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: INVUE

Report Number: P880465

Luminaire Tested: **EMM2-HTN-VA6-830-U-CQ**

Issue Date: 10/01/2024

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:	P880465
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HTN-VA6-830-U-CQ
Description:	EPIC MODERN TALL HOUSING 6W 80CRI 3000K VISUAL COMFORT FIXTURE w/ TYPE V CONCENTRATED DISTRIBUTION OPTIC
Light Source:	(1) 3000K CCT, 80 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	7308.6 lumens
Efficiency:	N/A
Efficacy:	68.9 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G1

Input Watts (W):	106
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	5%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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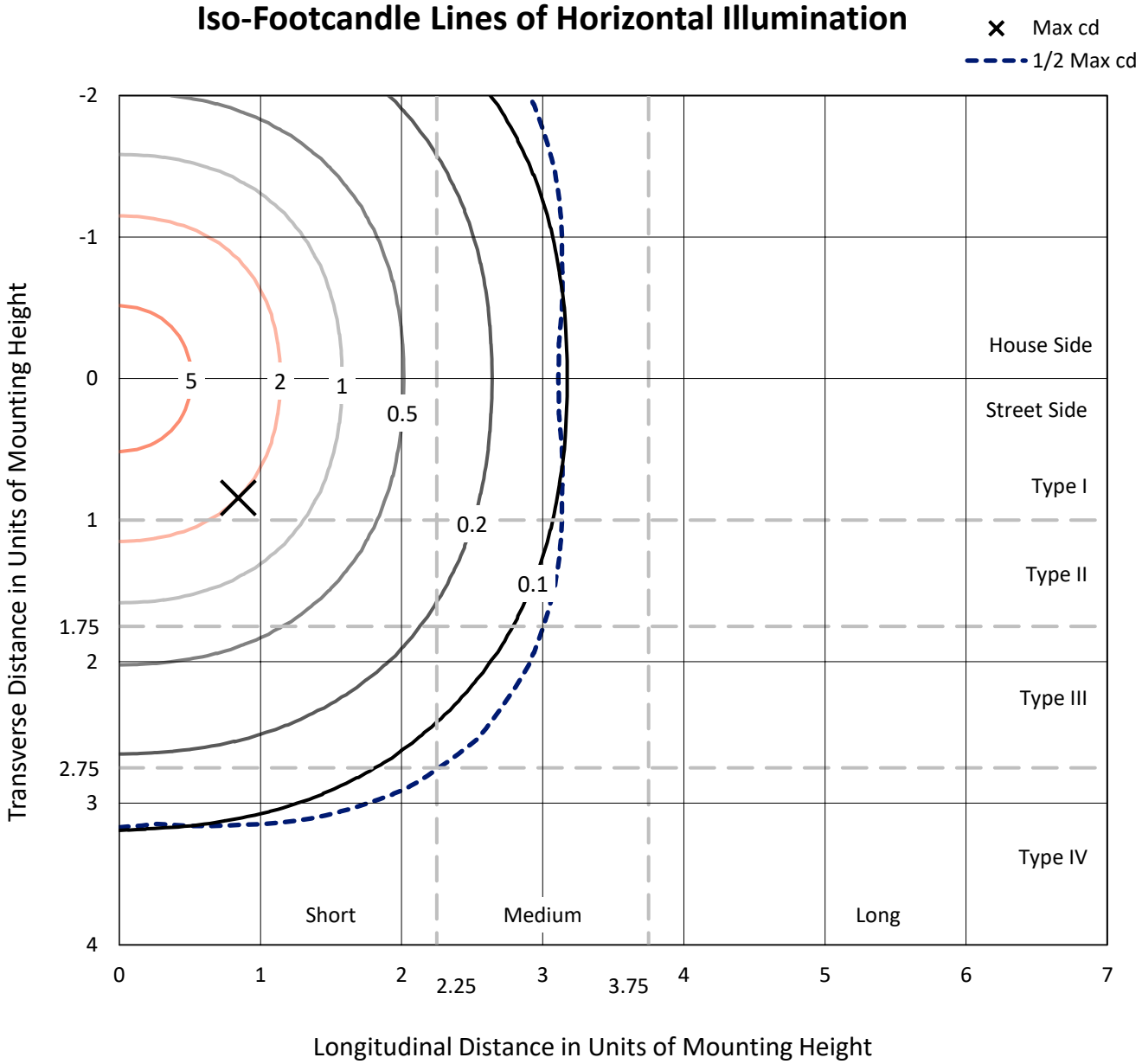
Scaled Data Report

REPORT NUMBER: P880465
CATALOG NUMBER: EMM2-HTN-VA6-830-U-CQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 7.3 fc
Type V - Short - N/A

