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: P821152

Luminaire Tested: **TT-D3-830-24VDC-MQ**

Issue Date: 2/18/2020

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:	P821152
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-16)
Test Lab:	INNOVATIONS CENTER
Issue Date:	2/18/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D3-830-24VDC-MQ
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3000K, 80 CRI LEDS AND MEDIUM DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	5986 lumens
Efficiency:	N/A
Efficacy:	130.1 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G2

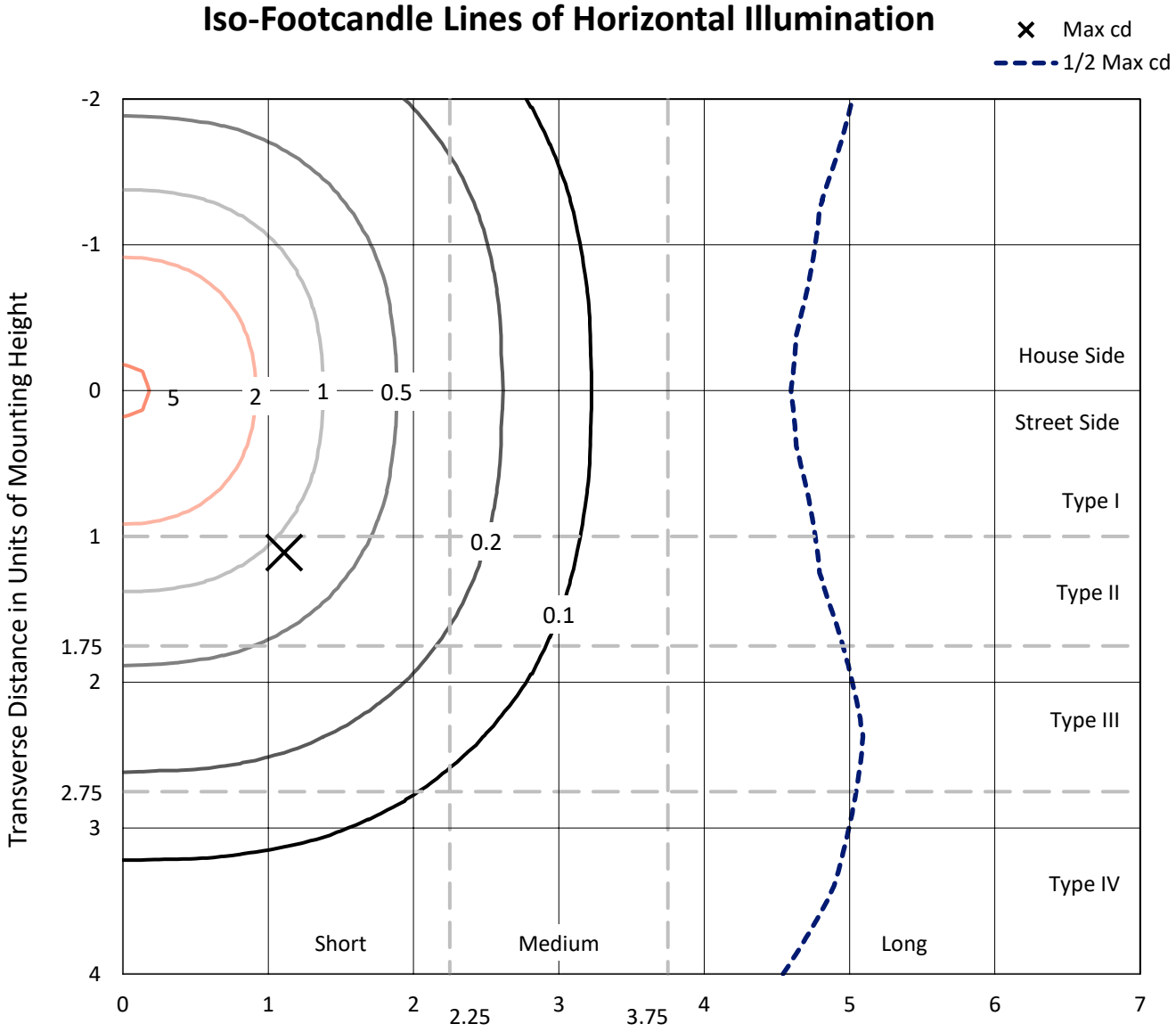
Input Watts (W):	46
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821152
CATALOG NUMBER: TT-D3-830-24VDC-MQ

