

Signify Classified - Internal
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: P821145

Luminaire Tested: **TT-D4-830-24VDC-5CQ-PM**

Issue Date: 2/18/2020



Test Information

Test Method: LM-79-08
Report Number: P821145
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-17)
Test Lab: INNOVATIONS CENTER
Issue Date: 2/18/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D4-830-24VDC-5CQ-PM
Description: TOPTIER LED SITE LUMINAIRE
3000K, 80 CRI LEDS AND CONCENTRATED DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

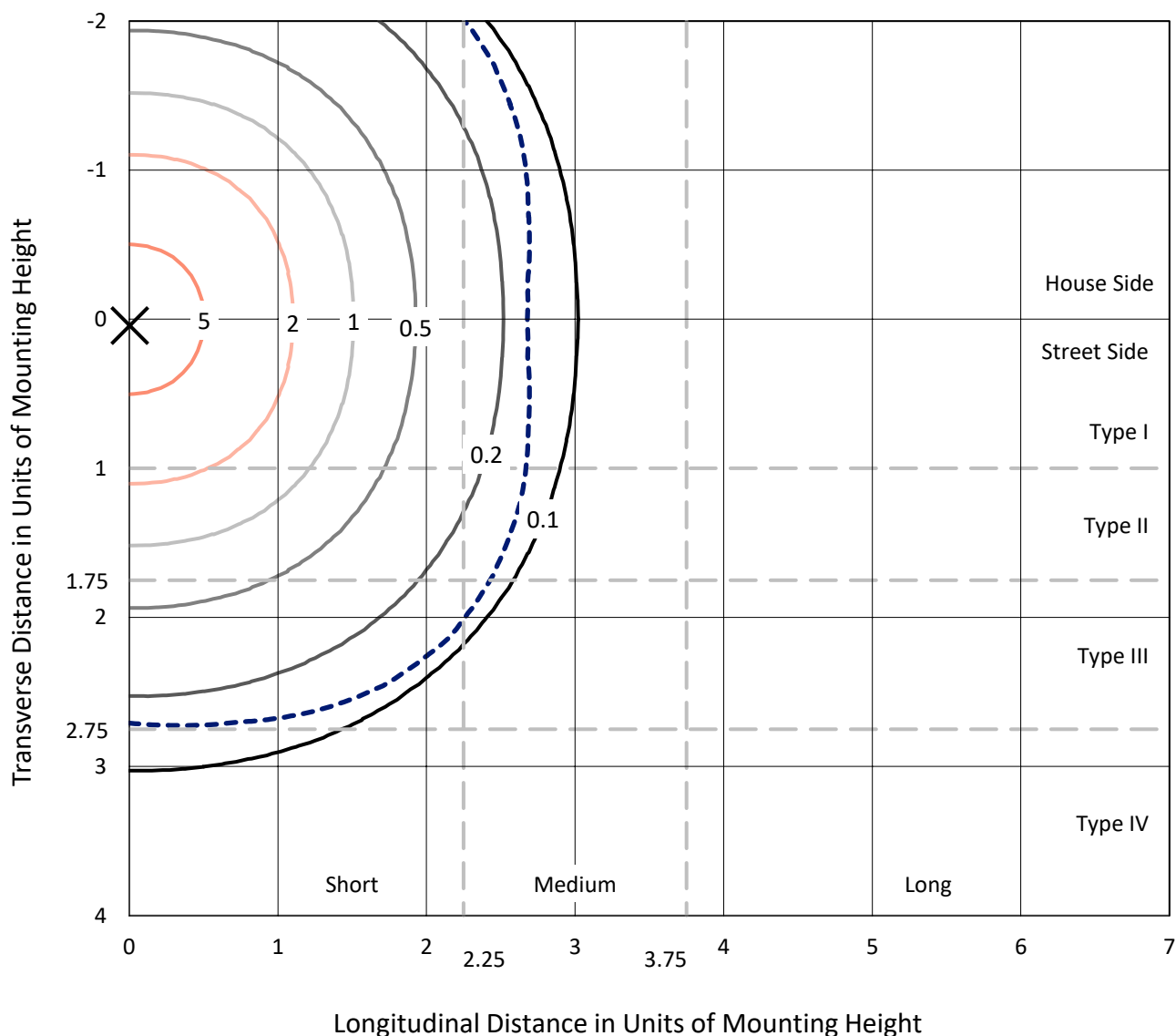
Lumens per Lamp: N/A
Luminaire Lumens: 6660 lumens
Efficiency: N/A
Efficacy: 116.8 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B2 - U0 - G1

