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: P821392

Luminaire Tested: **TT-D4-750-24VDC-RW**

Issue Date: 10/15/2020

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:	P821392
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2010-981-1)
Test Lab:	INNOVATION CENTER
Issue Date:	10/15/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D4-750-24VDC-RW
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	5000K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	6050 lumens
Efficiency:	N/A
Efficacy:	106.1 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type IV - Short
BUG Rating:	B3 - U0 - G3

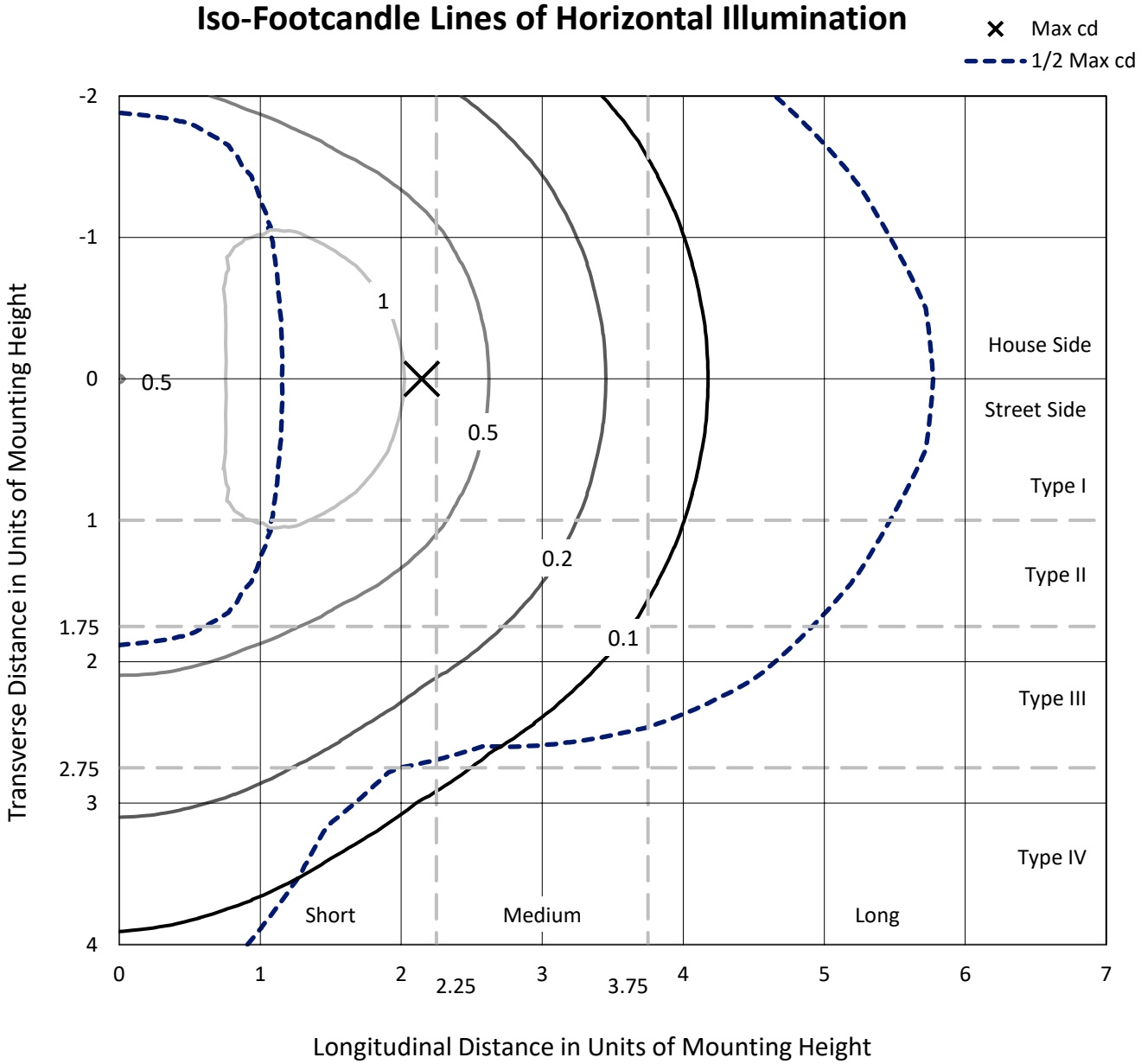
Input Watts (W):	57
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Scaled Data Report