Iso-Footcandle Lines of Horizontal Illumination



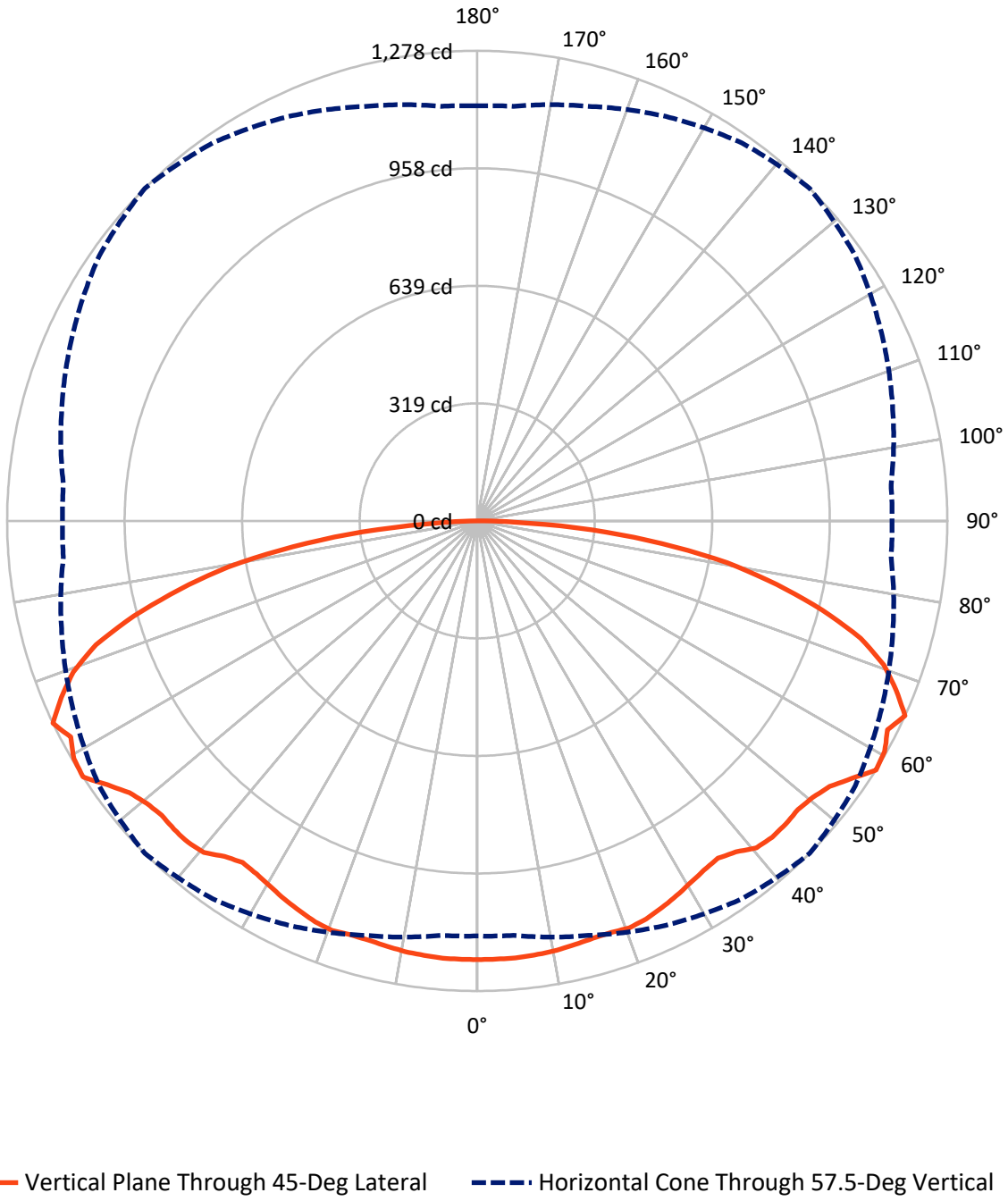
Based on 15 foot mounting height. Maximum calculated value = 5.3 fc
Type V - Short - N/A

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821152
CATALOG NUMBER: TT-D3-830-24VDC-MQ

Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

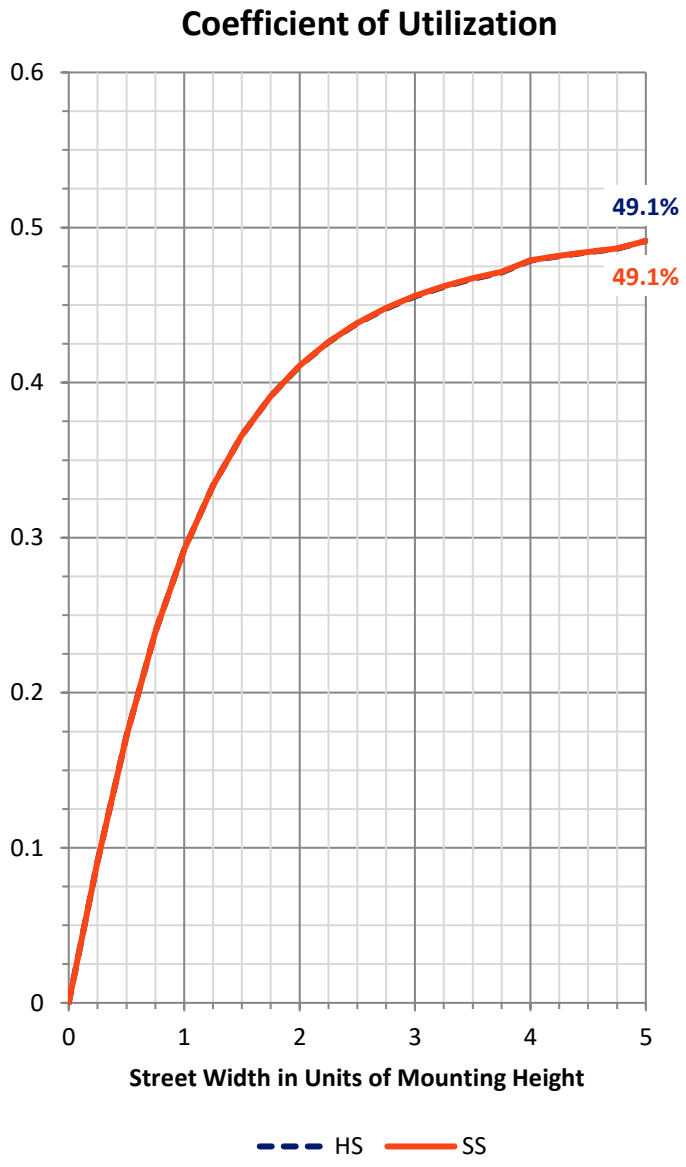
REPORT NUMBER: P821152
CATALOG NUMBER: TT-D3-830-24VDC-MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2993.0	0.0	2993.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2993.0	0.0	2993.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	5986.0	0.0	5986.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	113.6	1.9
10°-20°	334.2	5.6
20°-30°	536.9	9.0
30°-40°	708.9	11.8
40°-50°	886.9	14.8
50°-60°	1054.8	17.6
60°-70°	1144.1	19.1
70°-80°	910.6	15.2
80°-90°	296.0	4.9
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°	5986.0	100.0
0°-180°	5986.0	100.0