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

REPORT NUMBER: P821145
 CATALOG NUMBER: TT-D4-830-24VDC-5CQ-PM

Iso-Footcandle Lines of Horizontal Illumination

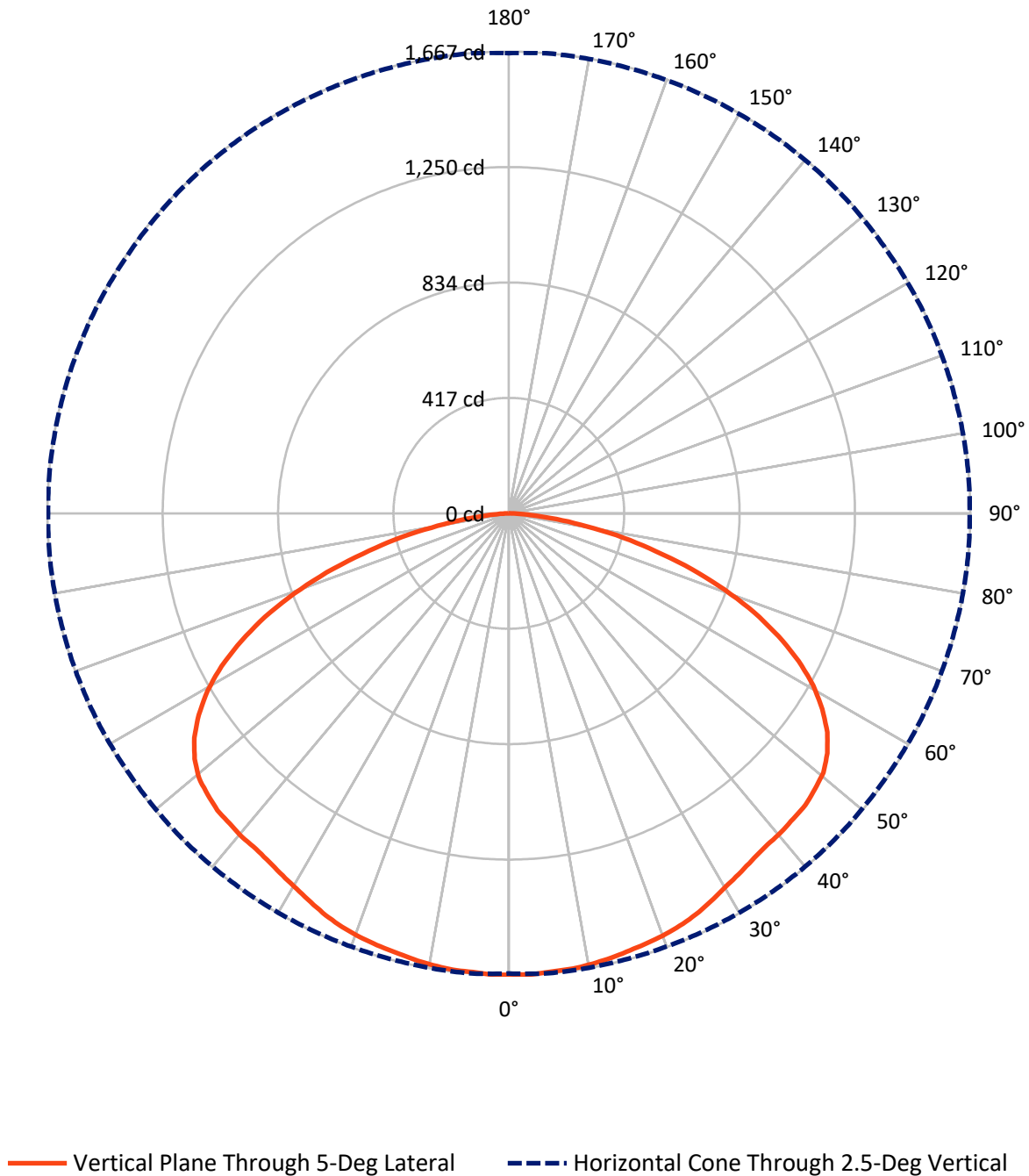
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 7.4 fc
 Type V - Short - N/A

REPORT NUMBER: P821145
CATALOG NUMBER: TT-D4-830-24VDC-5CQ-PM

Luminous Intensity Polar Plot



REPORT NUMBER: P821145
 CATALOG NUMBER: TT-D4-830-24VDC-5CQ-PM

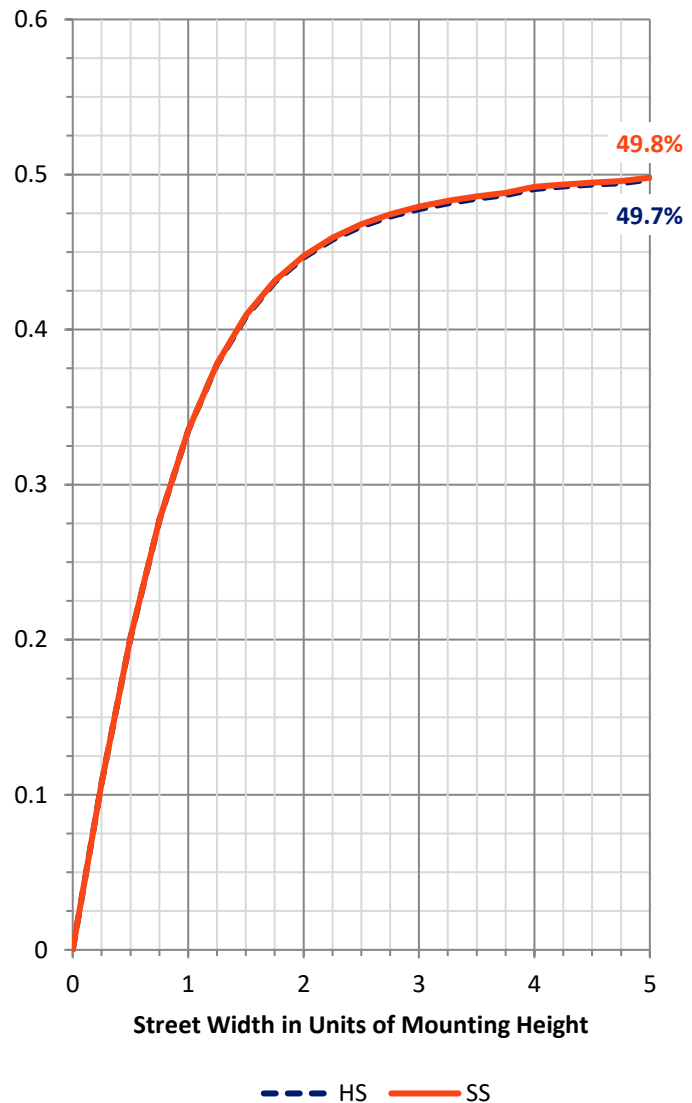
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3330.0	0.0	3330.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3330.0	0.0	3330.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	6660.0	0.0	6660.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	158.5	2.4
10°-20°	464.1	7.0
20°-30°	738.0	11.1
30°-40°	970.9	14.6
40°-50°	1188.3	17.8
50°-60°	1287.1	19.3
60°-70°	1107.3	16.6
70°-80°	622.5	9.3
80°-90°	123.4	1.9
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°	6660.0	100.0
0°-180°	6660.0	100.0



