

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: INVUE

Report Number: P879718

Luminaire Tested: **EMM2-HSN-VA9-750-U-MQ**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P879718
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-VA9-750-U-MQ
Description: EPIC MODERN SHORT HOUSING 9W 70CRI 5000K WAVESTREAM FIXTURE w/
TYPE V MEDIUM DISTRIBUTION OPTIC
Light Source: (1) 5000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

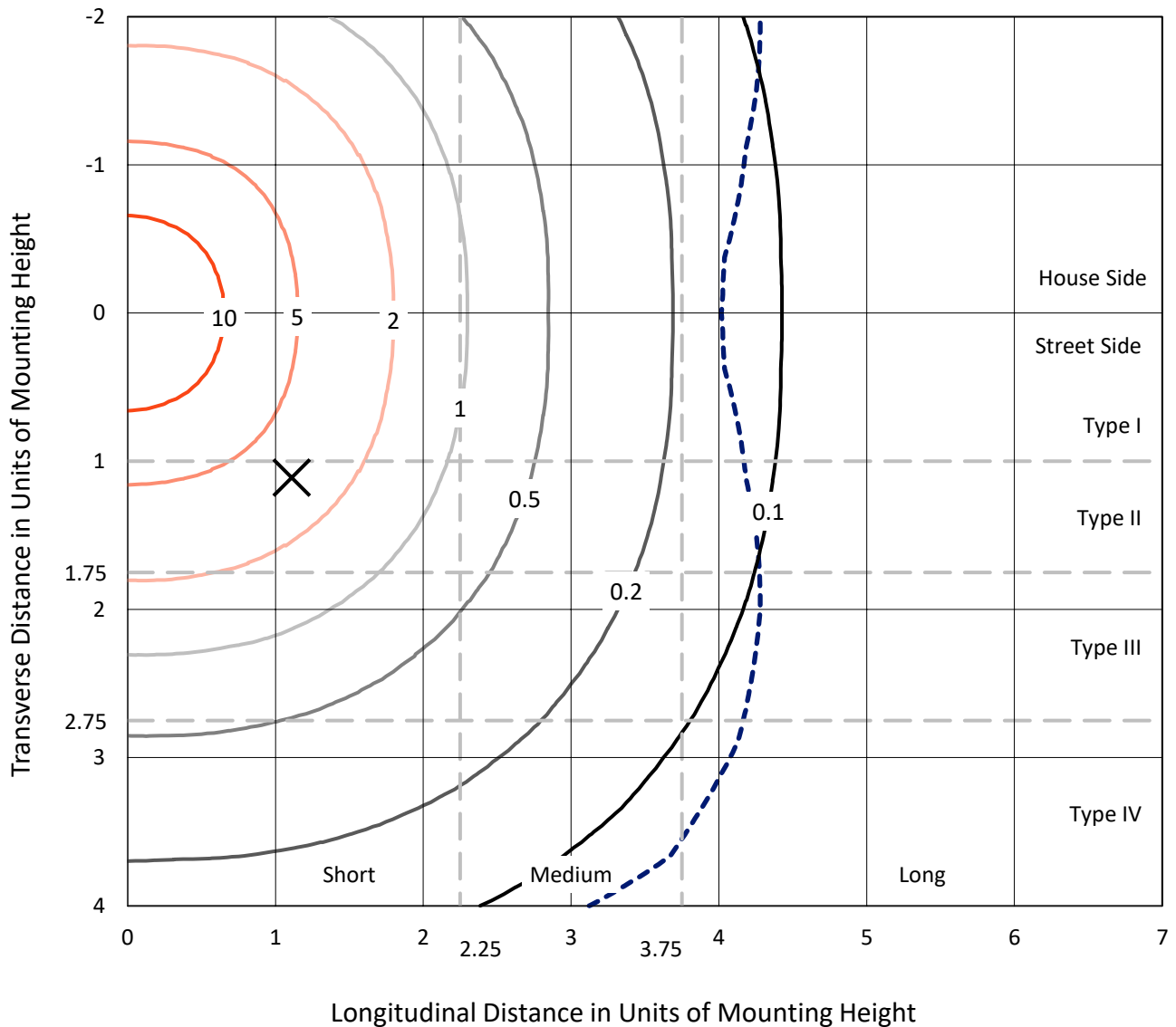
Lumens per Lamp: N/A
Luminaire Lumens: 20524.7 lumens
Efficiency: N/A
Efficacy: 120.7 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G3