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

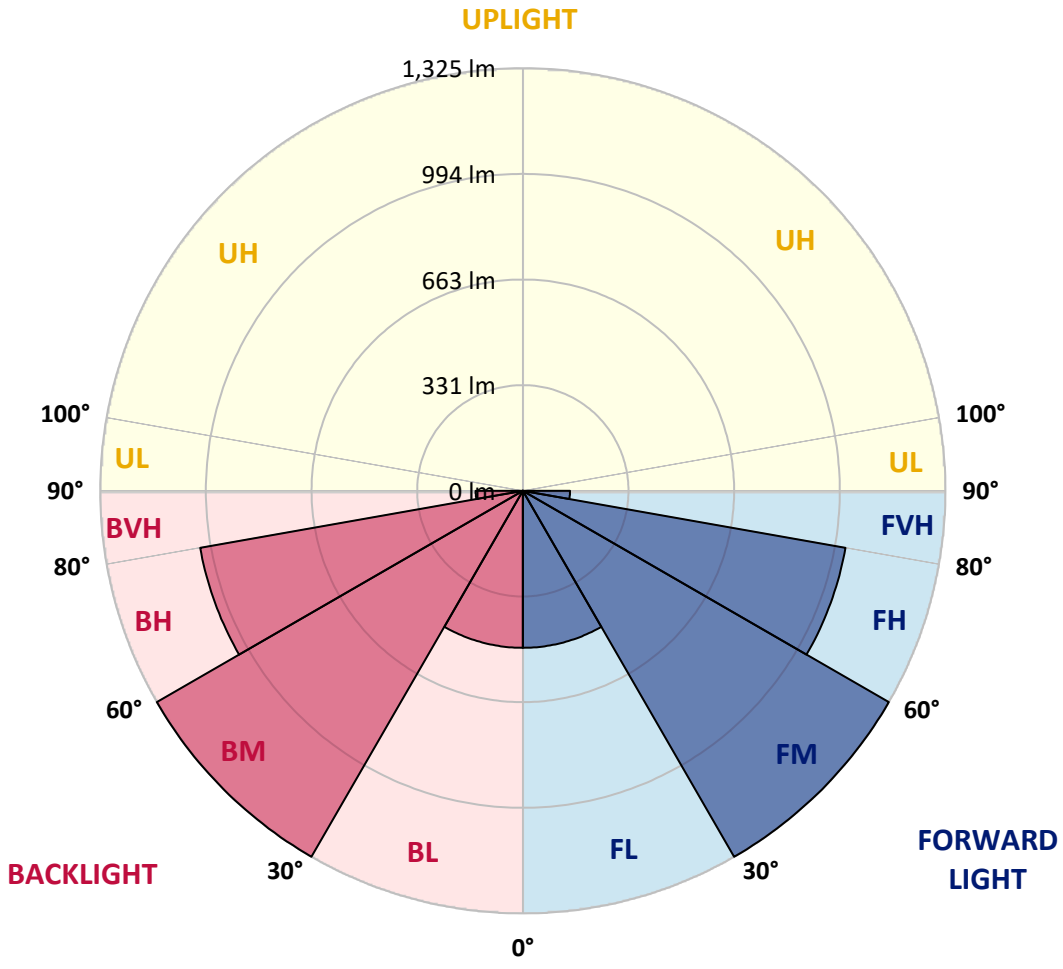
Scaled Data Report

REPORT NUMBER: P821152
CATALOG NUMBER: TT-D3-830-24VDC-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	492.4	8.2			
FM	(30°-60°)	1325.3	22.1			
FH	(60°-80°)	1027.4	17.2			G1/1800
FVH	(80°-90°)	148.0	2.5			G2/225
BL	(0°-30°)	492.4	8.2	B1/500		
BM	(30°-60°)	1325.3	22.1	B2/2500		
BH	(60°-80°)	1027.4	17.2	B3/2500		G1/1800
BVH	(80°-90°)	148.0	2.5			G2/225
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G2
Type V Short