REPORT NUMBER: P821392
CATALOG NUMBER: TT-D4-750-24VDC-RW

Iso-Footcandle Lines of Horizontal Illumination



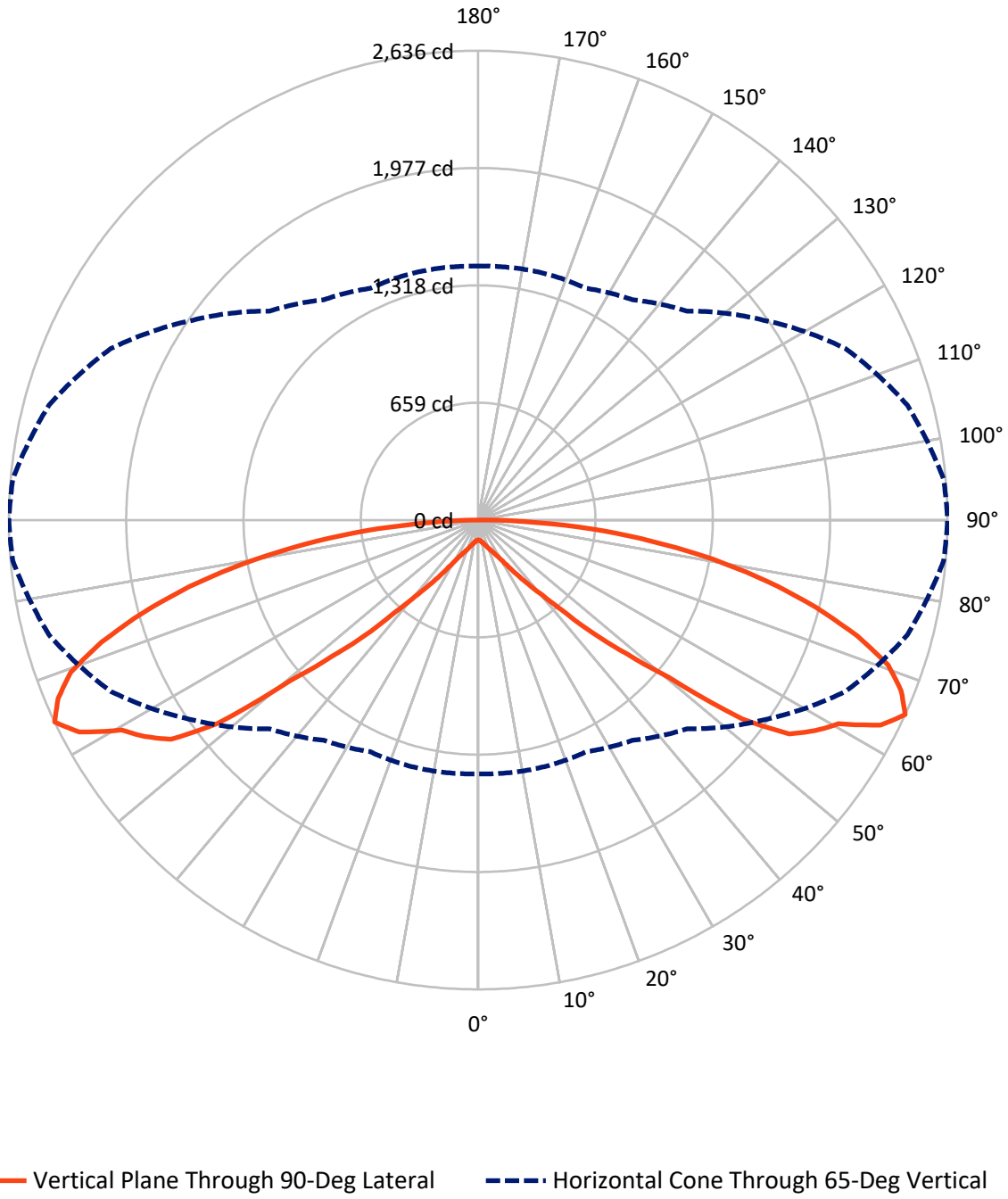
Based on 15 foot mounting height. Maximum calculated value = 1.8 fc
Type IV - Short - N/A

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Luminous Intensity Polar Plot



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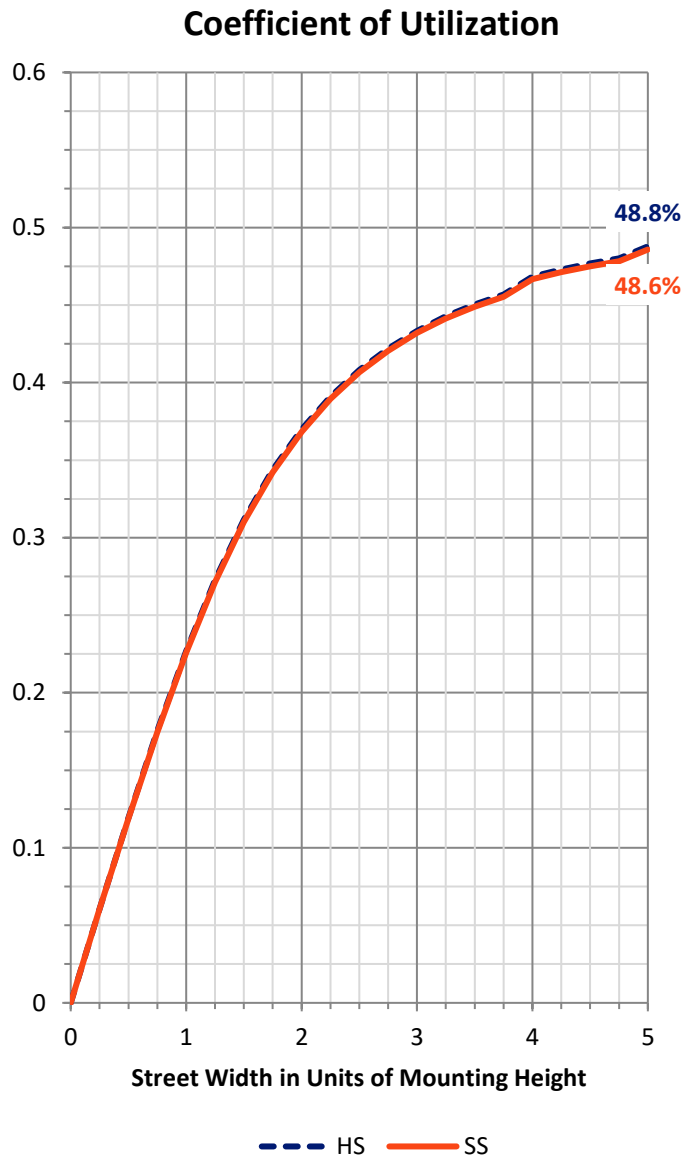
REPORT NUMBER: P821392
CATALOG NUMBER: TT-D4-750-24VDC-RW

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3025.0	0.0	3025.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3025.0	0.0	3025.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	6050.0	0.0	6050.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	11.5	0.2
10°-20°	43.1	0.7
20°-30°	99.7	1.6
30°-40°	225.4	3.7
40°-50°	549.1	9.1
50°-60°	1234.8	20.4
60°-70°	1804.6	29.8
70°-80°	1572.4	26.0
80°-90°	509.3	8.4
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°	6050.0	100.0
0°-180°	6050.0	100.0