REPORT NUMBER: P821145

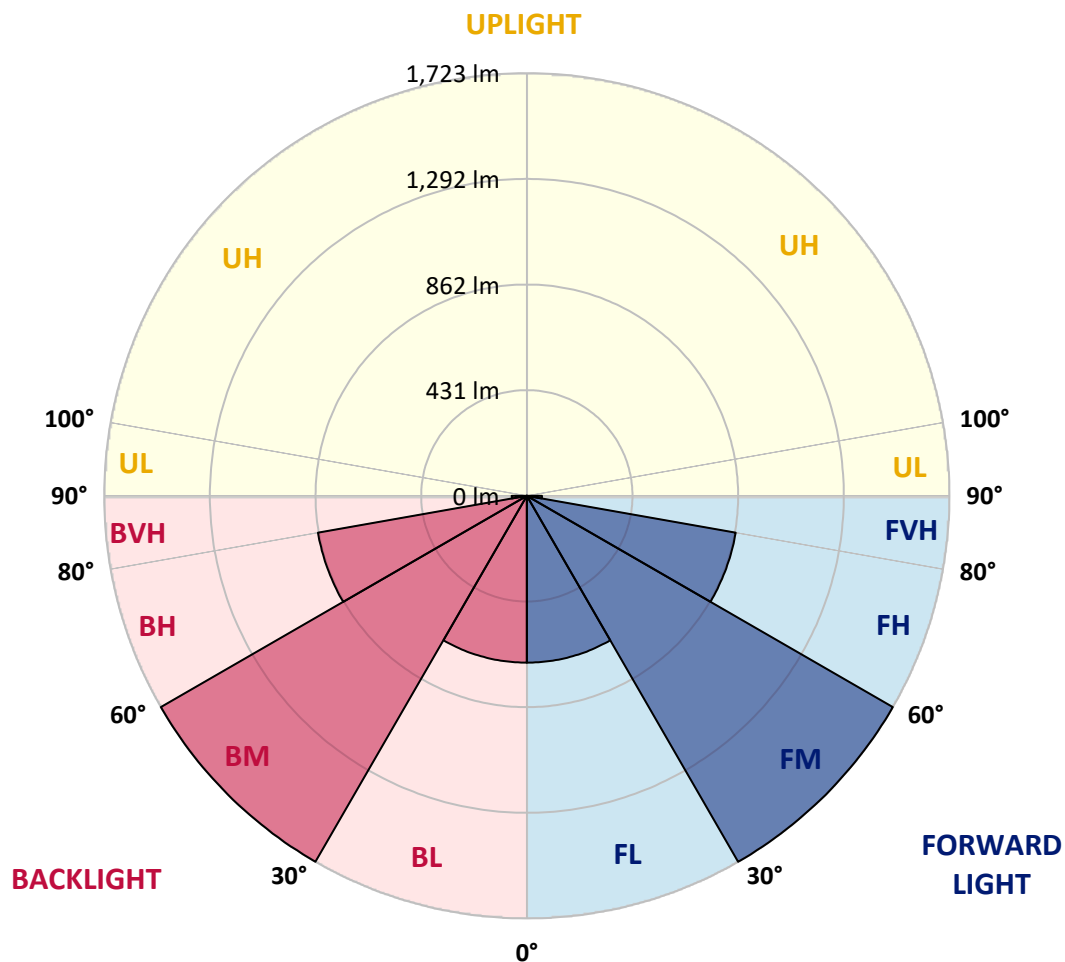
CATALOG NUMBER: TT-D4-830-24VDC-5CQ-PM

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	680.3	10.2			
FM	(30°-60°)	1723.1	25.9			
FH	(60°-80°)	864.9	13.0			G1/1800
FVH	(80°-90°)	61.7	0.9			G1/100
BL	(0°-30°)	680.3	10.2	B2/1000		
BM	(30°-60°)	1723.1	25.9	B2/2500		
BH	(60°-80°)	864.9	13.0	B2/1000		G1/1800
BVH	(80°-90°)	61.7	0.9			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G1

