	635	2624	NR	765	772	NR	895	250	NR
380	838	NR	510	403	NR	640	2321	NR	770	684	NR	900	194	NR
385	931	NR	515	396	NR	645	2019	NR	775	1108	NR	905	303	NR
390	814	NR	520	478	NR	650	1694	NR	780	562	NR	910	335	NR
395	695	NR	525	468	NR	655	1437	NR	785	582	NR	915	255	NR
400	338	NR	530	527	NR	660	1541	NR	790	675	NR	920	182	NR
405	555	NR	535	574	NR	665	1318	NR	795	578	NR	925	228	NR
410	491	NR	540	823	NR	670	1092	NR	800	147	NR	930	239	NR
415	563	NR	545	1340	NR	675	936	NR	805	559	NR	935	148	NR
420	360	NR	550	2313	NR	680	727	NR	810	727	NR	940	308	NR
425	598	NR	555	4294	NR	685	833	NR	815	444	NR	945	313	NR
430	464	NR	560	8017	NR	690	1005	NR	820	479	NR	950	345	NR
435	440	NR	565	14123	NR	695	1012	NR	825	224	NR	955	229	NR
440	368	NR	570	25560	NR	700	962	NR	830	333	NR	960	363	NR
445	428	NR	575	45938	NR	705	994	NR	835	379	NR	965	412	NR
450	279	NR	580	84007	NR	710	1014	NR	840	285	NR	970	272	NR
455	407	NR	585	155807	NR	715	1458	NR	845	333	NR	975	345	NR
460	365	NR	590	275552	NR	720	1076	NR	850	385	NR	980	449	NR
465	328	NR	595	421402	NR	725	1113	NR	855	558	NR	985	501	NR
470	249	NR	600	396839	NR	730	1144	NR	860	663	NR	990	343	NR
475	277	NR	605	193475	NR	735	799	NR	865	591	NR	995	152	NR
480	229	NR	610	75719	NR	740	692	NR	870	2634	NR	1000	132	NR
485	185	NR	615	30466	NR	745	414	NR	875	2146	NR			

REPORT NUMBER: SP1-2005-791-1-R5

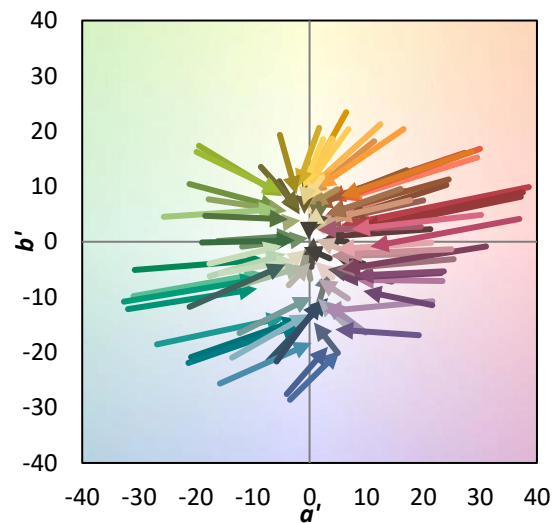
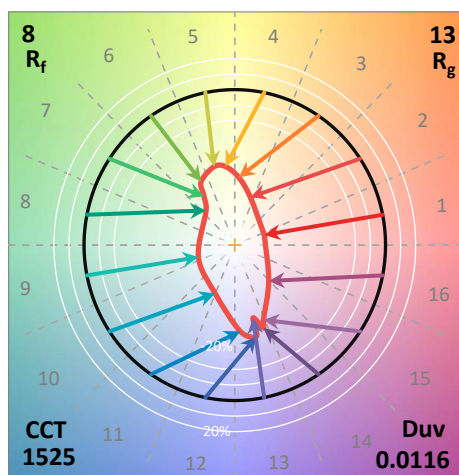
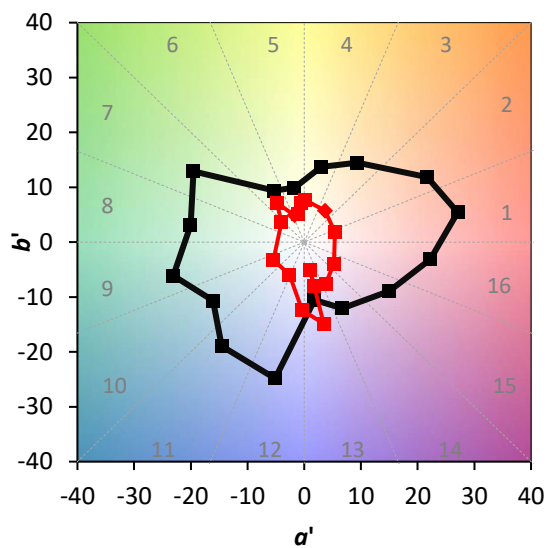
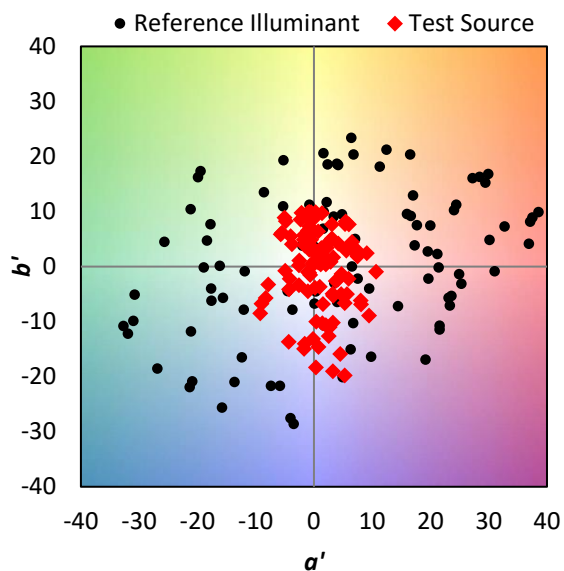
TM-30-18