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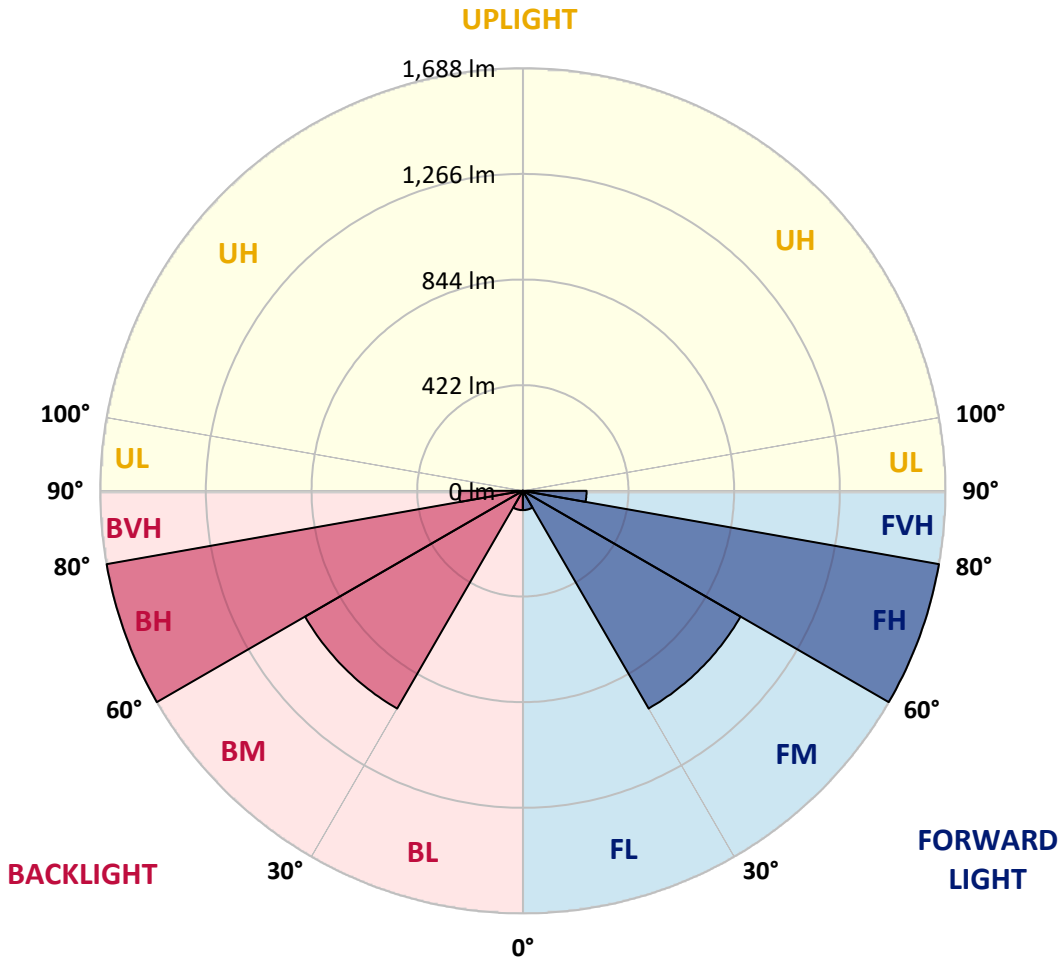
Scaled Data Report

REPORT NUMBER: P821392
CATALOG NUMBER: TT-D4-750-24VDC-RW

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	77.2	1.3			
FM	(30°-60°)	1004.6	16.6			
FH	(60°-80°)	1688.5	27.9			G1/1800
FVH	(80°-90°)	254.7	4.2			G3/500
BL	(0°-30°)	77.2	1.3	B0/110		
BM	(30°-60°)	1004.6	16.6	B2/2500		
BH	(60°-80°)	1688.5	27.9	B3/2500		G3/2500
BVH	(80°-90°)	254.7	4.2			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3
Type IV Short



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REPORT NUMBER: P821392
CATALOG NUMBER: TT-D4-750-24VDC-RW

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	110.5	*110.5*
2.5°	112.0	112.0	113.4	113.4	113.4	113.4	113.4	113.4	113.4	113.4	*113.4*
5°	116.3	116.3	116.3	116.3	117.7	117.7	116.3	116.3	116.3	116.3	*116.3*
7.5°	123.5	122.0	123.5	123.5	123.5	122.0	122.0	122.0	120.6	120.6	*120.6*
10°	130.6	130.6	132.1	130.6	130.6	129.2	129.2	129.2	127.8	127.8	*127.8*
12.5°	140.7	140.7	140.7	140.7	139.2	139.2	137.8	136.4	134.9	134.9	*134.9*
15°	153.6	152.2	152.2	150.7	149.3	147.9	146.4	146.4	145.0	145.0	*145.0*
17.5°	166.5	166.5	165.1	163.6	160.8	159.3	159.3	157.9	156.5	156.5	*156.5*
20°	182.3	182.3	180.9	178.0	175.1	173.7	172.3	172.3	170.8	170.8	*170.8*
22.5°	201.0	199.5	196.7	193.8	190.9	189.5	188.1	186.6	186.6	186.6	*186.6*
25°	221.1	219.6	218.2	213.9	209.6	208.1	205.3	205.3	203.8	205.3	*205.3*
27.5°	245.5	244.0	241.2	236.9	231.1	228.2	226.8	226.8	228.2	228.2	*229.7*
30°	275.6	272.7	269.9	264.1	258.4	254.1	254.1	255.5	259.8	262.7	*262.7*
32.5°	311.5	310.1	305.8	300.0	290.0	287.1	290.0	298.6	304.3	308.6	*311.5*
35°	353.1	351.7	346.0	335.9	328.7	327.3	335.9	350.3	368.9	374.7	*377.5*
37.5°	399.1	400.5	393.3	381.8	374.7	377.5	394.8	422.0	440.7	453.6	*456.5*
40°	456.5	459.4	450.8	437.8	430.7	442.1	469.4	501.0	534.0	549.8	*554.1*
42.5°	524.0	528.3	516.8	503.9	499.6	518.2	557.0	608.7	667.5	686.2	*693.4*
45°	607.2	610.1	595.7	584.3	581.4	614.4	680.4	766.6	859.9	902.9	*910.1*
47.5°	706.3	704.8	691.9	677.6	680.4	727.8	826.9	943.1	1042.2	1108.2	*1122.6*
50°	819.7	812.5	802.5	785.2	803.9	872.8	997.7	1138.4	1304.9	1363.7	*1389.6*
52.5°	933.1	920.2	911.5	900.1	933.1	1022.1	1197.2	1442.7	1693.9	1828.8	*1856.1*
55°	1035.0	1025.0	1020.6	1022.1	1073.8	1201.5	1431.2	1745.6	1988.2	2100.2	*2120.3*
57.5°	1135.5	1129.7	1125.4	1134.1	1215.9	1382.4	1640.8	1935.1	2134.6	2217.9	*2232.2*
60°	1230.2	1236.0	1233.1	1258.9	1358.0	1525.9	1749.9	2039.9	2232.2	2308.3	*2324.1*
62.5°	1335.0	1339.3	1339.3	1368.0	1448.4	1596.3	1824.5	2163.3	2407.4	2519.3	*2536.5*
65°	*1425.5*	*1428.3*	*1434.1*	*1435.5*	*1510.2*	*1658.0*	*1956.6*	*2276.7*	*2494.9*	*2624.1*	*2635.6*
67.5°	1492.9	1495.8	1488.6	1481.4	1538.9	1672.4	1946.6	2262.4	2456.2	2553.8	*2562.4*
70°	1547.5	1534.6	1514.5	1478.6	1497.2	1597.7	1863.3	2147.5	2342.8	2430.3	*2443.2*
72.5°	1554.7	1543.2	1480.0	1399.6	1376.7	1464.2	1716.9	1972.4	2140.3	2223.6	*2225.0*
75°	1511.6	1481.4	1376.7	1256.1	1213.0	1296.3	1513.0	1745.6	1880.5	1950.9	*1958.0*
77.5°	1366.6	1337.9	1205.8	1068.0	1019.2	1091.0	1274.7	1462.8	1592.0	1660.9	*1665.2*
80°	1109.7	1099.6	979.0	852.7	793.8	835.5	996.2	1144.1	1248.9	1330.7	*1337.9*
82.5°	818.2	809.6	717.8	607.2	559.8	594.3	709.1	818.2	915.9	981.9	*986.2*
85°	511.0	493.8	436.4	358.9	327.3	350.3	426.3	499.6	587.1	638.8	*641.7*
87.5°	170.8	163.6	140.7	116.3	97.6	101.9	124.9	152.2	222.5	245.5	*259.8*
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: SP1-2407-176-6

