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: P821205

Luminaire Tested: **TT-D2-735-24VDC-CQ**

Issue Date: 5/19/2020

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:	P821205
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-17)
Test Lab:	INNOVATION CENTER
Issue Date:	5/19/2020
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TT-D2-735-24VDC-CQ
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	3500K, 70 CRI LEDS AND CONCENTRATED DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	4925 lumens
Efficiency:	N/A
Efficacy:	129.6 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B2 - U0 - G1

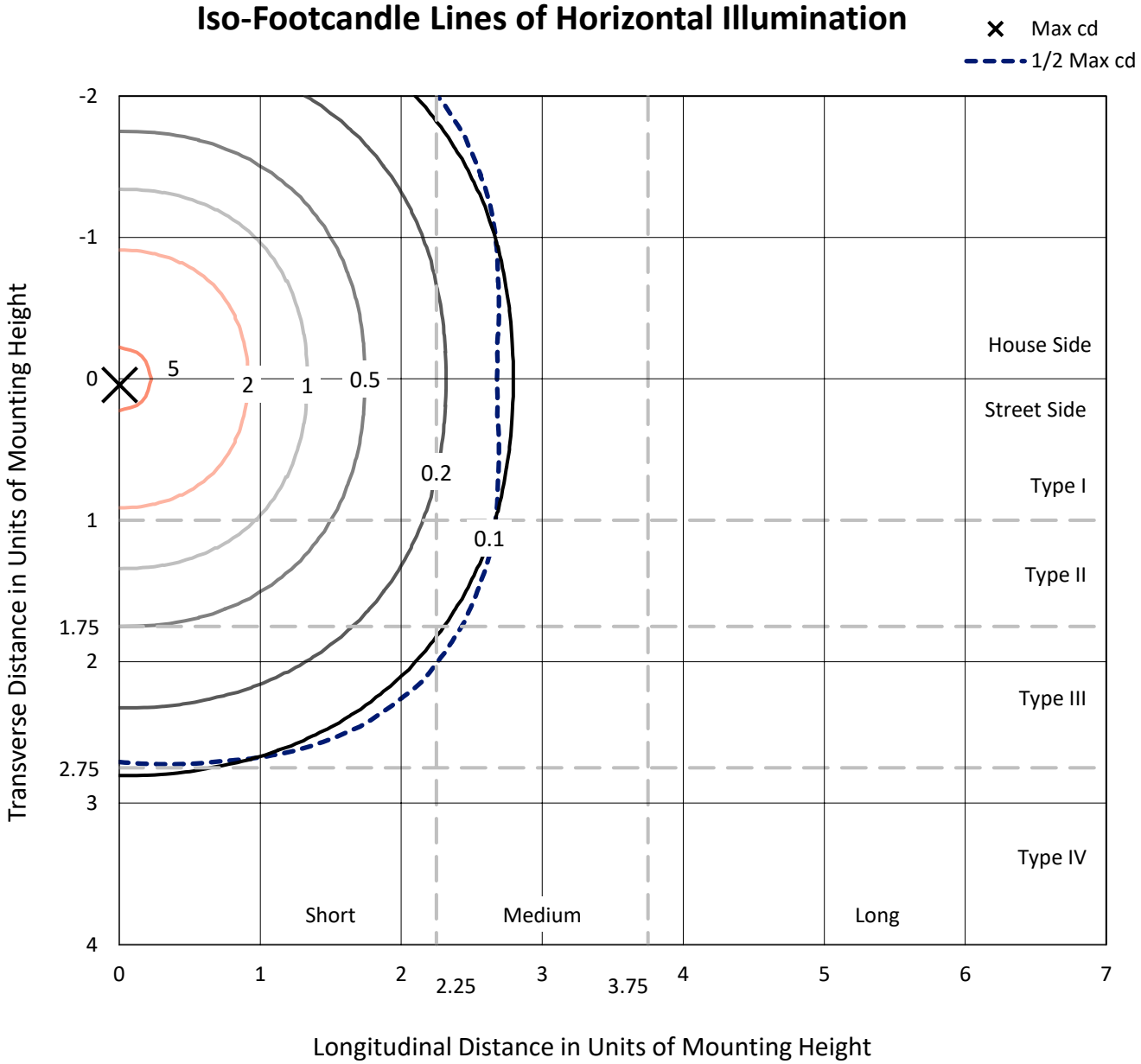
Input Watts (W):	38
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Scaled Data Report