Summary

$R_f = 8.4$
 $R_g = 12.9$
 CIE $R_a = -20.7$
 $R_g = -382.8$



Color Vector Graphics

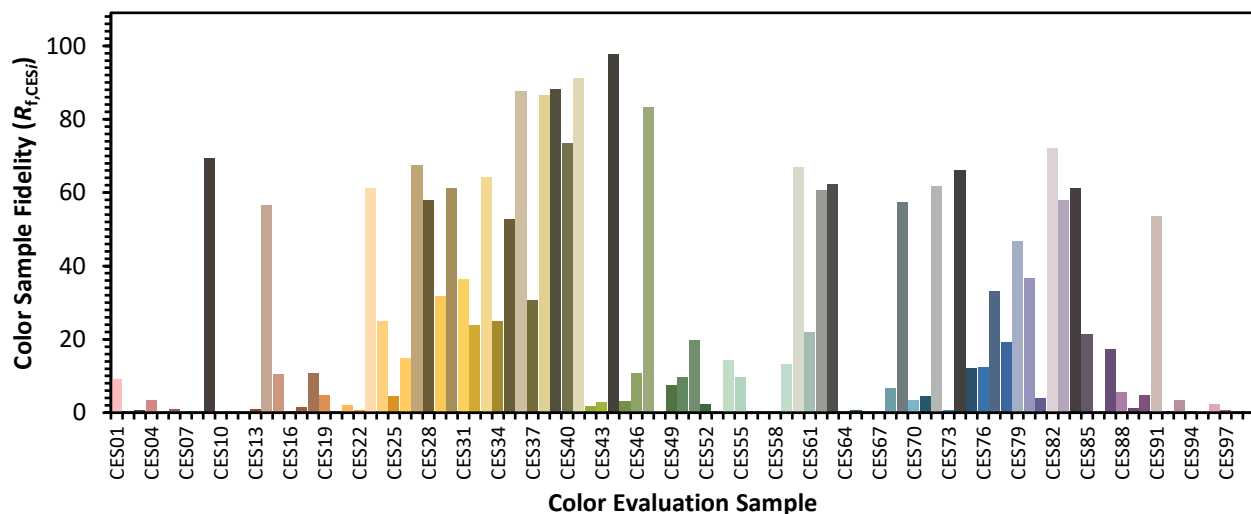


REPORT NUMBER: SP1-2005-791-1-R5

TM-30-18

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

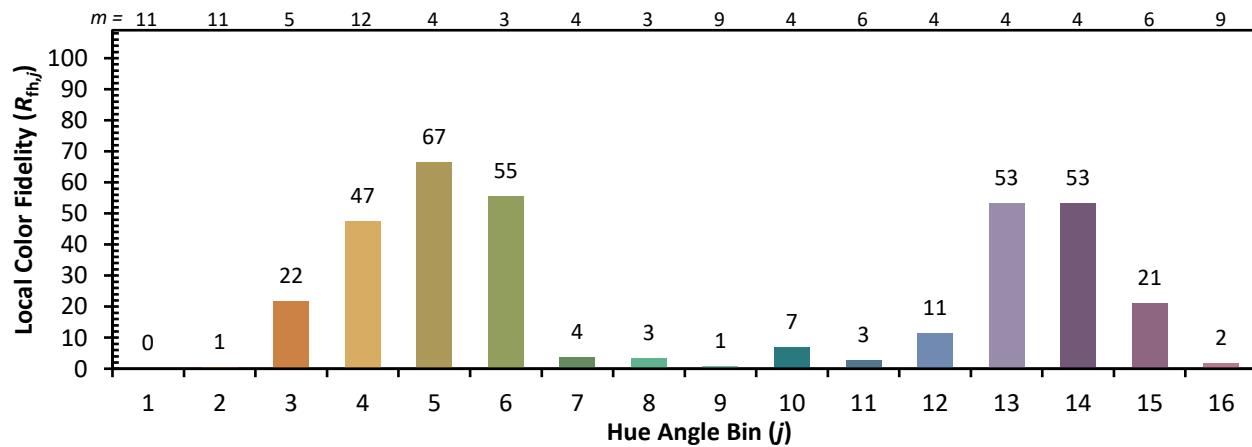
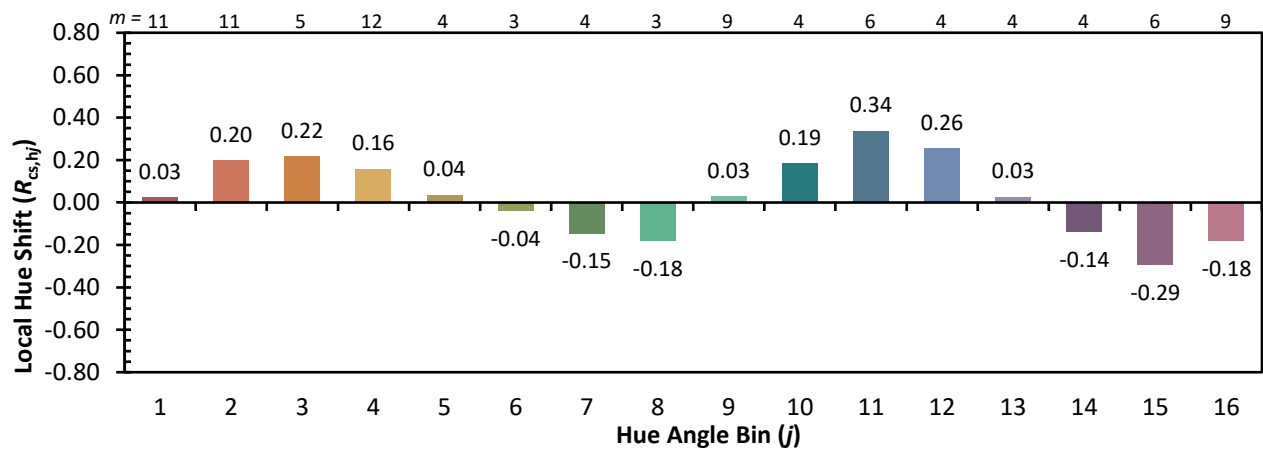
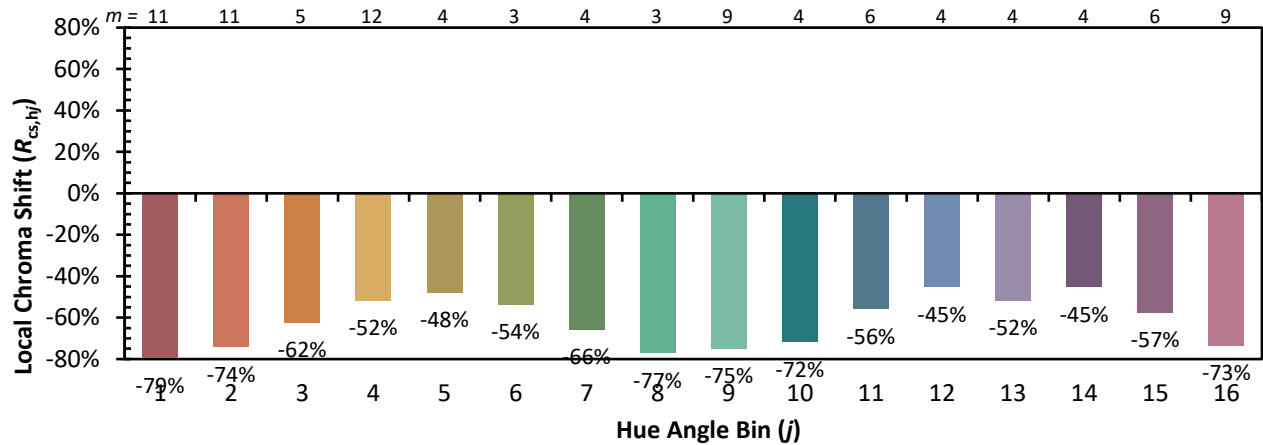
CES01 = 90	CES26 = 15	CES51 = 20	CES76 = 12
CES02 = 69	CES27 = 67	CES52 = 2	CES77 = 33
CES03 = 31	CES28 = 58	CES53 = 0	CES78 = 19
CES04 = 77	CES29 = 32	CES54 = 14	CES79 = 47
CES05 = 52	CES30 = 61	CES55 = 10	CES80 = 37
CES06 = 56	CES31 = 36	CES56 = 0	CES81 = 4
CES07 = 41	CES32 = 24	CES57 = 0	CES82 = 72
CES08 = 38	CES33 = 64	CES58 = 0	CES83 = 58