Test Date: 09/26/2024

Luminaire Tested: MEM2-HTN-VA-30-750-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-750-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

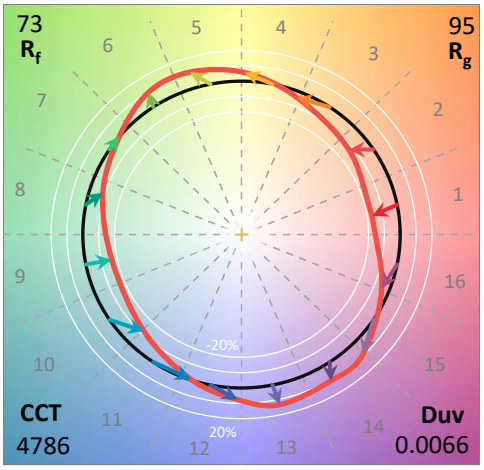
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-6
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	09/27/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-VA-30-750-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	4786
CIE u':	0.2093
CIE v':	0.4953
Duv:	0.0066
CIE x:	0.3533
CIE y:	0.3716
CIE z:	0.2751
Peak Wavelength (nm):	449
Dominant Wavelength (nm):	570
Purity:	17.53512
Rf:	73
Rg:	94.6

CRI (Ra):	70.9				
R1:	67.8	R9:	-29.8		
R2:	75.1	R10:	40.9		
R3:	80.6	R11:	67.4		
R4:	71.6	R12:	35.3		
R5:	67.8	R13:	68.5		
R6:	65.4	R14:	89.0		
R7:	82.0	R15:	60.9		
R8:	57.0				



Test Conditions

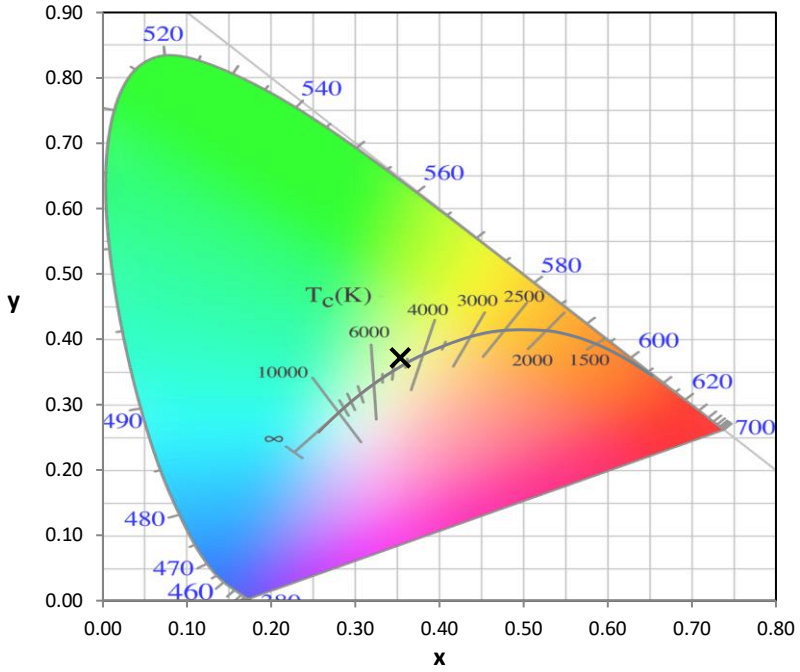
Stabilization Time:	45M
Operation Time:	1H 45M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-6

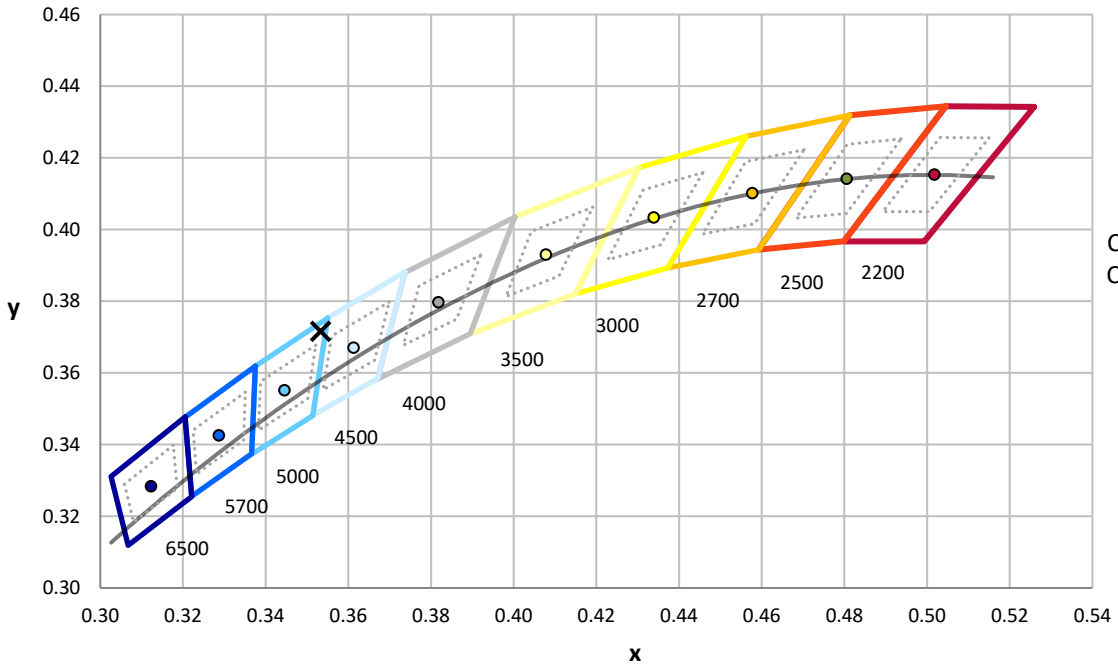
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