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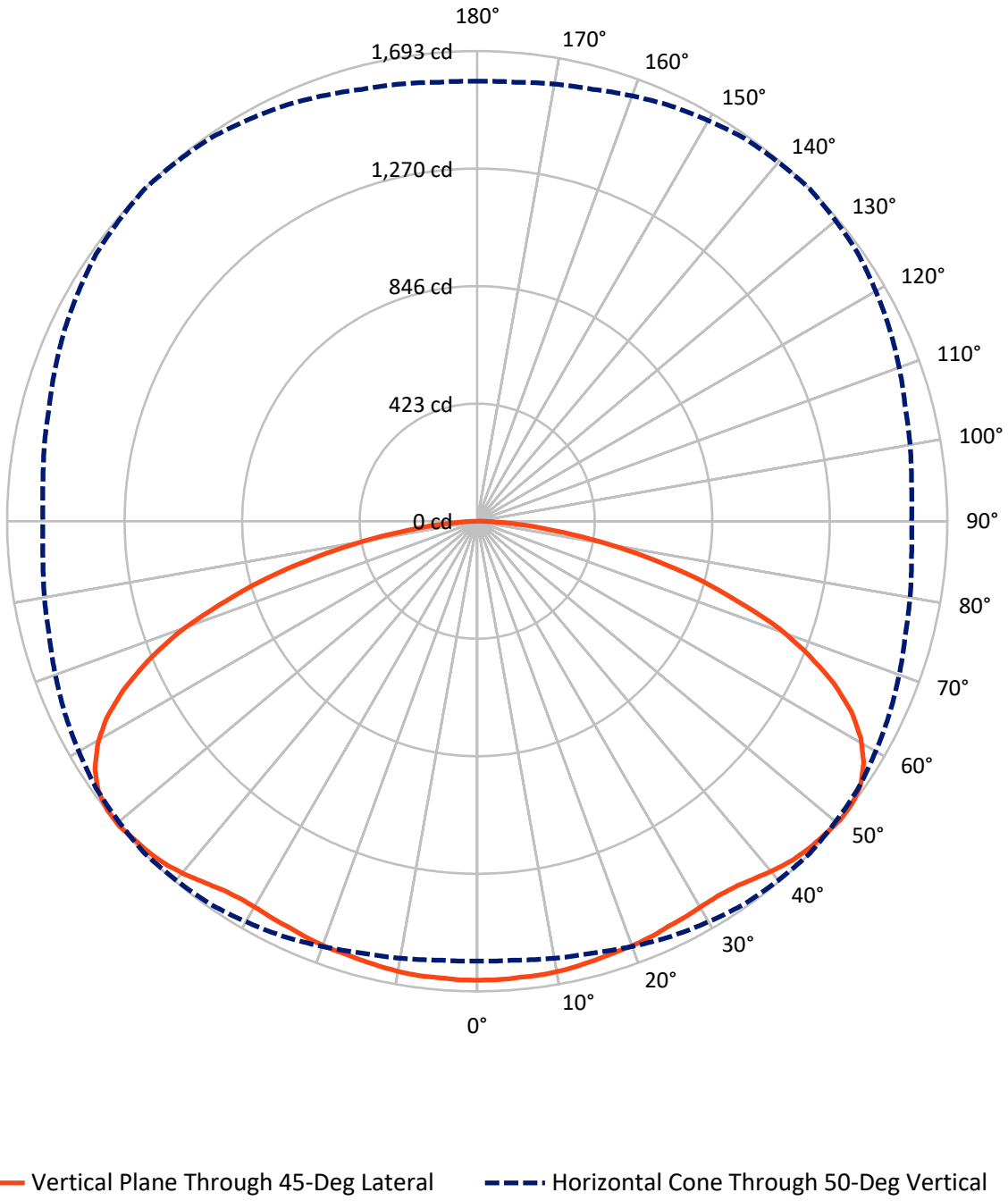
Luminous Intensity Polar Plot



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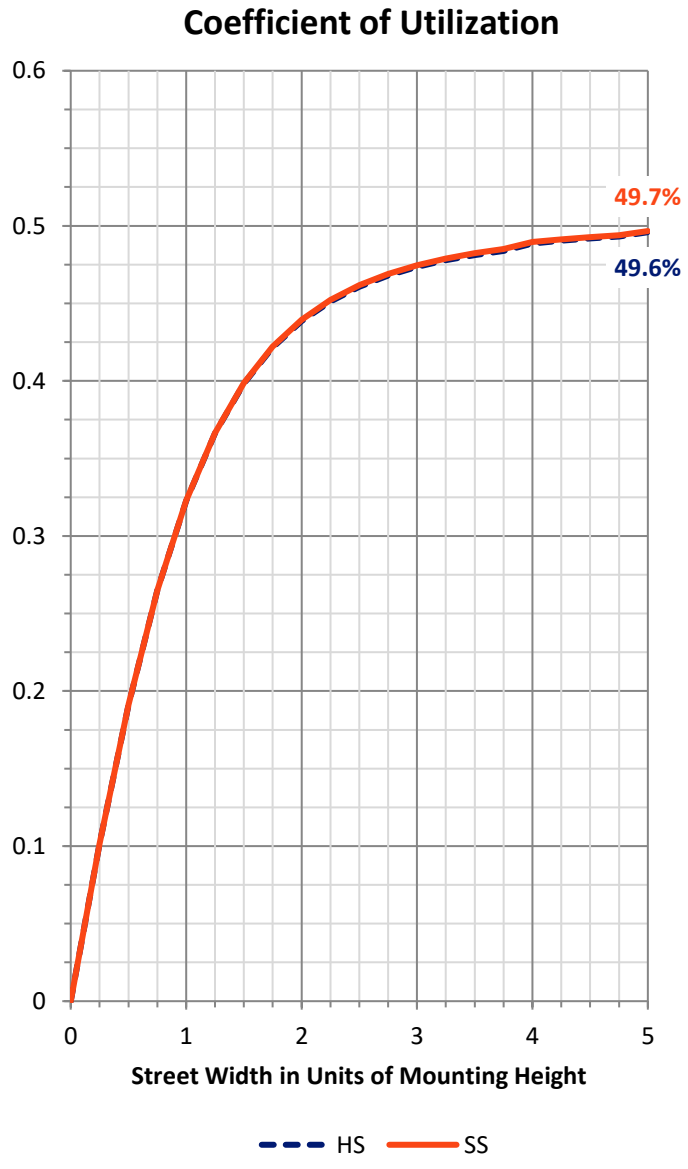
REPORT NUMBER: P880465
CATALOG NUMBER: EMM2-HTN-VA6-830-U-CQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3654.3	0.0	3654.3
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3654.3	0.0	3654.3
	% Fixture	50.0	0.0	50.0
Total	Lumens	7308.6	0.0	7308.6
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.4	2.2
10°-20°	463.1	6.3
20°-30°	744.9	10.2
30°-40°	1005.7	13.8
40°-50°	1264.4	17.3
50°-60°	1421.3	19.4
60°-70°	1294.2	17.7
70°-80°	781.5	10.7
80°-90°	176.2	2.4
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°	7308.6	100.0
0°-180°	7308.6	100.0