Input Watts (W): 170
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.995
Total Harmonic Distortion (THDi): 5.9%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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 CATALOG NUMBER: EMM2-HSN-VA9-750-U-MQ

Iso-Footcandle Lines of Horizontal Illumination

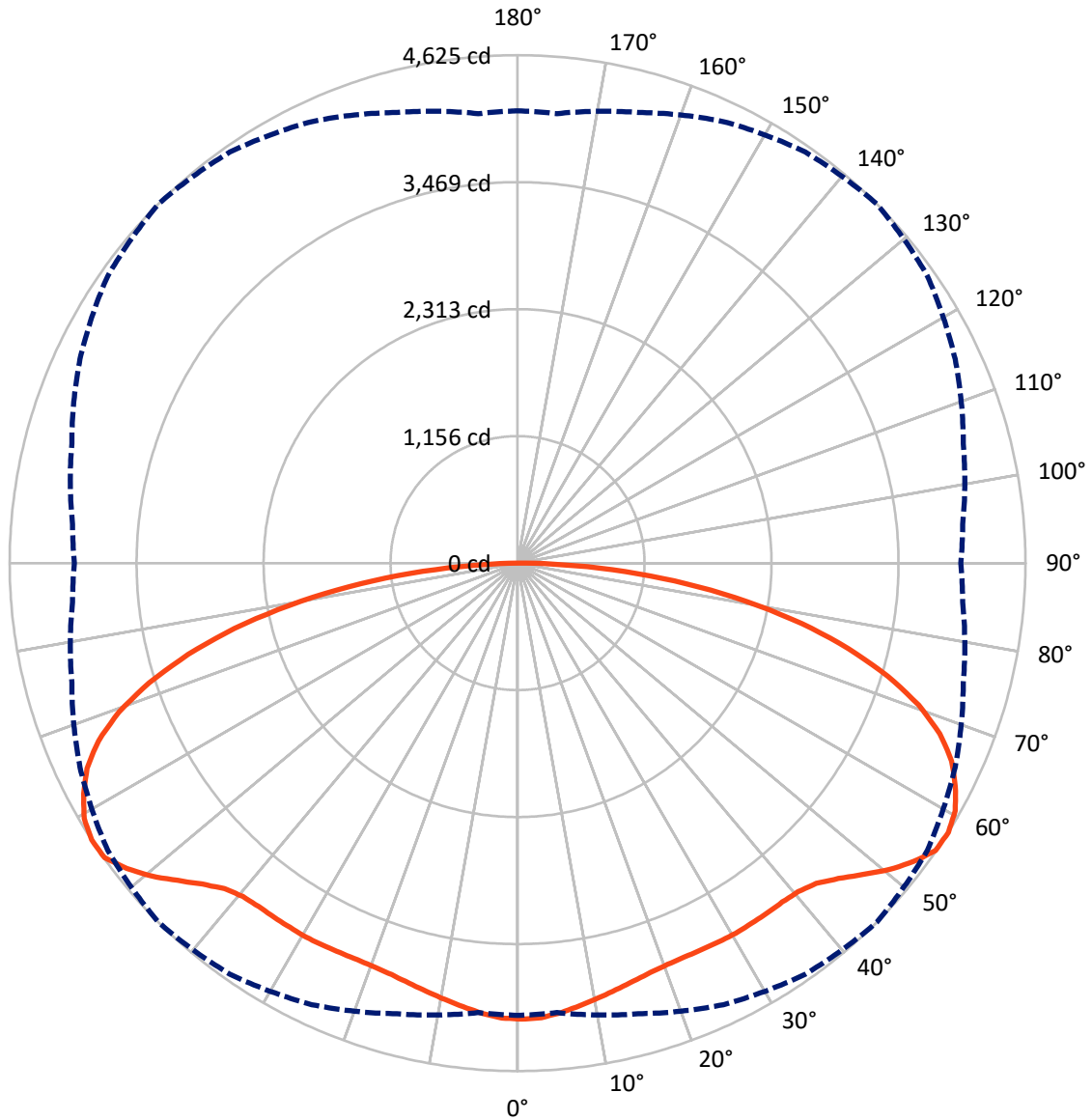
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 18.5 fc
 Type V - Short - N/A