REPORT NUMBER: P821205
CATALOG NUMBER: TT-D2-735-24VDC-CQ

Iso-Footcandle Lines of Horizontal Illumination



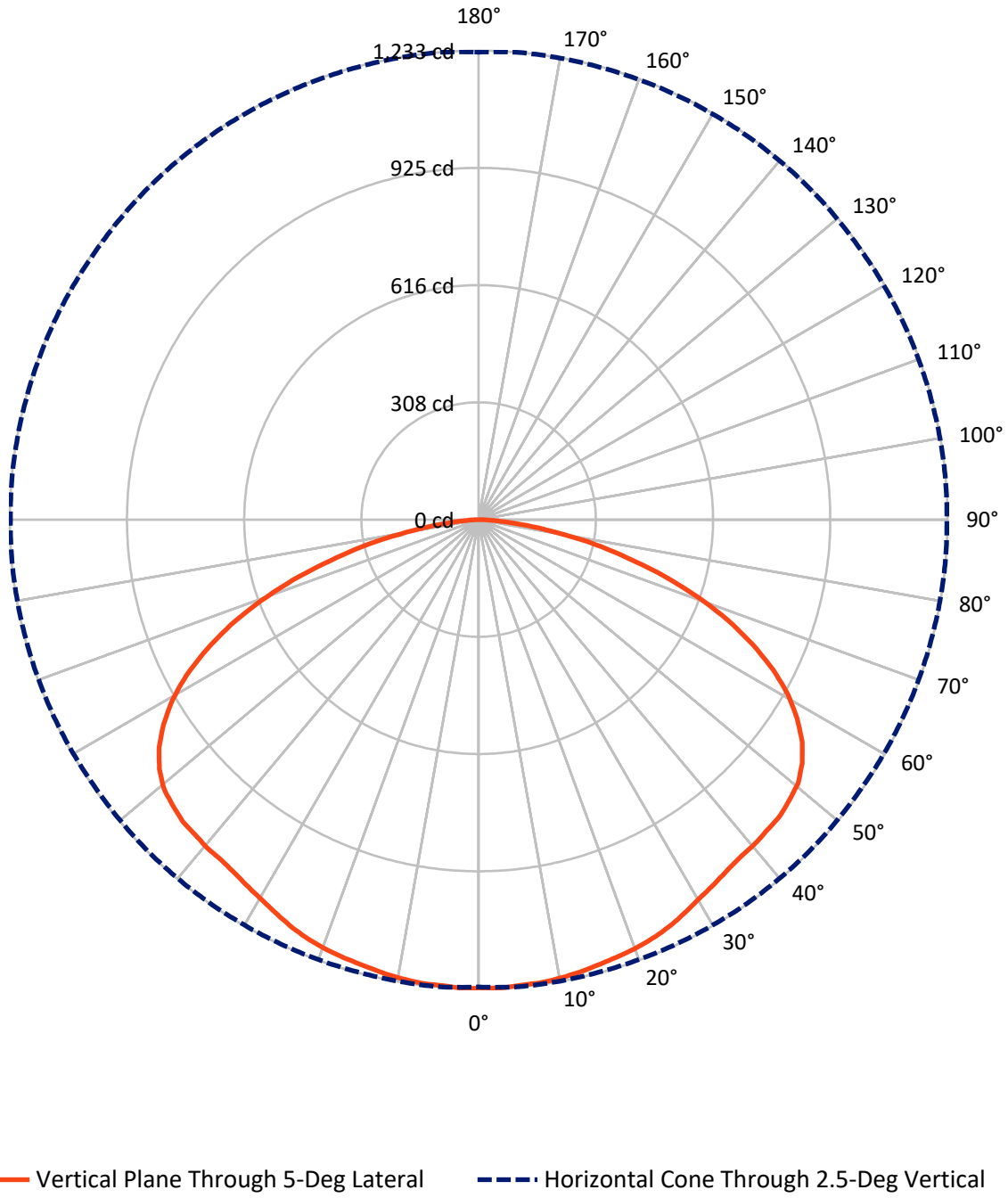
Based on 15 foot mounting height. Maximum calculated value = 5.5 fc
Type V - Short - N/A

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REPORT NUMBER: P821205
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Luminous Intensity Polar Plot



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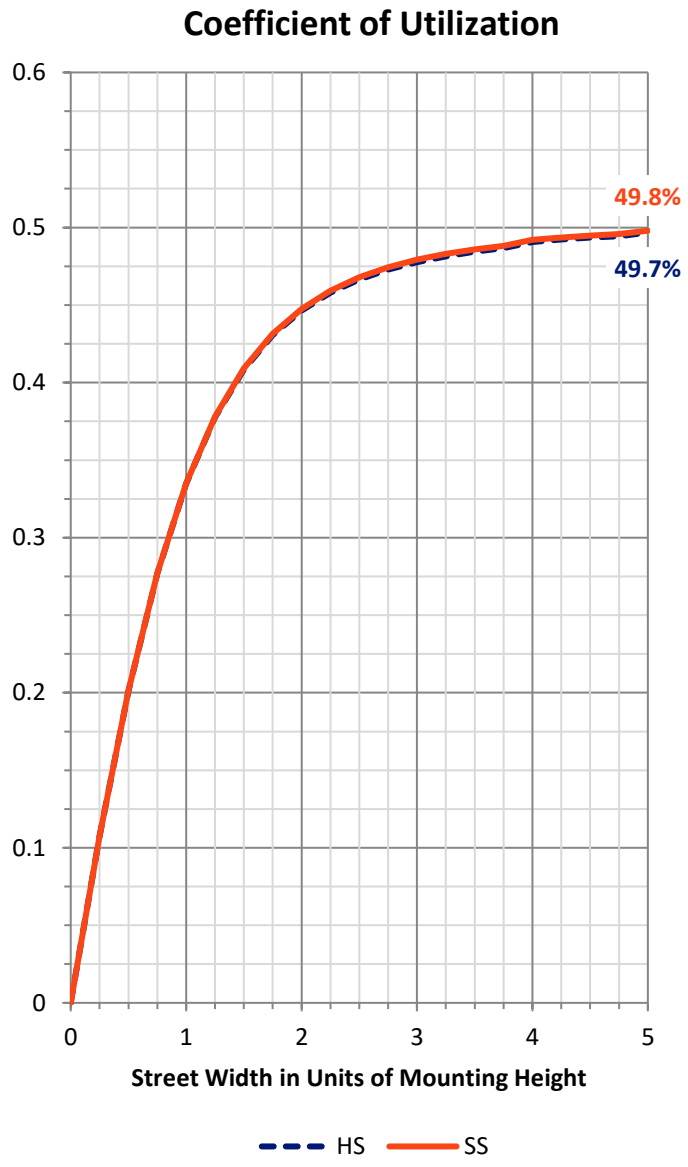
REPORT NUMBER: P821205
CATALOG NUMBER: TT-D2-735-24VDC-CQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2462.5	0.0	2462.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2462.5	0.0	2462.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	4925.0	0.0	4925.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.2	2.4
10°-20°	343.2	7.0
20°-30°	545.8	11.1
30°-40°	717.9	14.6
40°-50°	878.7	17.8
50°-60°	951.8	19.3
60°-70°	818.8	16.6
70°-80°	460.3	9.3
80°-90°	91.3	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°	4925.0	100.0
0°-180°	4925.0	100.0