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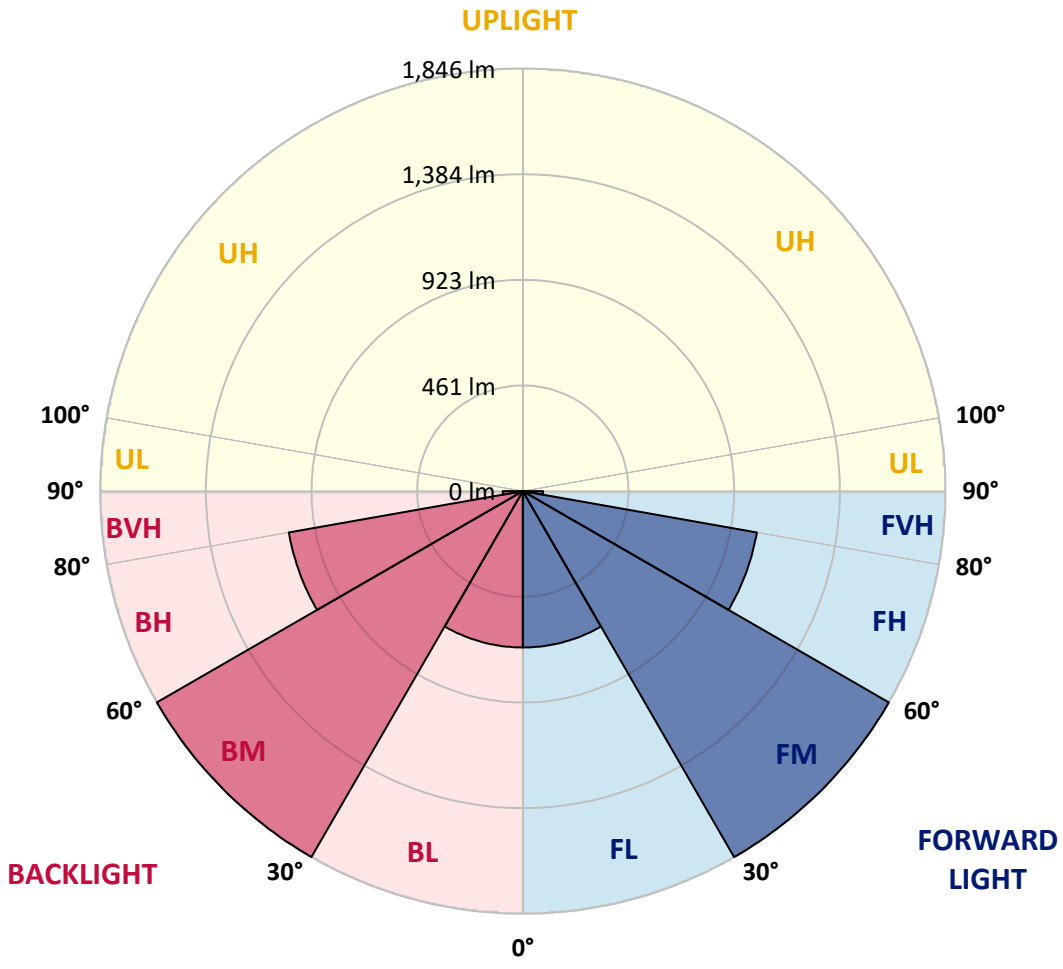
REPORT NUMBER: P880465
CATALOG NUMBER: EMM2-HTN-VA6-830-U-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	682.7	9.3			
FM	(30°-60°)	1845.7	25.3			
FH	(60°-80°)	1037.9	14.2			G1/1800
FVH	(80°-90°)	88.1	1.2			G1/100
BL	(0°-30°)	682.7	9.3	B2/1000		
BM	(30°-60°)	1845.7	25.3	B2/2500		
BH	(60°-80°)	1037.9	14.2	B3/2500		G1/1800
BVH	(80°-90°)	88.1	1.2			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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REPORT NUMBER: P880465
CATALOG NUMBER: EMM2-HTN-VA6-830-U-CQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1652.6	1652.6	1652.6	1652.6	1652.6	*1652.6*	1652.6	1652.6	1652.6	1652.6	1652.6
2.5°	1652.6	1652.6	1652.6	1652.6	1652.6	*1652.6*	1652.6	1652.6	1652.6	1652.6	1652.6
5°	1649.7	1649.7	1649.7	1649.7	1649.7	*1649.7*	1649.7	1649.7	1649.7	1649.7	1652.6
7.5°	1646.8	1649.7	1649.7	1646.8	1649.7	*1649.7*	1649.7	1649.7	1649.7	1649.7	1649.7
10°	1643.9	1643.9	1646.8	1646.8	1646.8	*1646.8*	1646.8	1646.8	1646.8	1646.8	1643.9
12.5°	1638.2	1641.1	1641.1	1641.1	1641.1	*1641.1*	1641.1	1641.1	1641.1	1641.1	1641.1
15°	1635.3	1635.3	1635.3	1635.3	1635.3	*1635.3*	1635.3	1635.3	1632.5	1632.5	1635.3
17.5°	1626.7	1626.7	1629.6	1629.6	1629.6	*1629.6*	1629.6	1629.6	1626.7	1626.7	1626.7
20°	1621.0	1621.0	1623.9	1623.9	1623.9	*1626.7*	1623.9	1621.0	1621.0	1621.0	1621.0
22.5°	1615.3	1615.3	1618.1	1618.1	1621.0	*1621.0*	1618.1	1618.1	1615.3	1615.3	1615.3
25°	1609.5	1609.5	1609.5	1612.4	1615.3	*1612.4*	1612.4	1609.5	1606.7	1603.8	1603.8
27.5°	1600.9	1600.9	1600.9	1606.7	1606.7	*1609.5*	1606.7	1603.8	1598.0	1595.2	1595.2
30°	1592.3	1592.3	1595.2	1600.9	1603.8	*1603.8*	1600.9	1595.2	1589.4	1586.6	1586.6
32.5°	1583.7	1586.6	1589.4	1598.0	1600.9	*1603.8*	1598.0	1592.3	1583.7	1578.0	1578.0
35°	1583.7	1583.7	1592.3	1600.9	1609.5	*1612.4*	1606.7	1595.2	1583.7	1575.1	1575.1
37.5°	1586.6	1589.4	1600.9	1612.4	1623.9	*1629.6*	1621.0	1606.7	1589.4	1578.0	1578.0
40°	1598.0	1598.0	1612.4	1632.5	1646.8	*1649.7*	1641.1	1621.0	1598.0	1583.7	1580.8
42.5°	1603.8	1606.7	1621.0	1643.9	1661.2	*1666.9*	1655.4	1632.5	1603.8	1583.7	1580.8
45°	1603.8	1606.7	1623.9	1649.7	1672.6	*1678.4*	1666.9	1638.2	1606.7	1586.6	1580.8
47.5°	1595.2	1598.0	1621.0	1652.6	1678.4	*1684.1*	1669.8	1641.1	1603.8	1580.8	1575.1
50°	*1583.7*	*1586.6*	*1609.5*	*1649.7*	*1681.2*	*1692.7*	*1675.5*	*1638.2*	*1595.2*	*1569.4*	*1563.6*
52.5°	1560.7	1563.6	1595.2	1638.2	1678.4	*1689.9*	1669.8	1629.6	1578.0	1549.3	1543.5
55°	1526.3	1532.1	1563.6	1615.3	1661.2	*1675.5*	1652.6	1606.7	1552.1	1517.7	1512.0
57.5°	1480.4	1483.3	1520.6	1578.0	1626.7	*1641.1*	1618.1	1569.4	1509.1	1471.8	1468.9
60°	1414.4	1420.2	1463.2	1520.6	1572.2	*1586.6*	1563.6	1512.0	1448.9	1408.7	1405.8
62.5°	1334.1	1339.8	1380.0	1446.0	1497.6	*1512.0*	1489.0	1434.5	1371.4	1328.4	1325.5
65°	1233.7	1239.4	1279.6	1342.7	1397.2	*1411.6*	1391.5	1334.1	1271.0	1230.8	1225.1
67.5°	1121.8	1127.5	1164.8	1219.3	1268.1	*1288.2*	1268.1	1219.3	1159.1	1110.3	1104.6
70°	986.9	986.9	1024.2	1078.8	1124.7	*1150.5*	1124.7	1075.9	1015.6	975.5	975.5
72.5°	846.4	840.6	875.1	926.7	964.0	*975.5*	969.7	926.7	869.3	832.0	826.3
75°	677.1	688.6	714.4	751.7	791.8	*809.1*	789.0	751.7	711.5	680.0	677.1
77.5°	525.0	533.6	556.6	588.1	611.1	*622.6*	616.8	588.1	545.1	530.8	525.0
80°	370.1	375.8	395.9	418.9	436.1	*447.6*	439.0	416.0	393.1	378.7	373.0
82.5°	241.0	238.1	255.3	269.7	284.0	*281.2*	278.3	261.1	252.5	241.0	238.1
85°	123.4	126.2	126.2	140.6	143.5	*149.2*	146.3	140.6	126.2	120.5	123.4
87.5°	40.2	40.2	43.0	43.0	48.8	*48.8*	51.6	45.9	43.0	37.3	37.3
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: SP1-2407-176-7

