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: P821353

Luminaire Tested: **TT-D2-750-24VDC-CQ**

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:	P821353
	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-D2-750-24VDC-CQ
Description:	TOPTIER LED PARKING GARAGE LUMINAIRE
	5000K, 70 CRI LEDS AND CONCENTRATED DISTRIBUTION
Light Source:	-
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	5211 lumens
Efficiency:	N/A
Efficacy:	137.1 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B2 - U0 - G1

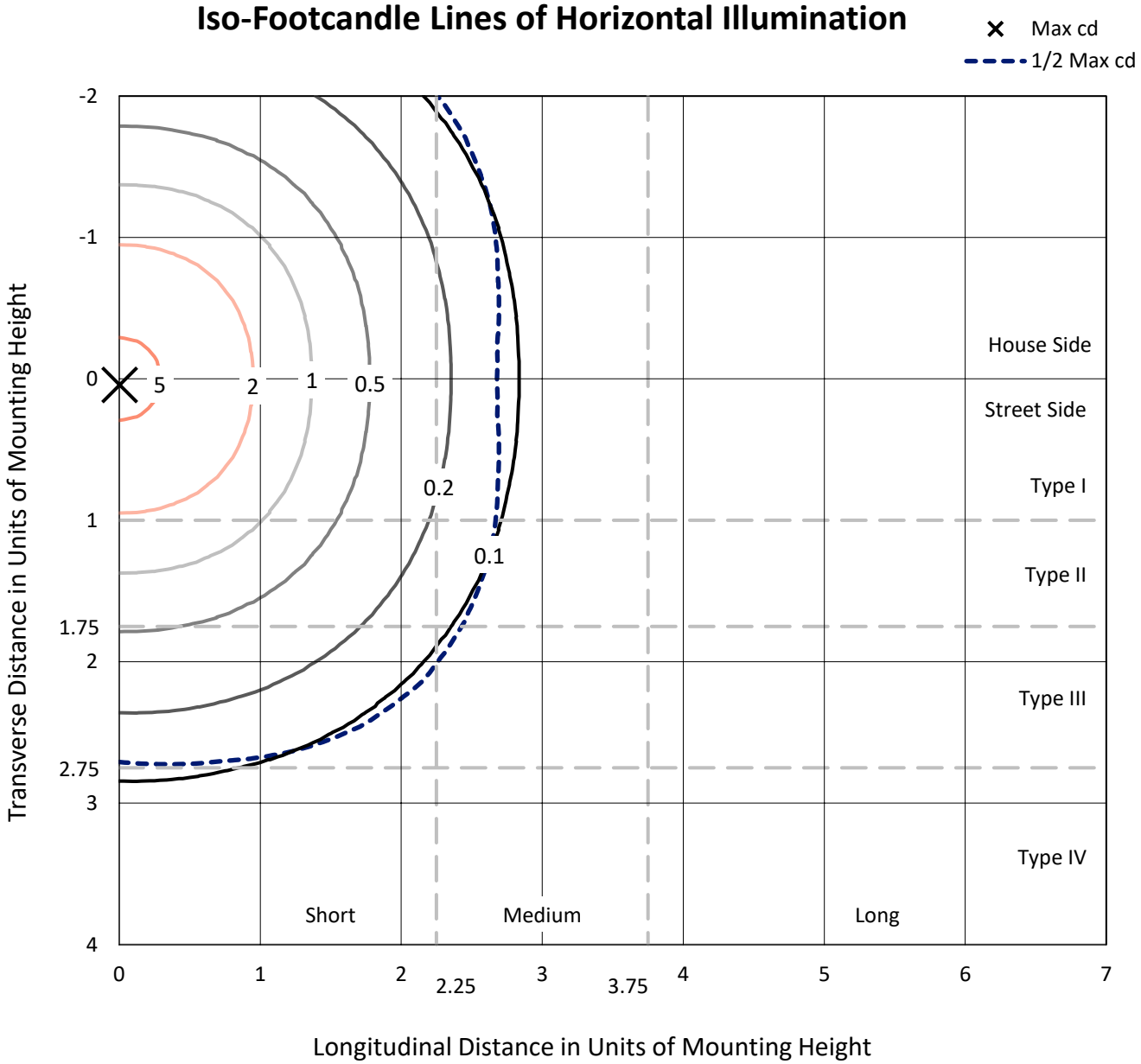
Input Watts (W):	38
Input Voltage (V):	NR
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	NR
Total Harmonic Distortion (THDi):	NR
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	25 FT