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

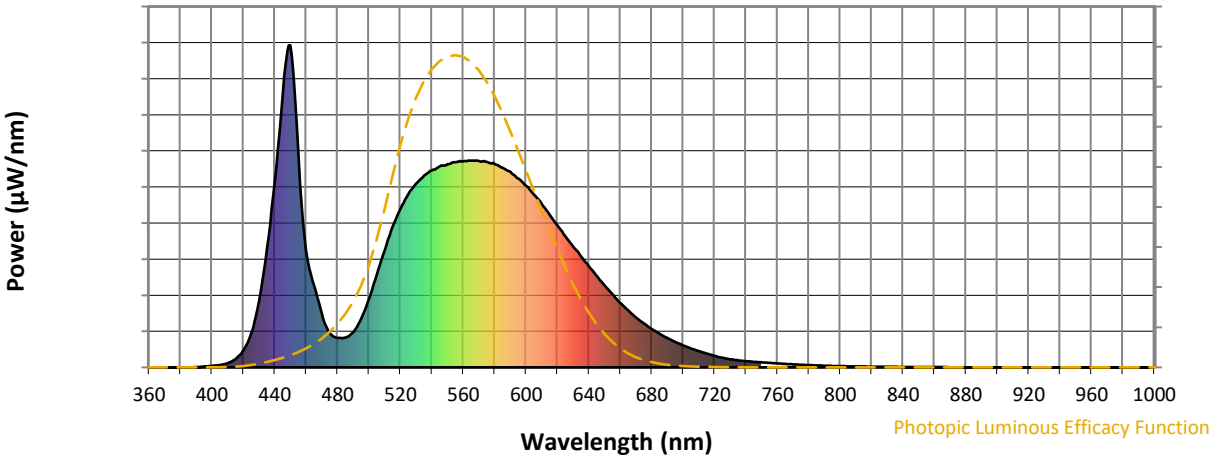


CCT = 4786K
CIE x = 0.3533
CIE y = 0.3716
Duv = 0.0066

Point lies inside the ANSI 5000K 7-step quadrangle

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Photopic Flux vs. Wavelength

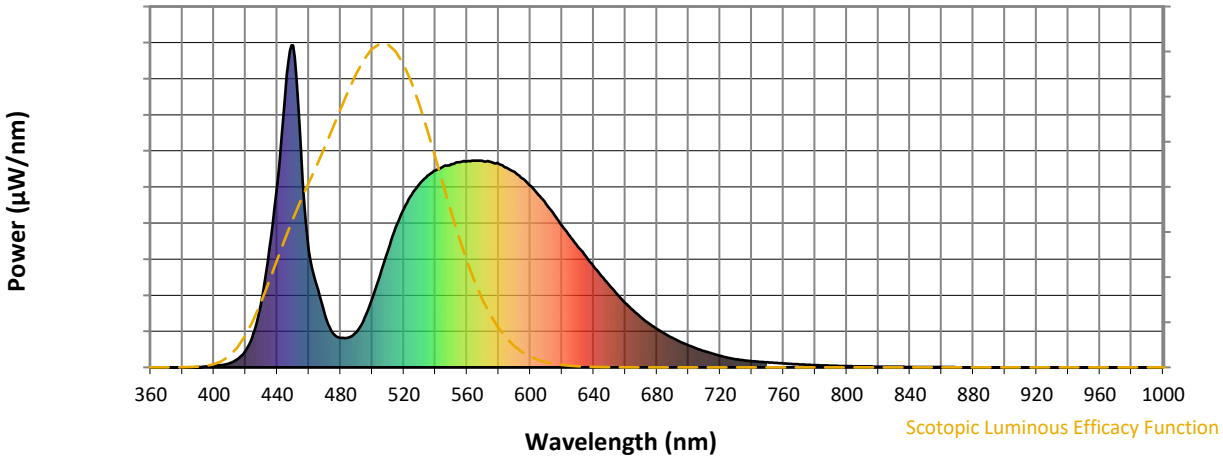


Photopic Lumens: NR

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	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

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Scotopic Flux vs. Wavelength

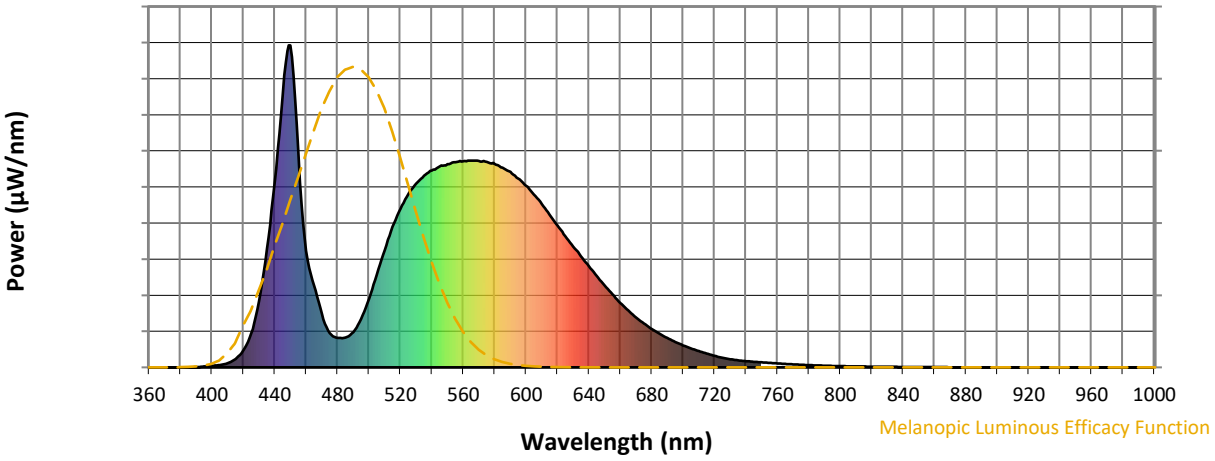


Scotopic Lumens: NR **S/P: 1.69**

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	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-6