REPORT NUMBER: P879718
CATALOG NUMBER: EMM2-HSN-VA9-750-U-MQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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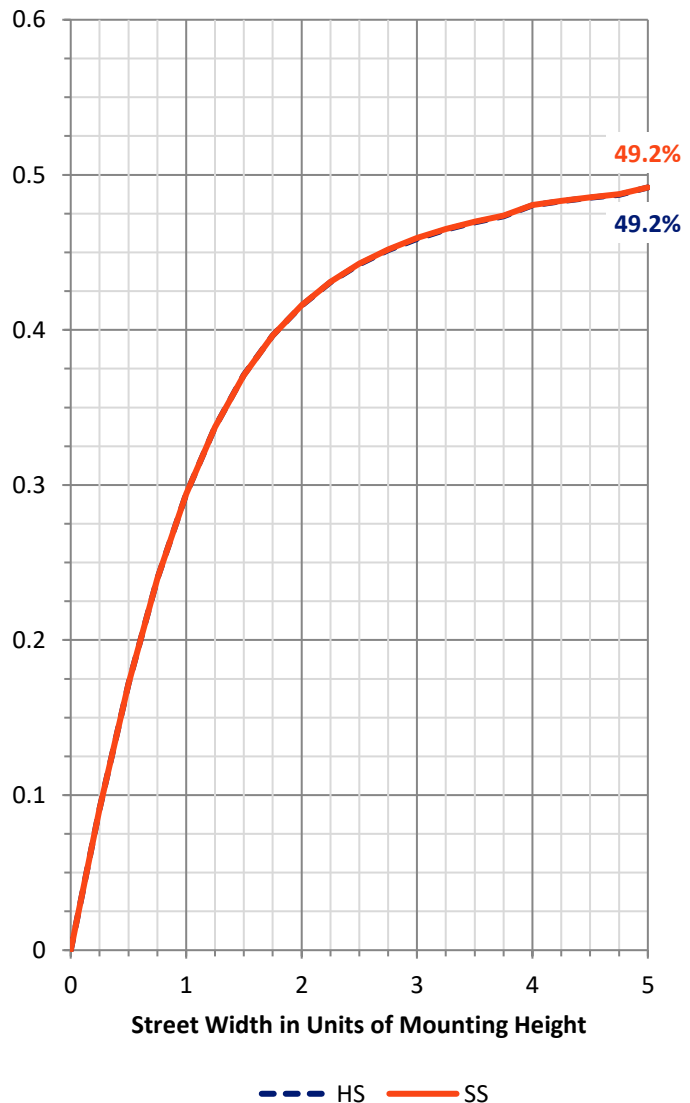
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	10262.4	0.0	10262.4
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	10262.4	0.0	10262.4
	% Fixture	50.0	0.0	50.0
Total	Lumens	20524.7	0.0	20524.7
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	389.8	1.9
10°-20°	1117.3	5.4
20°-30°	1795.4	8.7
30°-40°	2433.8	11.9
40°-50°	3108.3	15.1
50°-60°	3874.3	18.9
60°-70°	3947.8	19.2
70°-80°	2925.2	14.3
80°-90°	932.8	4.5
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°	20524.7	100.0
0°-180°	20524.7	100.0