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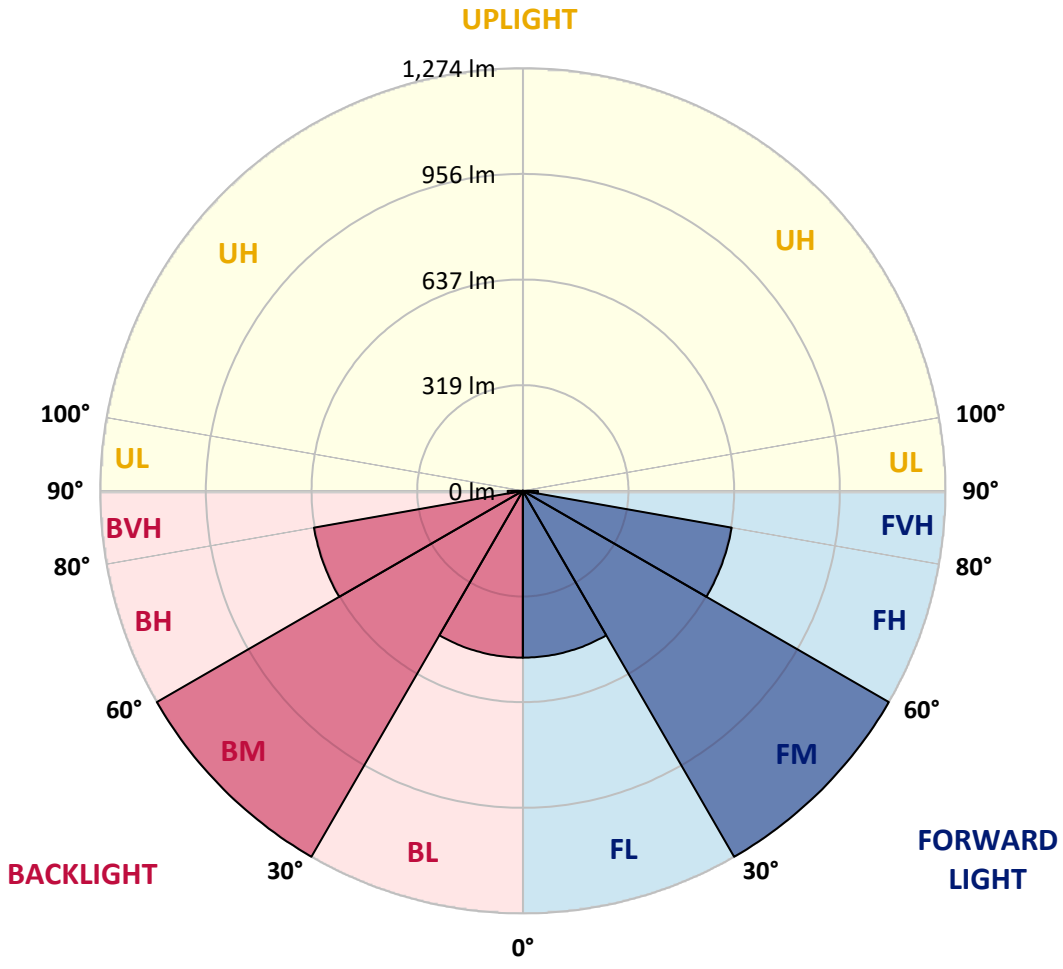
Scaled Data Report

REPORT NUMBER: P821205
CATALOG NUMBER: TT-D2-735-24VDC-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	503.1	10.2			
FM	(30°-60°)	1274.2	25.9			
FH	(60°-80°)	639.6	13.0			G0/660
FVH	(80°-90°)	45.6	0.9			G1/100
BL	(0°-30°)	503.1	10.2	B2/1000		
BM	(30°-60°)	1274.2	25.9	B2/2500		
BH	(60°-80°)	639.6	13.0	B2/1000		G0/660
BVH	(80°-90°)	45.6	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



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CATALOG NUMBER: TT-D2-735-24VDC-CQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1232.1	1232.1	1232.1	1232.1	1232.1	1232.1	1232.1	1232.1	1232.1	1232.1	1232.1
2.5°	1229.0	1232.9	1231.3	1231.3	1231.3	1231.3	1229.7	1231.3	1231.3	1232.1	1231.3
5°	1229.7	1229.0	1229.0	1229.7	1229.7	1230.5	1229.0	1229.7	1230.5	1230.5	1231.3
7.5°	1227.4	1228.2	1226.6	1228.2	1226.6	1227.4	1227.4	1228.2	1227.4	1228.2	1229.7
10°	1222.7	1223.5	1222.7	1222.7	1222.7	1224.3	1221.1	1223.5	1222.7	1223.5	1222.7
12.5°	1214.1	1218.0	1216.4	1218.0	1218.0	1218.0	1215.6	1217.2	1218.0	1218.0	1218.0
15°	1210.1	1210.9	1208.6	1211.7	1212.5	1213.3	1210.1	1211.7	1211.7	1212.5	1213.3
17.5°	1201.5	1205.4	1204.7	1207.0	1206.2	1208.6	1207.8	1207.0	1206.2	1207.8	1206.2
20°	1195.3	1199.2	1198.4	1200.7	1201.5	1203.9	1201.5	1201.5	1199.2	1200.0	1202.3
22.5°	1189.0	1190.6	1190.6	1192.9	1192.9	1195.3	1192.9	1192.1	1192.1	1191.3	1193.7
25°	1178.8	1179.6	1178.8	1181.1	1182.7	1184.3	1183.5	1181.9	1181.1	1181.1	1180.4
27.5°	1162.3	1165.5	1167.0	1170.2	1171.0	1173.3	1170.2	1170.2	1168.6	1167.0	1167.8
30°	1149.8	1151.4	1151.4	1158.4	1158.4	1162.3	1158.4	1157.6	1156.8	1156.1	1154.5
32.5°	1138.0	1140.4	1142.7	1148.2	1152.1	1153.7	1151.4	1149.8	1145.9	1143.5	1142.7
35°	1128.6	1129.4	1134.1	1142.0	1146.7	1150.6	1147.4	1143.5	1138.0	1134.1	1137.3
37.5°	1121.6	1122.4	1129.4	1139.6	1148.2	1151.4	1146.7	1140.4	1131.8	1127.1	1125.5
40°	1115.3	1120.0	1127.8	1142.0	1151.4	1156.1	1152.1	1143.5	1131.0	1121.6	1120.8
42.5°	1112.2	1114.5	1126.3	1142.7	1156.1	1162.3	1156.8	1145.1	1129.4	1118.4	1117.7
45°	1104.3	1111.4	1122.4	1143.5	1158.4	1166.3	1158.4	1143.5	1124.7	1112.2	1109.8
47.5°	1098.1	1100.4	1117.7	1142.0	1160.0	1166.3	1158.4	1139.6	1116.1	1099.6	1098.1
50°	1083.2	1088.7	1105.9	1131.8	1152.9	1159.2	1149.8	1124.7	1098.1	1080.0	1076.9
52.5°	1060.4	1065.1	1085.5	1117.7	1138.0	1145.1	1131.0	1104.3	1073.0	1051.0	1051.0
55°	1025.2	1032.2	1053.4	1086.3	1112.2	1118.4	1102.0	1073.8	1038.5	1016.6	1015.8
57.5°	982.9	987.6	1010.3	1046.3	1071.4	1080.8	1064.4	1033.0	997.7	971.9	969.5
60°	928.0	934.3	958.6	993.0	1018.9	1026.7	1012.6	981.3	945.2	917.8	917.8
62.5°	862.2	869.2	893.5	928.8	955.4	967.2	947.6	917.8	880.2	853.5	851.2
65°	785.3	791.6	813.6	850.4	877.8	886.4	871.6	840.2	804.2	779.1	776.7
67.5°	699.1	707.7	729.7	761.0	784.6	795.5	786.1	757.9	720.3	694.4	692.1
70°	605.9	612.1	629.4	658.4	685.0	692.9	678.7	659.9	624.7	601.2	598.0
72.5°	506.3	511.8	525.9	553.3	572.2	582.3	574.5	550.2	522.0	502.4	505.5
75°	406.0	405.2	420.9	440.5	457.7	464.8	459.3	443.6	417.8	401.3	400.5
77.5°	305.7	313.5	319.0	335.5	349.6	355.0	347.2	334.7	315.1	301.8	304.1
80°	214.8	210.1	220.2	230.4	239.8	245.3	240.6	233.6	220.2	210.1	208.5
82.5°	131.7	127.8	132.5	141.9	148.1	149.7	150.5	141.9	136.4	128.5	130.1
85°	58.0	58.8	62.7	69.0	69.8	70.5	70.5	69.0	62.7	61.9	60.4
87.5°	14.1	14.1	14.9	17.2	17.2	18.0	18.0	15.7	14.9	13.3	14.1
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: SP1-2407-176-4