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Scaled Data Report

REPORT NUMBER: P821353
CATALOG NUMBER: TT-D2-750-24VDC-CQ

Iso-Footcandle Lines of Horizontal Illumination



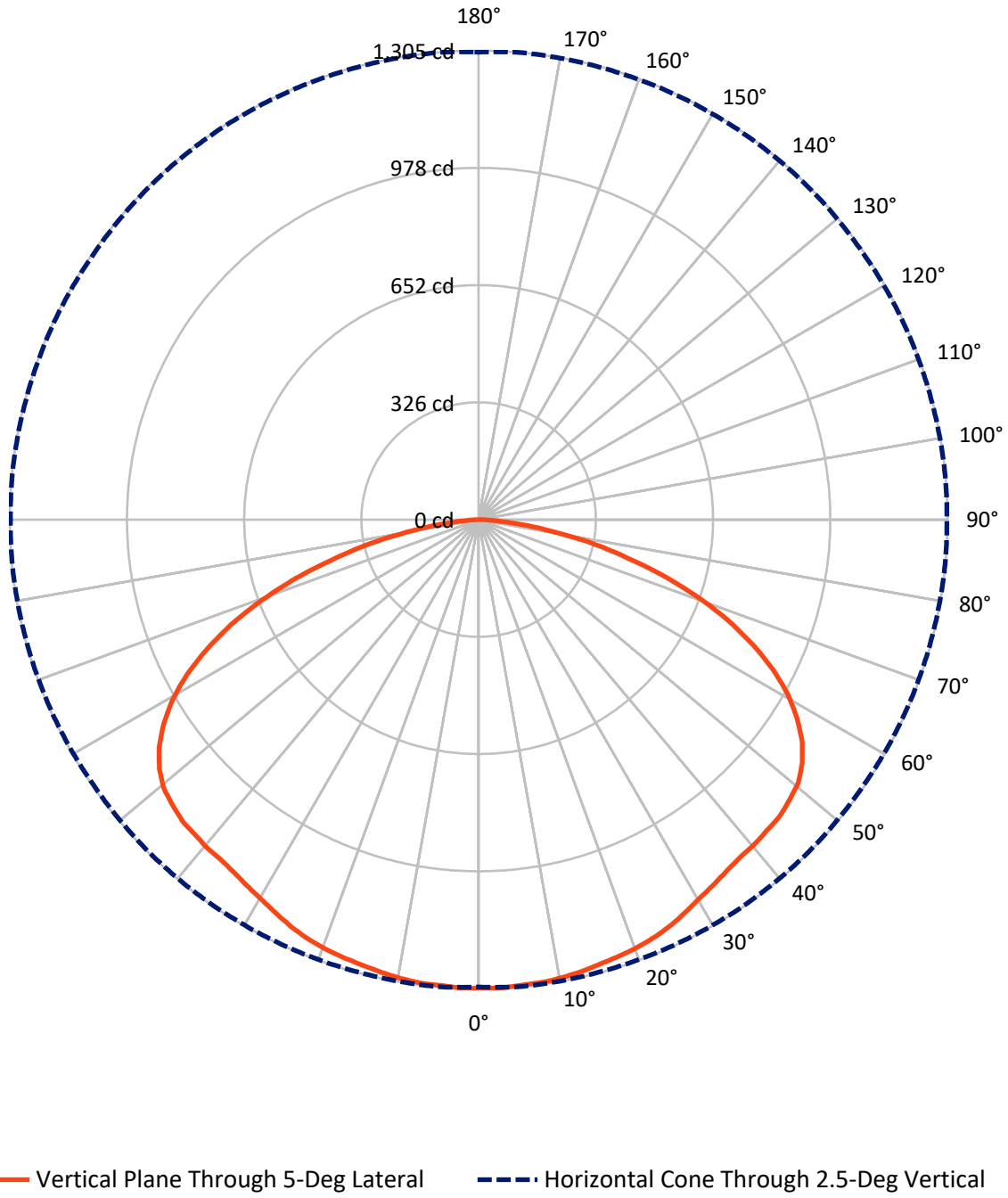
Based on 15 foot mounting height. Maximum calculated value = 5.8 fc
Type V - Short - N/A

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REPORT NUMBER: P821353
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Luminous Intensity Polar Plot



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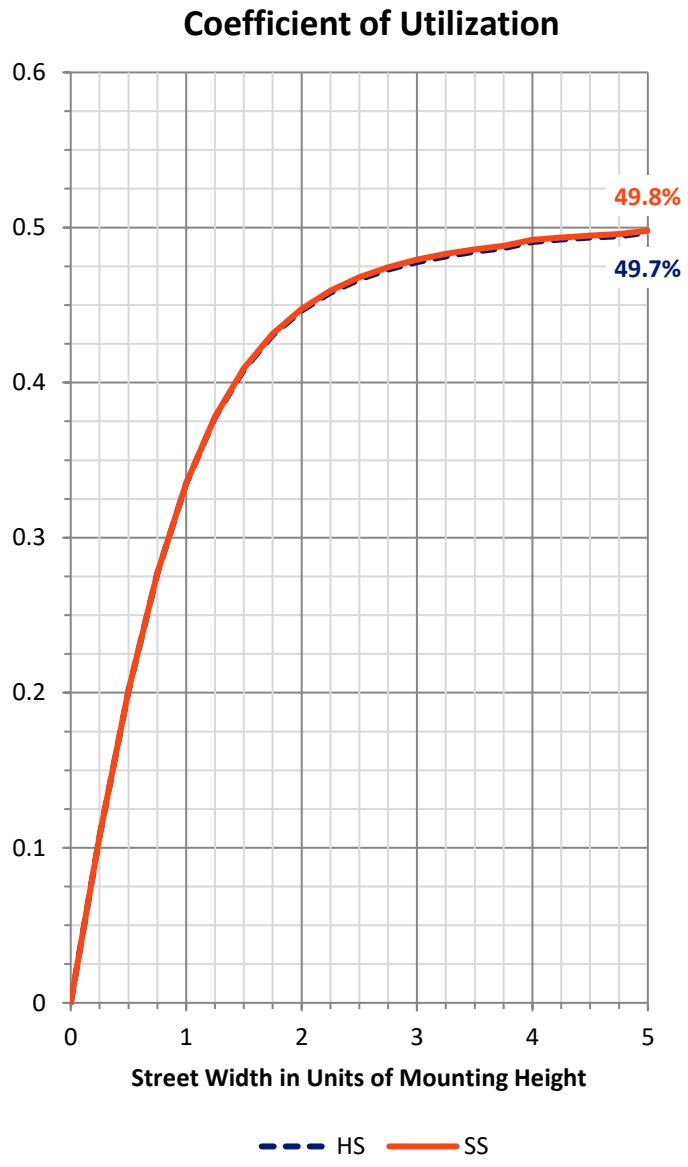
REPORT NUMBER: P821353
CATALOG NUMBER: TT-D2-750-24VDC-CQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2605.5	0.0	2605.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2605.5	0.0	2605.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	5211.0	0.0	5211.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	124.0	2.4
10°-20°	363.1	7.0
20°-30°	577.5	11.1
30°-40°	759.6	14.6
40°-50°	929.8	17.8
50°-60°	1007.0	19.3
60°-70°	866.4	16.6
70°-80°	487.1	9.3
80°-90°	96.6	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°	5211.0	100.0
0°-180°	5211.0	100.0