Type V Short





REPORT NUMBER: P821145

CATALOG NUMBER: TT-D4-830-24VDC-5CQ-PM

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1666.1	1666.1	1666.1	1666.1	1666.1	1666.1	1666.1	1666.1	1666.1	1666.1	1666.1
2.5°	1661.9	1667.2	1665.1	1665.1	1665.1	1665.1	1663.0	1665.1	1665.1	1666.1	1665.1
5°	1663.0	1661.9	1661.9	1663.0	1663.0	1664.0	1661.9	1663.0	1664.0	1664.0	1665.1
7.5°	1659.8	1660.8	1658.7	1660.8	1658.7	1659.8	1659.8	1660.8	1659.8	1660.8	1663.0
10°	1653.4	1654.5	1653.4	1653.4	1653.4	1655.5	1651.3	1654.5	1653.4	1654.5	1653.4
12.5°	1641.8	1647.1	1644.9	1647.1	1647.1	1647.1	1643.9	1646.0	1647.1	1647.1	1647.1
15°	1636.5	1637.5	1634.3	1638.6	1639.6	1640.7	1636.5	1638.6	1638.6	1639.6	1640.7
17.5°	1624.8	1630.1	1629.0	1632.2	1631.2	1634.3	1633.3	1632.2	1631.2	1633.3	1631.2
20°	1616.3	1621.6	1620.6	1623.7	1624.8	1628.0	1624.8	1624.8	1621.6	1622.7	1625.9
22.5°	1607.8	1610.0	1610.0	1613.1	1613.1	1616.3	1613.1	1612.1	1612.1	1611.0	1614.2
25°	1594.1	1595.1	1594.1	1597.2	1599.4	1601.5	1600.4	1598.3	1597.2	1597.2	1596.2
27.5°	1571.8	1576.0	1578.2	1582.4	1583.5	1586.6	1582.4	1582.4	1580.3	1578.2	1579.2
30°	1554.8	1557.0	1557.0	1566.5	1566.5	1571.8	1566.5	1565.4	1564.4	1563.3	1561.2
32.5°	1539.0	1542.1	1545.3	1552.7	1558.0	1560.1	1557.0	1554.8	1549.5	1546.4	1545.3
35°	1526.2	1527.3	1533.7	1544.3	1550.6	1555.9	1551.7	1546.4	1539.0	1533.7	1537.9
37.5°	1516.7	1517.8	1527.3	1541.1	1552.7	1557.0	1550.6	1542.1	1530.5	1524.1	1522.0
40°	1508.2	1514.6	1525.2	1544.3	1557.0	1563.3	1558.0	1546.4	1529.4	1516.7	1515.6
42.5°	1504.0	1507.2	1523.1	1545.3	1563.3	1571.8	1564.4	1548.5	1527.3	1512.5	1511.4
45°	1493.4	1502.9	1517.8	1546.4	1566.5	1577.1	1566.5	1546.4	1520.9	1504.0	1500.8
47.5°	1484.9	1488.1	1511.4	1544.3	1568.6	1577.1	1566.5	1541.1	1509.3	1487.0	1484.9
50°	1464.8	1472.2	1495.5	1530.5	1559.1	1567.6	1554.8	1520.9	1484.9	1460.5	1456.3
52.5°	1434.0	1440.4	1467.9	1511.4	1539.0	1548.5	1529.4	1493.4	1451.0	1421.3	1421.3
55°	1386.3	1395.9	1424.5	1469.0	1504.0	1512.5	1490.2	1452.0	1404.3	1374.7	1373.6
57.5°	1329.1	1335.5	1366.2	1414.9	1448.9	1461.6	1439.3	1396.9	1349.2	1314.3	1311.1
60°	1254.9	1263.4	1296.2	1342.9	1377.8	1388.4	1369.4	1327.0	1278.2	1241.1	1241.1
62.5°	1165.9	1175.4	1208.3	1256.0	1292.0	1307.9	1281.4	1241.1	1190.2	1154.2	1151.0
65°	1062.0	1070.5	1100.2	1150.0	1187.1	1198.7	1178.6	1136.2	1087.4	1053.5	1050.3
67.5°	945.4	957.1	986.8	1029.1	1060.9	1075.8	1063.1	1024.9	974.0	939.1	935.9
70°	819.3	827.8	851.1	890.3	926.3	936.9	917.9	892.4	844.7	812.9	808.7
72.5°	684.7	692.1	711.2	748.3	773.7	787.5	776.9	744.0	705.9	679.4	683.6
75°	549.0	548.0	569.2	595.7	619.0	628.5	621.1	599.9	564.9	542.7	541.6
77.5°	413.4	424.0	431.4	453.6	472.7	480.1	469.5	452.6	426.1	408.1	411.2
80°	290.4	284.0	297.8	311.6	324.3	331.7	325.4	315.8	297.8	284.0	281.9
82.5°	178.1	172.8	179.1	191.8	200.3	202.4	203.5	191.8	184.4	173.8	175.9
85°	78.4	79.5	84.8	93.3	94.3	95.4	95.4	93.3	84.8	83.7	81.6
87.5°	19.1	19.1	20.1	23.3	23.3	24.4	24.4	21.2	20.1	18.0	19.1
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: SP1-2407-176-7

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

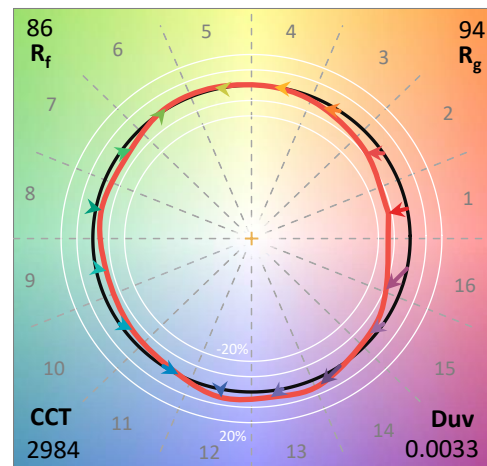
Test Information

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
 R_f: 85.8
 R_g: 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

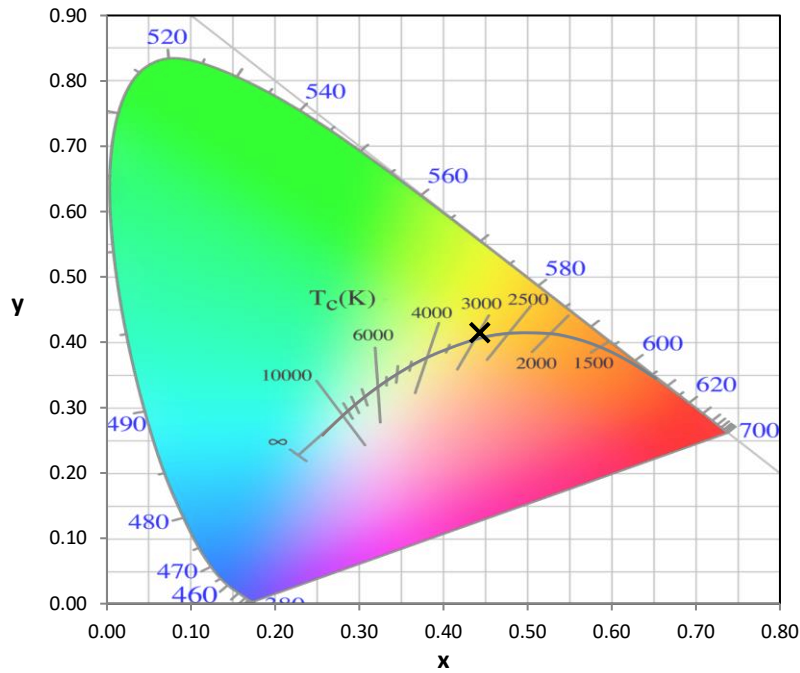
Stabilization Time: 29M
 Operation Time: 1H 29M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-7