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 3.36**

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	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

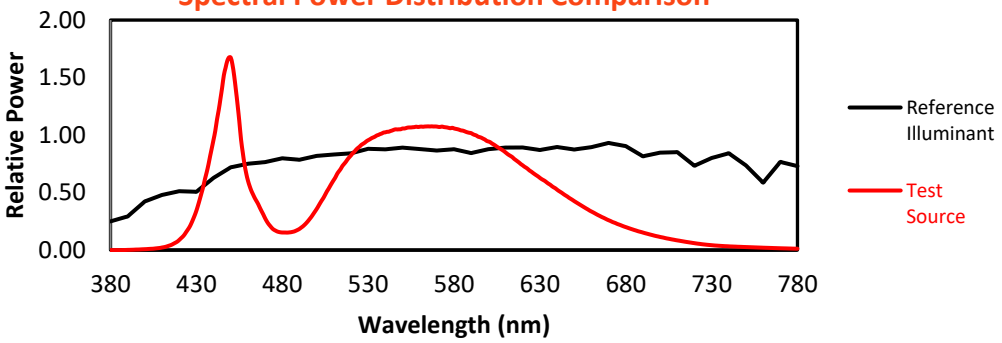
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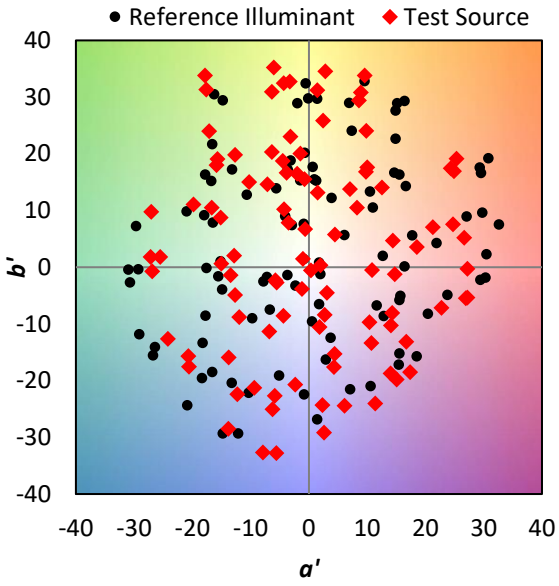
Summary

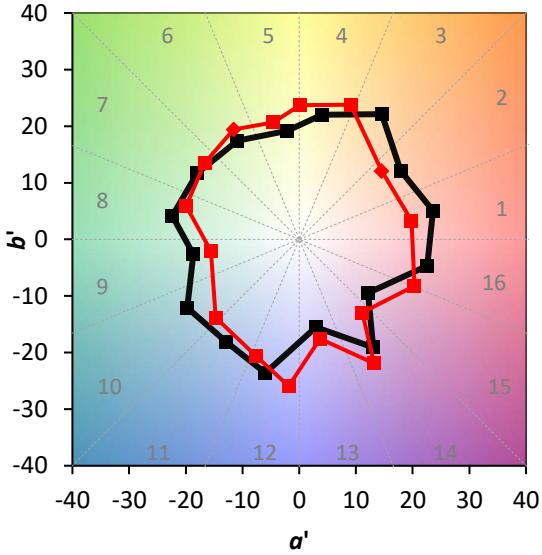
R_f = 73
R_g = 94.6
CIE R_a = 70.9
R_9 = -29.8