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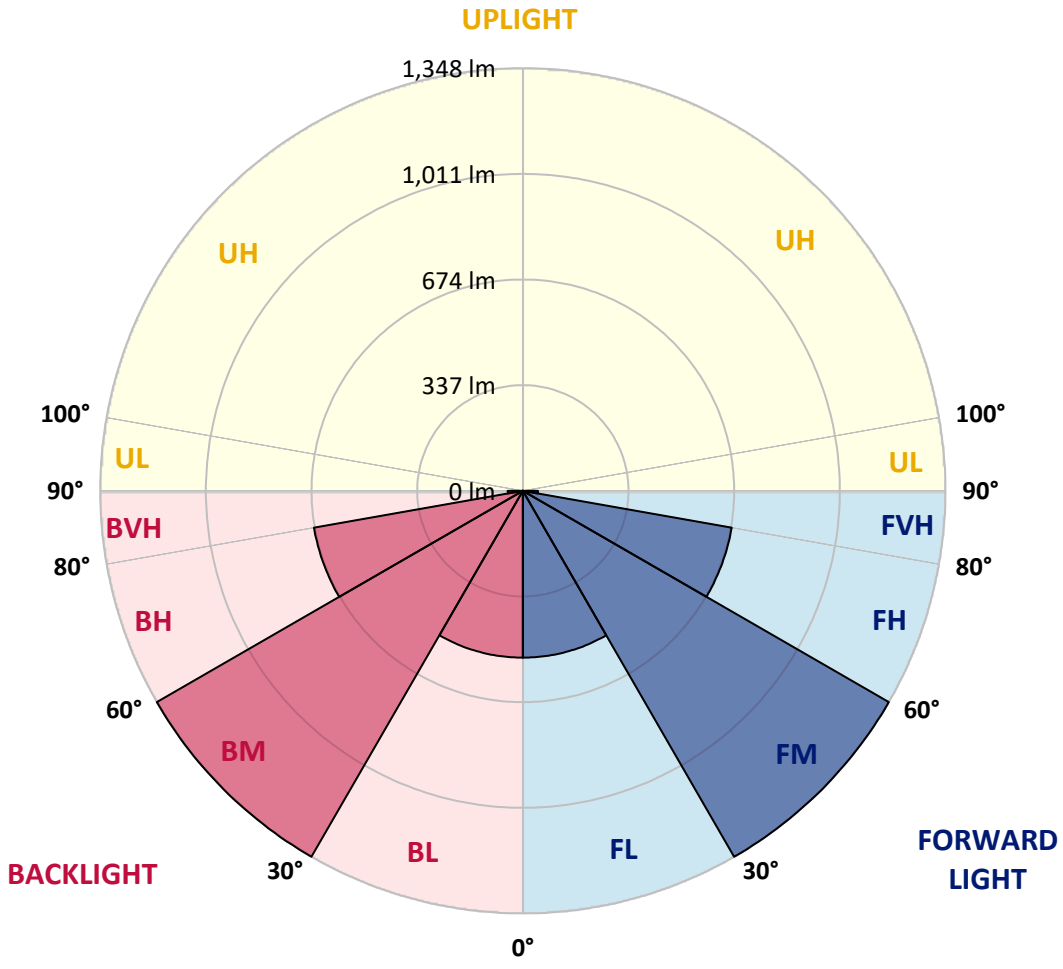
Scaled Data Report

REPORT NUMBER: P821353
CATALOG NUMBER: TT-D2-750-24VDC-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	532.3	10.2			
FM	(30°-60°)	1348.2	25.9			
FH	(60°-80°)	676.7	13.0			G1/1800
FVH	(80°-90°)	48.3	0.9			G1/100
BL	(0°-30°)	532.3	10.2	B2/1000		
BM	(30°-60°)	1348.2	25.9	B2/2500		
BH	(60°-80°)	676.7	13.0	B2/1000		G1/1800
BVH	(80°-90°)	48.3	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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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1303.6	*1303.6*	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6	1303.6
2.5°	*1300.3*	*1304.5*	*1302.8*	*1302.8*	*1302.8*	*1302.8*	*1301.2*	*1302.8*	*1302.8*	*1303.6*	*1302.8*
5°	1301.2	*1300.3*	1300.3	1301.2	1301.2	1302.0	1300.3	1301.2	1302.0	1302.0	1302.8
7.5°	1298.7	*1299.5*	1297.8	1299.5	1297.8	1298.7	1298.7	1299.5	1298.7	1299.5	1301.2
10°	1293.7	*1294.5*	1293.7	1293.7	1293.7	1295.3	1292.0	1294.5	1293.7	1294.5	1293.7
12.5°	1284.6	*1288.7*	1287.1	1288.7	1288.7	1288.7	1286.2	1287.9	1288.7	1288.7	1288.7
15°	1280.4	*1281.2*	1278.8	1282.1	1282.9	1283.7	1280.4	1282.1	1282.1	1282.9	1283.7
17.5°	1271.3	*1275.4*	1274.6	1277.1	1276.3	1278.8	1277.9	1277.1	1276.3	1277.9	1276.3
20°	1264.7	*1268.8*	1268.0	1270.5	1271.3	1273.8	1271.3	1271.3	1268.8	1269.6	1272.1
22.5°	1258.0	*1259.7*	1259.7	1262.2	1262.2	1264.7	1262.2	1261.3	1261.3	1260.5	1263.0
25°	1247.2	*1248.1*	1247.2	1249.7	1251.4	1253.1	1252.2	1250.6	1249.7	1249.7	1248.9
27.5°	1229.8	*1233.2*	1234.8	1238.1	1239.0	1241.4	1238.1	1238.1	1236.5	1234.8	1235.6
30°	1216.6	*1218.2*	1218.2	1225.7	1225.7	1229.8	1225.7	1224.9	1224.0	1223.2	1221.5
32.5°	1204.1	*1206.6*	1209.1	1214.9	1219.1	1220.7	1218.2	1216.6	1212.4	1209.9	1209.1
35°	1194.2	*1195.0*	1200.0	1208.3	1213.2	1217.4	1214.1	1209.9	1204.1	1200.0	1203.3
37.5°	1186.7	*1187.5*	1195.0	1205.8	1214.9	1218.2	1213.2	1206.6	1197.5	1192.5	1190.9
40°	1180.1	*1185.1*	1193.3	1208.3	1218.2	1223.2	1219.1	1209.9	1196.7	1186.7	1185.9
42.5°	1176.8	*1179.2*	1191.7	1209.1	1223.2	1229.8	1224.0	1211.6	1195.0	1183.4	1182.6
45°	1168.5	*1175.9*	1187.5	1209.9	1225.7	1234.0	1225.7	1209.9	1190.0	1176.8	1174.3
47.5°	1161.8	*1164.3*	1182.6	1208.3	1227.3	1234.0	1225.7	1205.8	1180.9	1163.5	1161.8
50°	1146.1	*1151.9*	1170.1	1197.5	1219.9	1226.5	1216.6	1190.0	1161.8	1142.8	1139.4
52.5°	1122.0	*1127.0*	1148.6	1182.6	1204.1	1211.6	1196.7	1168.5	1135.3	1112.1	1112.1
55°	1084.7	*1092.2*	1114.6	1149.4	1176.8	1183.4	1166.0	1136.1	1098.8	1075.6	1074.8
57.5°	1039.9	*1044.9*	1069.0	1107.1	1133.6	1143.6	1126.2	1093.0	1055.7	1028.3	1025.8
60°	981.9	*988.5*	1014.2	1050.7	1078.1	1086.4	1071.4	1038.3	1000.1	971.1	971.1
62.5°	912.2	*919.7*	945.4	982.7	1010.9	1023.3	1002.6	971.1	931.3	903.1	900.6
65°	830.9	*837.6*	860.8	899.8	928.8	937.9	922.2	889.0	850.8	824.3	821.8
67.5°	739.7	*748.8*	772.1	805.2	830.1	841.7	831.8	801.9	762.1	734.7	732.3
70°	641.0	*647.7*	665.9	696.6	724.8	733.1	718.2	698.3	660.9	636.1	632.7
72.5°	535.7	*541.5*	556.5	585.5	605.4	616.2	607.9	582.2	552.3	531.6	534.9
75°	429.6	*428.7*	445.3	466.1	484.3	491.8	486.0	469.4	442.0	424.6	423.8
77.5°	323.4	*331.7*	337.5	354.9	369.9	375.7	367.4	354.1	333.4	319.3	321.8
80°	227.2	*222.2*	233.0	243.8	253.8	259.6	254.6	247.1	233.0	222.2	220.6
82.5°	139.3	*135.2*	140.1	150.1	156.7	158.4	159.2	150.1	144.3	136.0	137.7
85°	61.4	*62.2*	66.3	73.0	73.8	74.6	74.6	73.0	66.3	65.5	63.9
87.5°	14.9	*14.9*	15.8	18.2	18.2	19.1	19.1	16.6	15.8	14.1	14.9
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