Test Date: 09/27/2024

Luminaire Tested: MEM2-HTN-VA-30-830-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-830-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

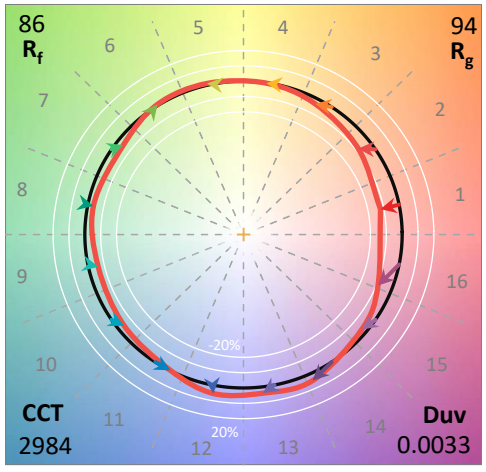
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-7
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-30-830-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	2984
CIE u':	0.2500
CIE v':	0.5264
Duv:	0.0033
CIE x:	0.4431
CIE y:	0.4147
CIE z:	0.1422
Peak Wavelength (nm):	601
Dominant Wavelength (nm):	581
Purity:	57.4798
Rf:	85.8
Rg:	94.1

CRI (Ra):	81.8
R1:	79.4
R2:	89.9
R3:	96.6
R4:	80.6
R5:	80.1
R6:	88.9
R7:	82.6
R8:	56.0
R9:	-1.1
R10:	78.4
R11:	80.8
R12:	72.8
R13:	81.7
R14:	98.5
R15:	70.2



Test Conditions

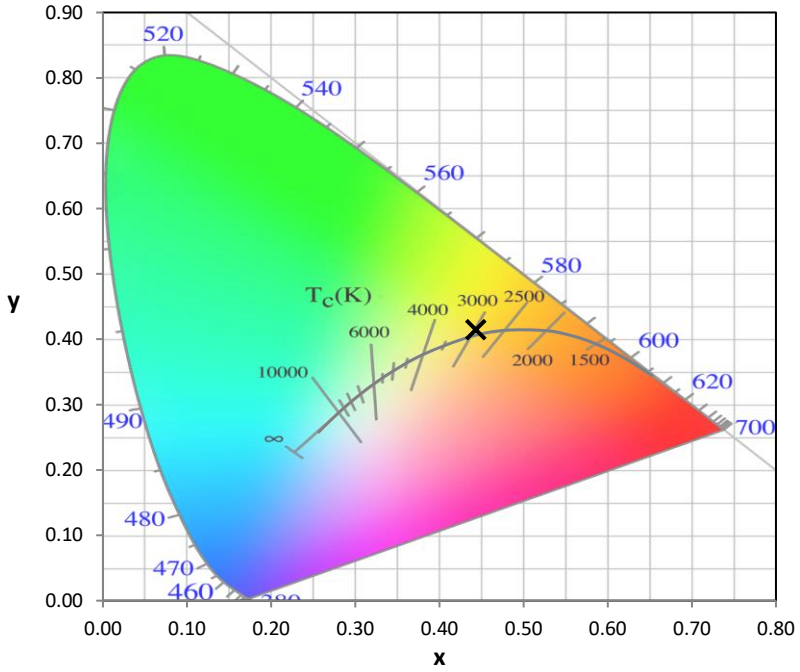
Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

