

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: P821412

Luminaire Tested: **TT-D2-750-12VDC-5WQ-PM**

Issue Date: 2/18/2020

Test Information

Test Method: LM-79-08
Report Number: P821412
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1908-473-14)
Test Lab: INNOVATIONS CENTER
Issue Date: 2/18/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: MCGRAW-EDISON
Catalog Number: TT-D2-750-12VDC-5WQ-PM
Description: TOPTIER LED SITE LUMINAIRE
5000K, 70 CRI LEDS AND WIDE DISTRIBUTION
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

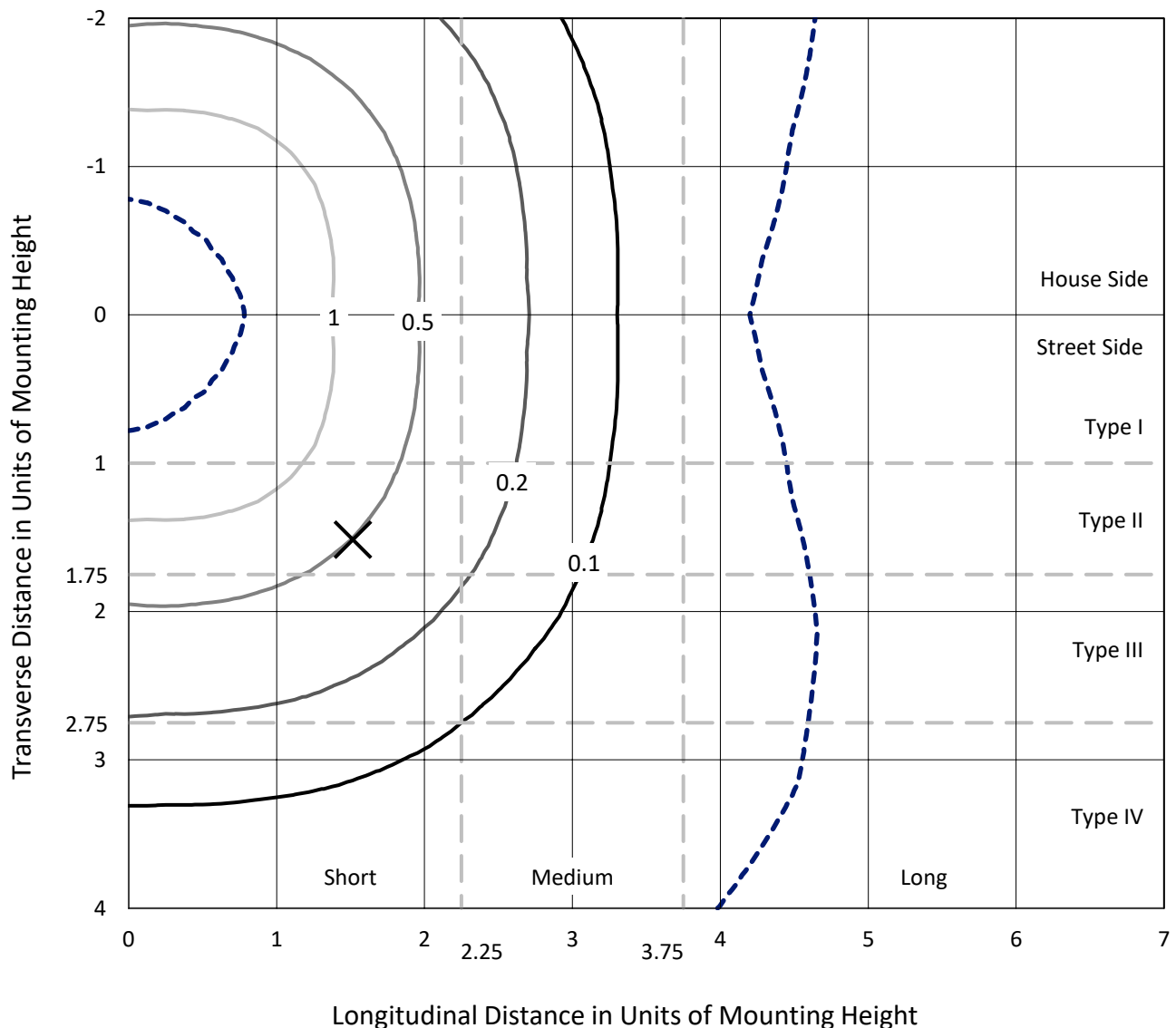
Lumens per Lamp: N/A
Luminaire Lumens: 5273 lumens
Efficiency: N/A
Efficacy: 138.8 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G2