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P821152
CATALOG NUMBER: TT-D3-830-24VDC-MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1192.2	1192.2	1192.2	1192.2	1192.2	*1192.2*	1192.2	1192.2	1192.2	1192.2	1192.2
2.5°	1194.0	1193.1	1194.0	1193.1	1193.1	*1192.2*	1193.1	1193.1	1193.1	1193.1	1193.1
5°	1193.1	1192.2	1192.2	1193.1	1192.2	*1192.2*	1192.2	1192.2	1192.2	1192.2	1192.2
7.5°	1189.6	1189.6	1190.4	1189.6	1189.6	*1189.6*	1189.6	1189.6	1189.6	1190.4	1190.4
10°	1186.9	1186.0	1186.9	1186.9	1186.0	*1186.9*	1186.0	1186.9	1186.9	1186.9	1186.9
12.5°	1183.3	1182.4	1183.3	1183.3	1182.4	*1181.5*	1182.4	1182.4	1183.3	1183.3	1183.3
15°	1177.1	1177.1	1178.9	1178.0	1178.0	*1177.1*	1178.9	1178.0	1177.1	1178.0	1178.0
17.5°	1172.6	1172.6	1174.4	1176.2	1176.2	*1176.2*	1176.2	1175.3	1173.5	1174.4	1172.6
20°	1173.5	1174.4	1175.3	1178.0	1179.8	*1180.7*	1180.7	1178.0	1175.3	1176.2	1175.3
22.5°	1170.9	1170.0	1170.9	1172.6	1175.3	*1175.3*	1175.3	1171.7	1170.9	1170.0	1170.0
25°	1160.2	1160.2	1162.0	1163.7	1165.5	*1164.6*	1165.5	1163.7	1162.0	1160.2	1160.2
27.5°	1147.7	1147.7	1150.4	1152.2	1153.9	*1153.9*	1153.0	1151.3	1150.4	1148.6	1147.7
30°	1135.2	1135.2	1137.9	1139.7	1142.4	*1141.5*	1141.5	1138.8	1136.1	1134.4	1134.4
32.5°	1121.9	1121.0	1123.7	1128.1	1131.7	*1131.7*	1131.7	1126.3	1122.8	1121.0	1120.1
35°	1110.3	1110.3	1113.9	1121.9	1126.3	*1126.3*	1124.6	1121.0	1113.0	1110.3	1110.3
37.5°	1106.7	1109.4	1119.2	1130.8	1139.7	*1141.5*	1138.8	1129.0	1118.3	1110.3	1107.6
40°	1118.3	1121.0	1133.5	1152.2	1165.5	*1168.2*	1165.5	1151.3	1132.6	1120.1	1119.2
42.5°	1120.1	1121.9	1137.0	1158.4	1170.9	*1175.3*	1170.9	1156.6	1136.1	1121.0	1120.1
45°	1113.9	1114.8	1132.6	1154.8	1170.0	*1175.3*	1170.0	1153.0	1131.7	1114.8	1113.9
47.5°	1105.9	1107.6	1127.2	1150.4	1169.1	*1172.6*	1168.2	1149.5	1125.4	1108.5	1105.9
50°	1099.6	1105.0	1122.8	1148.6	1170.9	*1181.5*	1170.9	1145.9	1121.9	1103.2	1099.6
52.5°	1103.2	1105.0	1128.1	1164.6	1194.9	*1199.3*	1194.0	1164.6	1126.3	1105.0	1102.3
55°	1113.9	1121.9	1146.8	1199.3	1227.0	*1235.0*	1223.4	1197.6	1147.7	1121.9	1113.9
57.5°	*1128.1*	*1130.8*	*1166.4*	*1212.7*	*1253.7*	*1277.7*	*1254.6*	*1211.8*	*1169.1*	*1129.0*	*1127.2*
60°	1116.5	1108.5	1153.0	1207.4	1262.6	*1272.4*	1259.0	1208.3	1151.3	1107.6	1115.7
62.5°	1085.4	1090.7	1127.2	1202.0	1240.3	*1251.0*	1236.7	1202.0	1125.4	1095.2	1082.7
65°	1060.4	1092.5	1132.6	1186.0	1247.4	*1277.7*	1248.3	1184.2	1134.4	1087.2	1057.8
67.5°	1025.7	1032.0	1091.6	1157.5	1212.7	*1227.8*	1211.8	1158.4	1086.3	1027.5	1032.0
70°	967.0	958.1	1018.6	1095.2	1147.7	*1171.7*	1149.5	1091.6	1015.9	956.3	964.3
72.5°	869.9	875.2	931.3	1012.4	1066.7	*1089.8*	1067.6	1006.1	929.6	880.6	875.2
75°	768.4	774.6	828.9	902.9	958.1	*967.8*	961.6	898.4	830.7	773.7	768.4
77.5°	652.7	658.9	703.4	784.4	817.4	*832.5*	819.2	788.9	701.6	658.0	650.9
80°	524.4	522.7	561.8	631.3	672.2	*689.2*	672.2	633.1	560.1	526.2	514.6
82.5°	374.9	376.6	413.1	461.2	500.4	*505.7*	497.7	465.7	409.6	381.1	365.1
85°	208.4	216.4	243.1	278.7	304.5	*313.4*	300.1	269.8	242.2	219.9	212.8
87.5°	49.9	54.3	63.2	80.1	89.9	*98.8*	89.9	83.7	59.7	54.3	49.9
90°	0.0	0.0	0.0	0.0	0.0	*0.0*	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

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

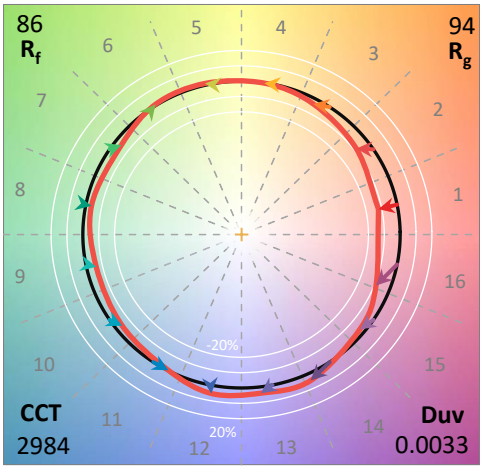
Test Information

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	CRI (Ra):	81.8		
CIE u':	0.2500	R1:	79.4	R9:	-1.1
CIE v':	0.5264	R2:	89.9	R10:	78.4
Duv:	0.0033	R3:	96.6	R11:	80.8
CIE x:	0.4431	R4:	80.6	R12:	72.8
CIE y:	0.4147	R5:	80.1	R13:	81.7
CIE z:	0.1422	R6:	88.9	R14:	98.5
Peak Wavelength (nm):	601	R7:	82.6	R15:	70.2
Dominant Wavelength (nm):	581	R8:	56.0		
Purity:	57.4798				

Rf:	85.8
Rg:	94.1



Test Conditions

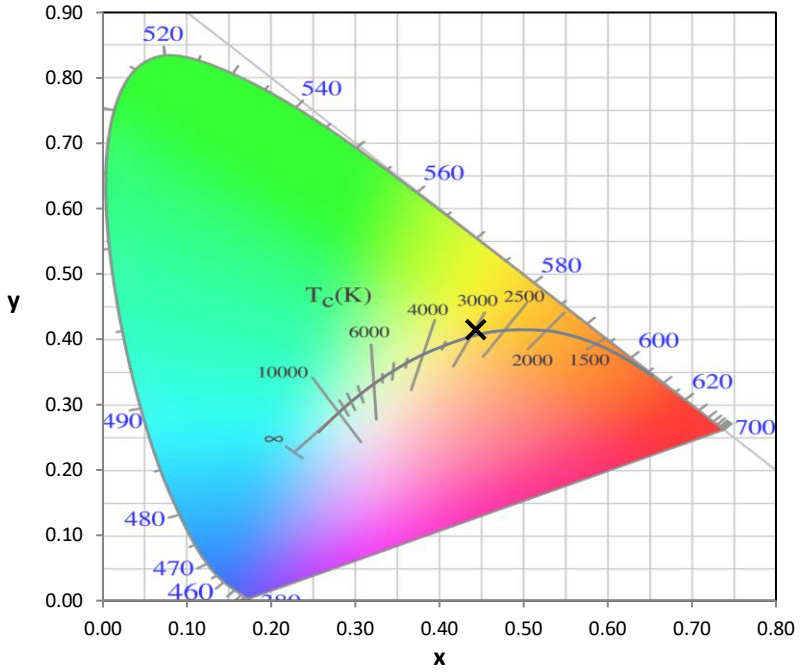
Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