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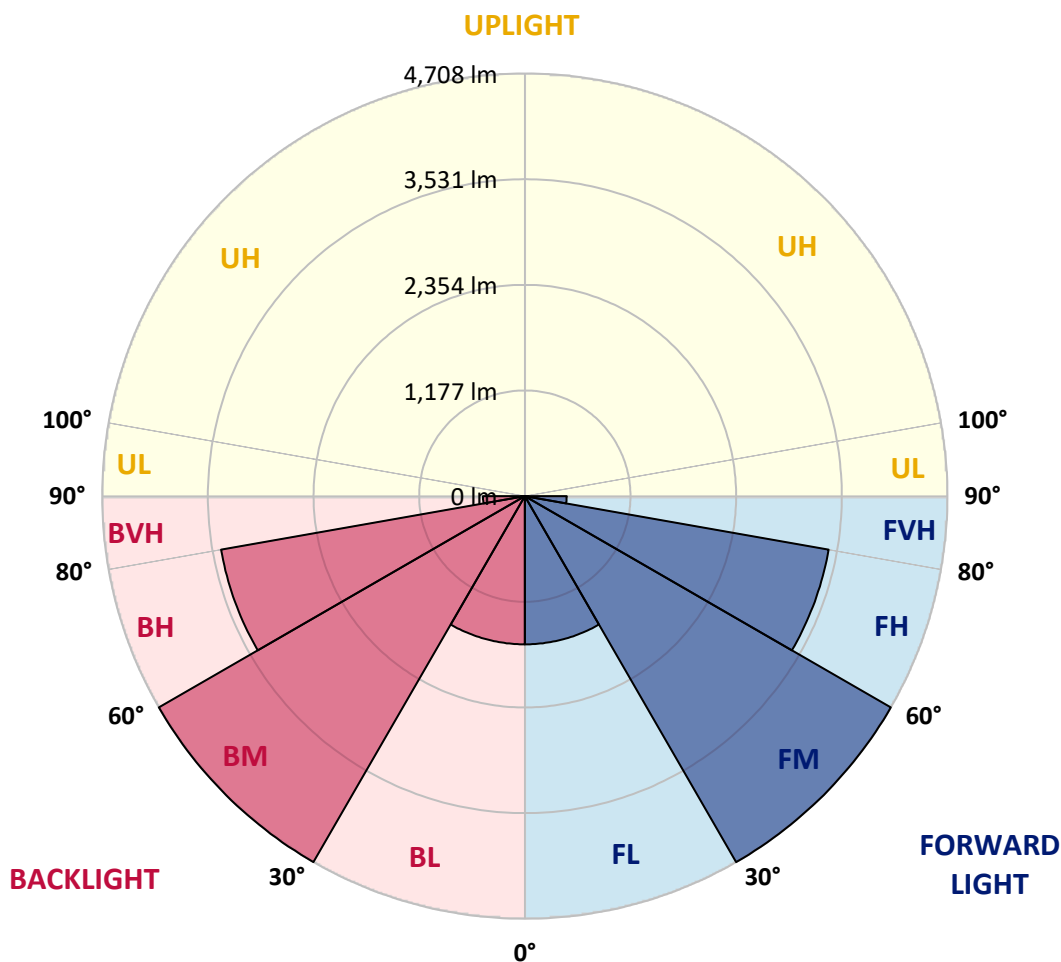
CATALOG NUMBER: EMM2-HSN-VA9-750-U-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1651.3	8.0			
FM	(30°-60°)	4708.2	22.9			
FH	(60°-80°)	3436.5	16.7			G2/5000
FVH	(80°-90°)	466.4	2.3			G3/500
BL	(0°-30°)	1651.3	8.0	B3/2500		
BM	(30°-60°)	4708.2	22.9	B3/5000		
BH	(60°-80°)	3436.5	16.7	B4/5000		G2/5000
BVH	(80°-90°)	466.4	2.3			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G3

