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: STREETWORKS

Report Number: P868177

Luminaire Tested: **MEM2-HSN-SA-40-730-U-T5R**

Issue Date: 08/21/2024

Report Generated By 670245763

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:	P868177
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	08/21/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	MEM2-HSN-SA-40-730-U-T5R
Description:	EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 40W 70CRI 3000K FIXTURE w/ TYPE V ROUND DISTRIBUTION OPTIC
Light Source:	(10) 3000K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	4787.8 lumens
Efficiency:	N/A
Efficacy:	146.0 lumens/watt
Luminous Opening:	Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G1

Input Watts (W):	32.8
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	9.76%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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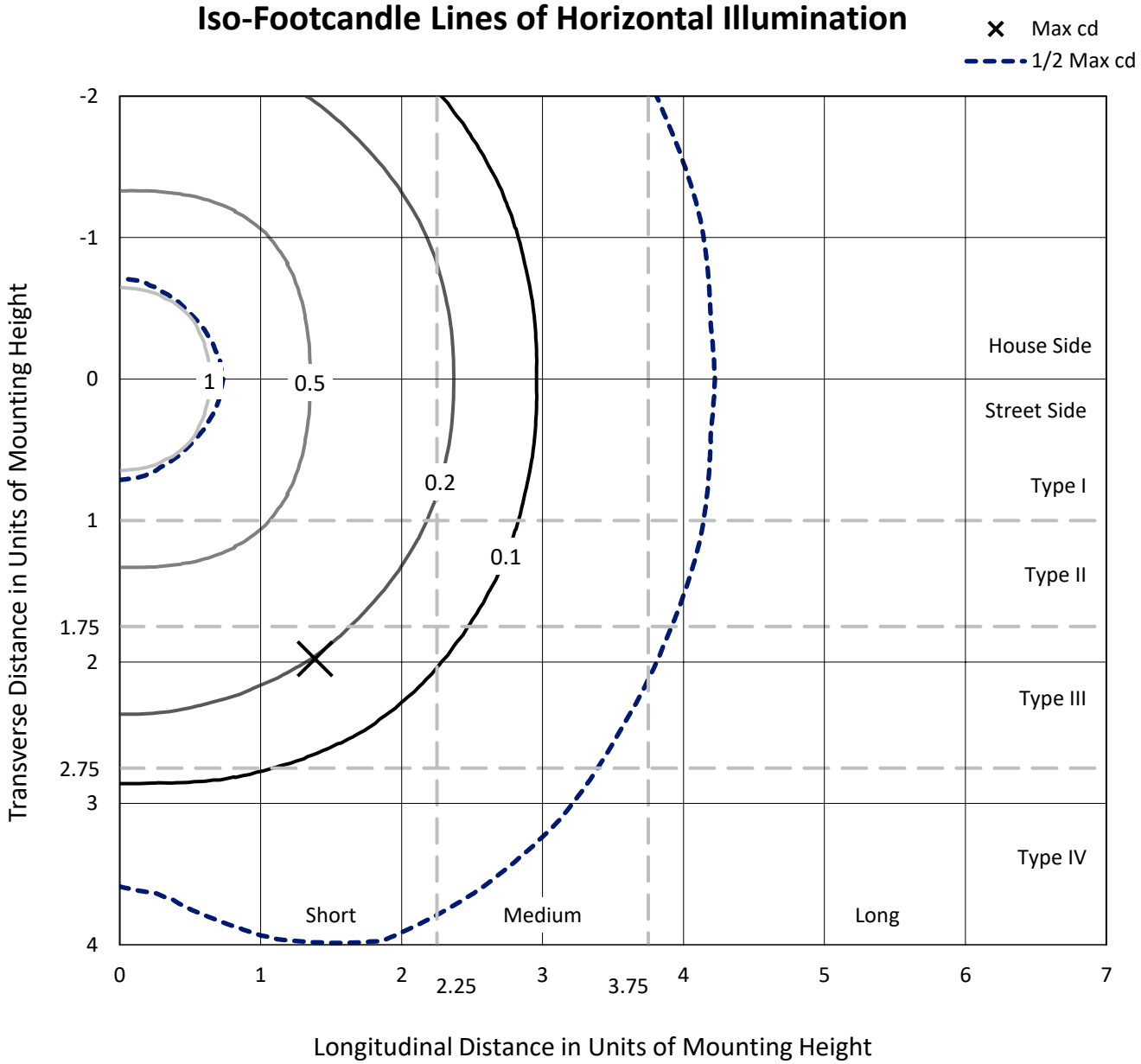
Scaled Data Report

REPORT NUMBER: P868177
CATALOG NUMBER: MEM2-HSN-SA-40-730-U-T5R

Iso-Footcandle Lines of Horizontal Illumination



Based on 20 foot mounting height. Maximum calculated value = 1.1 fc
Type V - Short - N/A