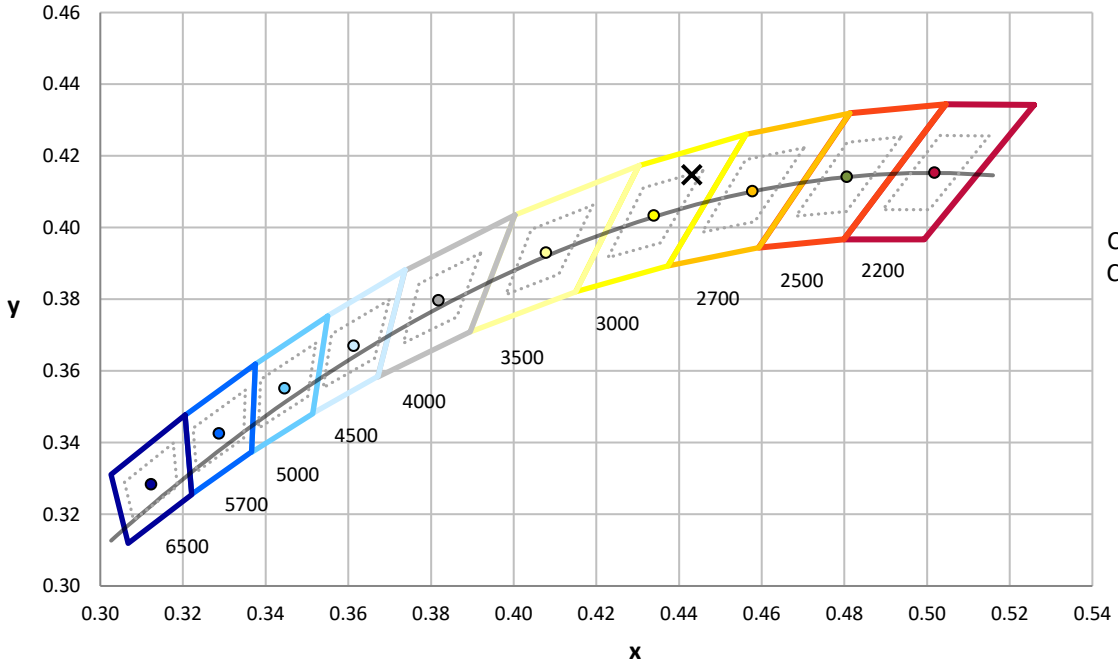
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