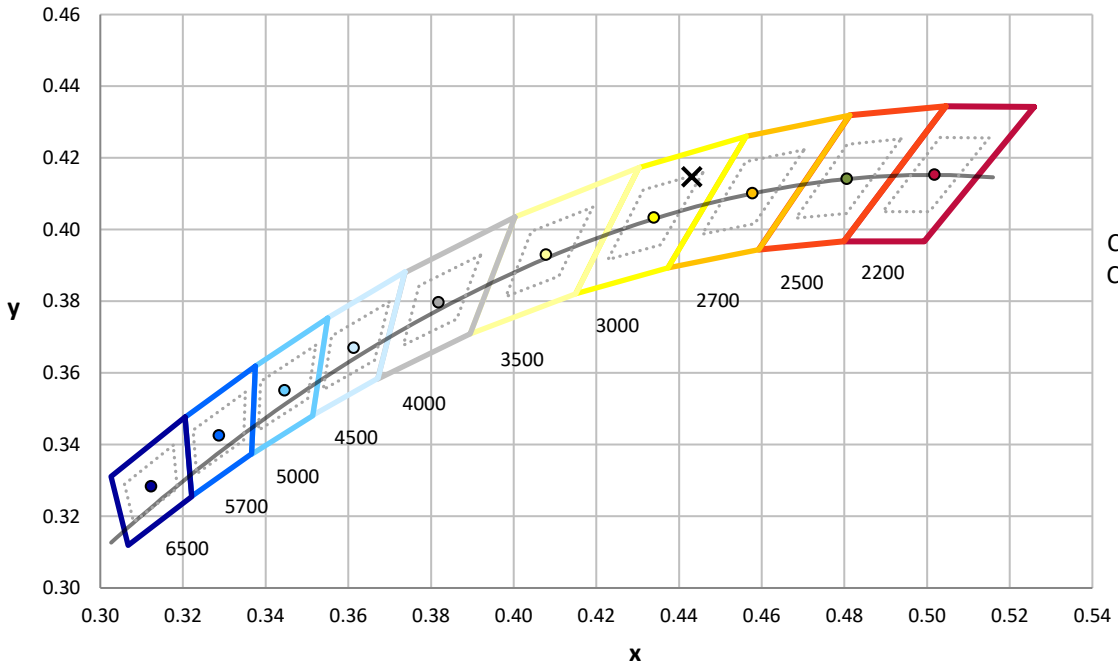
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2407-176-7

CIE 1931 Chromaticity Diagram



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

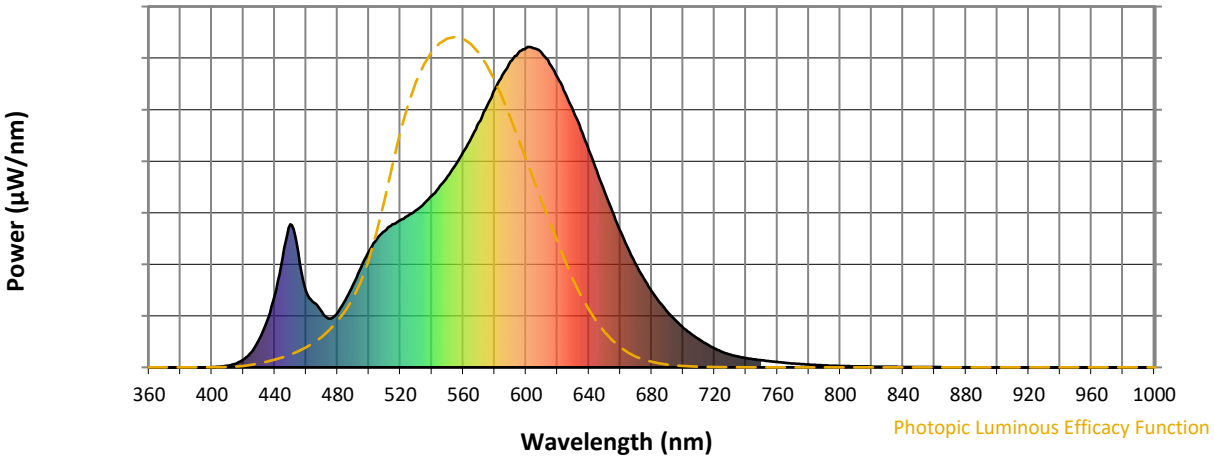


CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

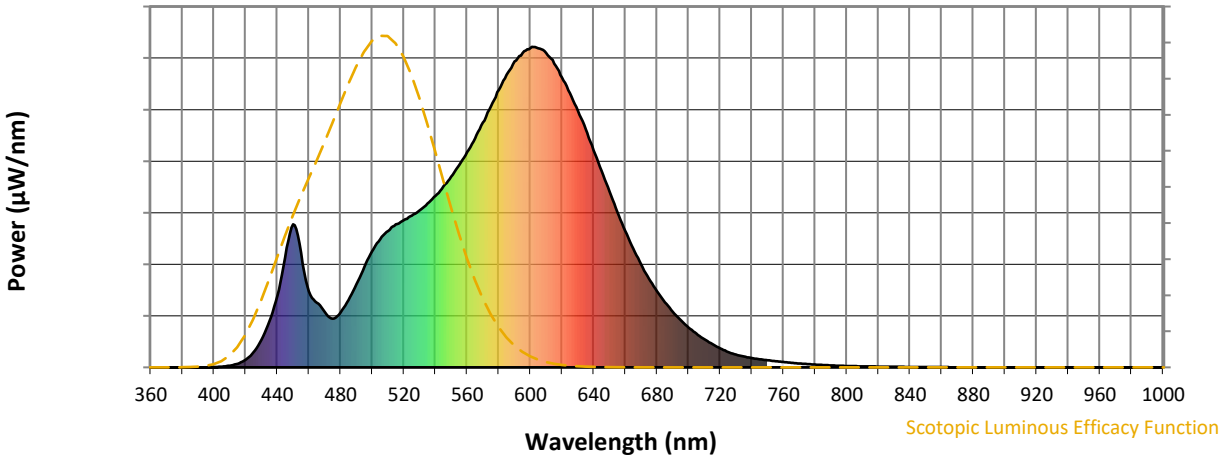


Photopic Lumens: NR

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	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-7

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.32**

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	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