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-735-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-735-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

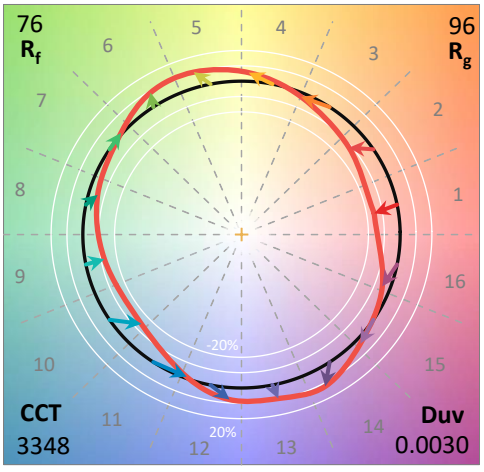
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-4
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-30-735-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	3348
CIE u':	0.2384
CIE v':	0.5184
Duv:	0.0030
CIE x:	0.4177
CIE y:	0.4036
CIE z:	0.1787
Peak Wavelength (nm):	593
Dominant Wavelength (nm):	580
Purity:	46.5223
Rf:	75.8
Rg:	95.8

CRI (Ra):	73.4
R1:	70.8
R2:	79.9
R3:	87.6
R4:	72.6
R5:	69.3
R6:	71.3
R7:	82.1
R8:	53.3
R9:	-19.2
R10:	52.5
R11:	68.0
R12:	42.6
R13:	72.0
R14:	92.6
R15:	63.8



Test Conditions

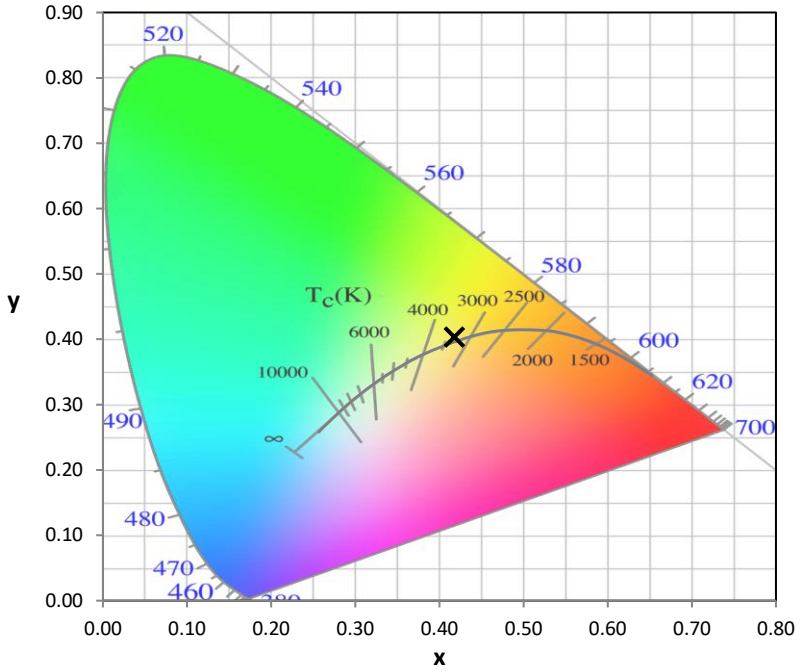
Stabilization Time:	30M
Operation Time:	1H 30M
Sphere Temperature (°C):	25.2