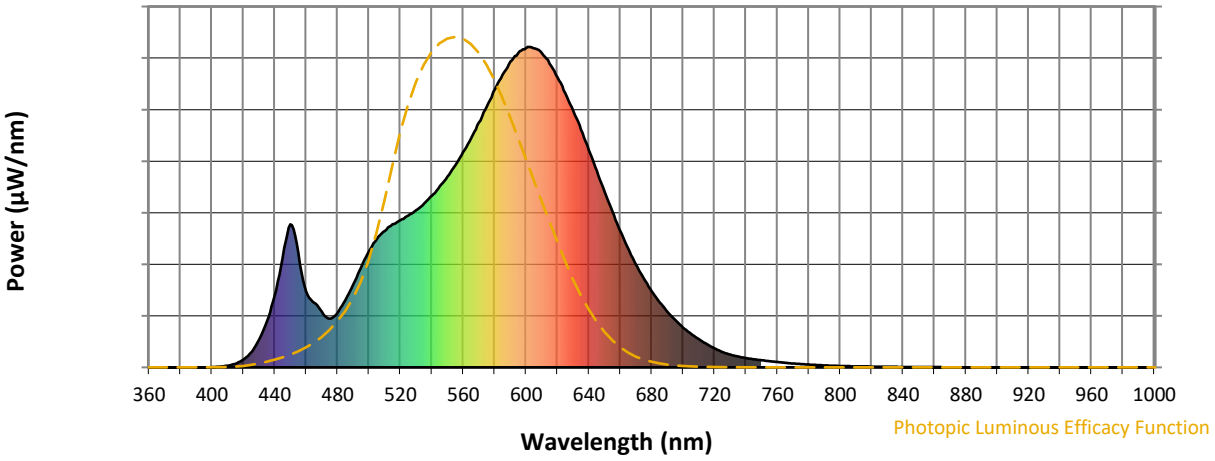


CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-7

Photopic Flux vs. Wavelength

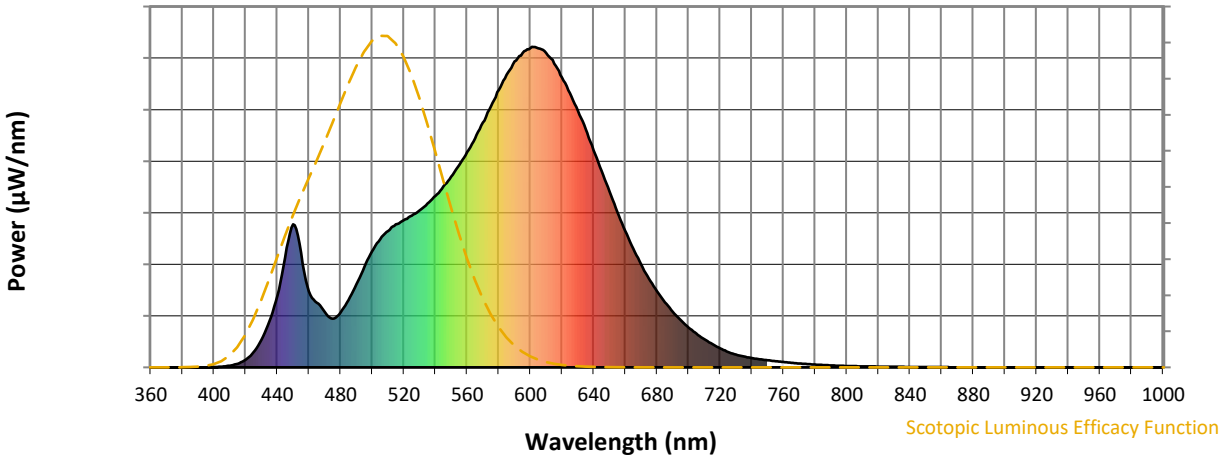


Photopic Lumens: NR

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

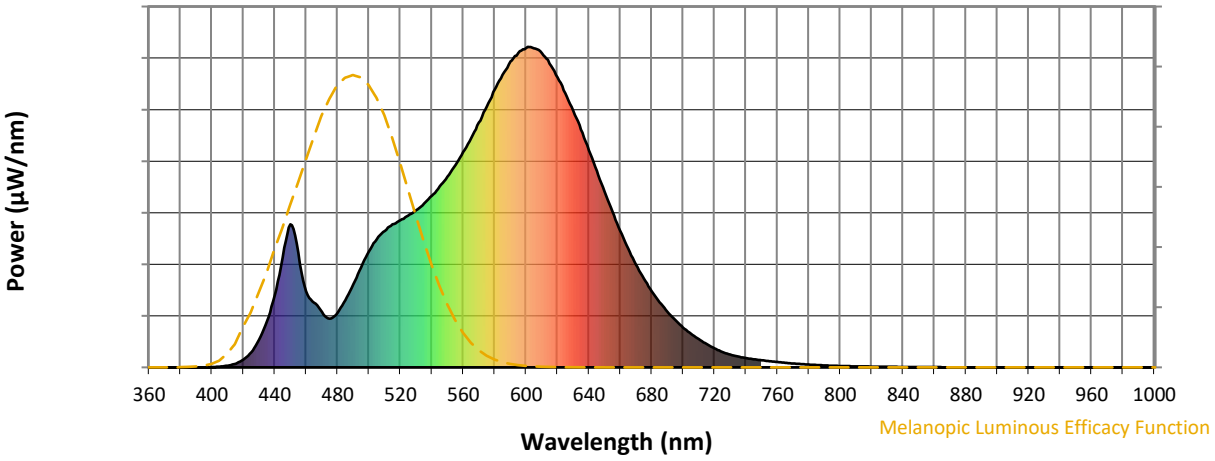


Scotopic Lumens: NR **S/P: 1.32**

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			

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			

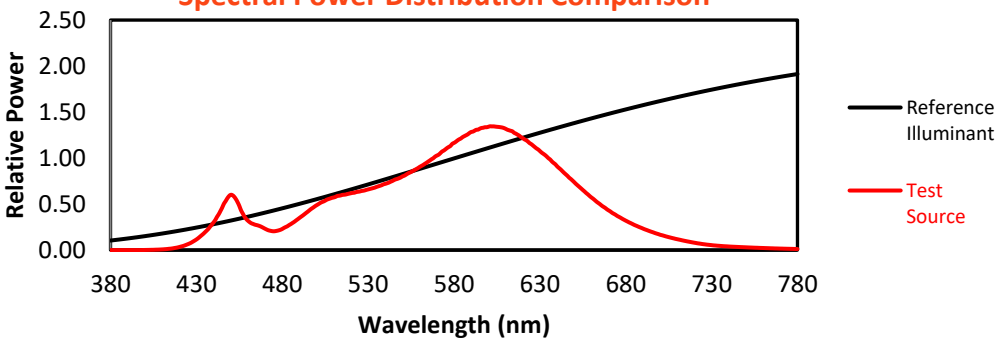
REPORT NUMBER: SP1-2407-176-7

TM-30-18

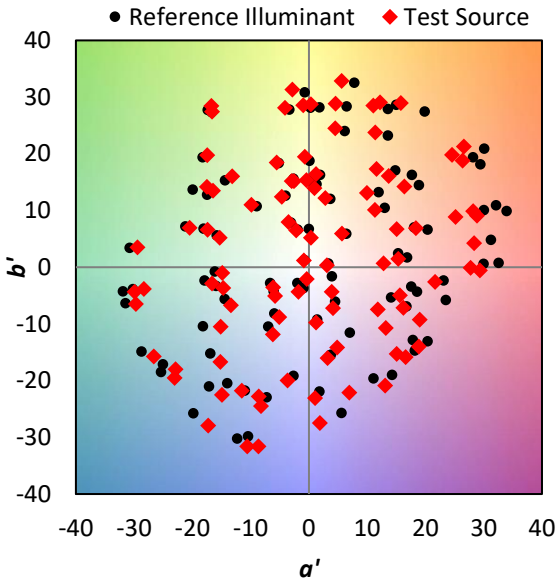
Summary

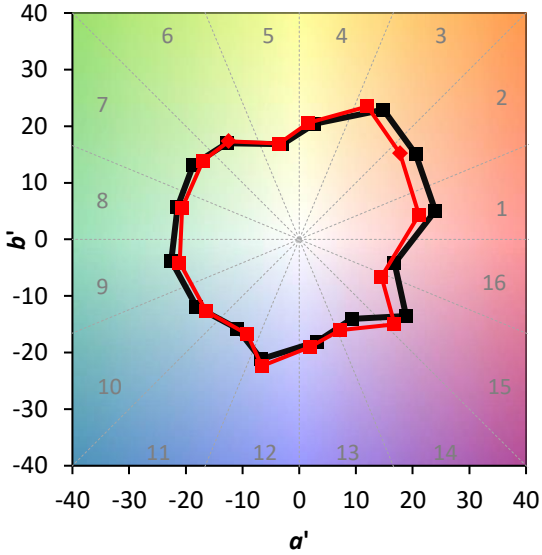
R_f = 85.8
R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