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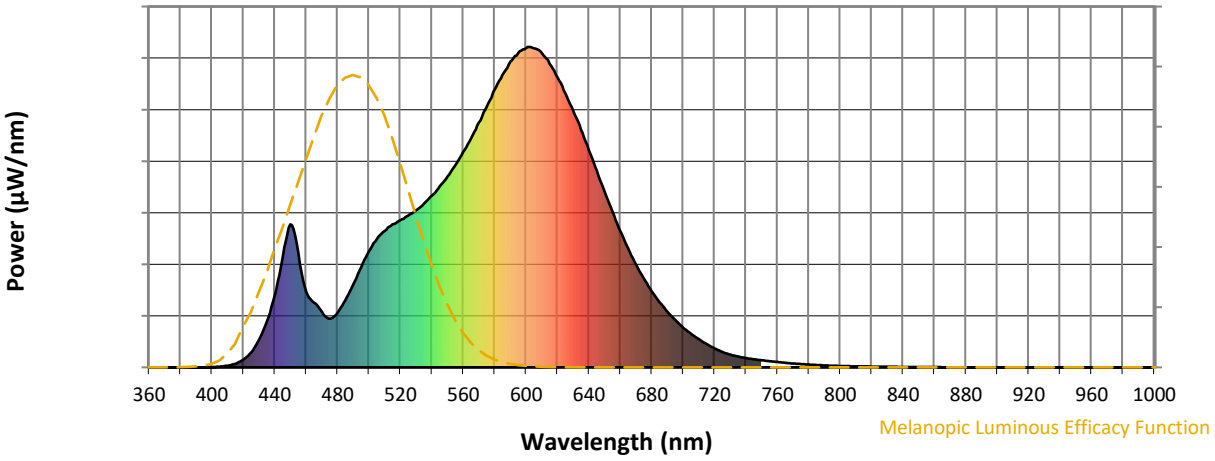
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.51**

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	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

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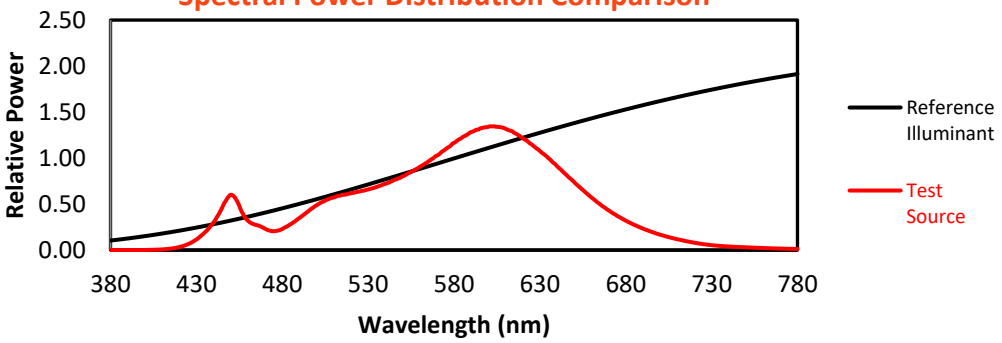
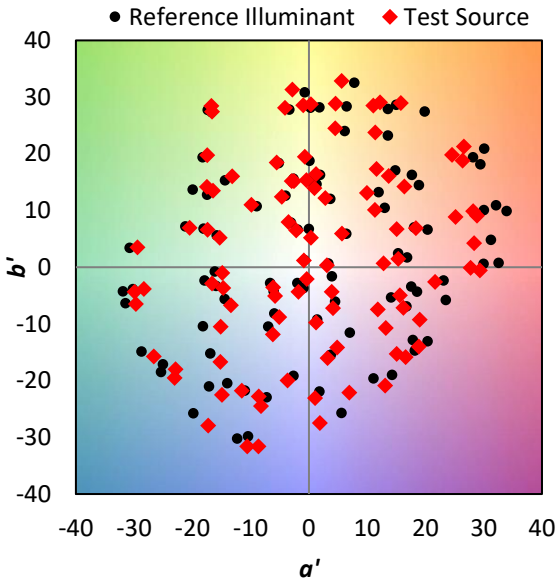
Summary

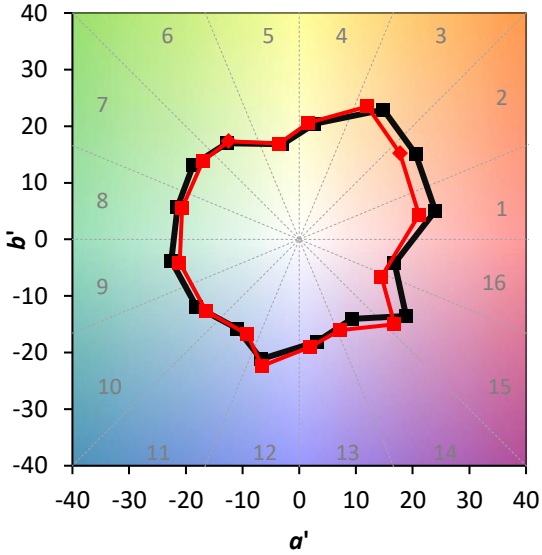
R_f = 85.8
R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