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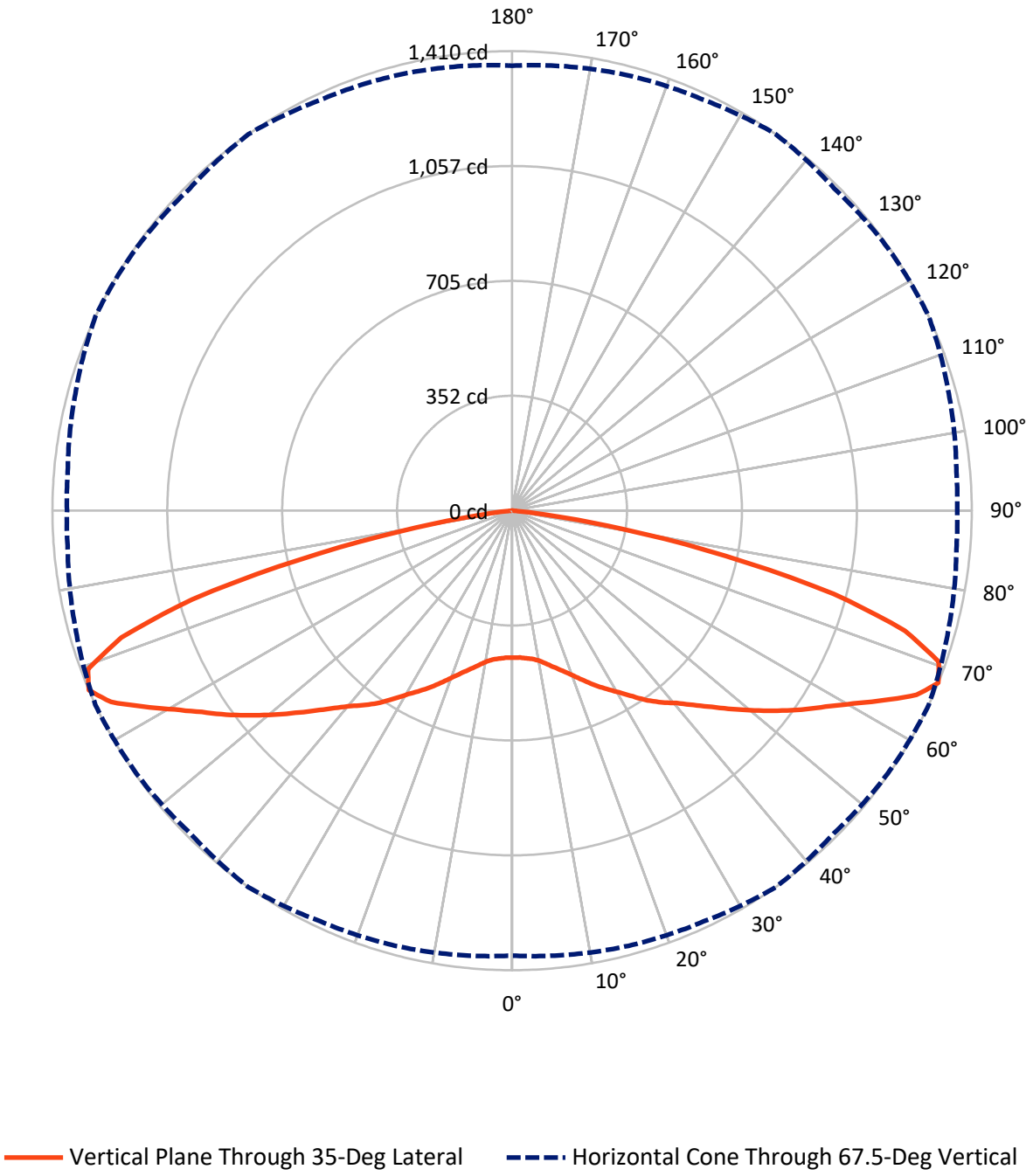
Luminous Intensity Polar Plot



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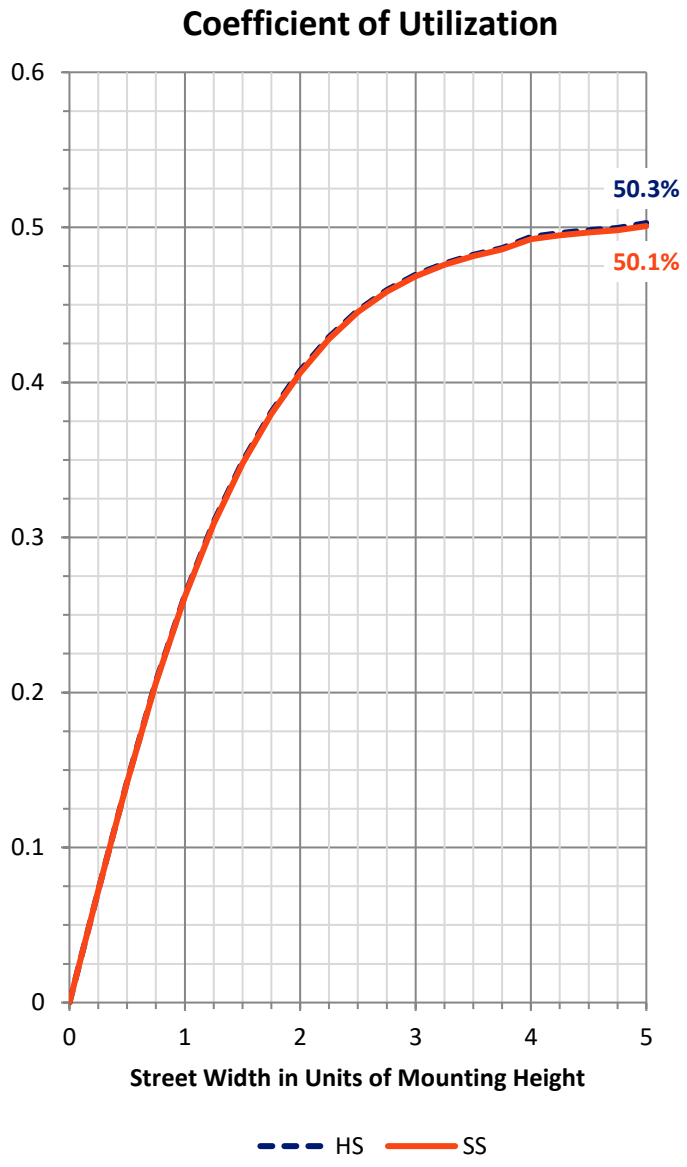
REPORT NUMBER: P868177
CATALOG NUMBER: MEM2-HSN-SA-40-730-U-T5R

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2393.9	0.0	2393.9
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2393.9	0.0	2393.9
	% Fixture	50.0	0.0	50.0
Total	Lumens	4787.8	0.0	4787.8
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.9	0.9
10°-20°	143.7	3.0
20°-30°	274.7	5.7
30°-40°	443.9	9.3
40°-50°	649.8	13.6
50°-60°	931.8	19.5
60°-70°	1306.0	27.3
70°-80°	921.5	19.2
80°-90°	72.5	1.5
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°	4787.8	100.0
0°-180°	4787.8	100.0