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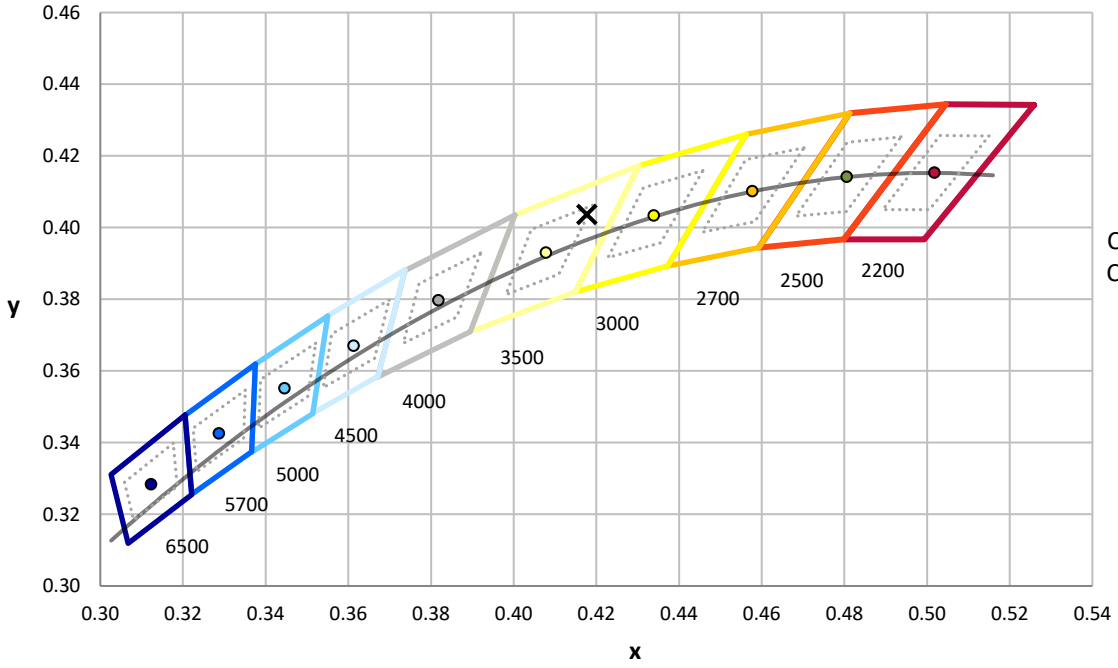
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

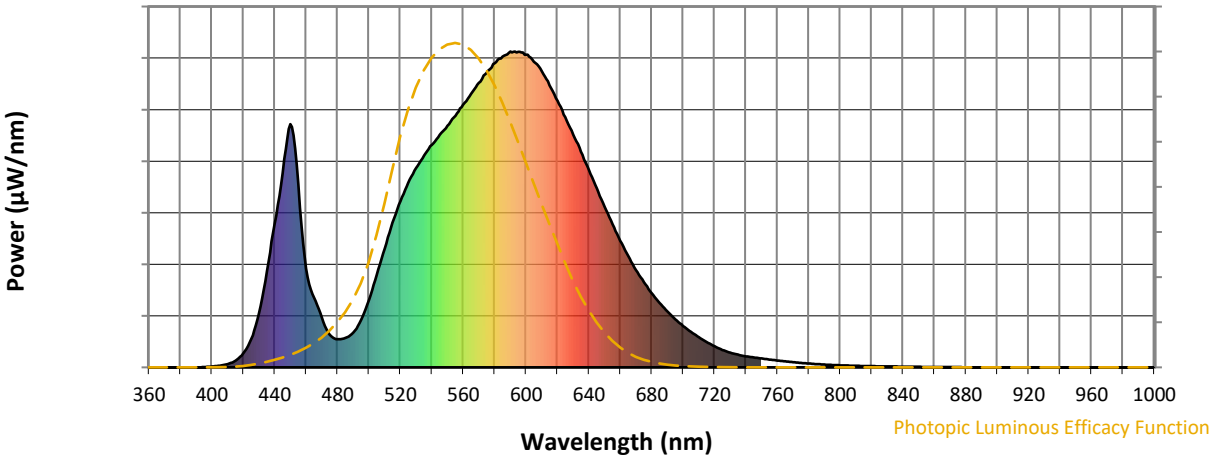


CCT = 3348K
CIE x = 0.4177
CIE y = 0.4036
Duv = 0.0030

Point lies inside the ANSI 3500K 4-step quadrangle

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Photopic Flux vs. Wavelength

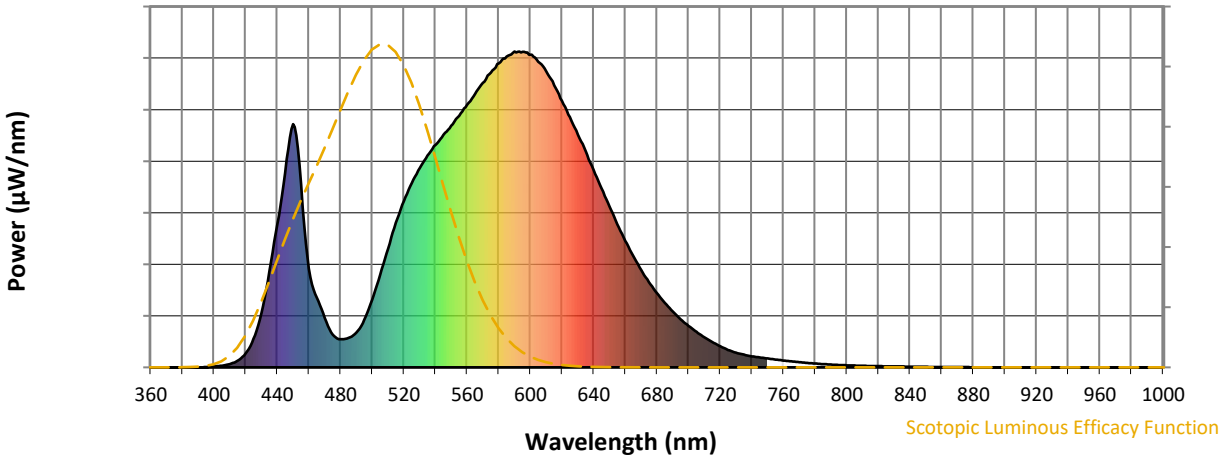


Photopic Lumens: NR

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

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Scotopic Flux vs. Wavelength