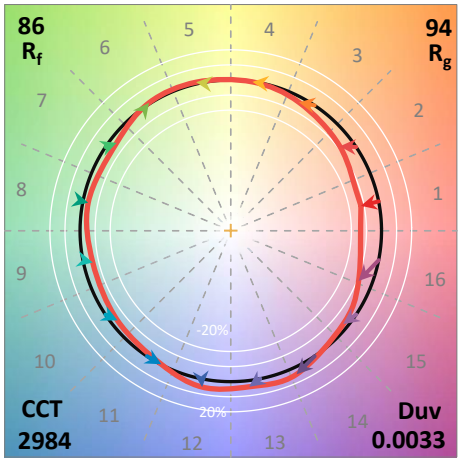
Spectral Power Distribution Comparison

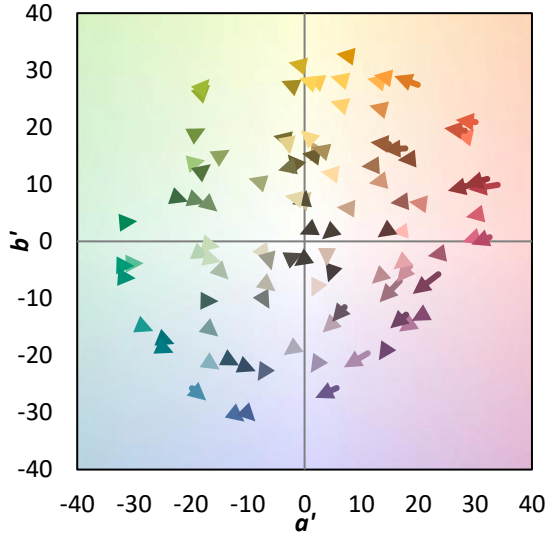


Color Vector Graphics







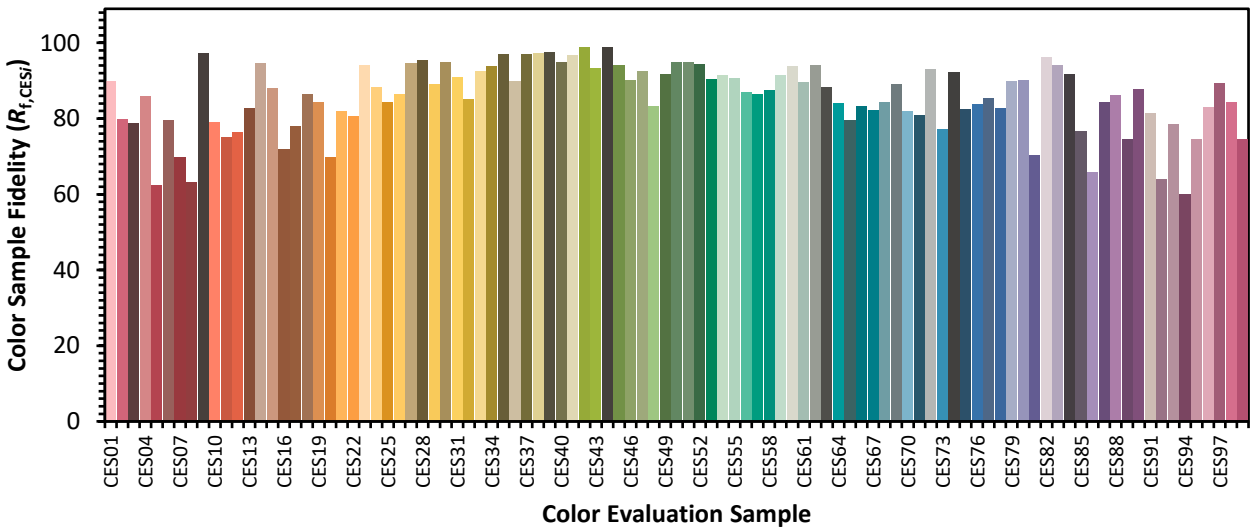


REPORT NUMBER: SP1-2407-176-7

TM-30-18

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

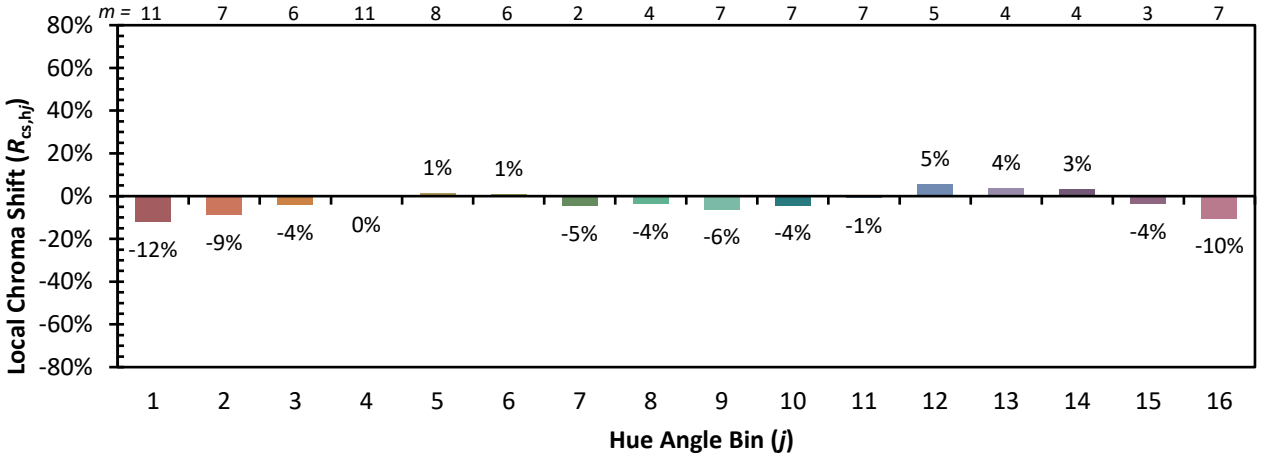
CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82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