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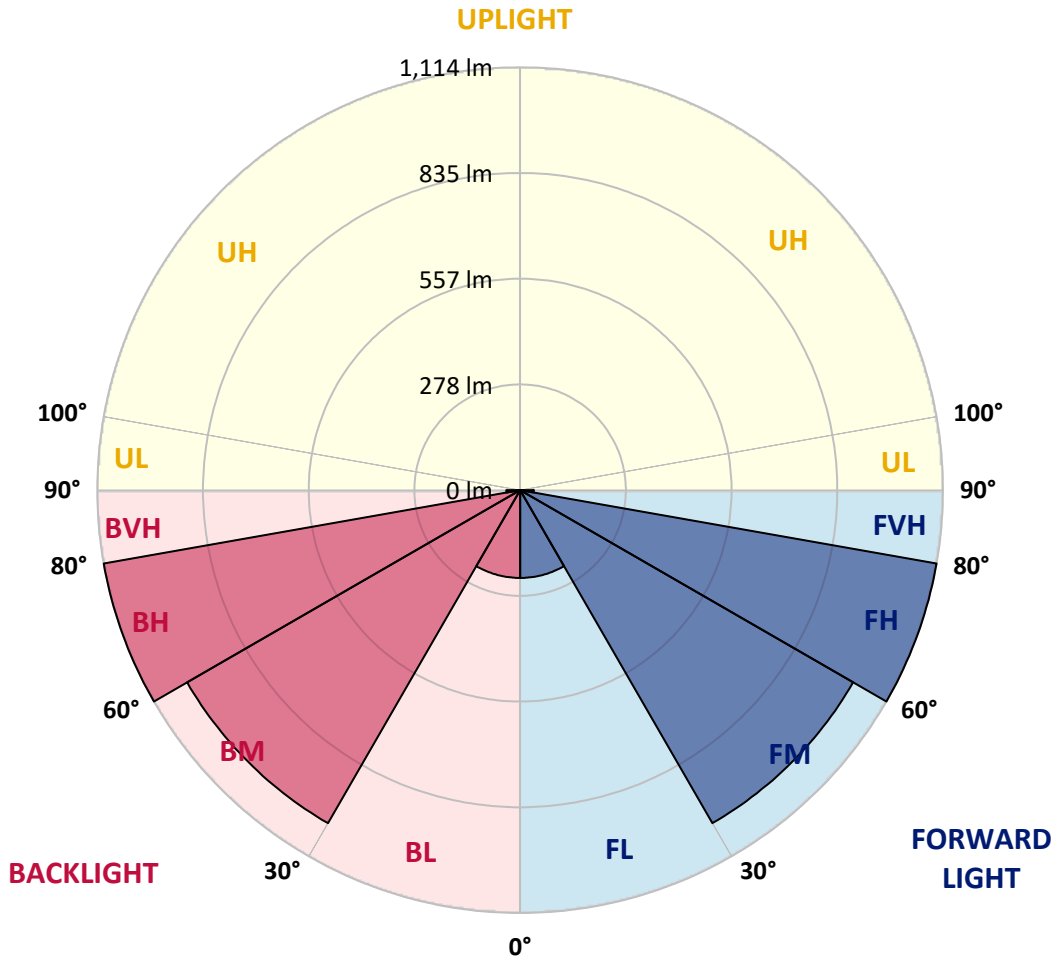
Scaled Data Report

REPORT NUMBER: P868177
CATALOG NUMBER: MEM2-HSN-SA-40-730-U-T5R

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	231.2	4.8			
FM	(30°-60°)	1012.8	21.2			
FH	(60°-80°)	1113.7	23.3			G1/1800
FVH	(80°-90°)	36.3	0.8			G1/100
BL	(0°-30°)	231.2	4.8	B1/500		
BM	(30°-60°)	1012.8	21.2	B2/2500		
BH	(60°-80°)	1113.7	23.3	B3/2500		G1/1800
BVH	(80°-90°)	36.3	0.8			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°	451.0	451.0	451.0	451.0	*451.0*	451.0	451.0	451.0	451.0	451.0	451.0
2.5°	453.8	452.9	451.9	451.9	*451.0*	451.9	451.0	451.9	451.0	451.0	451.0
5°	456.6	455.7	455.7	455.7	*454.7*	454.7	454.7	454.7	453.8	452.9	453.8
7.5°	459.4	459.4	458.5	460.3	*459.4*	460.3	460.3	461.2	459.4	458.5	459.4
10°	466.8	466.8	466.8	468.7	*468.7*	471.5	471.5	472.4	471.5	469.6	469.6
12.5°	482.7	481.7	481.7	481.7	*483.6*	485.5	487.3	487.3	486.4	483.6	483.6
15°	500.4	502.2	500.4	499.5	*500.4*	502.2	504.1	504.1	503.2	502.2	502.2
17.5°	521.8	522.7	520.9	519.0	*519.0*	521.8	522.7	522.7	521.8	520.0	520.0
20°	540.5	541.4	541.4	540.5	*541.4*	543.2	544.2	545.1	542.3	539.5	539.5
22.5°	556.3	557.2	559.1	562.8	*566.5*	568.4	567.5	567.5	562.8	560.0	559.1
25°	575.9	578.7	582.4	587.0	*593.6*	598.2	596.4	592.6	588.9	583.3	582.4
27.5°	614.1	614.1	610.3	612.2	*619.7*	624.3	622.5	619.7	612.2	608.5	607.5
30°	643.9	643.9	643.9	642.0	*646.7*	652.3	650.4	645.7	642.0	640.2	640.2
32.5°	672.8	670.9	673.7	677.4	*679.3*	681.2	681.2	677.4	670.9	668.1	668.1
35°	699.8	701.7	704.5	710.0	*714.7*	711.9	707.2	704.5	697.9	692.3	692.3
37.5°	725.9	727.7	730.5	738.9	*746.4*	745.5	739.9	732.4	724.0	719.4	716.6
40°	744.5	745.5	752.9	766.0	*776.2*	779.9	775.3	765.0	752.0	742.7	743.6
42.5°	766.9	768.7	780.9	799.5	*814.4*	820.0	813.5	799.5	780.9	768.7	768.7
45°	799.5	800.4	816.3	839.6	*859.1*	868.5	859.1	839.6	815.3	803.2	802.3
47.5°	832.1	834.9	852.6	880.6	*909.5*	920.6	910.4	885.2	856.3	841.4	839.6
50°	869.4	871.2	892.7	930.9	*963.5*	978.4	965.4	933.7	902.0	883.4	884.3
52.5°	905.7	911.3	940.2	980.3	*1019.4*	1036.2	1017.5	983.1	949.5	931.8	930.9
55°	959.8	966.3	991.4	1036.2	*1077.2*	1095.8	1078.1	1039.9	1003.6	984.0	980.3
57.5°	1027.8	1031.5	1053.9	1099.5	*1134.0*	1151.7	1141.5	1106.1	1071.6	1047.4	1042.7
60°	1105.1	1108.9	1126.6	1173.2	*1201.1*	1214.2	1210.4	1189.9	1166.6	1155.4	1152.7
62.5°	1215.1	1216.0	1225.3	1252.4	*1280.3*	1285.9	1276.6	1271.9	1279.4	1267.3	1270.1
65°	1340.9	1340.9	1338.1	1341.8	*1363.2*	1356.7	1350.2	1370.7	1367.0	1346.5	1342.7
67.5°	*1365.1*	*1370.7*	*1381.9*	*1390.3*	*1409.8*	*1397.7*	*1406.1*	*1409.8*	*1386.5*	*1367.9*	*1365.1*
70°	1221.6	1228.1	1290.6	1328.8	*1388.4*	1399.6	1372.6	1358.6	1332.5	1298.0	1288.7
72.5°	833.0	865.7	1045.5	1168.5	*1259.8*	1273.8	1258.9	1241.2	1189.0	1162.0	1143.3
75°	665.3	683.0	843.3	964.4	*1018.5*	1017.5	957.9	938.3	897.3	893.6	897.3
77.5°	406.3	410.0	567.5	662.5	*669.0*	665.3	641.1	626.2	631.8	603.8	608.5
80°	123.9	135.1	214.3	323.3	*347.6*	336.4	331.7	337.3	342.9	351.3	364.3
82.5°	25.2	31.7	42.9	93.2	*106.2*	105.3	104.4	115.5	125.8	130.5	158.4
85°	2.8	2.8	3.7	7.5	*15.8*	25.2	26.1	23.3	35.4	34.5	24.2
87.5°	0.9	0.9	0.9	0.9	*0.9*	1.9	1.9	1.9	1.9	1.9	1.9
90°	0.0	0.0	0.0	0.0	*0.0*	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-157-4