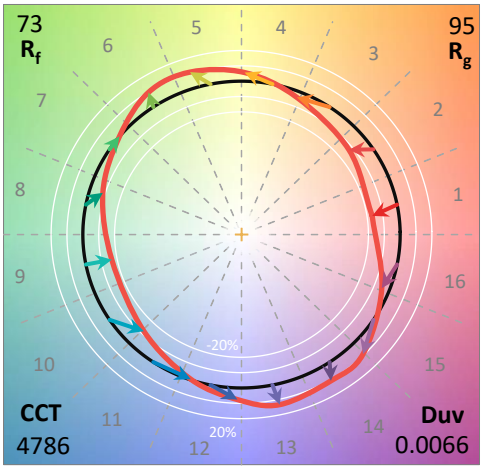
Test Information

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

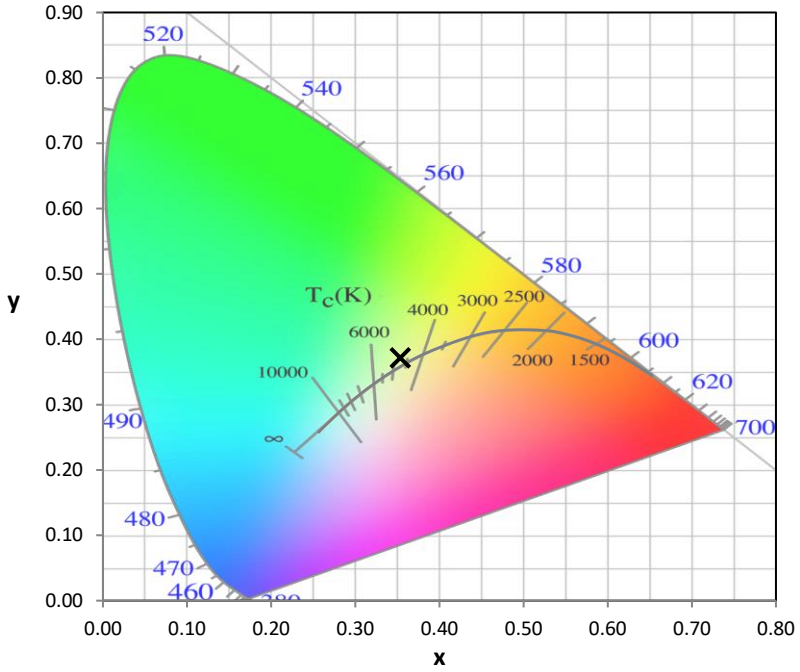
Stabilization Time:	45M
Operation Time:	1H 45M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-6