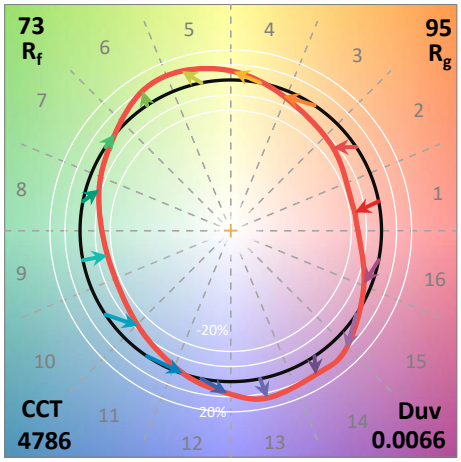
Spectral Power Distribution Comparison

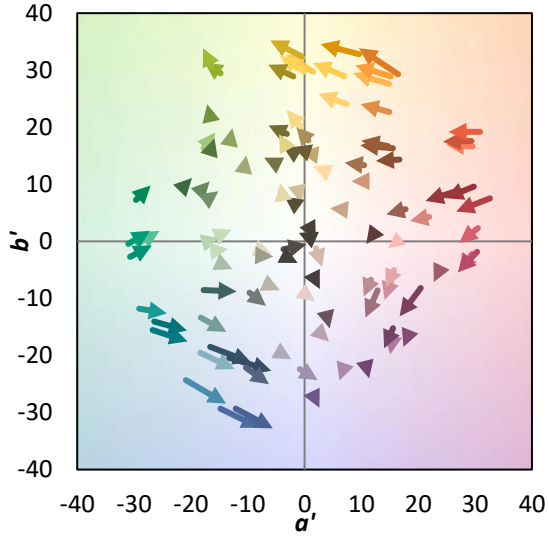


Color Vector Graphics







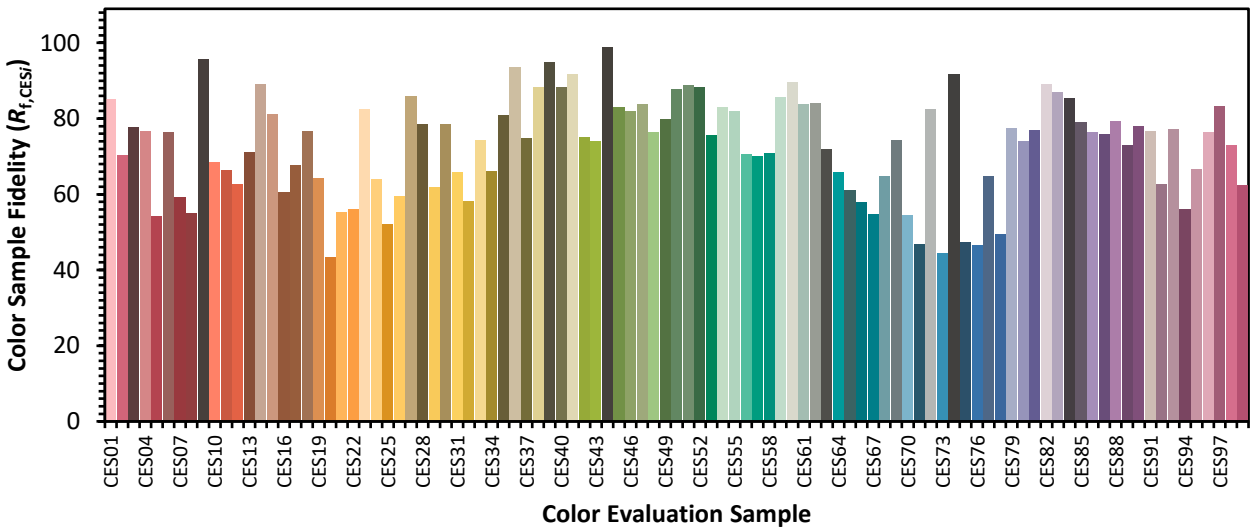


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Individual Sample Fidelity Index ($R_{f,i}$)

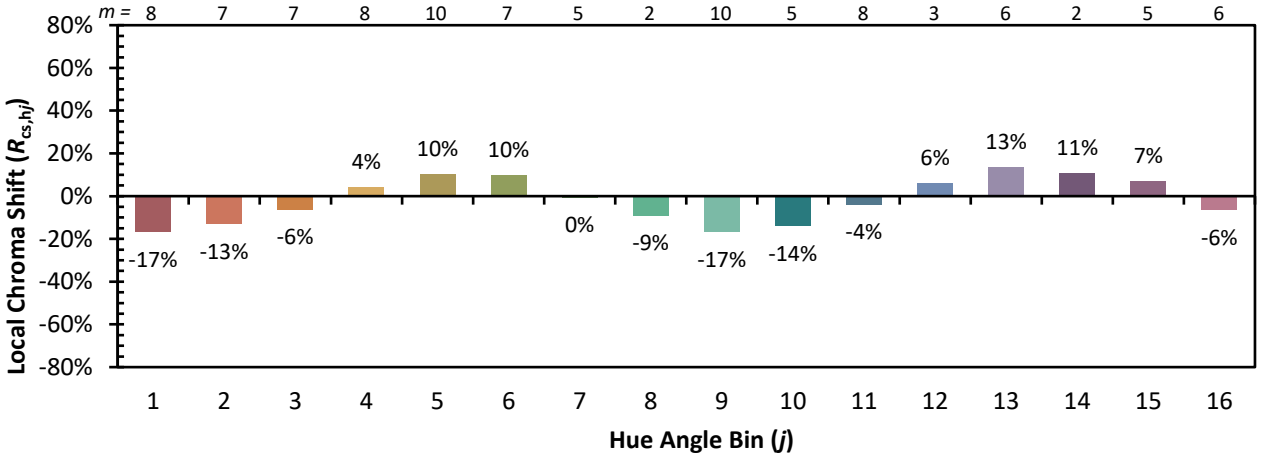
CES01 = 85	CES26 = 60	CES51 = 89	CES76 = 46
CES02 = 59	CES27 = 86	CES52 = 88	CES77 = 65
CES03 = 30	CES28 = 78	CES53 = 76	CES78 = 49
CES04 = 69	CES29 = 62	CES54 = 83	CES79 = 78
CES05 = 46	CES30 = 79	CES55 = 82	CES80 = 74
CES06 = 50	CES31 = 66	CES56 = 71	CES81 = 77
CES07 = 39	CES32 = 58	CES57 = 70	CES82 = 89
CES08 = 38	CES33 = 74	CES58 = 71	CES83 = 87
CES09 = 29	CES34 = 66	CES59 = 86	CES84 = 86
CES10 = 72	CES35 = 81	CES60 = 90	CES85 = 79
CES11 = 56	CES36 = 94	CES61 = 84	CES86 = 76
CES12 = 61	CES37 = 75	CES62 = 84	CES87 = 76
CES13 = 41	CES38 = 88	CES63 = 72	CES88 = 79
CES14 = 74	CES39 = 95	CES64 = 66	CES89 = 73
CES15 = 70	CES40 = 88	CES65 = 61	CES90 = 78
CES16 = 46	CES41 = 92	CES66 = 58	CES91 = 77
CES17 = 49	CES42 = 75	CES67 = 55	CES92 = 63
CES18 = 55	CES43 = 74	CES68 = 65	CES93 = 77
CES19 = 71	CES44 = 99	CES69 = 74	CES94 = 56
CES20 = 64	CES45 = 83	CES70 = 55	CES95 = 67
CES21 = 85	CES46 = 82	CES71 = 47	CES96 = 76
CES22 = 77	CES47 = 84	CES72 = 82	CES97 = 83
CES23 = 91	CES48 = 76	CES73 = 44	CES98 = 73
CES24 = 90	CES49 = 80	CES74 = 92	CES99 = 62
CES25 = 71	CES50 = 88	CES75 = 47	