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-730-U-5WQ-2

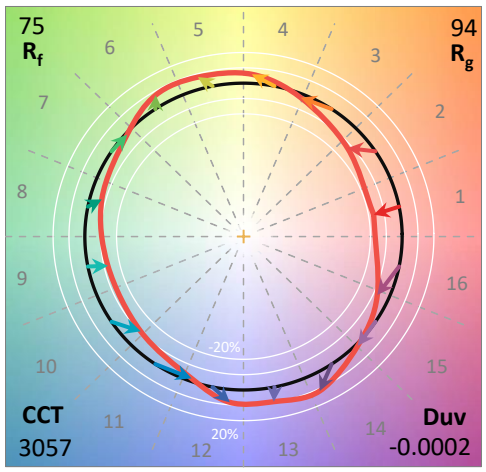
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-157-4
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	08/20/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-SA-40-730-U-5WQ-2**
Description:	Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K):	3057	CRI (Ra):	71.7		
CIE u':	0.2487	R1:	68.1	R9:	-34.8
CIE v':	0.5199	R2:	82.0	R10:	58.5
Duv:	-0.0002	R3:	93.5	R11:	62.5
CIE x:	0.4326	R4:	67.5	R12:	47.5
CIE y:	0.4020	R5:	67.2	R13:	70.7
CIE z:	0.1654	R6:	74.9	R14:	96.4
Peak Wavelength (nm):	593	R7:	77.4	R15:	60.0
Dominant Wavelength (nm):	582	R8:	43.1		
Purity:	50.50735				
Rf:	74.6				
Rg:	94				



Test Conditions

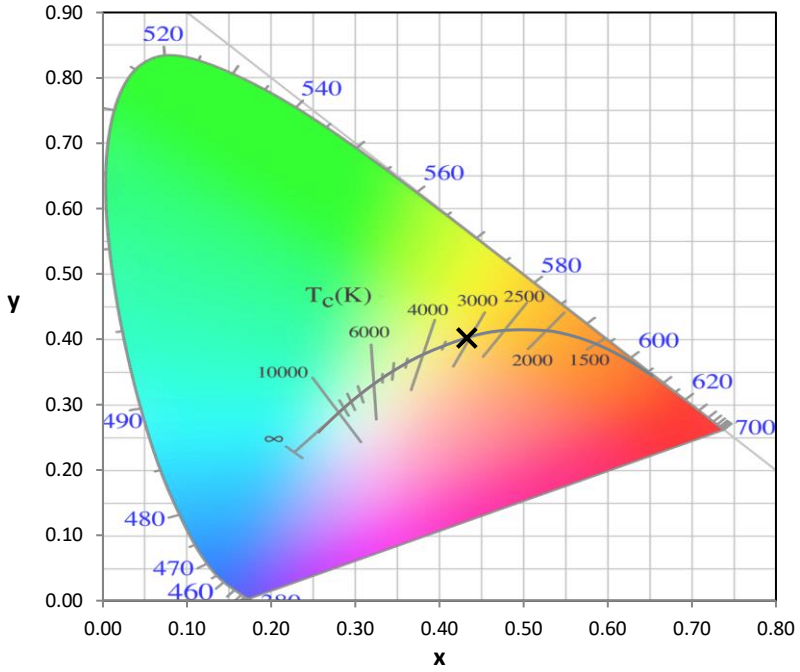
Stabilization Time:	21M
Operation Time:	1H 21M
Sphere Temperature (°C):	24.2