CES09 = 29	CES34 = 25	CES59 = 13	CES84 = 61
CES10 = 87	CES35 = 53	CES60 = 67	CES85 = 21
CES11 = 70	CES36 = 88	CES61 = 22	CES86 = 0
CES12 = 75	CES37 = 31	CES62 = 61	CES87 = 17
CES13 = 47	CES38 = 86	CES63 = 62	CES88 = 5
CES14 = 76	CES39 = 88	CES64 = 0	CES89 = 1
CES15 = 74	CES40 = 74	CES65 = 1	CES90 = 5
CES16 = 49	CES41 = 91	CES66 = 0	CES91 = 54
CES17 = 55	CES42 = 2	CES67 = 0	CES92 = 0
CES18 = 59	CES43 = 3	CES68 = 7	CES93 = 3
CES19 = 80	CES44 = 98	CES69 = 57	CES94 = 0
CES20 = 71	CES45 = 3	CES70 = 3	CES95 = 0
CES21 = 94	CES46 = 11	CES71 = 5	CES96 = 2
CES22 = 86	CES47 = 83	CES72 = 62	CES97 = 1
CES23 = 93	CES48 = 0	CES73 = 1	CES98 = 0
CES24 = 95	CES49 = 7	CES74 = 66	CES99 = 0
CES25 = 78	CES50 = 10	CES75 = 12	