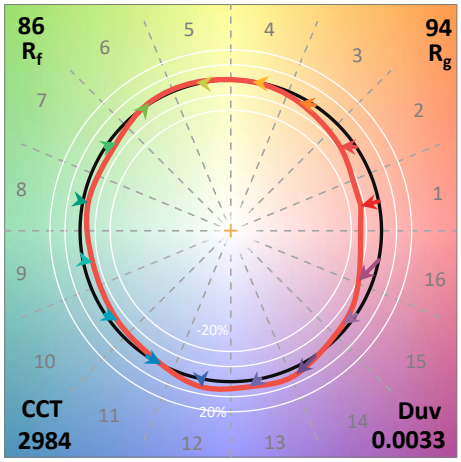
Spectral Power Distribution Comparison

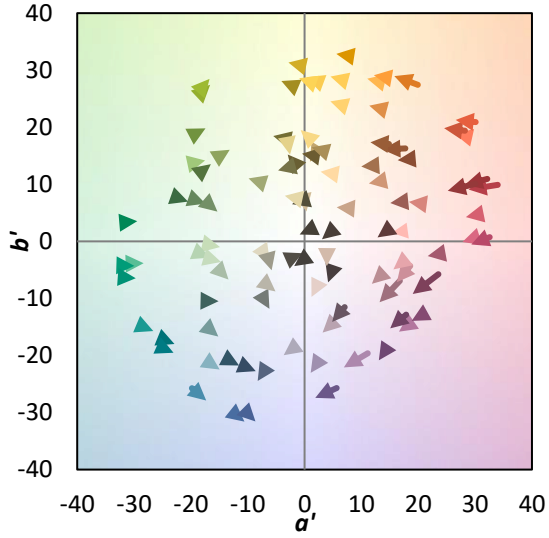


Color Vector Graphics









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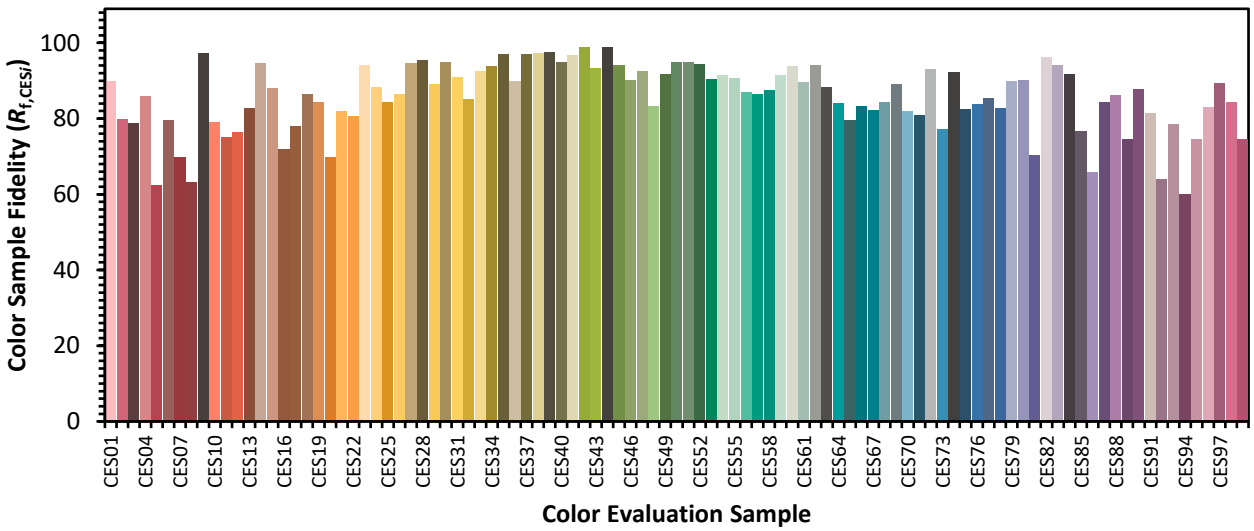
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82 = 96
CES08 = 41	CES33 = 93	CES58 = 87	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 94	CES85 = 77
CES11 = 59	CES36 = 90	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 97	CES62 = 94	CES87 = 84
CES13 = 43	CES38 = 97	CES63 = 88	CES88 = 86
CES14 = 74	CES39 = 98	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 80	CES90 = 88
CES16 = 47	CES41 = 97	CES66 = 83	CES91 = 81
CES17 = 50	CES42 = 99	CES67 = 82	CES92 = 64
CES18 = 56	CES43 = 93	CES68 = 84	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 60
CES20 = 67	CES45 = 94	CES70 = 82	CES95 = 74
CES21 = 87	CES46 = 90	CES71 = 81	CES96 = 83
CES22 = 79	CES47 = 93	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 84
CES24 = 91	CES49 = 92	CES74 = 92	CES99 = 75
CES25 = 72	CES50 = 95	CES75 = 83	