REPORT NUMBER: SP1-2407-157-4

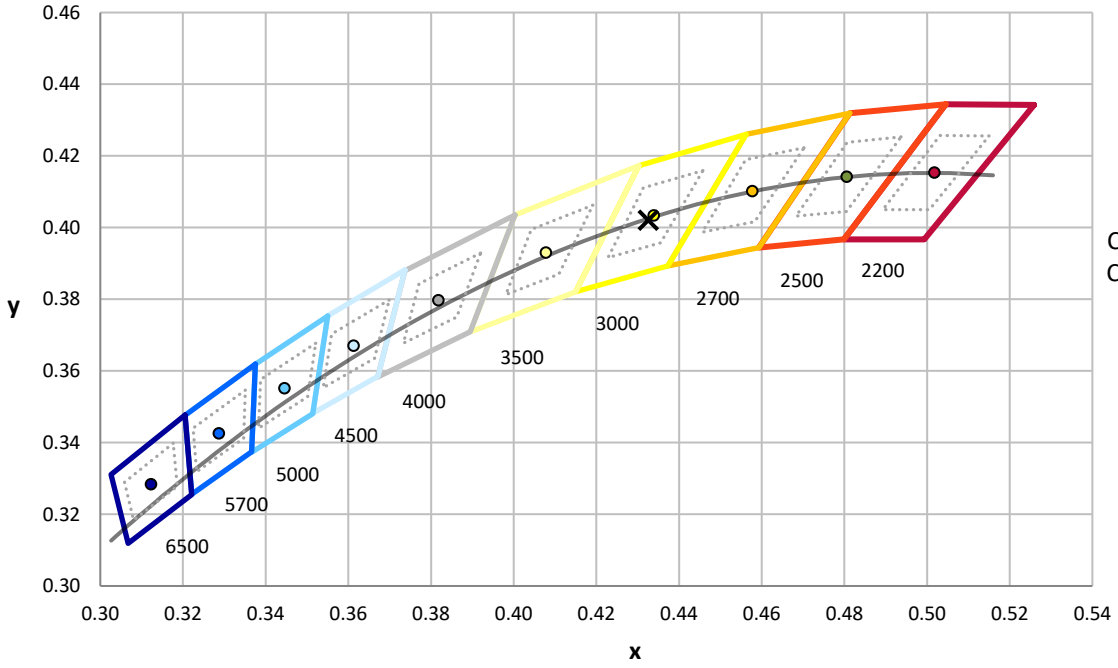
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2407-157-4

CIE 1931 Chromaticity Diagram



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



CCT = 3057K
CIE x = 0.4326
CIE y = 0.4020
Duv = -0.0002

Point lies inside the ANSI 3000K 4-step quadrangle

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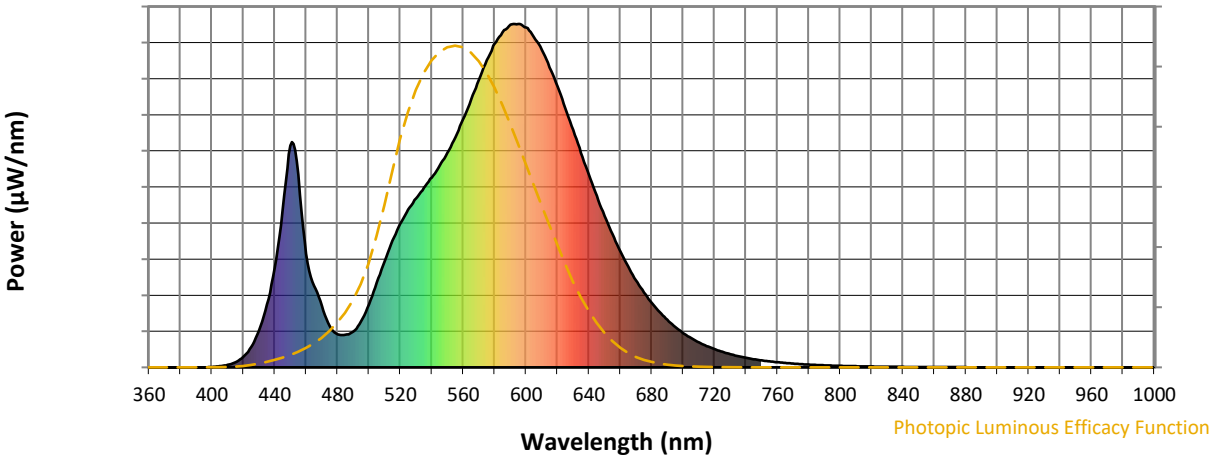
Photopic Flux vs. Wavelength

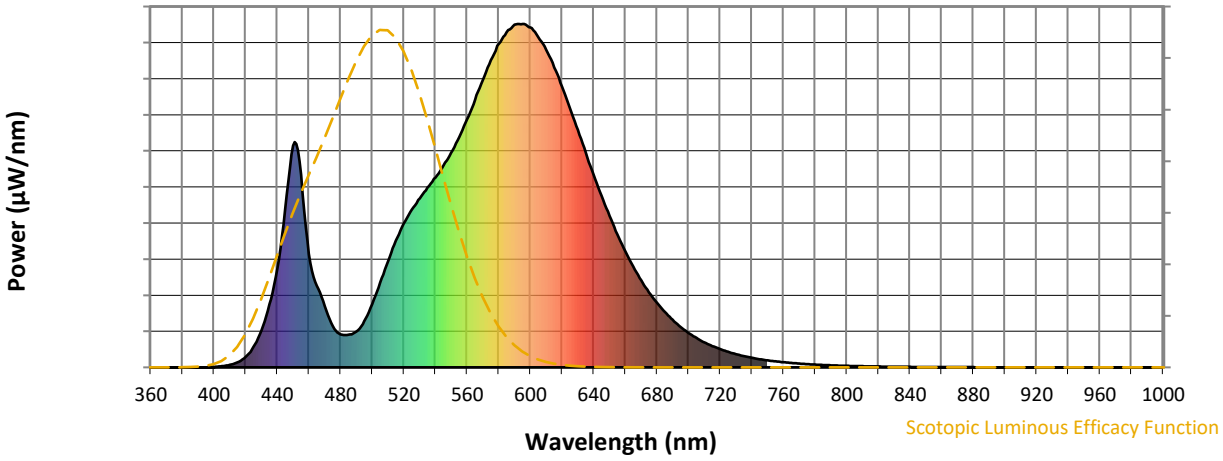


Photopic Lumens: NR

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	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-4