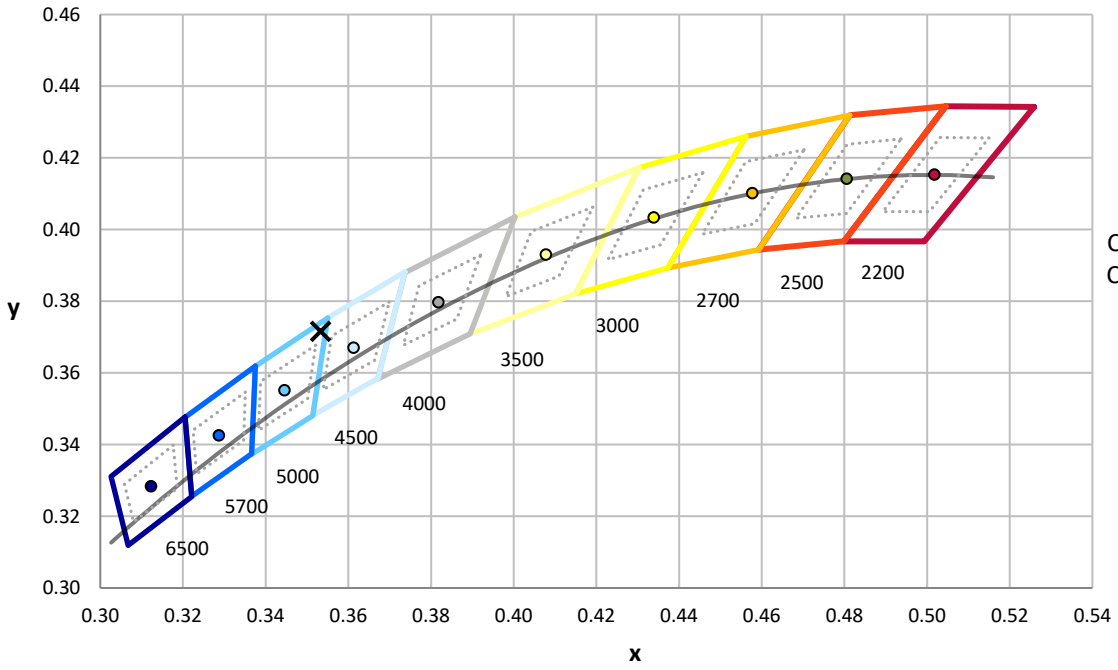
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

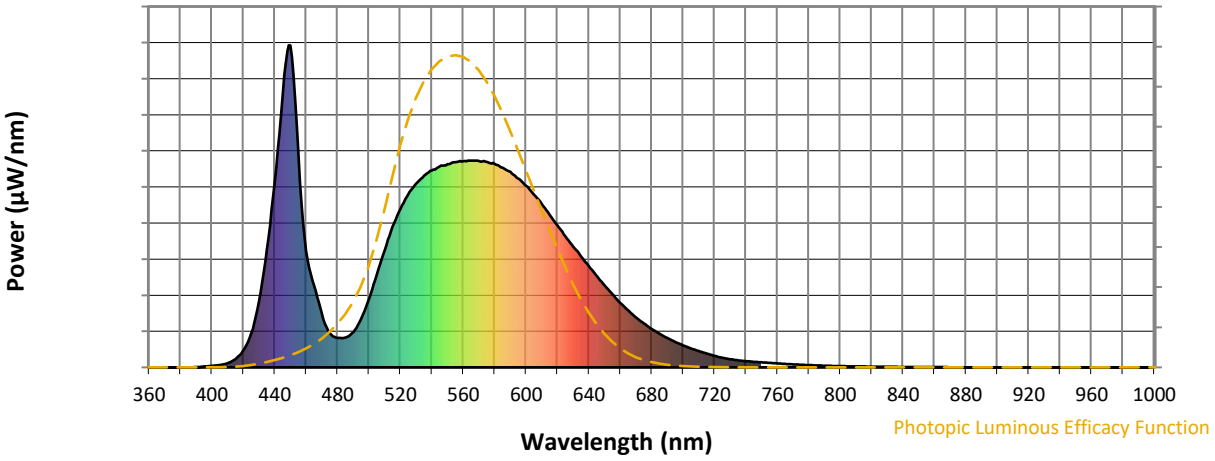


CCT = 4786K
CIE x = 0.3533
CIE y = 0.3716
Duv = 0.0066

Point lies inside the ANSI 5000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-6