REPORT NUMBER: SP1-2005-791-1-R5

TM-30-18

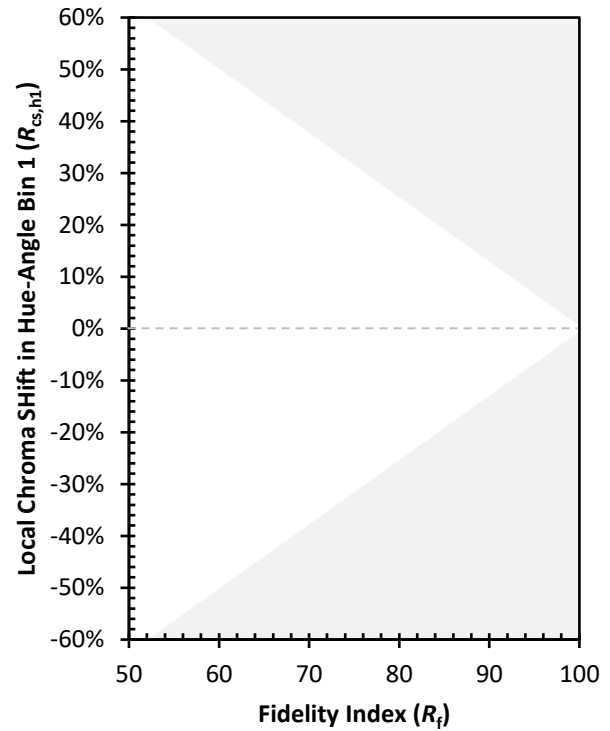
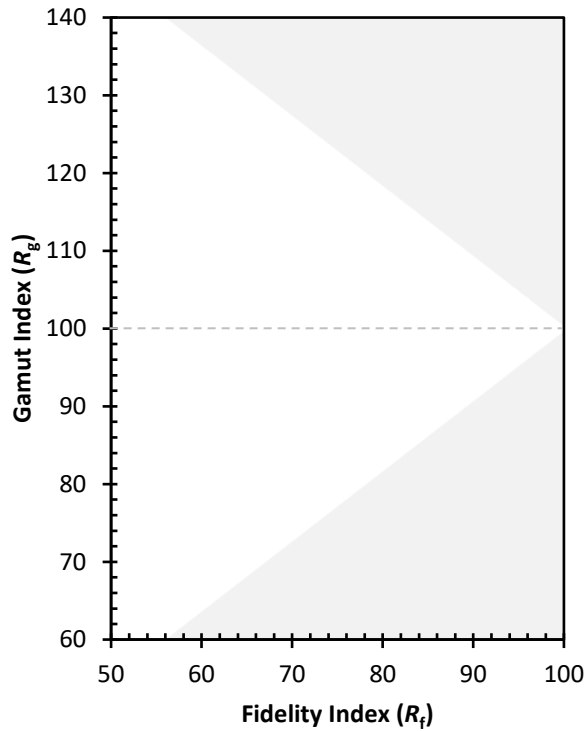
Color Rendition by Hue-Angle Bin



REPORT NUMBER: SP1-2005-791-1-R5

TM-30-18

Measure Comparisons



(END OF REPORT)