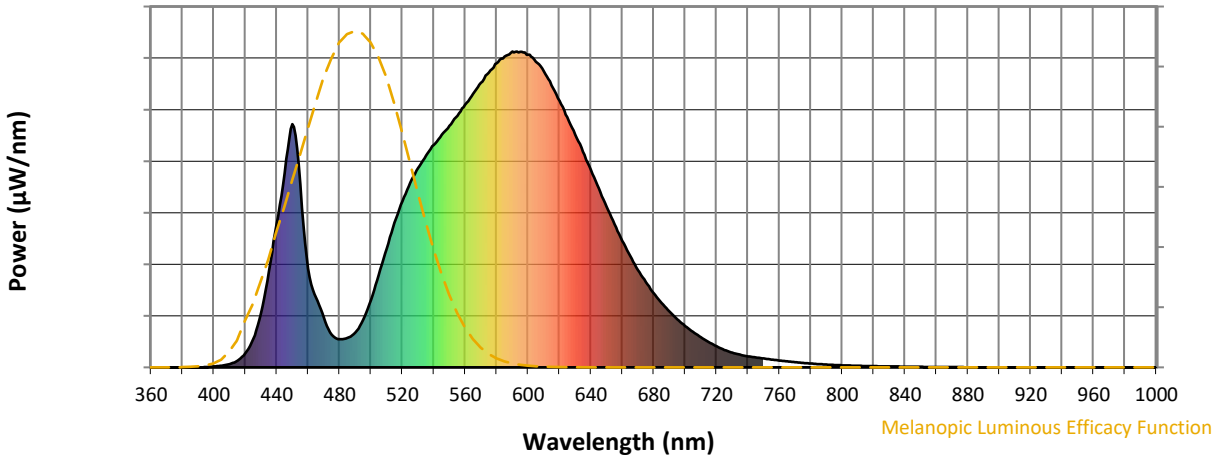


Scotopic Lumens: NR **S/P: 1.31**

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	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.4**

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	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

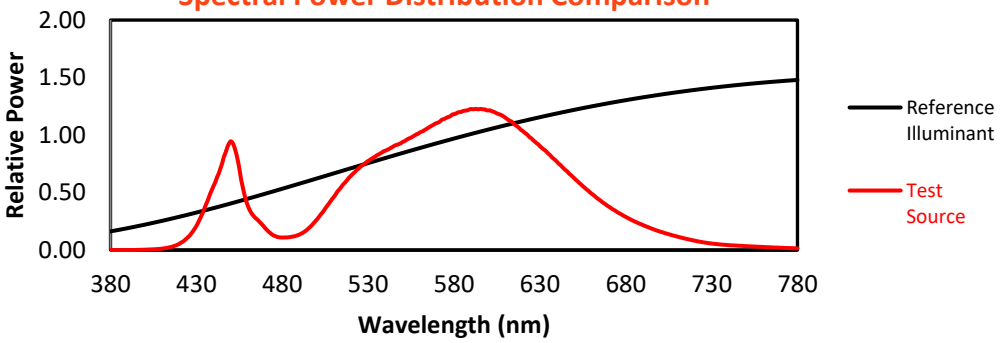
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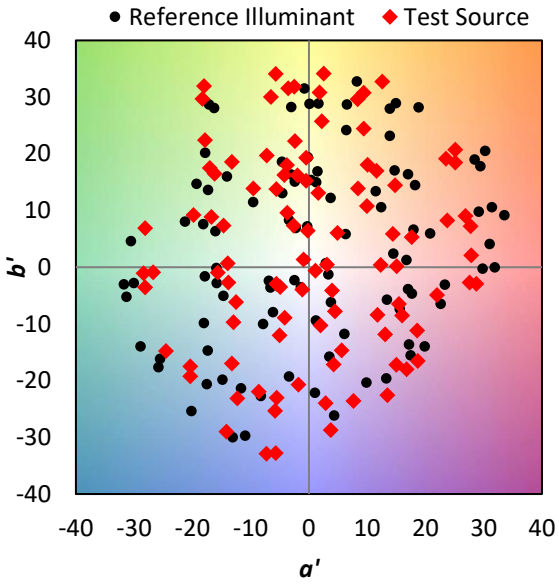
Summary

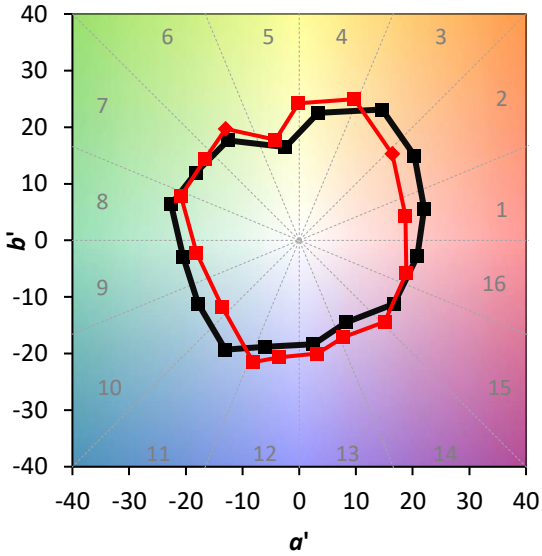
R_f = 75.8
R_g = 95.8
CIE R_a = 73.4
R_9 = -19.2