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

REPORT NUMBER: P821412
 CATALOG NUMBER: TT-D2-750-12VDC-5WQ-PM

Iso-Footcandle Lines of Horizontal Illumination

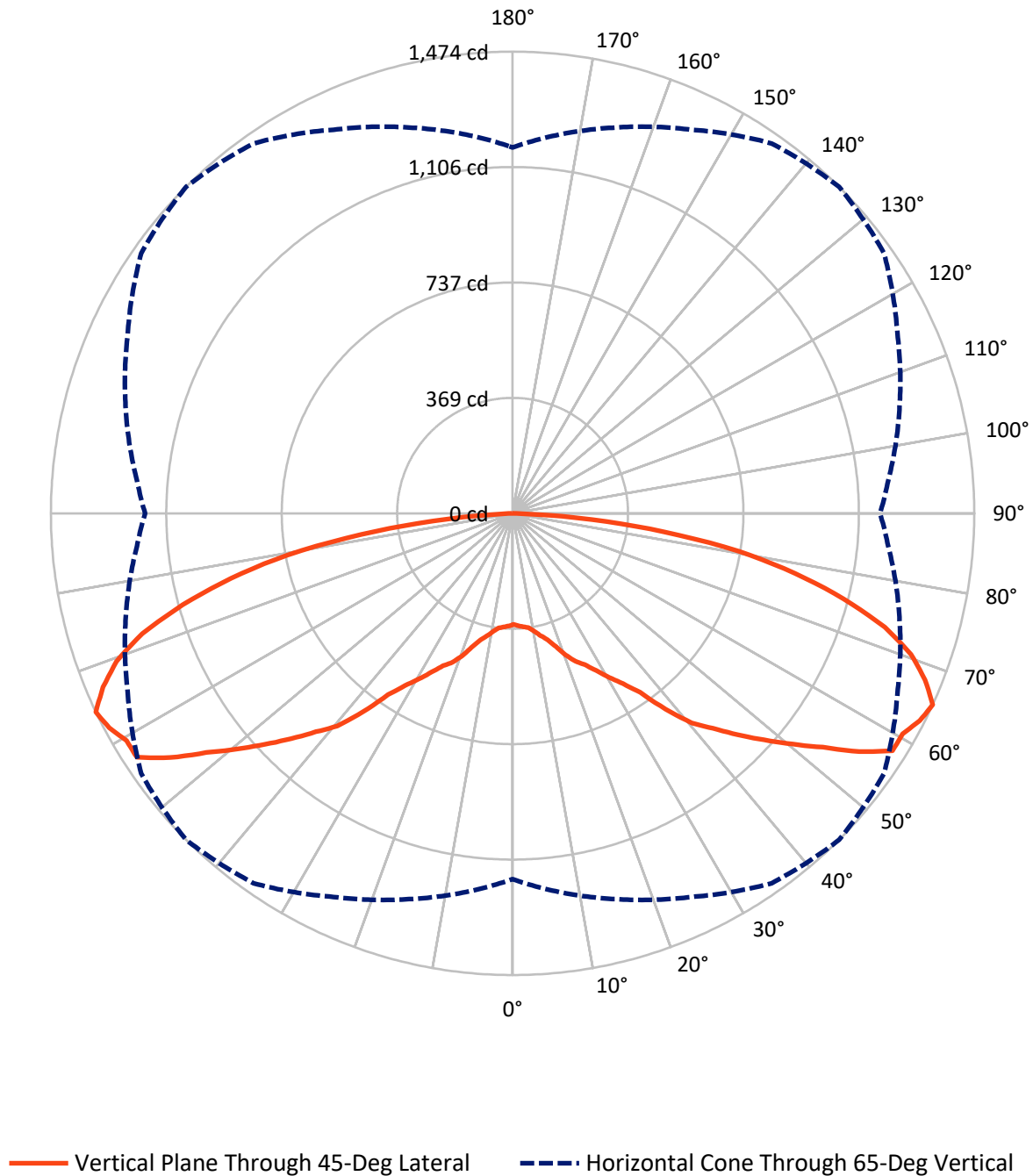
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.8 fc
 Type V - Short - N/A

REPORT NUMBER: P821412
CATALOG NUMBER: TT-D2-750-12VDC-5WQ-PM

Luminous Intensity Polar Plot



REPORT NUMBER: P821412

CATALOG NUMBER: TT-D2-750-12VDC-5WQ-PM

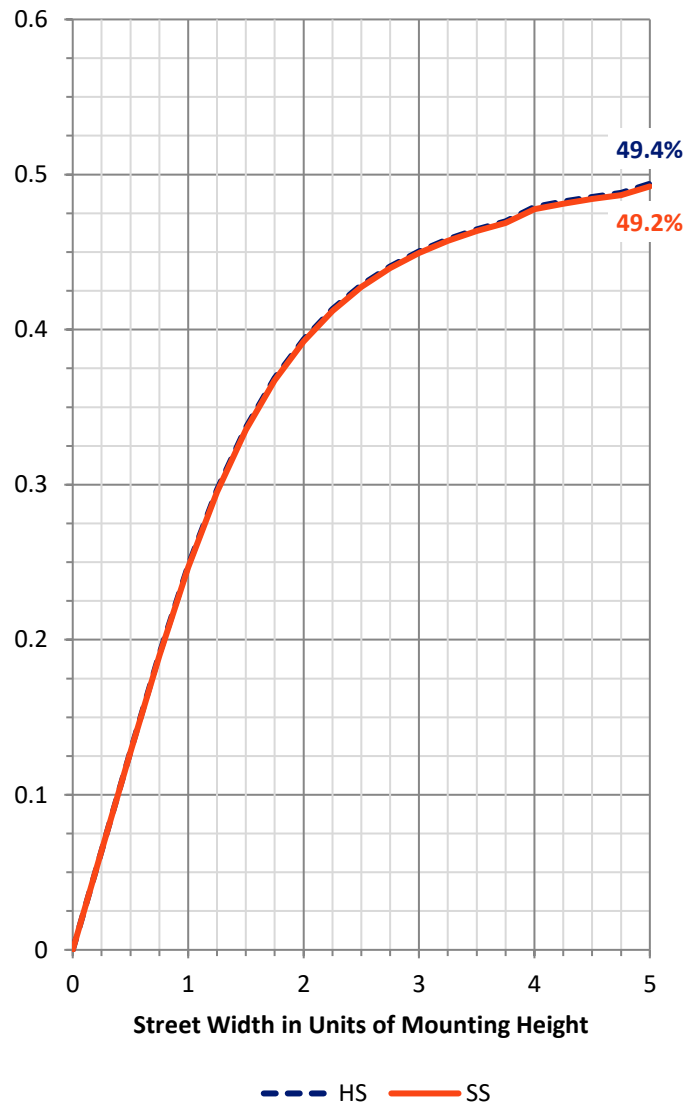
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2636.5	0.0	2636.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2636.5	0.0	2636.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	5273.0	0.0	5273.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.4	0.7
10°-20°	121.7	2.3
20°-30°	249.9	4.7
30°-40°	444.0	8.4
40°-50°	748.5	14.2
50°-60°	1104.1	20.9
60°-70°	1295.8	24.6
70°-80°	1009.6	19.1
80°-90°	263.9	5.0
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°	5273.0	100.0
0°-180°	5273.0	100.0