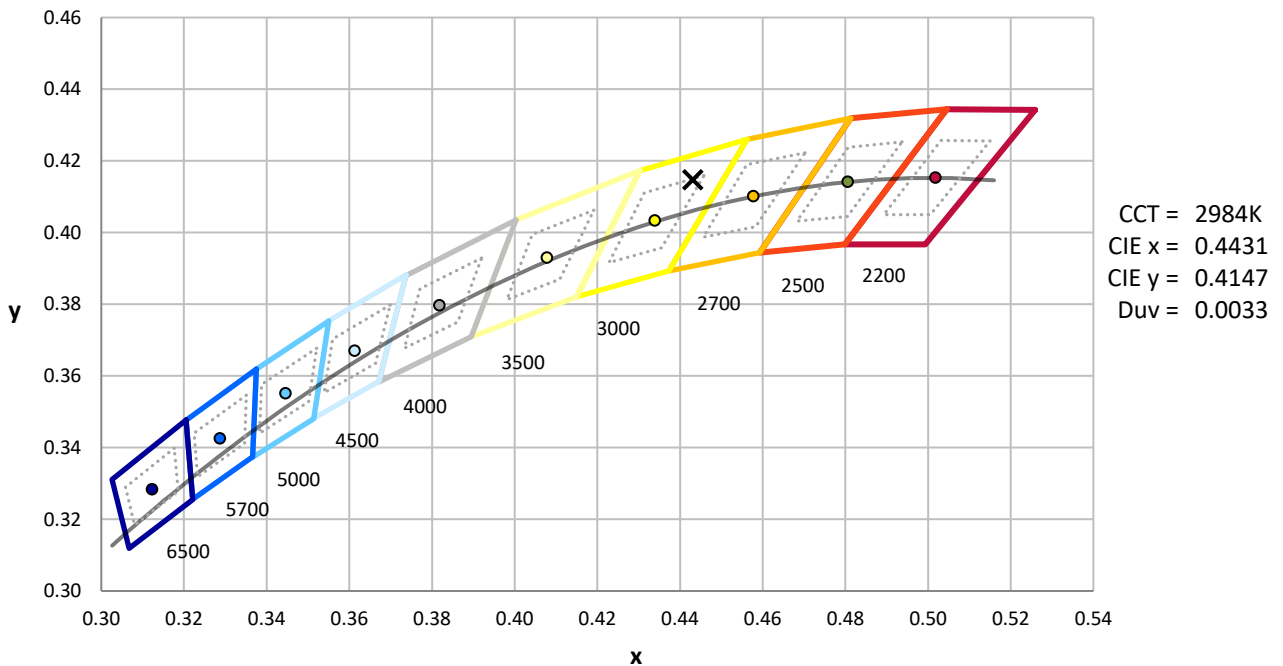
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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



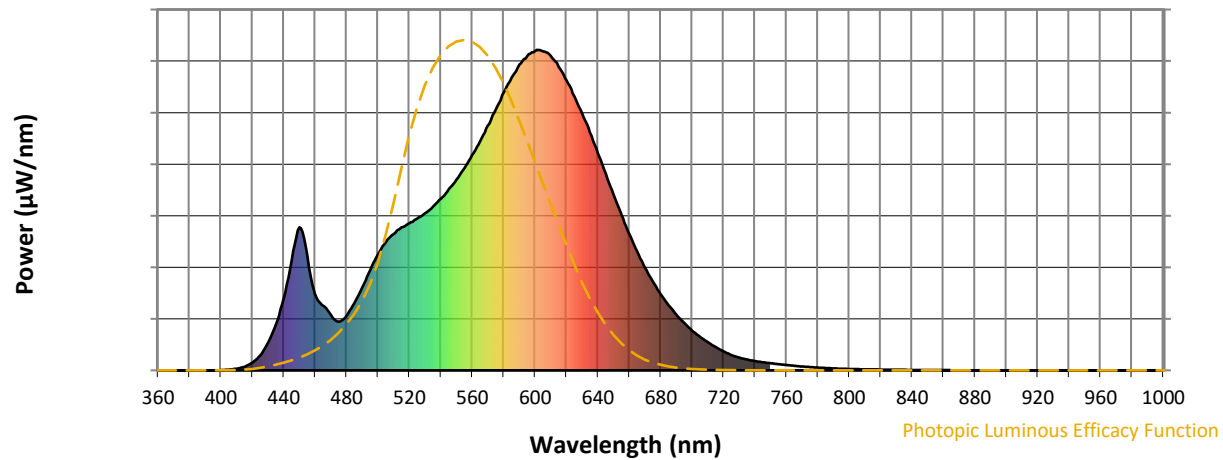
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

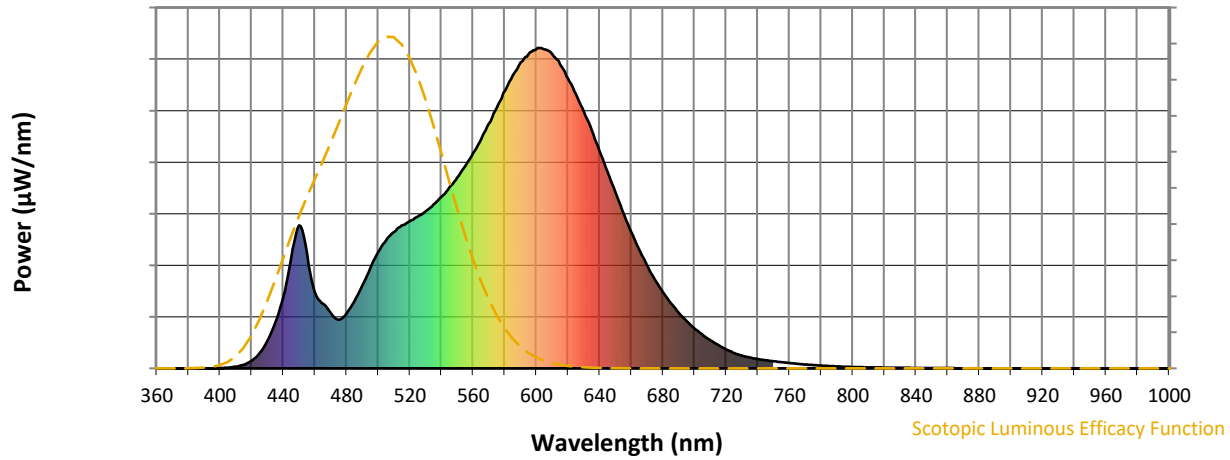


Photopic Lumens: NR

λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	Lumens (ϕ/nm)	λ (nm)	Power $\text{W}^\wedge/\text{nm}$	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