Photopic Flux vs. Wavelength

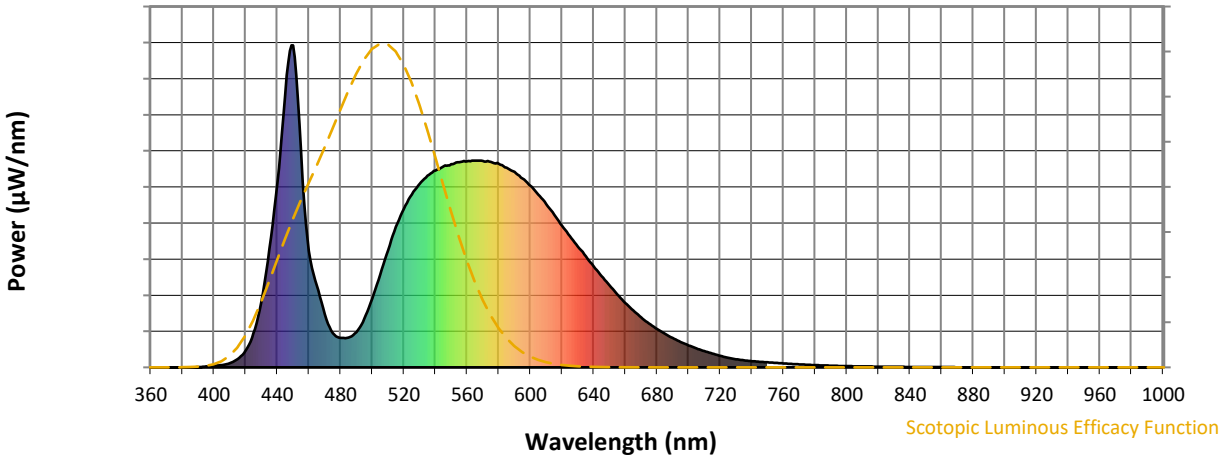


Photopic Lumens: NR

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			

REPORT NUMBER: SP1-2407-176-6

Scotopic Flux vs. Wavelength

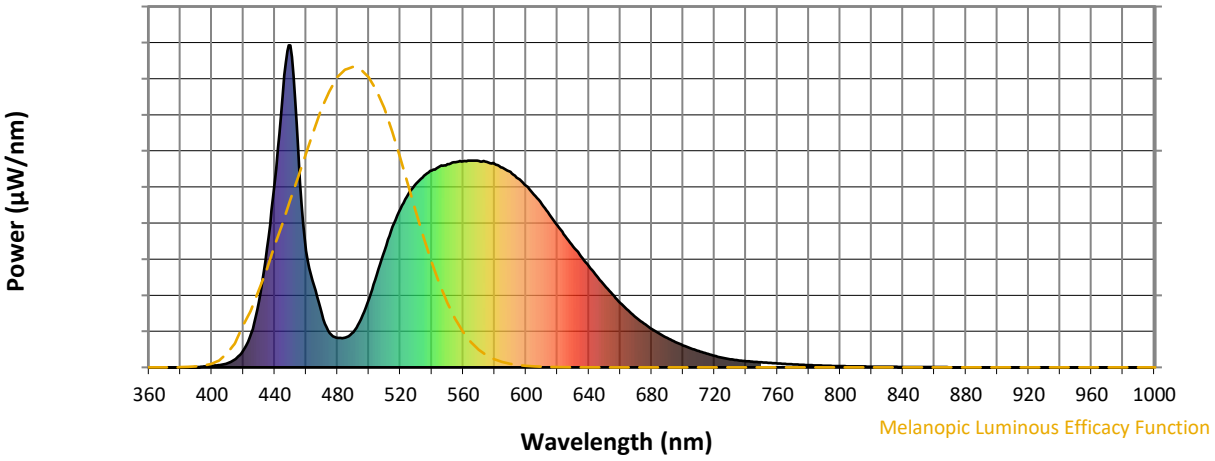


Scotopic Lumens: NR **S/P: 1.69**

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			

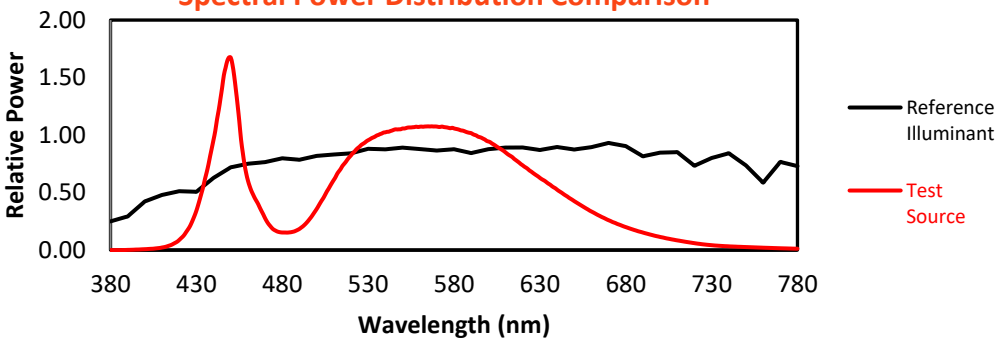
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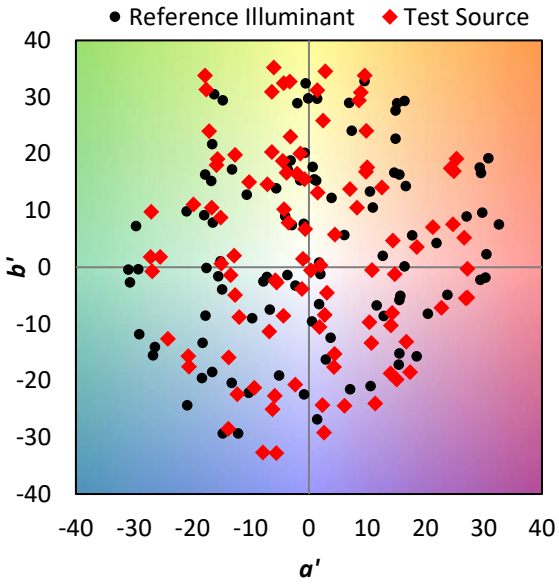
Summary

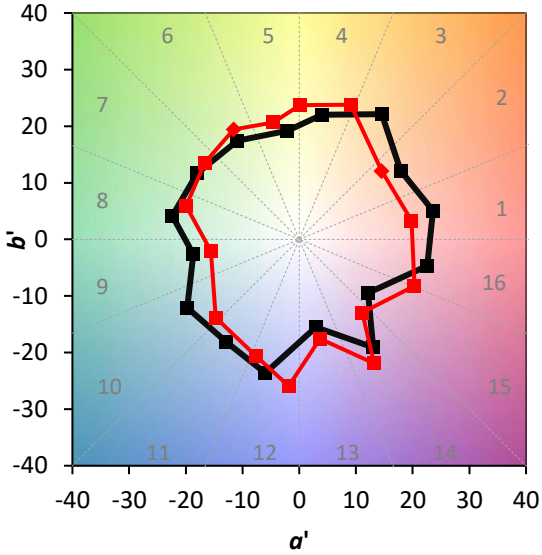
R_f = 73
R_g = 94.6
CIE R_a = 70.9
R_9 = -29.8