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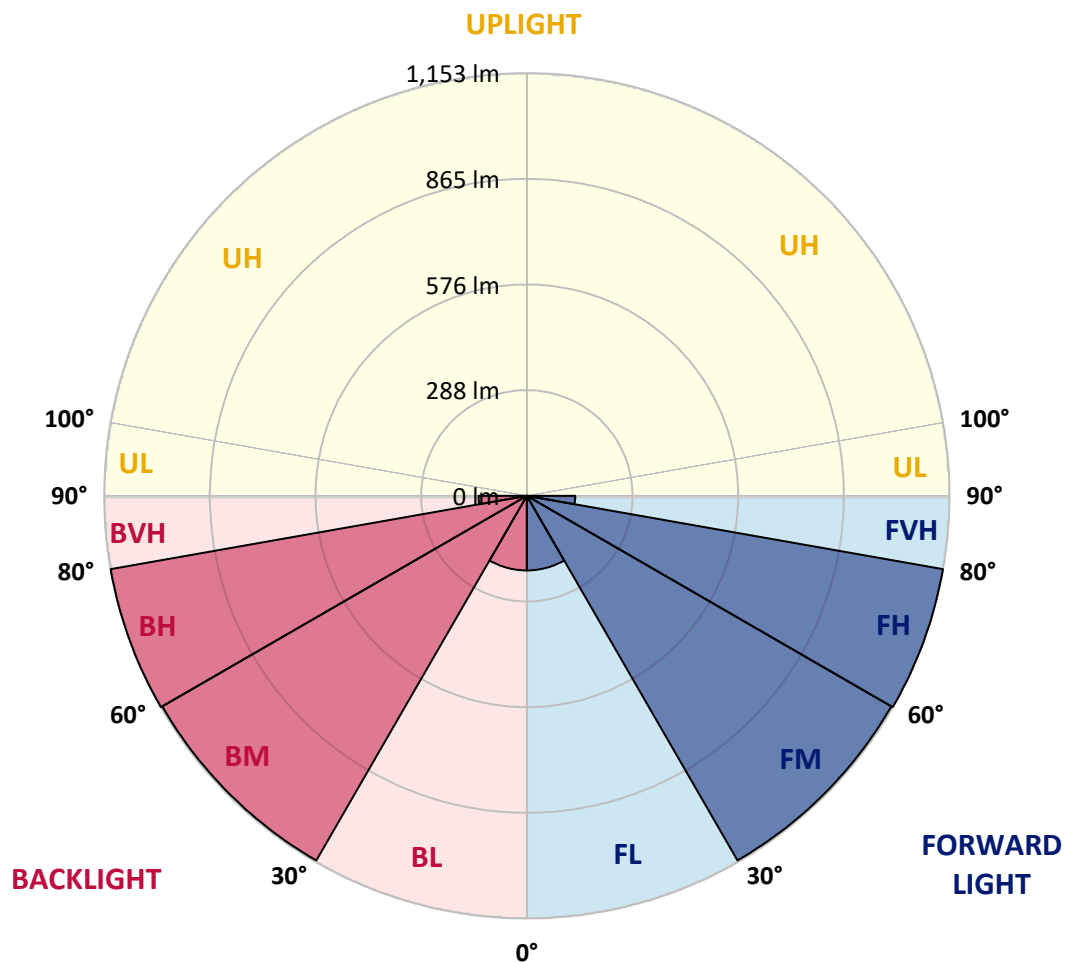
CATALOG NUMBER: TT-D2-750-12VDC-5WQ-PM

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	203.5	3.9			
FM	(30°-60°)	1148.3	21.8			
FH	(60°-80°)	1152.7	21.9			G1/1800
FVH	(80°-90°)	132.0	2.5			G2/225
BL	(0°-30°)	203.5	3.9	B1/500		
BM	(30°-60°)	1148.3	21.8	B2/2500		
BH	(60°-80°)	1152.7	21.9	B3/2500		G1/1800
BVH	(80°-90°)	132.0	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





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CATALOG NUMBER: TT-D2-750-12VDC-5WQ-PM

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9	354.9
2.5°	360.7	360.7	360.7	359.9	359.9	359.9	359.9	360.7	360.7	360.7	360.7
5°	369.0	369.0	367.3	365.7	364.0	364.0	364.8	365.7	366.5	368.2	368.2
7.5°	374.0	374.0	373.1	371.5	369.0	369.0	369.8	371.5	372.3	372.3	371.5
10°	380.6	381.4	383.9	384.7	383.1	383.1	383.9	384.7	383.1	380.6	380.6
12.5°	396.3	397.2	400.5	403.0	403.0	401.3	402.2	403.8	399.7	395.5	396.3
15°	418.7	418.7	419.6	422.1	420.4	418.7	420.4	421.2	418.7	417.9	419.6
17.5°	448.6	448.6	443.6	447.8	448.6	447.8	449.4	445.3	442.8	446.1	447.8
20°	480.9	477.6	475.1	478.4	485.1	482.6	485.9	476.8	474.3	475.9	476.8
22.5°	501.7	504.1	505.8	507.5	516.6	513.3	516.6	506.6	505.0	501.7	499.2
25°	526.5	529.0	539.0	534.0	539.8	534.8	539.0	533.2	536.5	526.5	526.5
27.5°	554.7	559.7	565.5	563.0	570.5	568.0	570.5	562.2	563.0	558.9	557.2
30°	592.9	592.9	591.2	596.2	609.4	607.8	608.6	597.8	590.4	591.2	594.5
32.5°	631.0	626.0	628.5	643.4	651.7	648.4	650.1	645.1	628.5	625.2	627.7
35°	666.7	674.1	679.9	692.4	704.0	702.3	701.5	693.2	682.4	669.1	665.0
37.5°	722.2	730.5	746.3	768.7	789.4	793.5	782.7	772.0	747.1	728.0	718.1
40°	795.2	796.0	814.3	857.4	876.4	879.8	874.0	855.7	817.6	796.0	795.2
42.5°	859.0	853.2	883.1	919.6	937.0	938.6	934.5	919.6	883.1	852.4	858.2
45°	908.8	908.8	944.4	973.5	1001.7	1008.3	1000.8	969.3	945.3	909.6	907.1
47.5°	954.4	966.8	996.7	1032.3	1072.1	1081.3	1072.1	1034.8	994.2	967.7	953.6
50°	1009.1	1024.0	1045.6	1101.2	1145.9	1158.4	1145.1	1104.5	1045.6	1023.2	1014.9
52.5°	1073.0	1085.4	1119.4	1189.0	1222.2	1240.5	1229.7	1190.7	1121.1	1087.1	1080.4
55°	1149.2	1137.6	1190.7	1257.9	1319.2	1343.3	1321.7	1259.5	1199.0	1137.6	1149.2
57.5°	1188.2	1174.9	1249.6	1313.4	1398.8	1430.3	1403.8	1318.4	1249.6	1179.1	1187.4
60°	1191.5	1197.3	1253.7	1358.2	1417.1	1430.3	1422.0	1365.7	1256.2	1202.3	1186.6
62.5°	1181.6	1217.2	1265.3	1373.1	1426.2	1458.5	1430.3	1374.8	1270.3	1223.0	1182.4
65°	1168.3	1204.0	1275.3	1351.6	1441.9	1474.3	1447.7	1355.7	1278.6	1204.0	1173.3
67.5°	1145.1	1132.7	1220.6	1322.5	1401.3	1420.4	1403.8	1324.2	1219.7	1131.0	1147.6
70°	1071.3	1060.5	1136.0	1247.9	1323.4	1349.9	1330.0	1249.6	1137.6	1063.0	1073.0
72.5°	961.8	965.2	1038.1	1145.1	1226.4	1242.9	1232.2	1144.3	1042.3	969.3	956.0
75°	834.2	842.4	912.1	1009.1	1082.9	1092.9	1082.1	1013.3	911.3	847.4	830.0
77.5°	685.7	698.2	754.6	851.6	900.5	922.9	905.5	854.1	758.7	701.5	684.1
80°	531.5	535.7	575.5	653.4	718.1	733.0	716.4	655.9	580.4	537.3	524.9
82.5°	348.3	354.9	390.5	450.2	492.5	488.4	492.5	445.3	394.7	353.2	332.5
85°	155.1	168.3	192.4	220.6	247.9	255.4	247.9	223.9	192.4	165.0	161.7
87.5°	10.8	12.4	14.9	15.8	17.4	13.3	13.3	13.3	11.6	13.3	10.8
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: SP1-2407-176-6