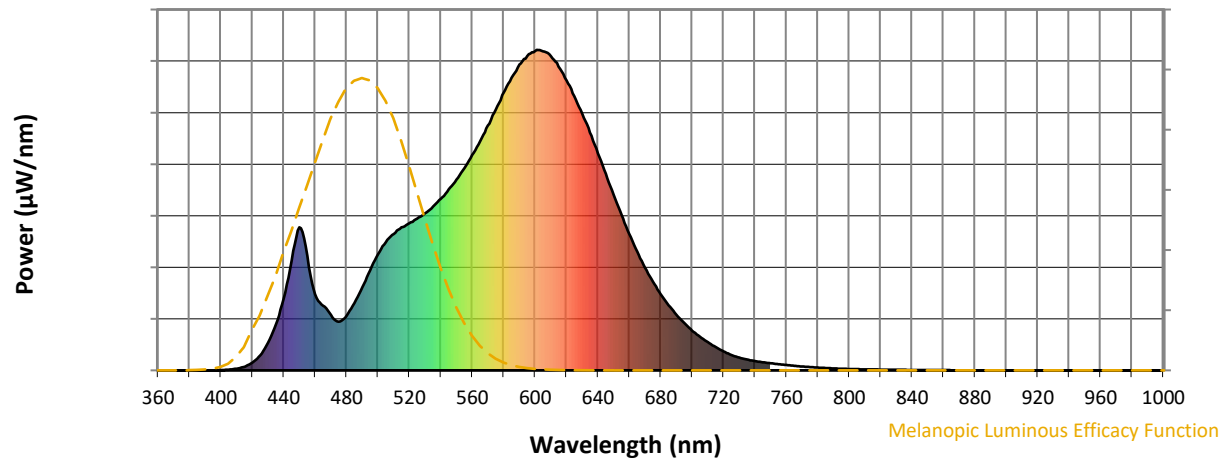
Scotopic Lumens: NR

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			

REPORT NUMBER: SP1-2407-176-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.51

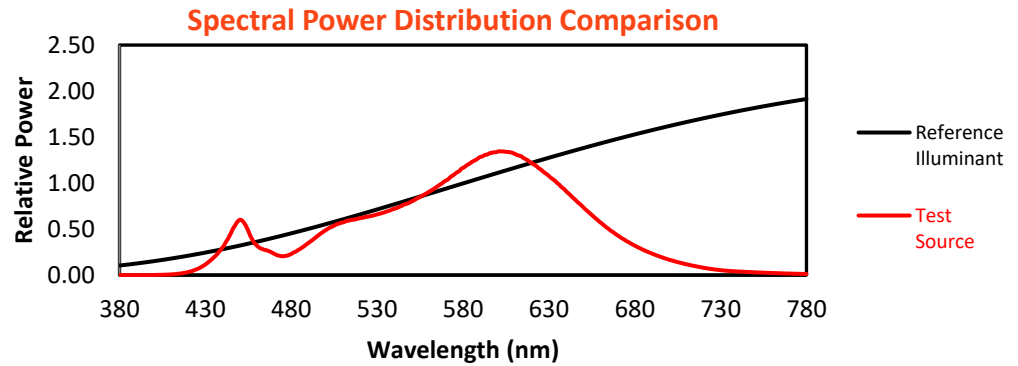
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	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			

REPORT NUMBER: SP1-2407-176-7

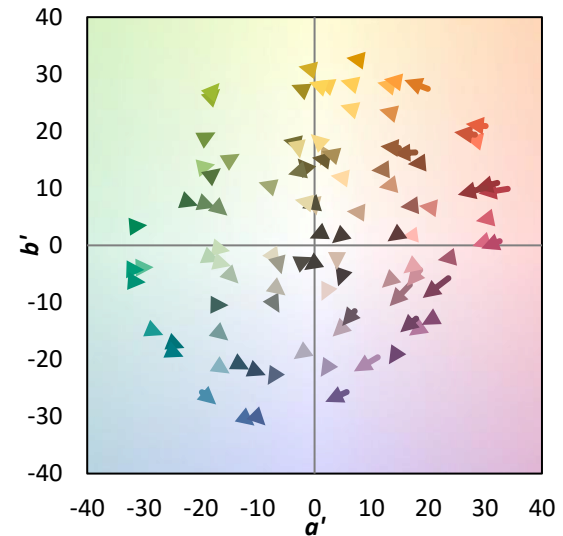
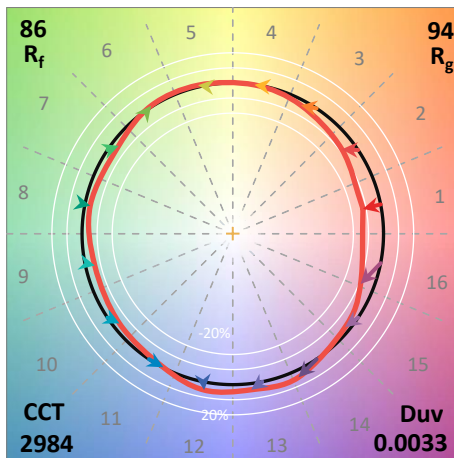
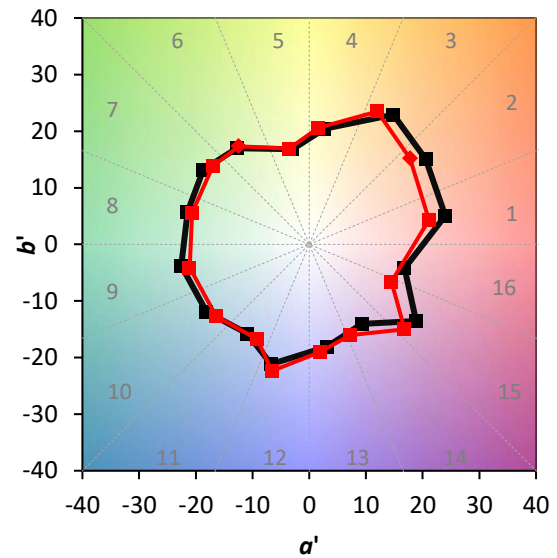
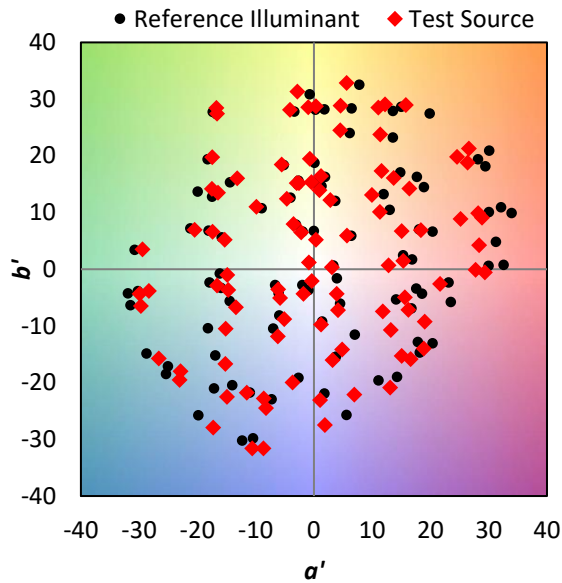
TM-30-18