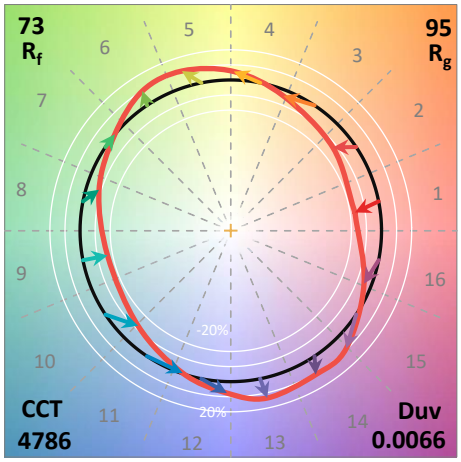
Spectral Power Distribution Comparison

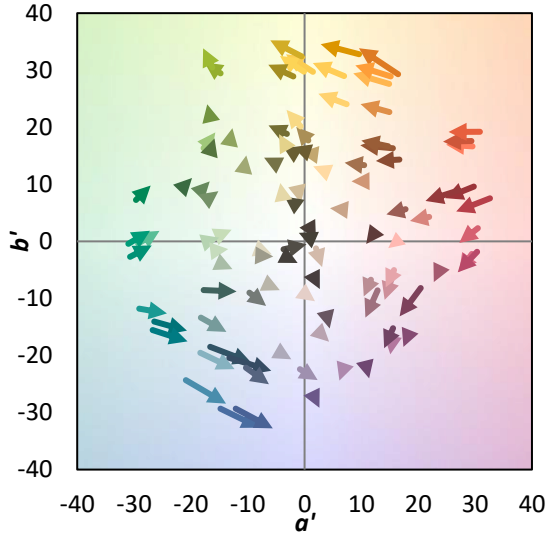


Color Vector Graphics







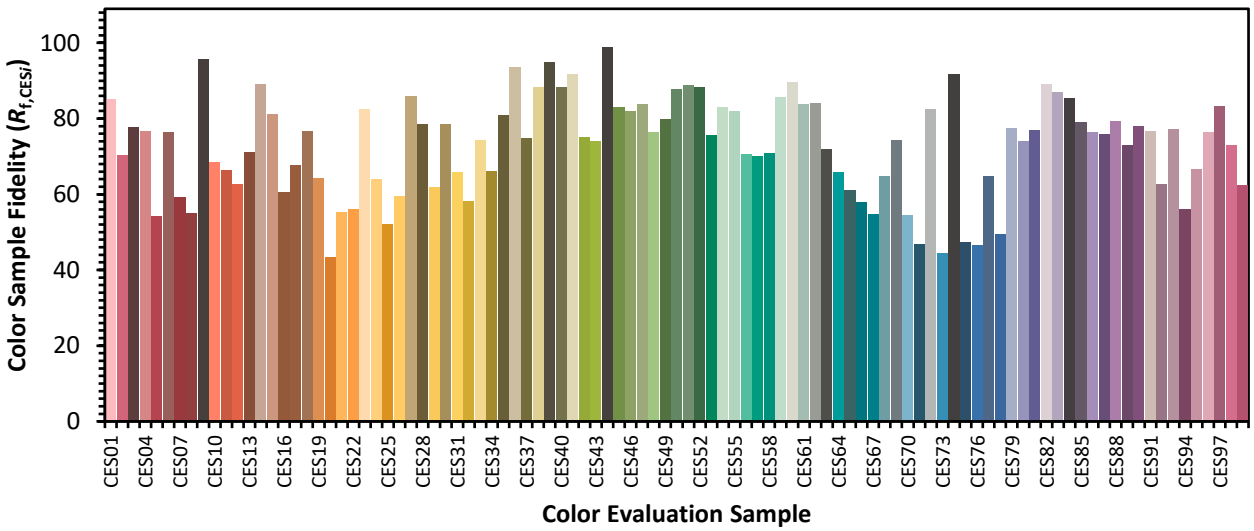


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Individual Sample Fidelity Index ($R_{f,i}$)

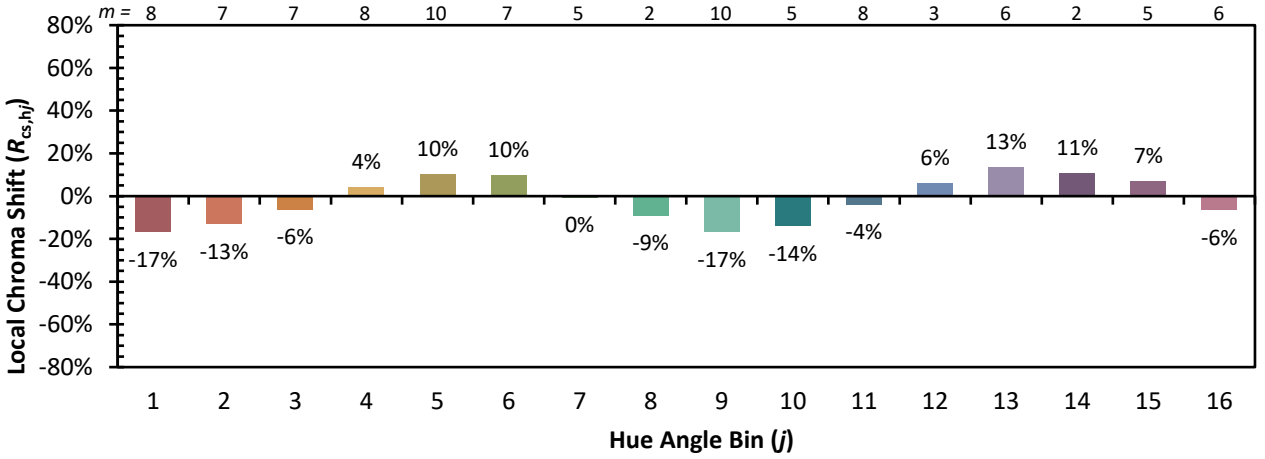
CES01 = 85	CES26 = 60	CES51 = 89	CES76 = 46
CES02 = 59	CES27 = 86	CES52 = 88	CES77 = 65
CES03 = 30	CES28 = 78	CES53 = 76	CES78 = 49
CES04 = 69	CES29 = 62	CES54 = 83	CES79 = 78
CES05 = 46	CES30 = 79	CES55 = 82	CES80 = 74
CES06 = 50	CES31 = 66	CES56 = 71	CES81 = 77
CES07 = 39	CES32 = 58	CES57 = 70	CES82 = 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	