Test Date: 09/26/2024

Luminaire Tested: MEM2-HTN-VA-30-750-U-WQ

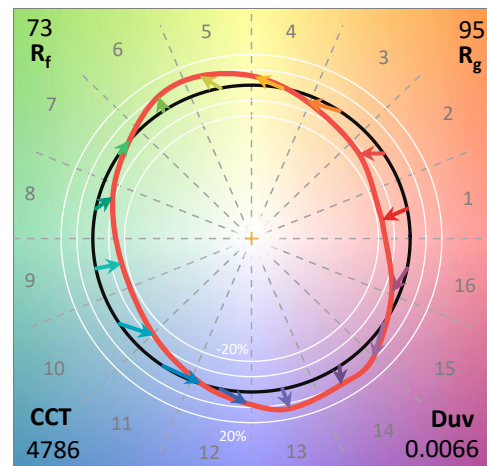
Data in this report applies to families of products including MEM2-HTN-VA-30-750-U-WQ

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	CRI (Ra):	70.9		
CIE u':	0.2093	R1:	67.8	R9:	-29.8
CIE v':	0.4953	R2:	75.1	R10:	40.9
Duv:	0.0066	R3:	80.6	R11:	67.4
CIE x:	0.3533	R4:	71.6	R12:	35.3
CIE y:	0.3716	R5:	67.8	R13:	68.5
CIE z:	0.2751	R6:	65.4	R14:	89.0
Peak Wavelength (nm):	449	R7:	82.0	R15:	60.9
Dominant Wavelength (nm):	570	R8:	57.0		
Purity:	17.53512				
Rf:	73				
Rg:	94.6				



Test Conditions

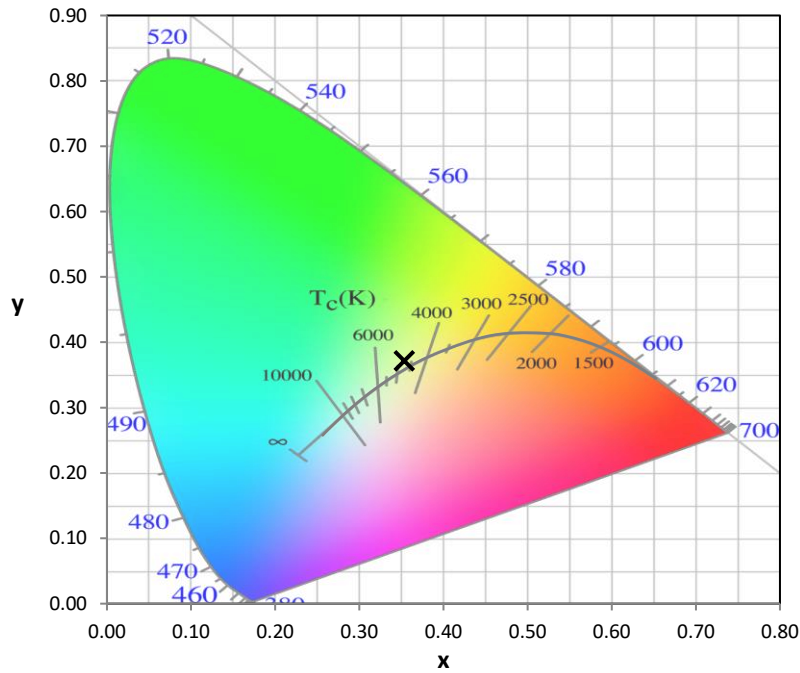
Stabilization Time: 45M
 Operation Time: 1H 45M
 Sphere Temperature (°C): 25.2