Summary

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

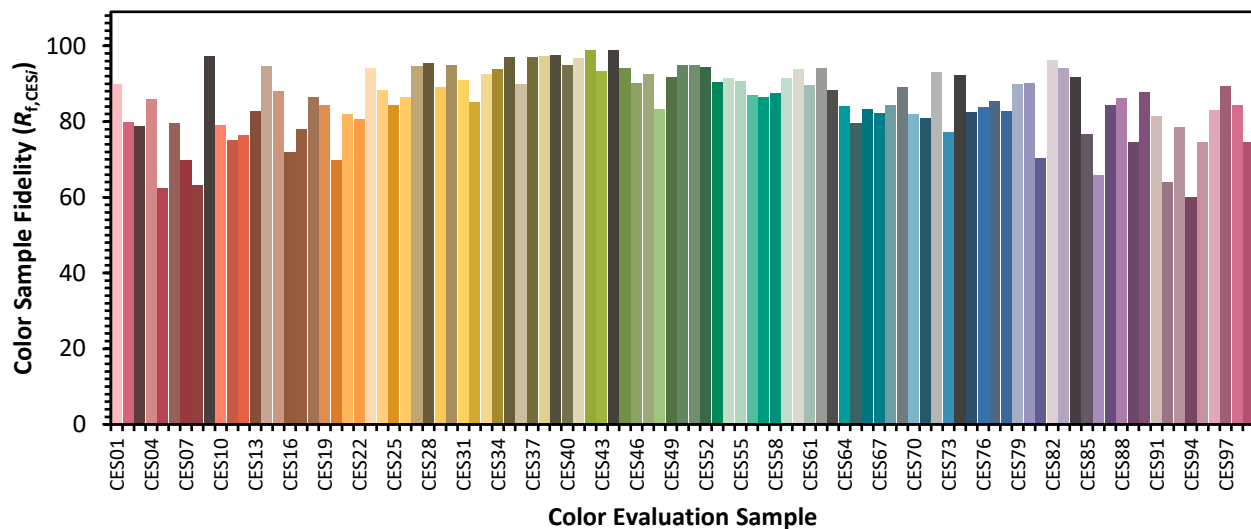


Color Vector Graphics

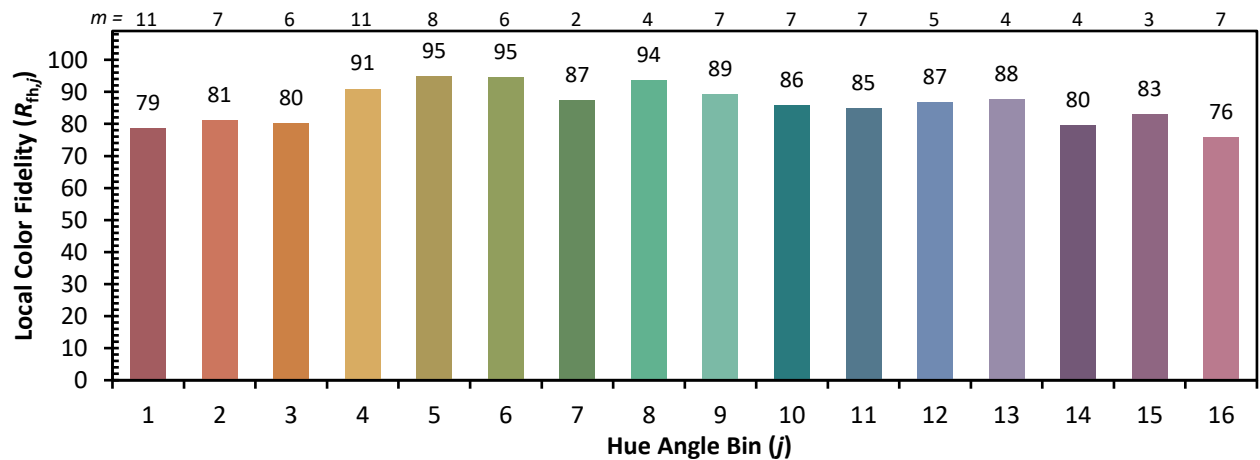
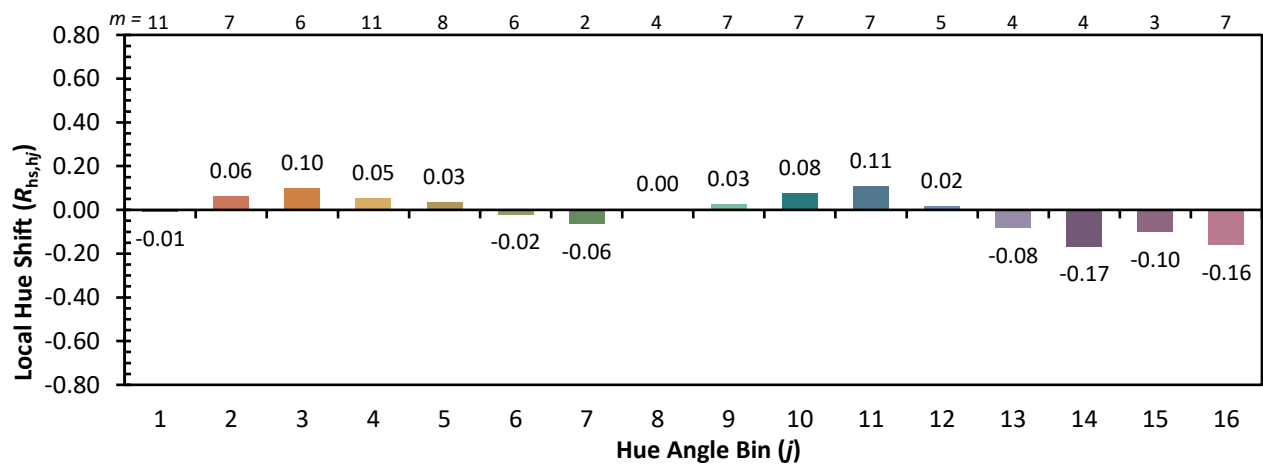
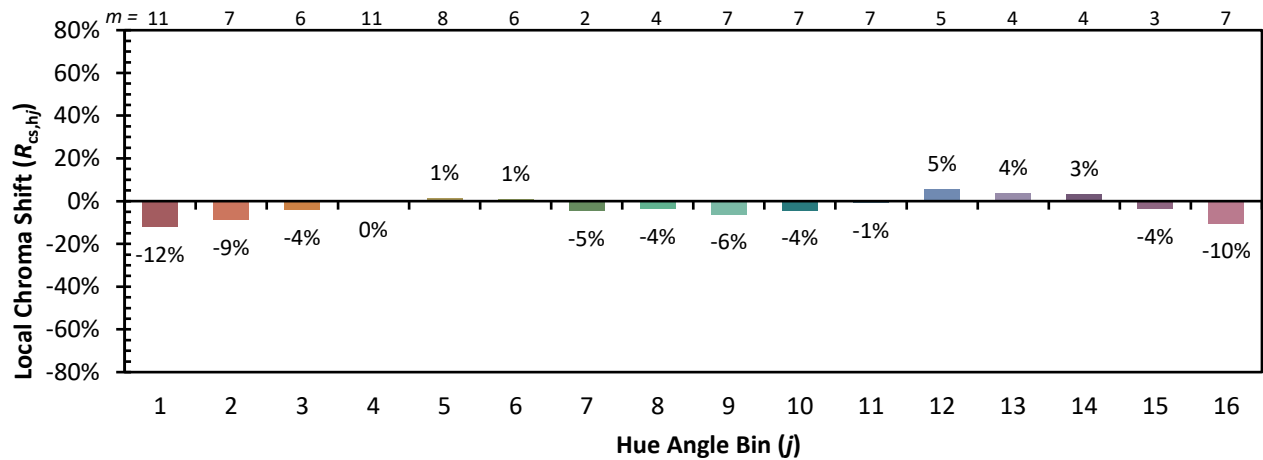