Scotopic Flux vs. Wavelength

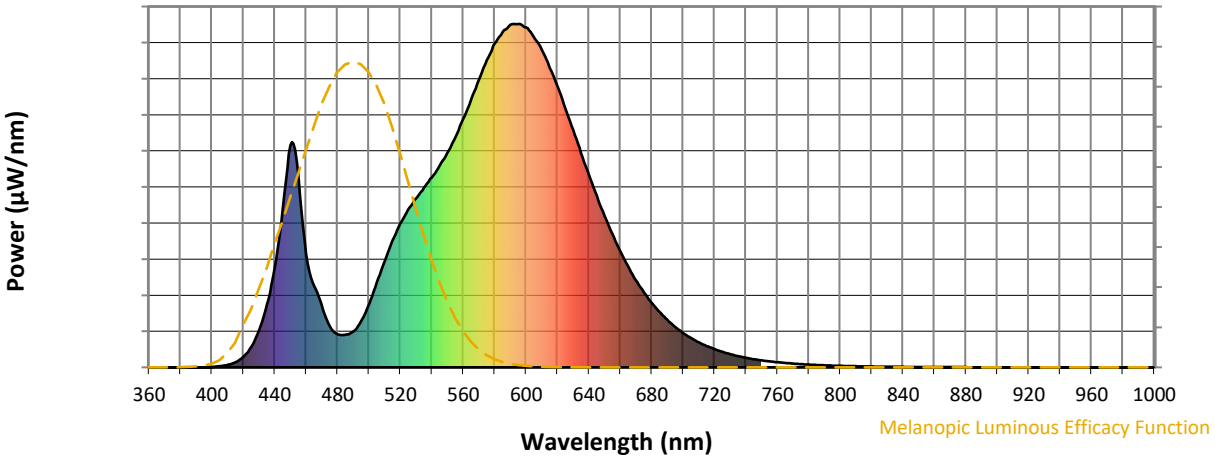


Scotopic Lumens: NR **S/P: 1.23**

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	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.27**

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	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

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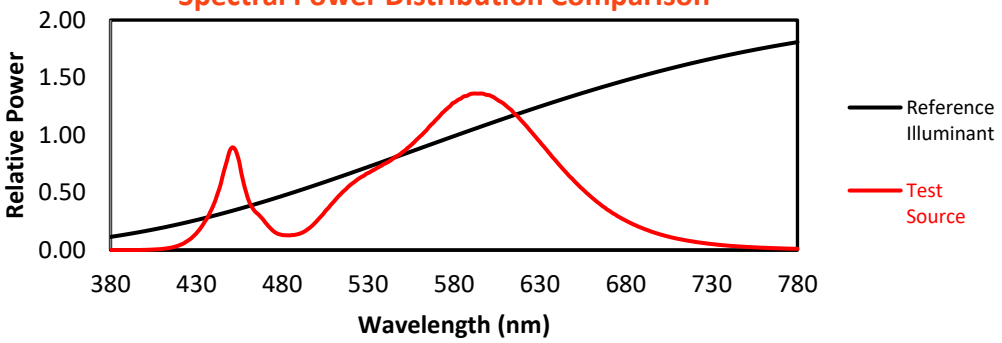
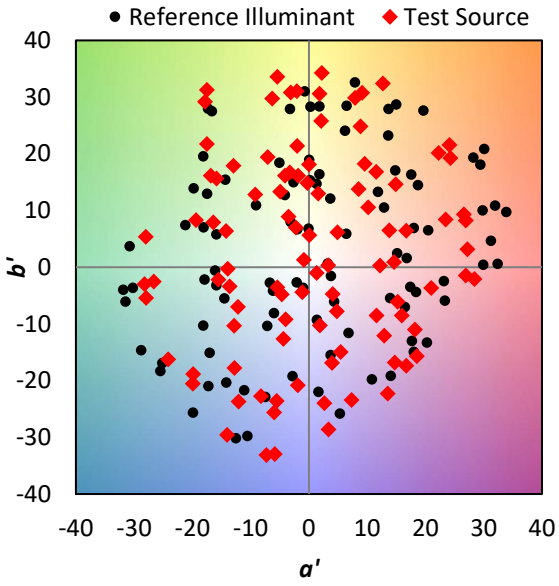
Summary

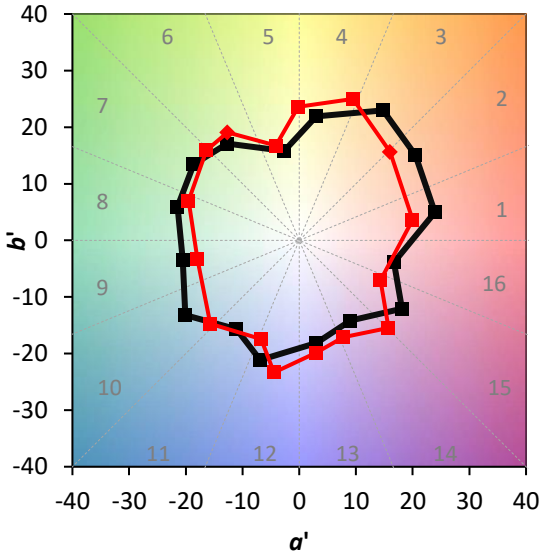
R_f = 74.6
R_g = 94
CIE R_a = 71.7
R_9 = -34.8