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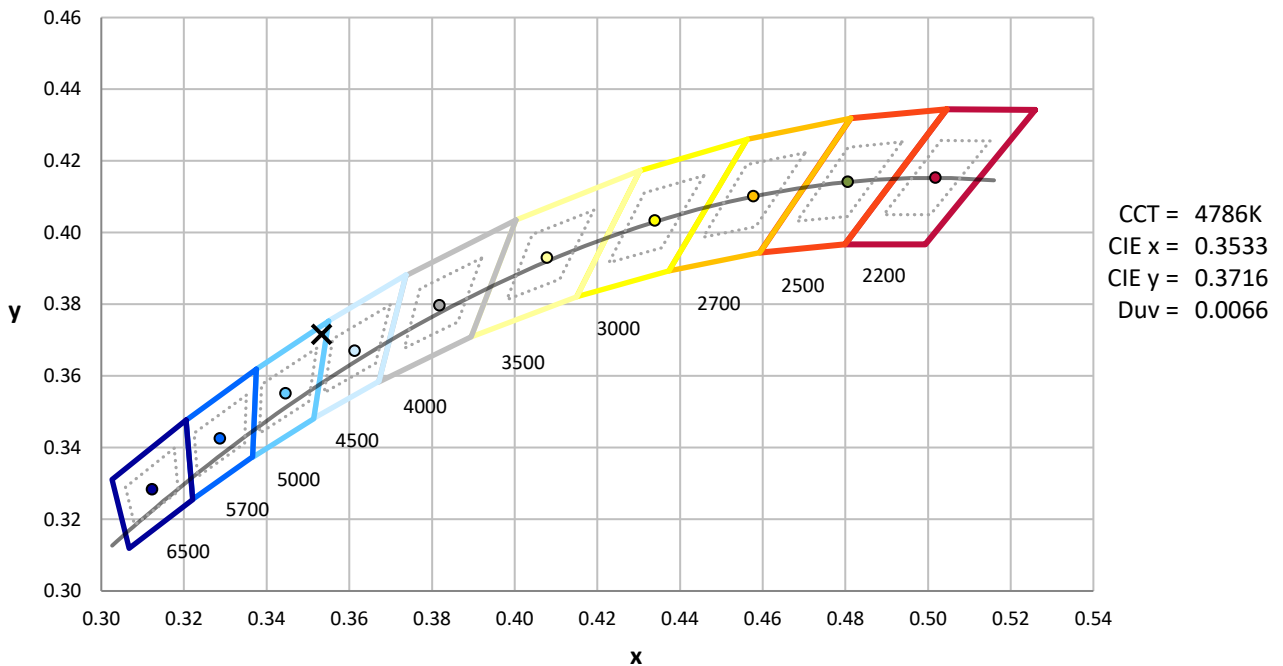
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



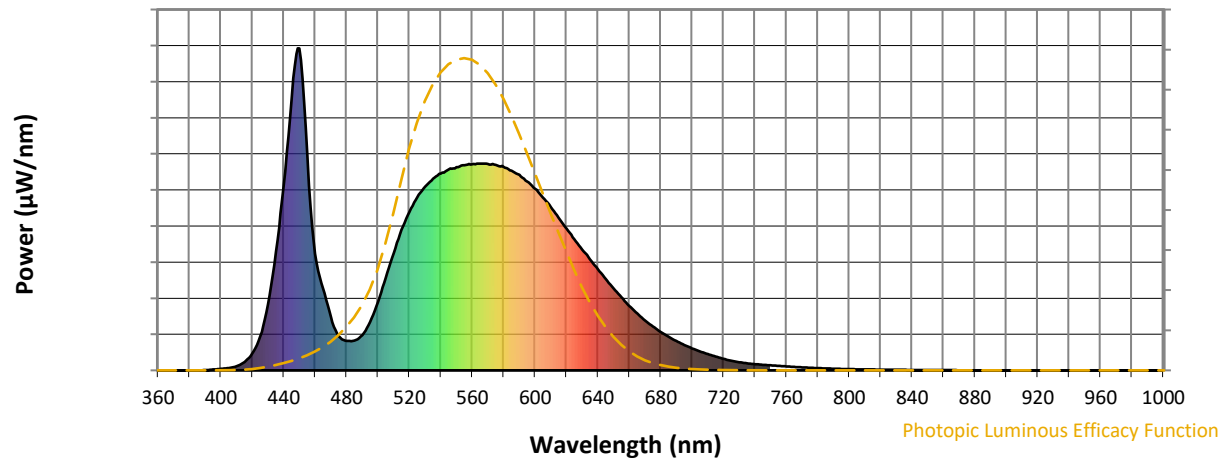
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 7-step quadrangle

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Photopic Flux vs. Wavelength

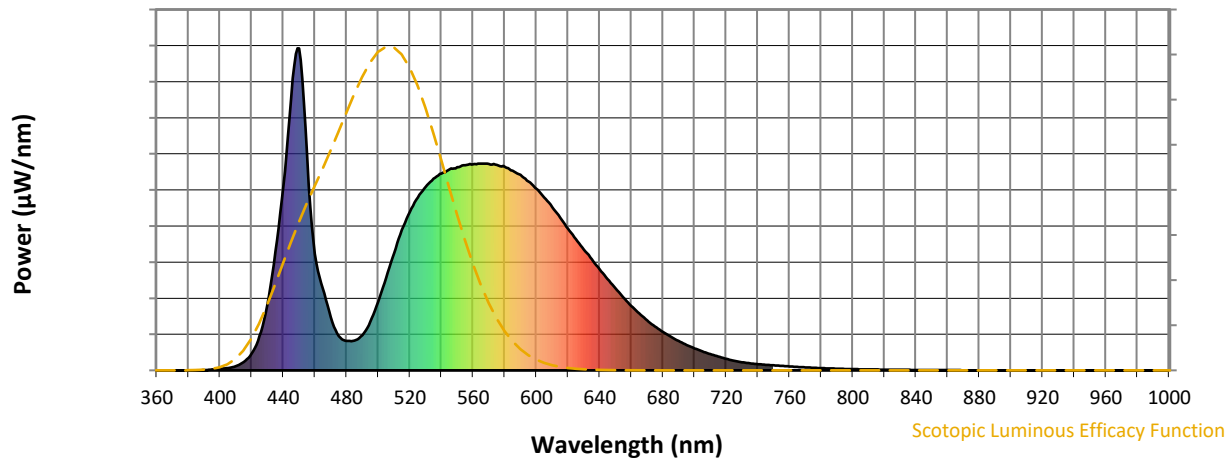


Photopic Lumens: NR

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	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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Scotopic Flux vs. Wavelength