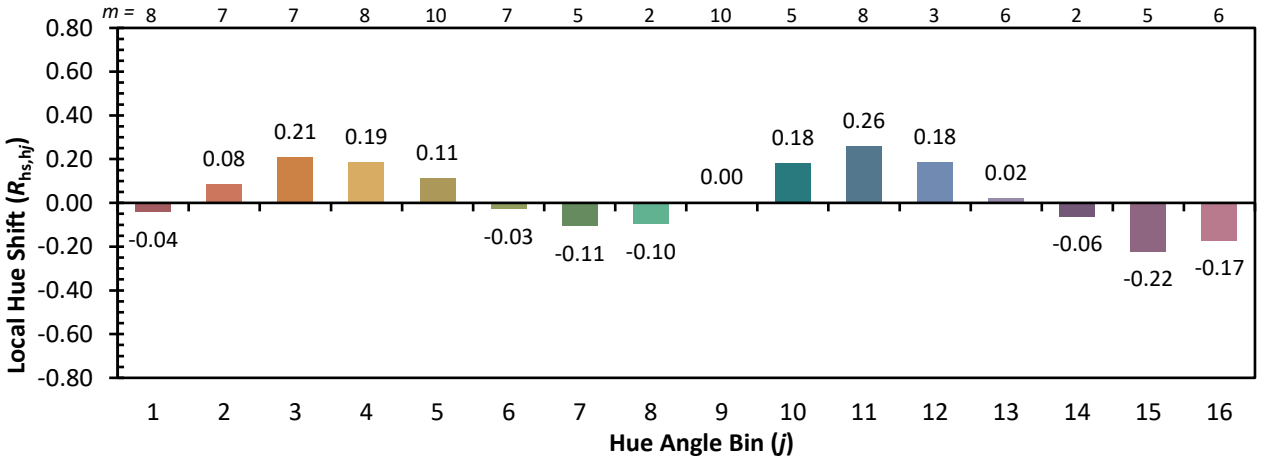


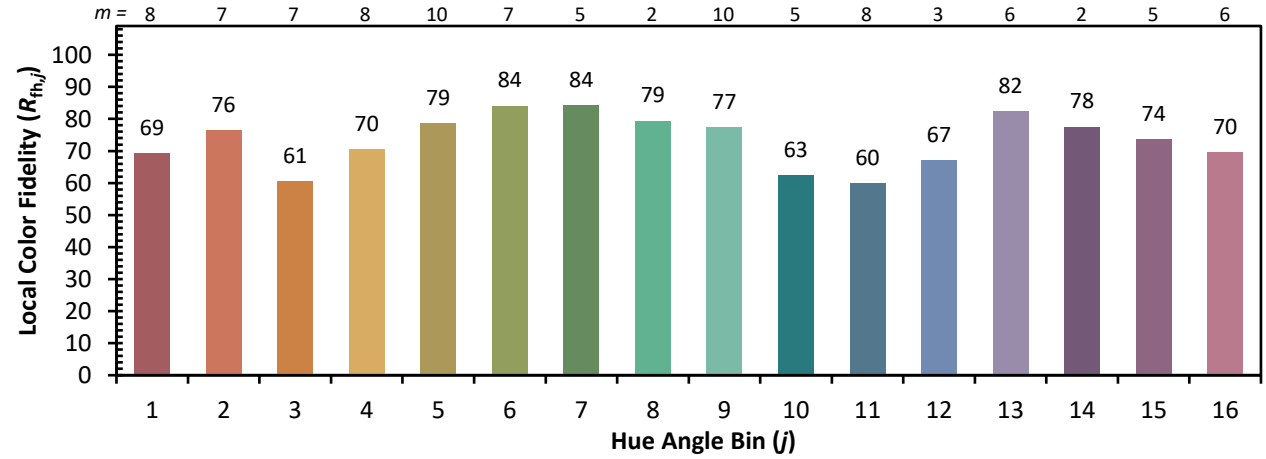
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Color Rendition by Hue-Angle Bin



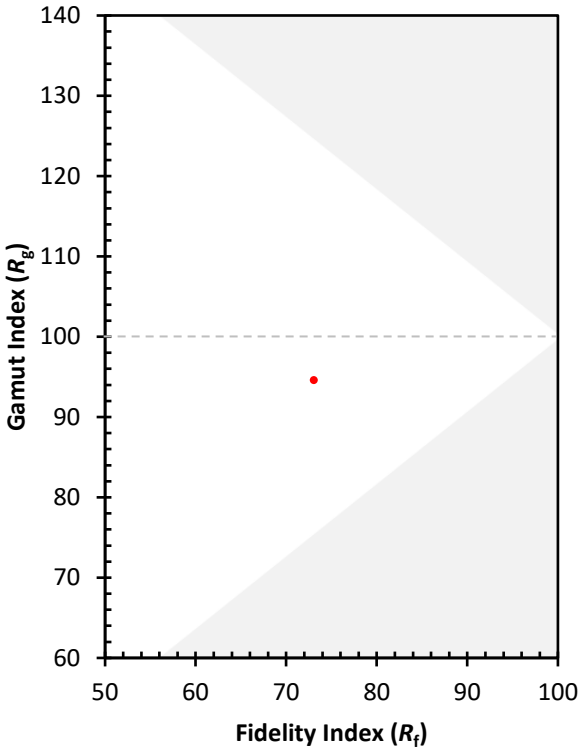


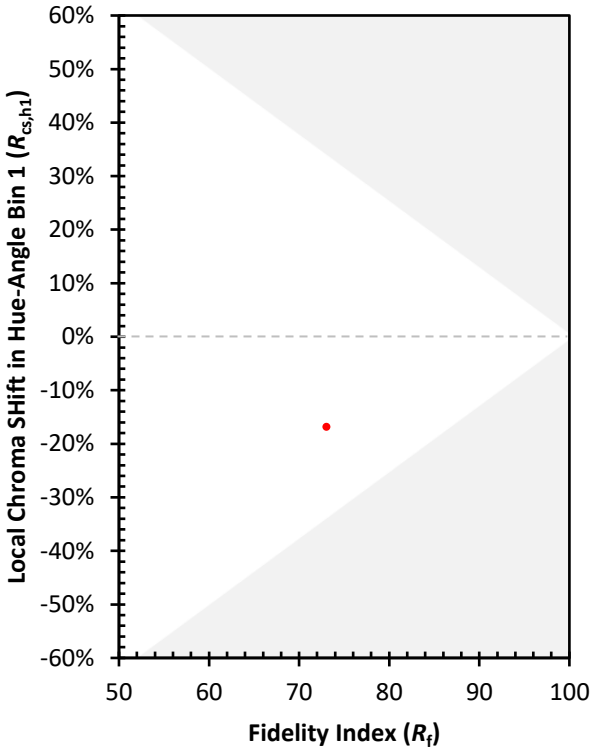


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Measure Comparisons





(END OF REPORT)