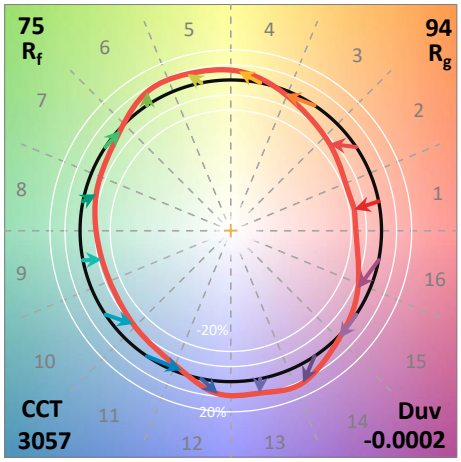
Spectral Power Distribution Comparison

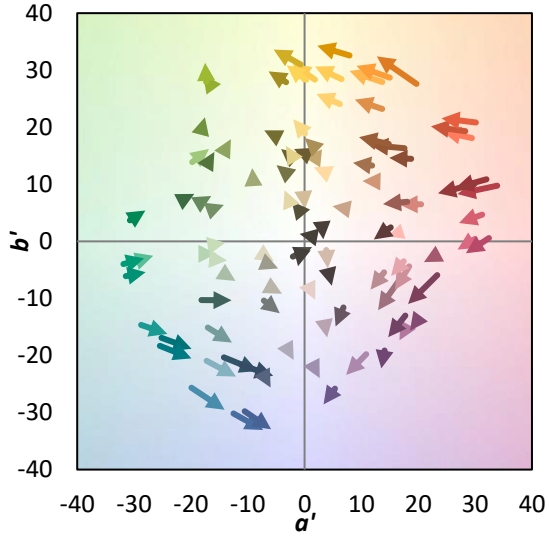


Color Vector Graphics









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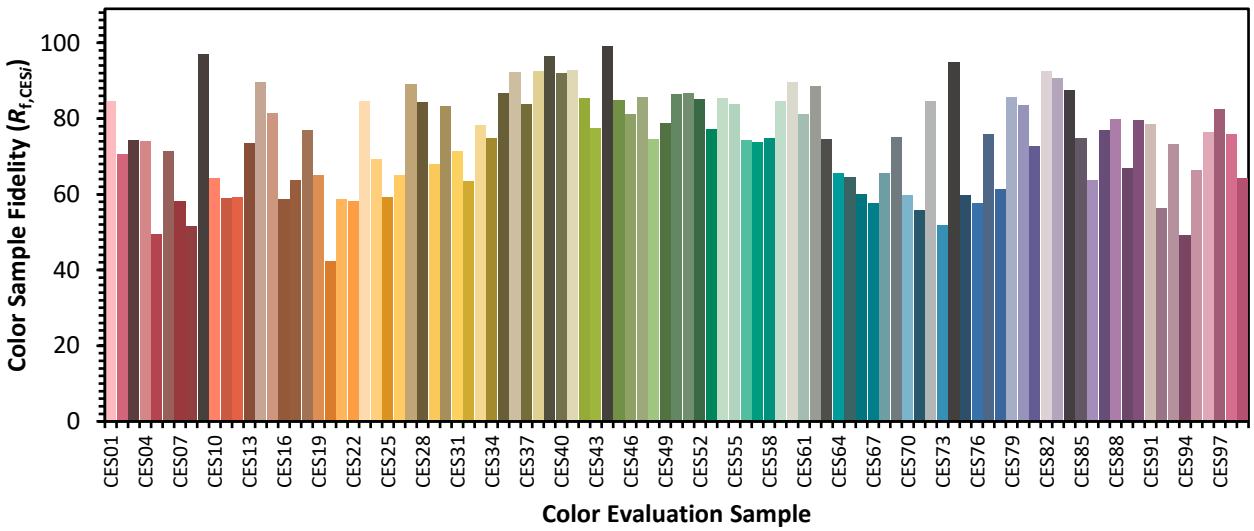
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 65	CES51 = 87	CES76 = 58
CES02 = 62	CES27 = 89	CES52 = 85	CES77 = 76
CES03 = 31	CES28 = 84	CES53 = 77	CES78 = 61
CES04 = 71	CES29 = 68	CES54 = 85	CES79 = 86
CES05 = 49	CES30 = 83	CES55 = 84	CES80 = 83
CES06 = 51	CES31 = 71	CES56 = 74	CES81 = 73
CES07 = 41	CES32 = 64	CES57 = 74	CES82 = 93
CES08 = 40	CES33 = 78	CES58 = 75	CES83 = 91
CES09 = 29	CES34 = 75	CES59 = 85	CES84 = 88
CES10 = 76	CES35 = 87	CES60 = 90	CES85 = 75
CES11 = 59	CES36 = 92	CES61 = 81	CES86 = 64
CES12 = 65	CES37 = 84	CES62 = 89	CES87 = 77
CES13 = 43	CES38 = 92	CES63 = 75	CES88 = 80
CES14 = 74	CES39 = 96	CES64 = 65	CES89 = 67
CES15 = 71	CES40 = 92	CES65 = 64	CES90 = 80
CES16 = 47	CES41 = 93	CES66 = 60	CES91 = 78
CES17 = 50	CES42 = 86	CES67 = 58	CES92 = 56
CES18 = 56	CES43 = 77	CES68 = 66	CES93 = 73
CES19 = 73	CES44 = 99	CES69 = 75	CES94 = 49
CES20 = 66	CES45 = 85	CES70 = 60	CES95 = 66
CES21 = 87	CES46 = 81	CES71 = 56	CES96 = 76
CES22 = 79	CES47 = 86	CES72 = 85	CES97 = 82
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 76
CES24 = 91	CES49 = 79	CES74 = 95	CES99 = 64
CES25 = 73	CES50 = 86	CES75 = 60	