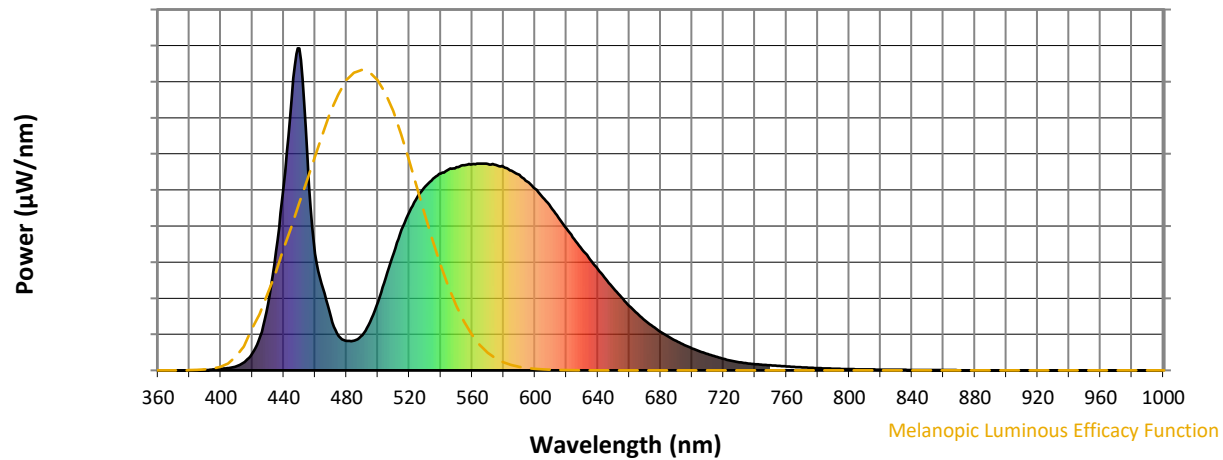
Scotopic Lumens: NR

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			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.36

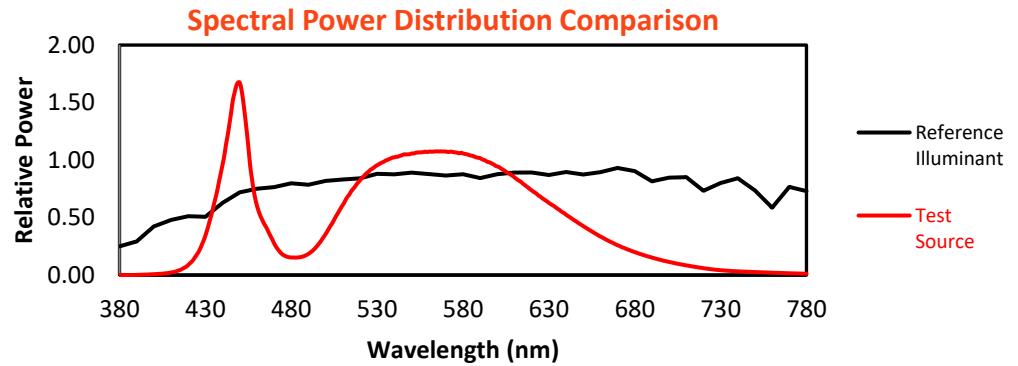
λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)	λ (nm)	Power W ^λ /nm	Lumens (φ/nm)
360	0	NR	490	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	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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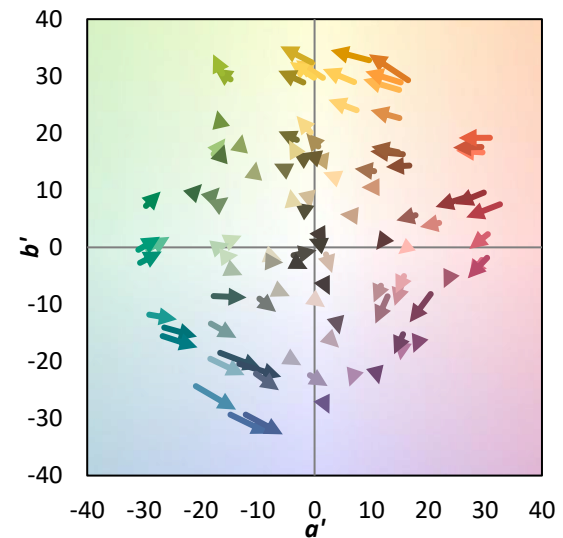
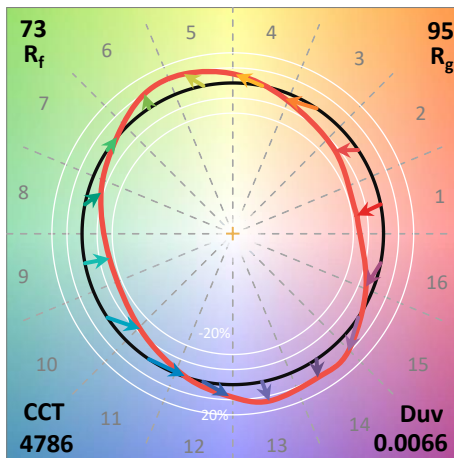
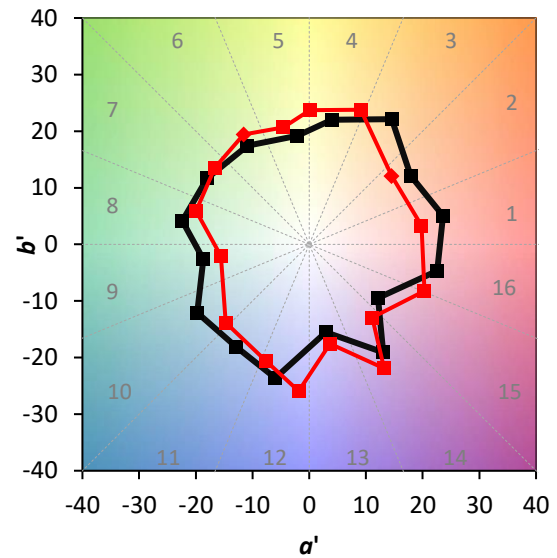
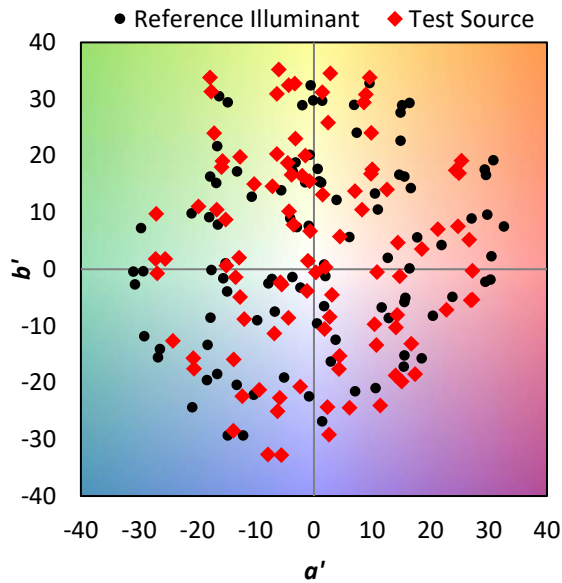
TM-30-18