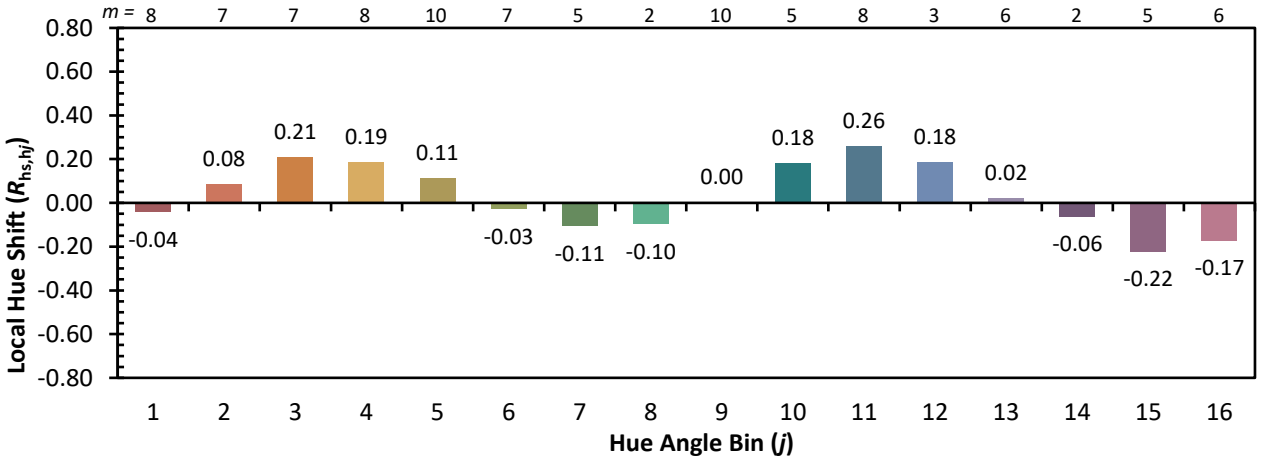


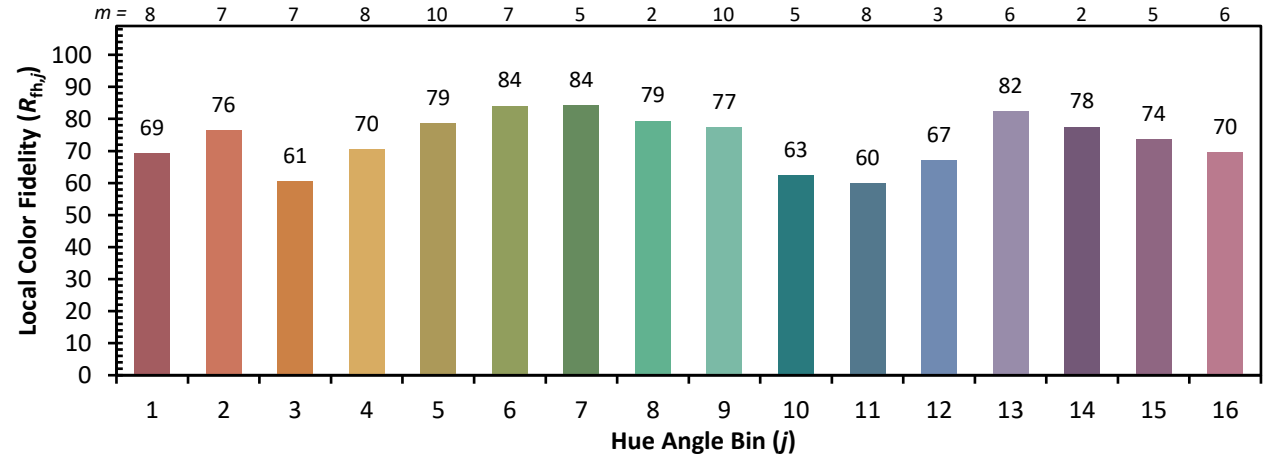
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Color Rendition by Hue-Angle Bin



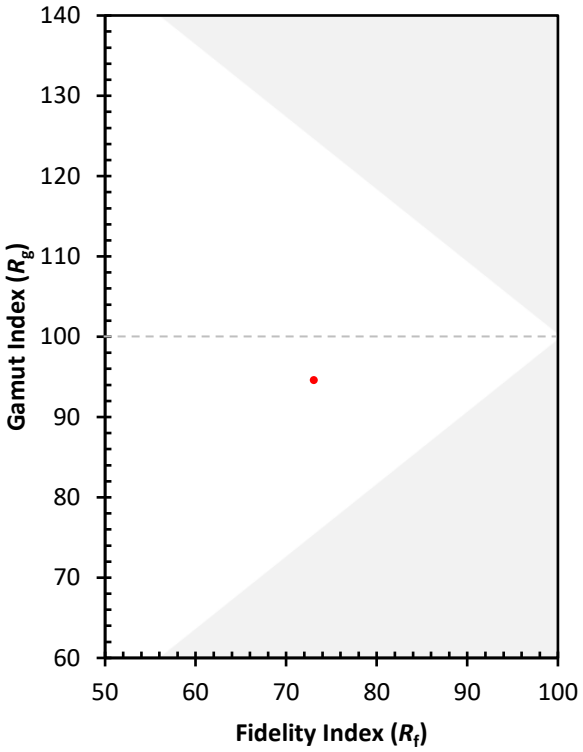


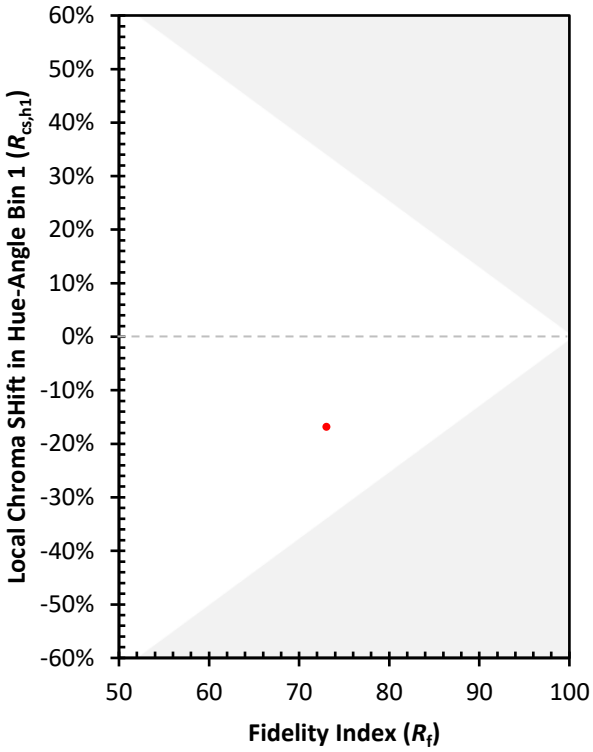


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Measure Comparisons





(END OF REPORT)