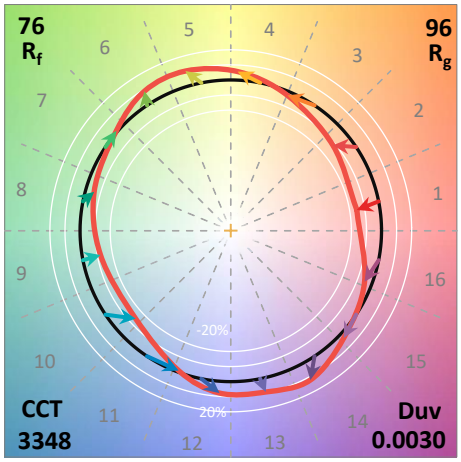
Spectral Power Distribution Comparison

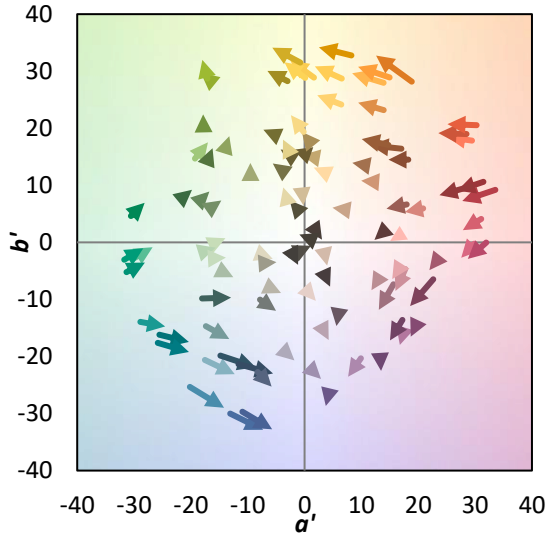


Color Vector Graphics







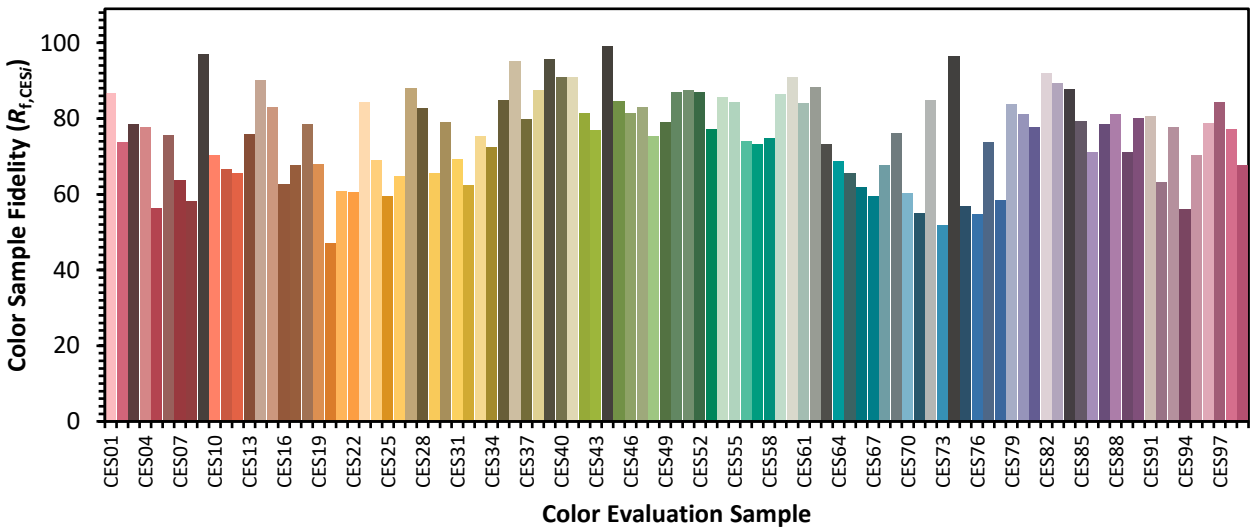


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Individual Sample Fidelity Index ($R_{f,i}$)

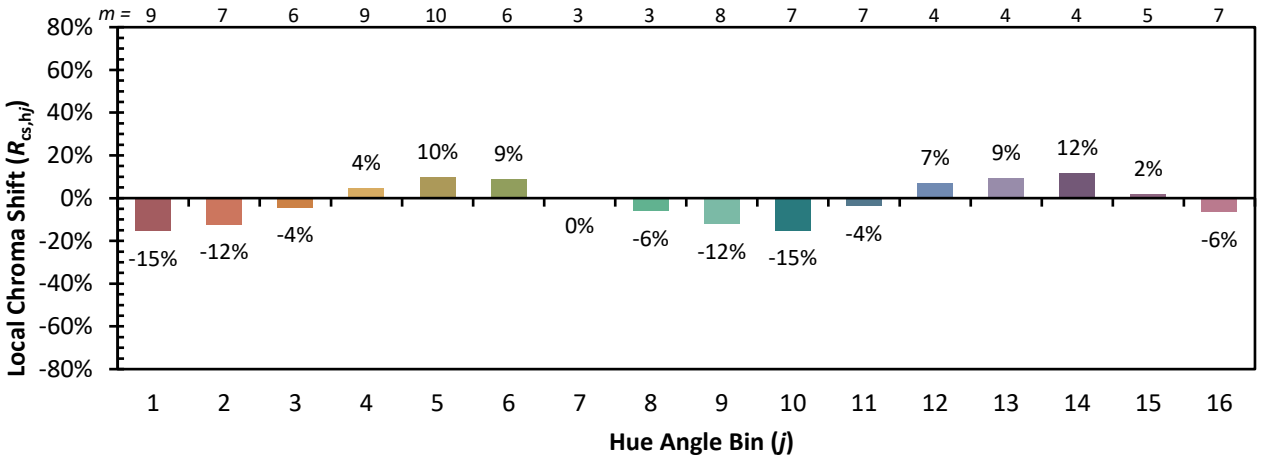
CES01 = 86	CES26 = 65	CES51 = 88	CES76 = 55
CES02 = 62	CES27 = 88	CES52 = 87	CES77 = 74
CES03 = 31	CES28 = 83	CES53 = 77	CES78 = 58
CES04 = 70	CES29 = 66	CES54 = 86	CES79 = 84
CES05 = 48	CES30 = 79	CES55 = 84	CES80 = 81
CES06 = 51	CES31 = 69	CES56 = 74	CES81 = 78
CES07 = 41	CES32 = 62	CES57 = 73	CES82 = 92
CES08 = 40	CES33 = 75	CES58 = 75	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 85	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 95	CES61 = 84	CES86 = 71
CES12 = 64	CES37 = 80	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 88	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 71
CES15 = 71	CES40 = 91	CES65 = 66	CES90 = 80
CES16 = 47	CES41 = 91	CES66 = 62	CES91 = 81
CES17 = 50	CES42 = 81	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 77	CES68 = 68	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 85	CES70 = 60	CES95 = 70
CES21 = 87	CES46 = 82	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 83	CES72 = 85	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 77
CES24 = 91	CES49 = 79	CES74 = 96	CES99 = 68
CES25 = 72	CES50 = 87	CES75 = 57	