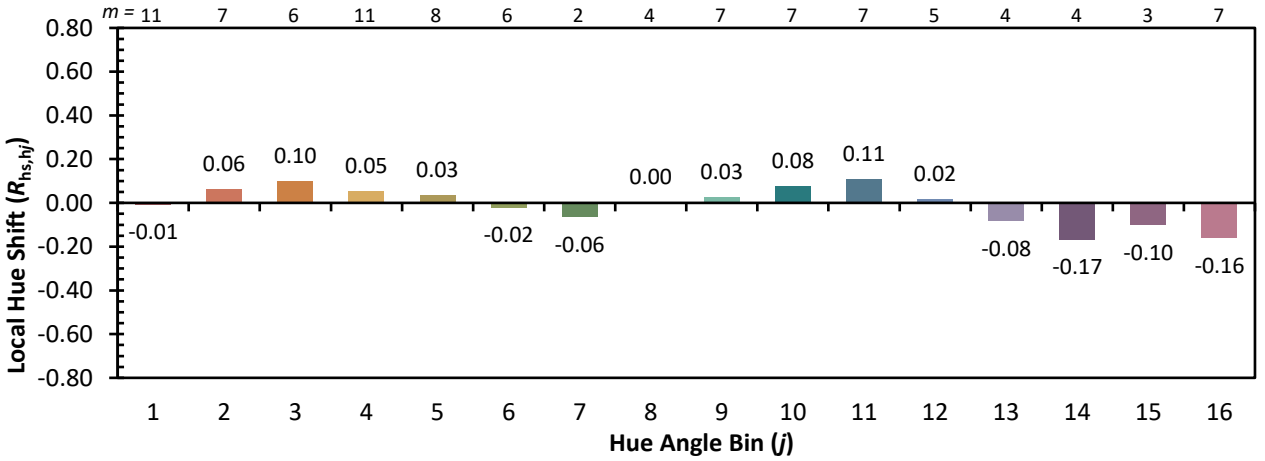


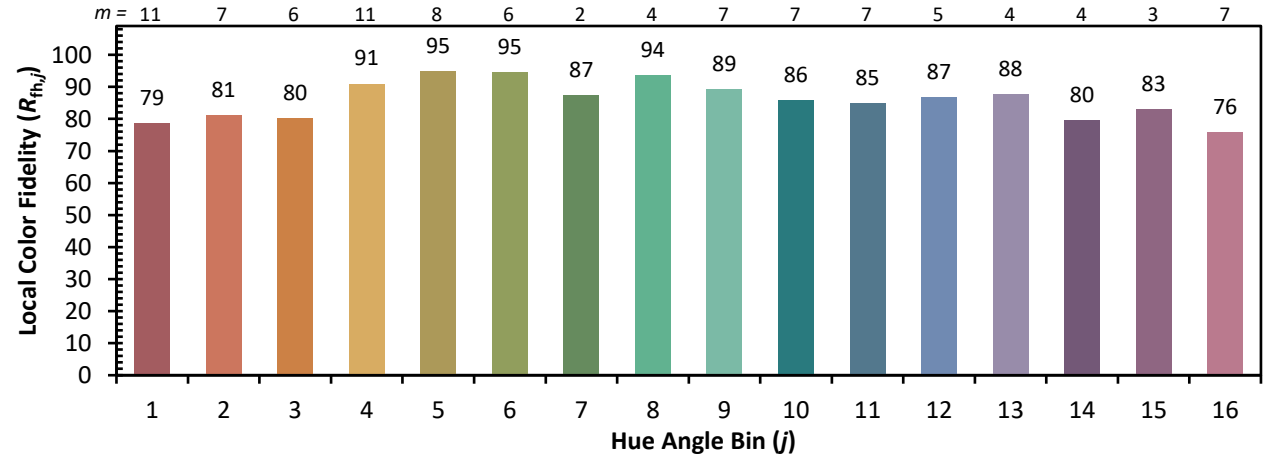
REPORT NUMBER: SP1-2407-176-7

TM-30-18

Color Rendition by Hue-Angle Bin



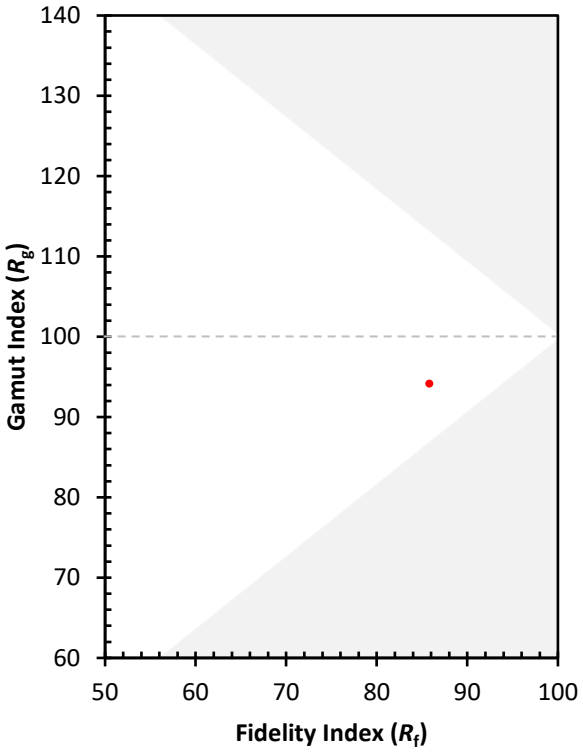


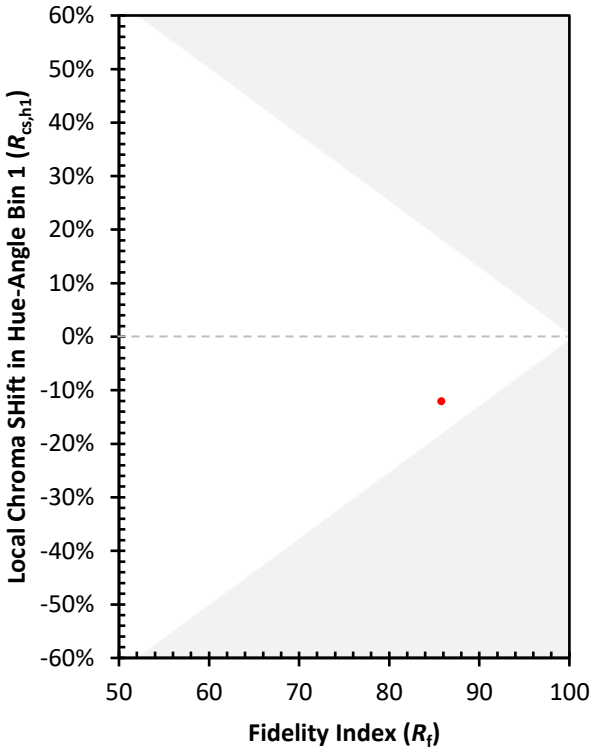


REPORT NUMBER: SP1-2407-176-7

TM-30-18

Measure Comparisons





(END OF REPORT)