Individual Sample Fidelity Index ($R_{f,i}$)

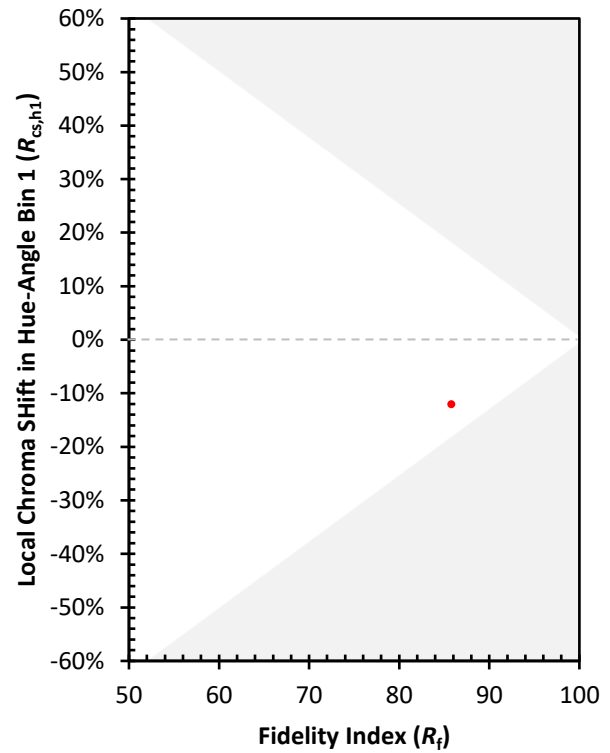
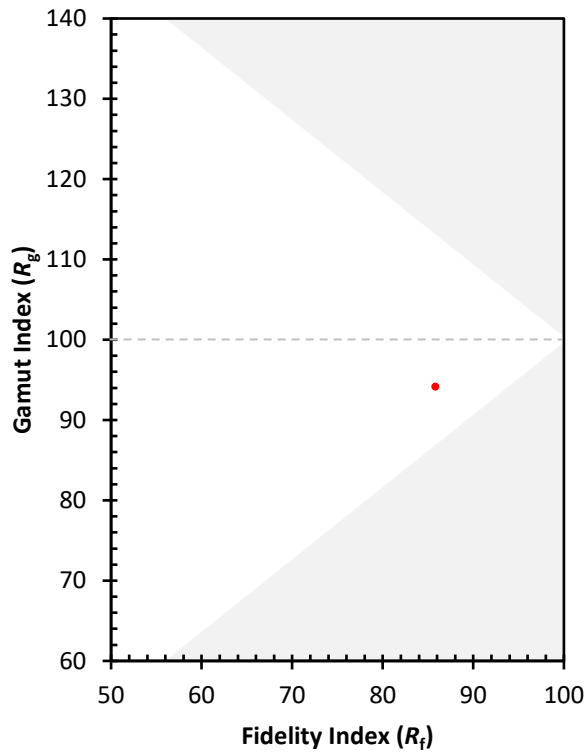
CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82 = 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	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)