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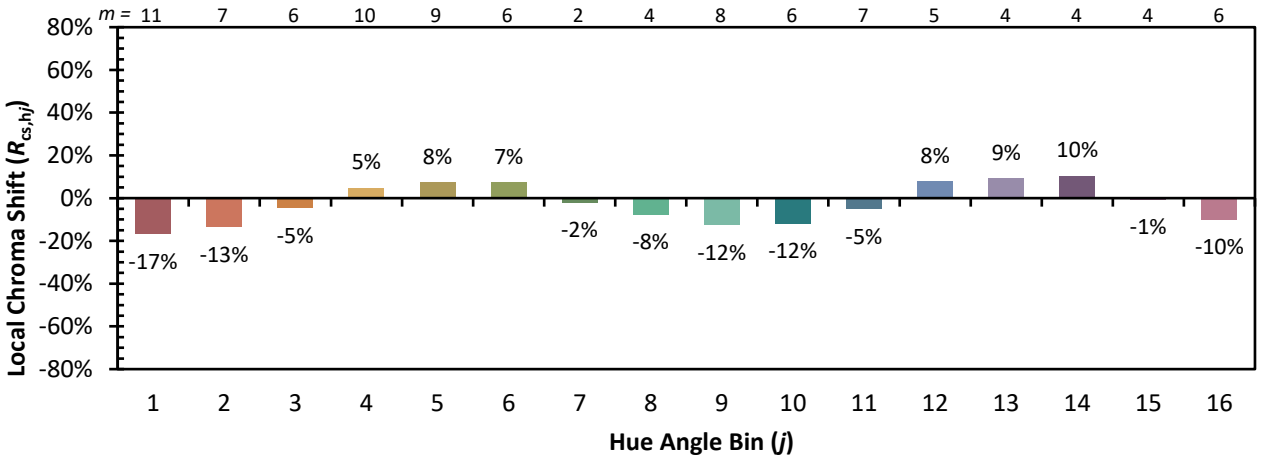
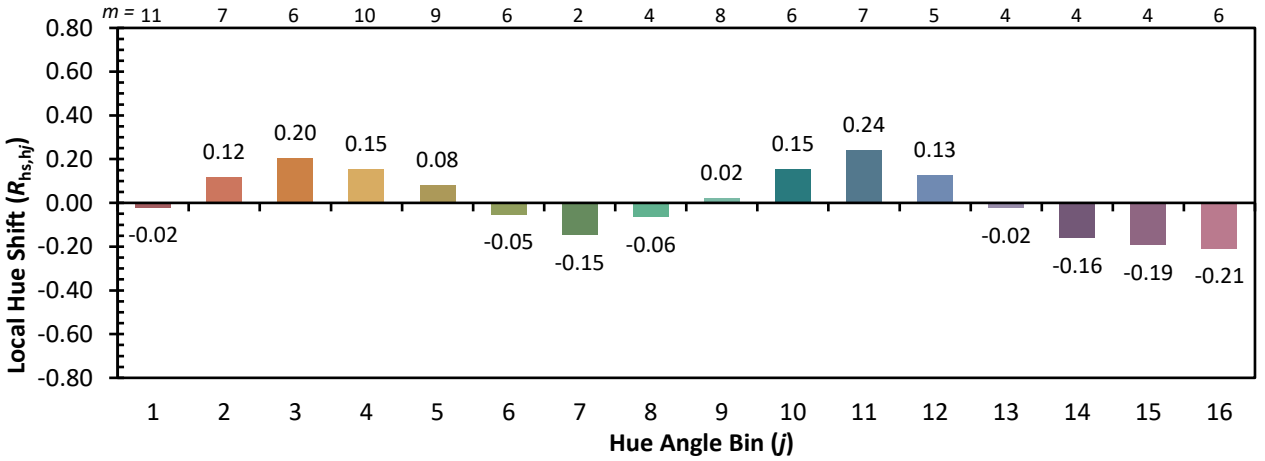
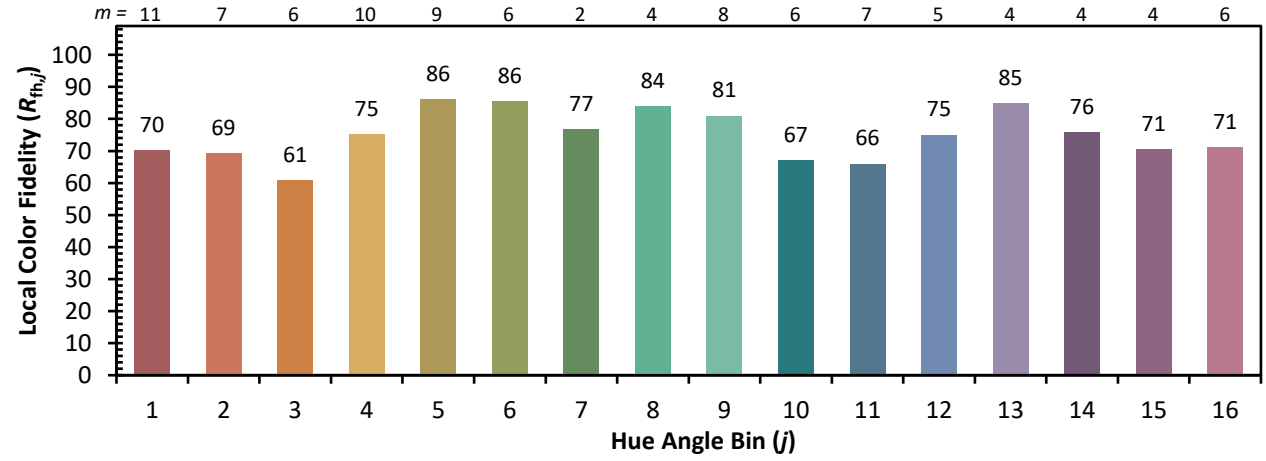
Color Rendition by Hue-Angle Bin







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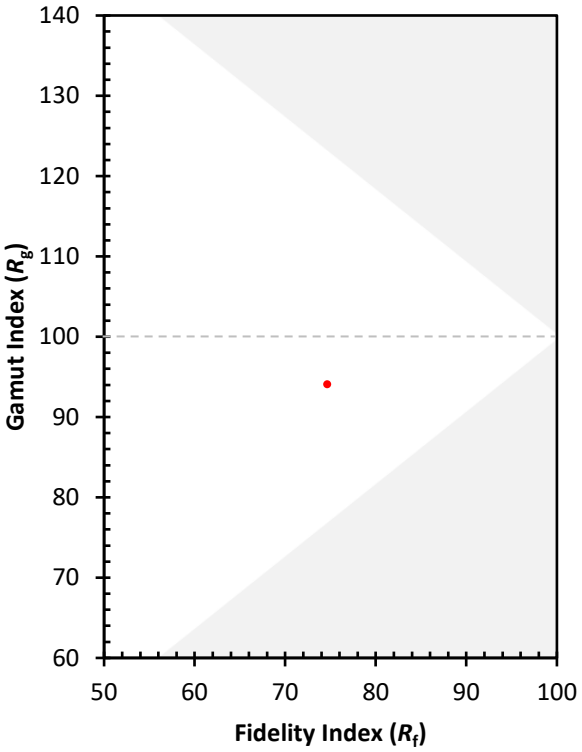
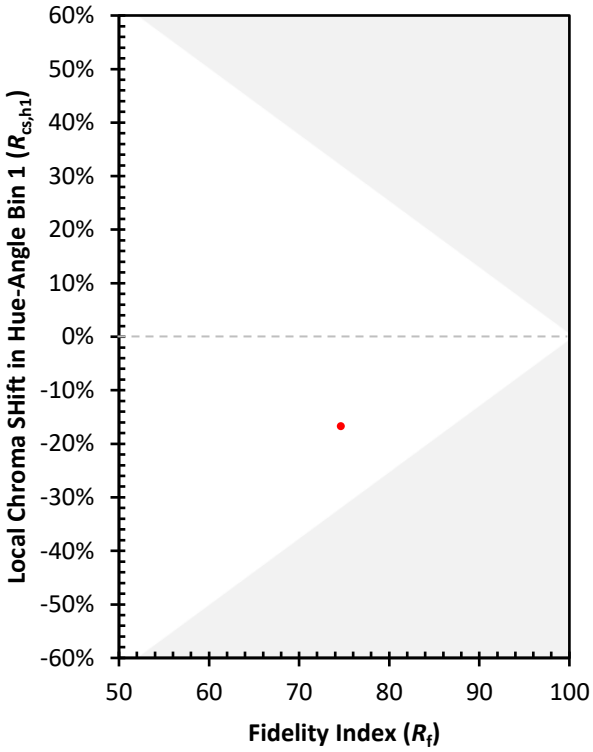
Measure Comparisons





(END OF REPORT)