Summary

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

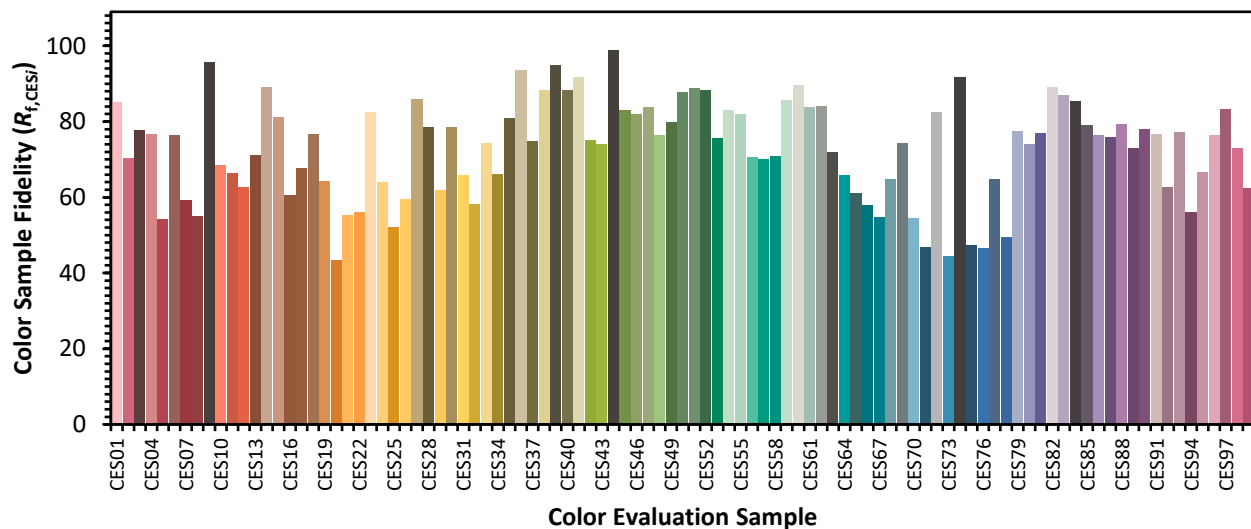


Color Vector Graphics

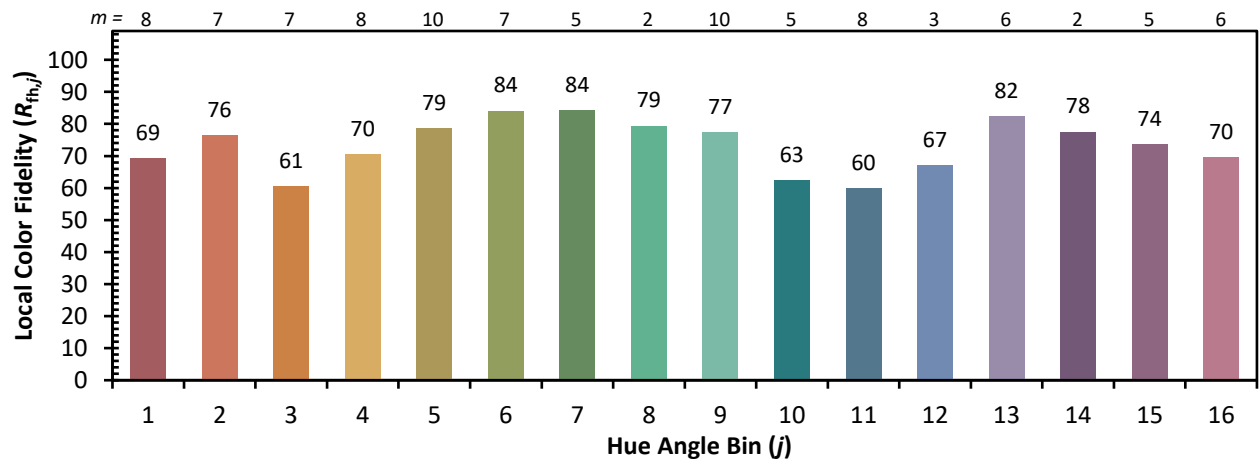
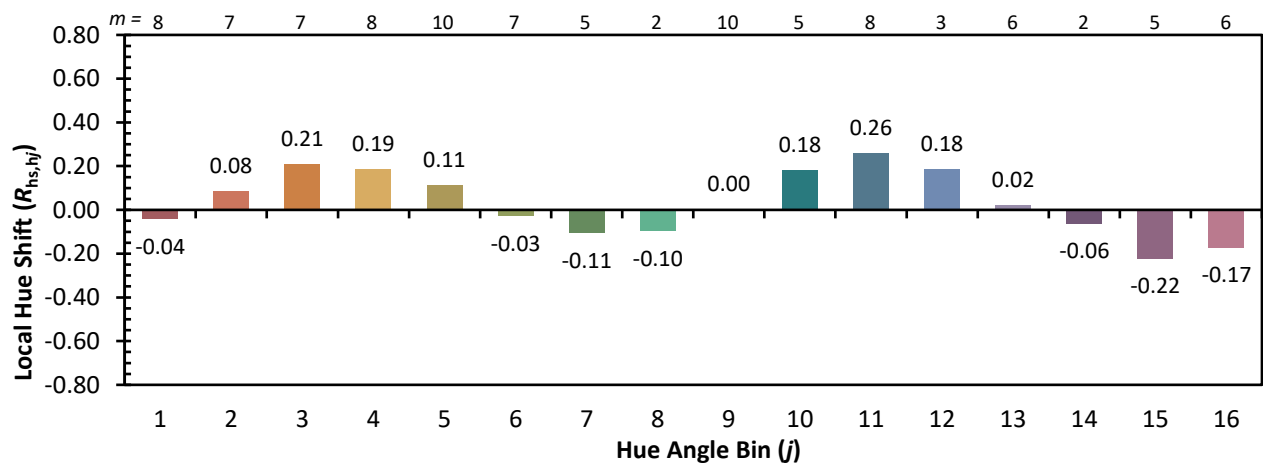
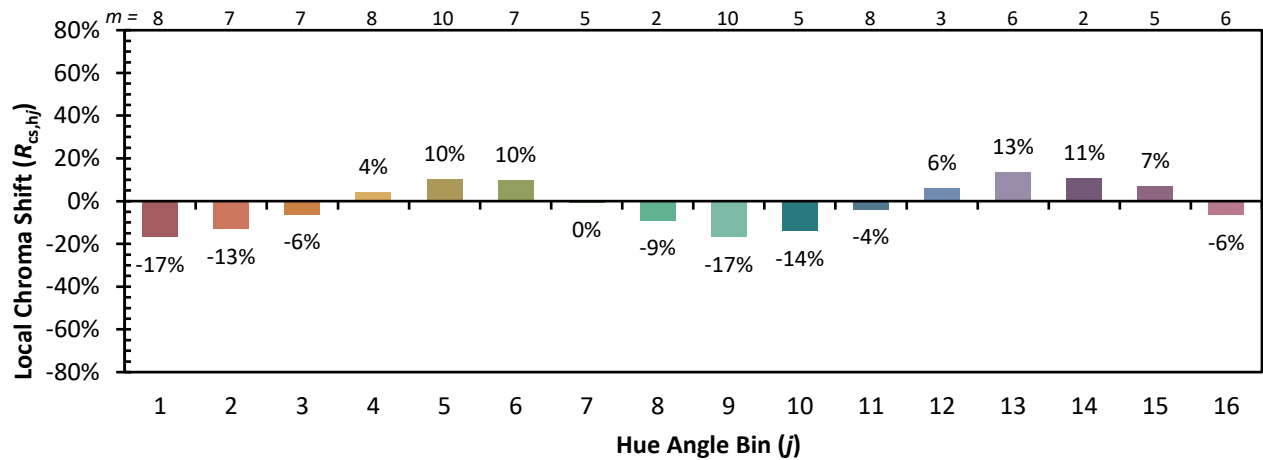