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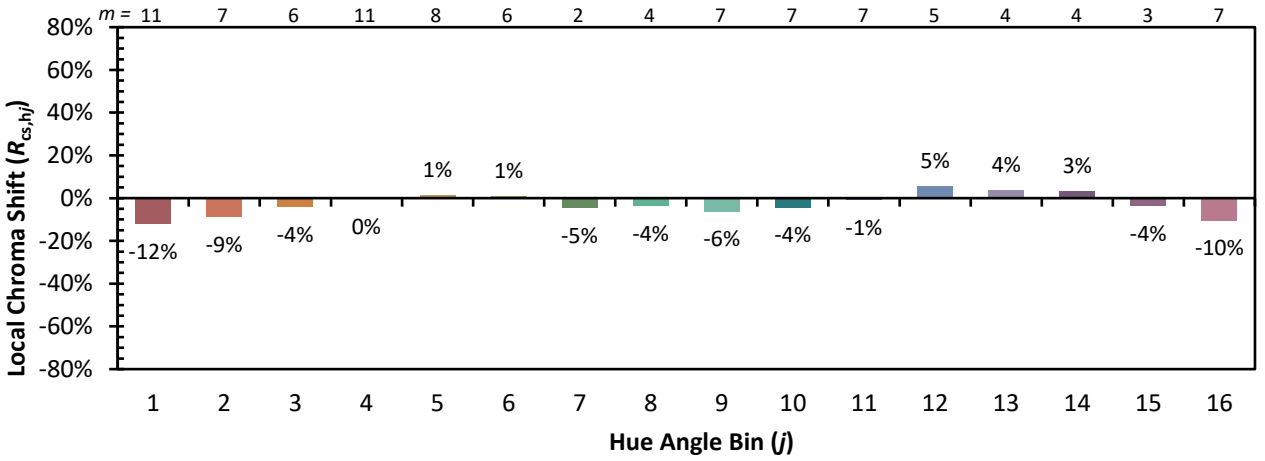
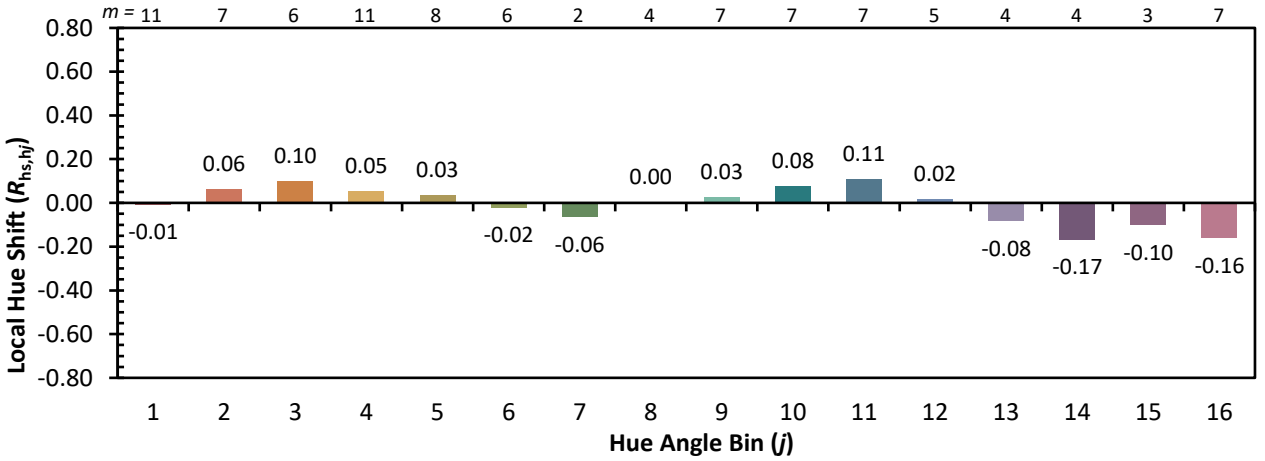
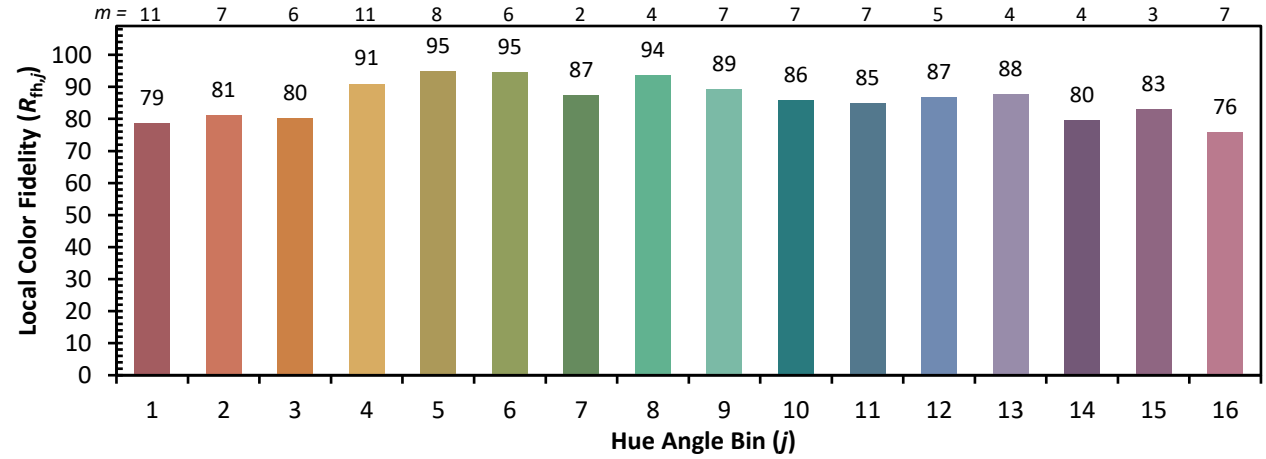
Color Rendition by Hue-Angle Bin







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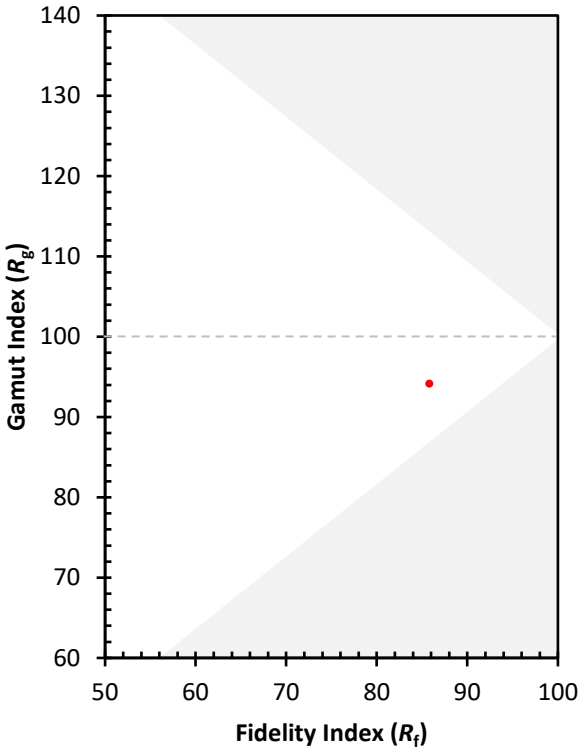
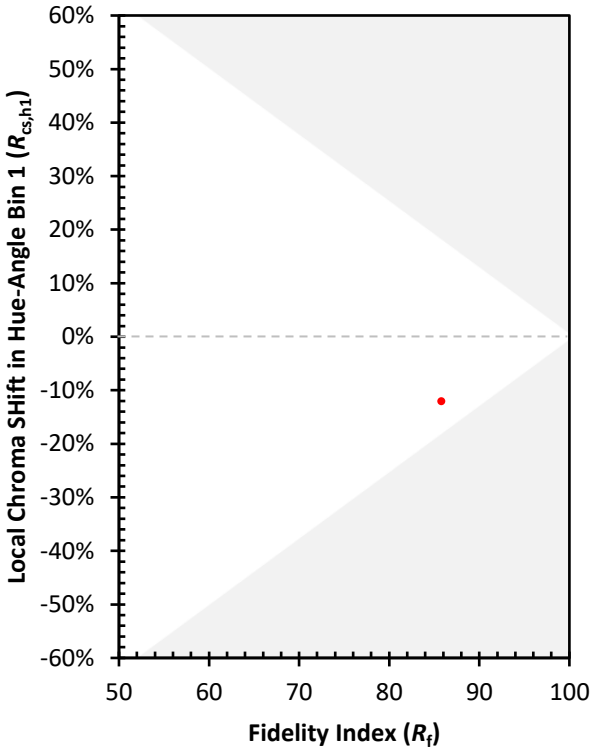
Measure Comparisons





(END OF REPORT)