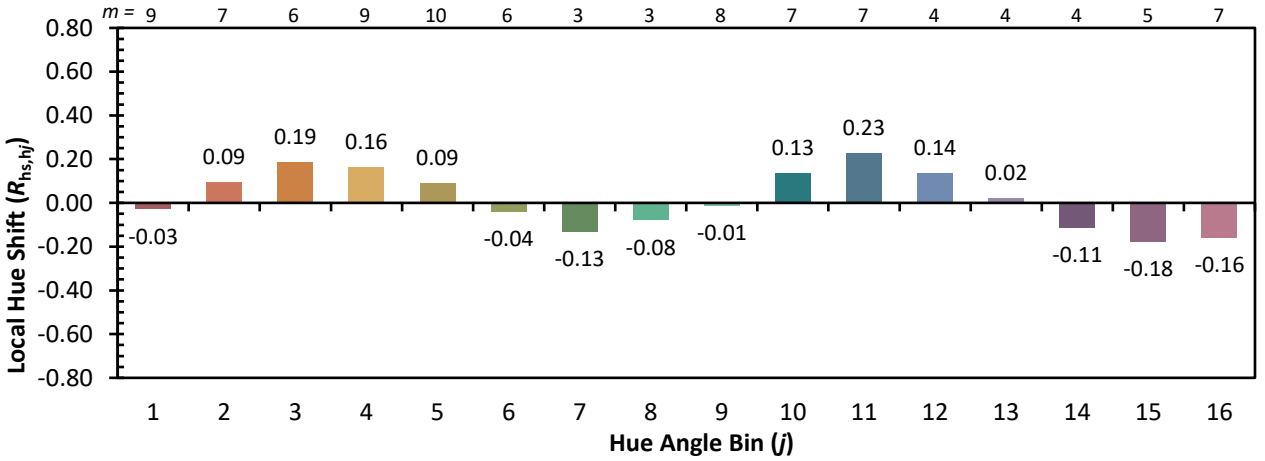


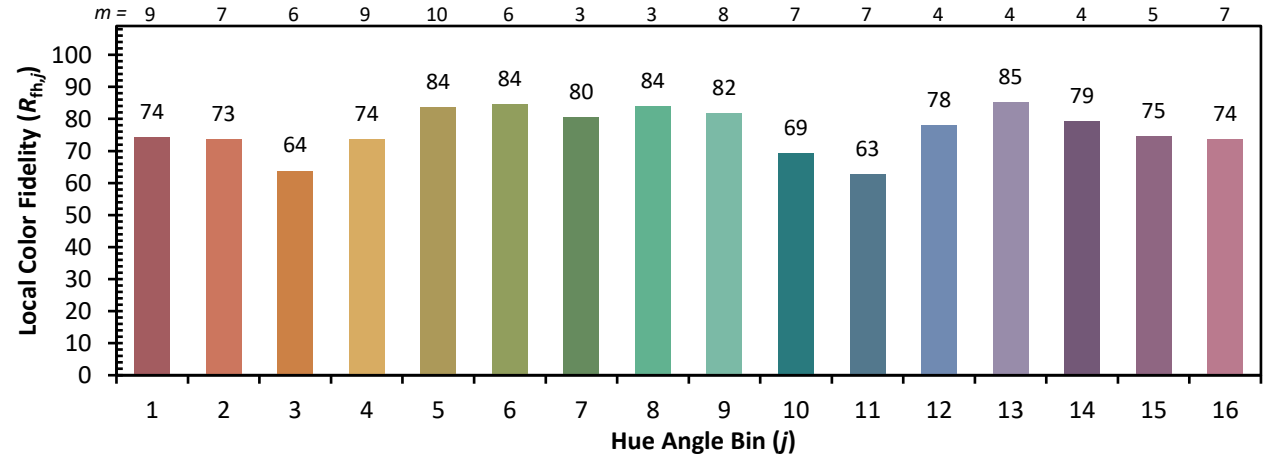
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Color Rendition by Hue-Angle Bin



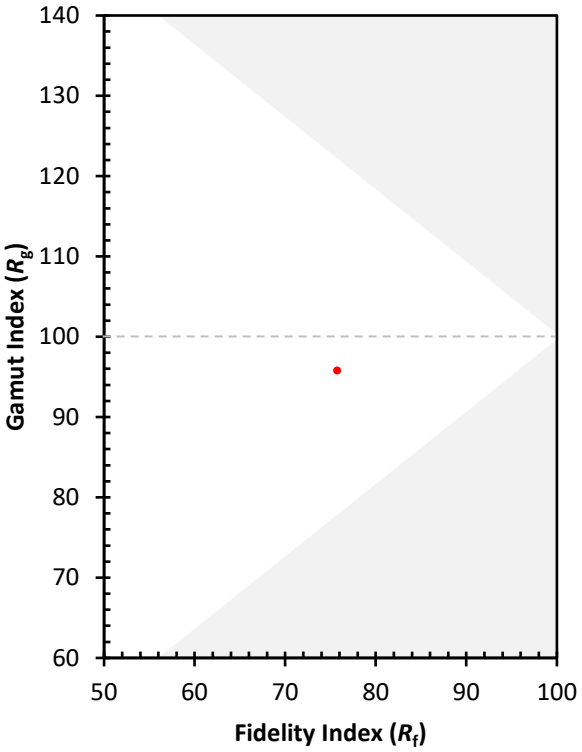


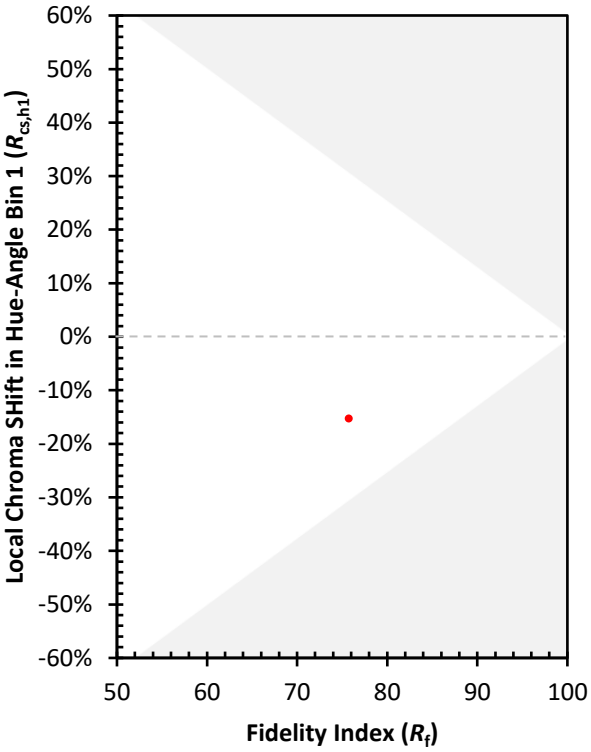


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Measure Comparisons





(END OF REPORT)