Individual Sample Fidelity Index ($R_{f,i}$)

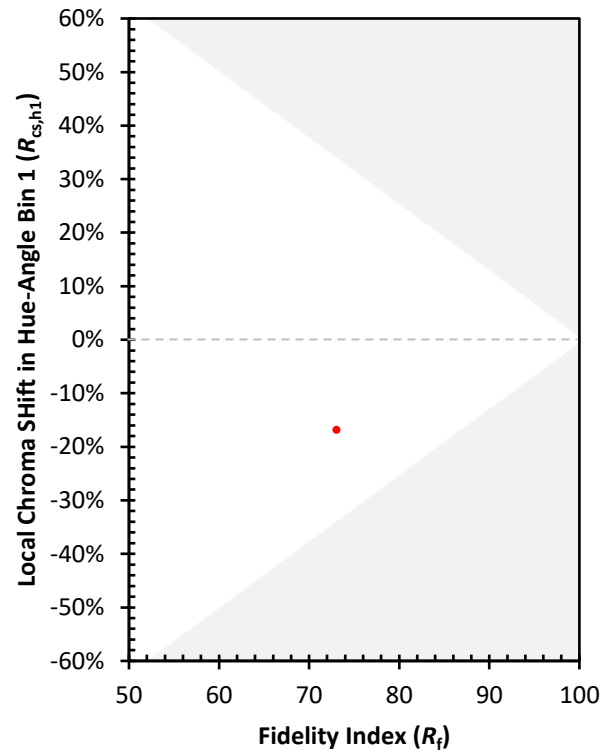
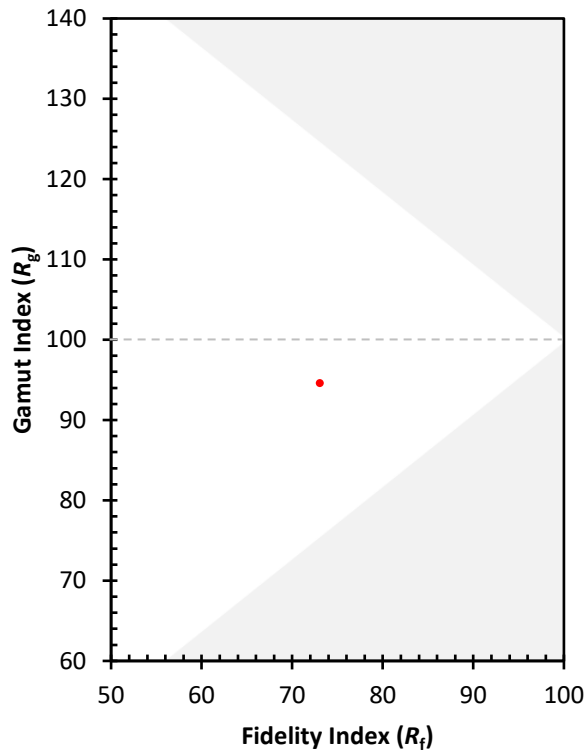
CES01 = 85	CES26 = 60	CES51 = 89	CES76 = 46
CES02 = 59	CES27 = 86	CES52 = 88	CES77 = 65
CES03 = 30	CES28 = 78	CES53 = 76	CES78 = 49
CES04 = 69	CES29 = 62	CES54 = 83	CES79 = 78
CES05 = 46	CES30 = 79	CES55 = 82	CES80 = 74
CES06 = 50	CES31 = 66	CES56 = 71	CES81 = 77
CES07 = 39	CES32 = 58	CES57 = 70	CES82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



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)