Type V Short





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CATALOG NUMBER: EMM2-HSN-VA9-750-U-MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	4152.0	4152.0	4152.0	4152.0	4152.0	4152.0	4152.0	4152.0	4152.0	4152.0	4152.0
2.5°	4144.9	4144.9	4143.9	4143.9	4142.8	4143.9	4144.9	4144.9	4143.9	4142.8	4141.8
5°	4115.3	4116.3	4116.3	4114.2	4112.2	4112.2	4112.2	4113.2	4111.2	4112.2	4111.2
7.5°	4072.3	4069.3	4072.3	4071.3	4072.3	4069.3	4074.4	4072.3	4069.3	4071.3	4071.3
10°	4024.3	4025.4	4026.4	4025.4	4028.4	4027.4	4026.4	4025.4	4023.3	4025.4	4022.3
12.5°	3979.4	3980.4	3983.5	3984.5	3987.6	3986.5	3987.6	3985.5	3984.5	3980.4	3979.4
15°	3936.5	3938.5	3942.6	3945.7	3948.7	3949.7	3947.7	3946.7	3941.6	3938.5	3936.5
17.5°	3900.7	3900.7	3906.8	3911.9	3917.1	3918.1	3917.1	3911.9	3904.8	3897.6	3898.7
20°	3876.2	3876.2	3883.3	3891.5	3898.7	3900.7	3897.6	3888.5	3877.2	3872.1	3871.1
22.5°	3865.0	3866.0	3873.1	3882.3	3892.5	3894.6	3888.5	3877.2	3865.0	3855.8	3854.7
25°	3866.0	3863.9	3870.1	3884.4	3895.6	3897.6	3892.5	3877.2	3862.9	3854.7	3851.7
27.5°	3862.9	3863.9	3871.1	3885.4	3899.7	3903.8	3895.6	3877.2	3857.8	3850.6	3848.6
30°	3861.9	3862.9	3865.0	3888.5	3904.8	3911.9	3899.7	3875.2	3858.8	3847.6	3846.6
32.5°	3857.8	3852.7	3867.0	3881.3	3901.7	3910.9	3898.7	3876.2	3849.6	3841.5	3837.4
35°	3841.5	3846.6	3858.8	3883.3	3906.8	3913.0	3898.7	3871.1	3847.6	3831.2	3830.2
37.5°	3838.4	3838.4	3857.8	3883.3	3906.8	3916.0	3903.8	3873.1	3840.4	3820.0	3820.0
40°	3834.3	3833.3	3858.8	3890.5	3921.1	3933.4	3917.1	3879.3	3839.4	3820.0	3809.8
42.5°	3845.5	3851.7	3881.3	3927.3	3966.1	3986.5	3963.0	3921.1	3874.1	3837.4	3836.3
45°	3898.7	3911.9	3942.6	4020.2	4072.3	4096.9	4069.3	3996.7	3923.2	3874.1	3871.1
47.5°	3981.4	3977.3	4049.9	4131.6	4208.2	4234.8	4194.9	4110.2	4003.9	3944.6	3929.3
50°	4038.6	4048.9	4123.4	4241.9	4356.4	4387.0	4328.8	4219.5	4104.0	4022.3	4008.0
52.5°	4116.3	4118.3	4213.3	4363.5	4481.0	4514.7	4458.5	4322.7	4167.4	4065.2	4058.0
55°	4125.5	4159.2	4274.6	4438.1	4579.1	4618.9	4549.5	4404.4	4223.6	4096.9	4084.6
57.5°	4118.3	4108.1	4248.1	4436.1	4568.9	4625.1	4556.6	4396.2	4202.1	4068.3	4035.6
60°	3971.2	4014.1	4168.4	4352.3	4522.9	4579.1	4499.4	4335.9	4123.4	3976.3	3963.0
62.5°	3871.1	3889.5	4030.5	4277.7	4417.7	4473.9	4412.6	4220.5	3993.7	3840.4	3822.0
65°	3714.8	3729.1	3894.6	4097.9	4293.0	4343.1	4264.4	4103.0	3859.8	3691.3	3657.6
67.5°	3465.5	3504.3	3667.8	3926.3	4061.1	4146.9	4076.4	3849.6	3628.9	3463.4	3438.9
70°	3175.3	3227.4	3396.0	3607.5	3832.3	3875.2	3778.1	3623.8	3376.6	3199.8	3156.9
72.5°	2895.4	2899.5	3056.8	3305.1	3447.1	3526.8	3471.6	3268.3	3026.2	2876.0	2849.4
75°	2504.1	2505.1	2677.8	2881.1	3060.9	3113.0	3025.1	2882.1	2666.5	2498.0	2481.6
77.5°	2050.5	2078.1	2231.3	2427.5	2569.5	2645.1	2582.8	2421.3	2220.1	2076.0	2059.7
80°	1608.1	1642.8	1751.1	1926.9	2049.5	2115.9	2048.4	1907.4	1754.2	1613.2	1615.2
82.5°	1135.1	1160.6	1262.8	1382.3	1501.8	1550.9	1522.3	1418.1	1278.1	1154.5	1120.8
85°	633.4	666.1	734.6	839.8	919.5	982.8	947.1	865.3	743.8	666.1	664.1
87.5°	185.9	201.3	228.9	299.3	375.0	402.5	394.4	373.9	328.0	294.2	272.8
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: SP1-2407-176-10

Test Date: 09/25/2024

Luminaire Tested: MEM2-HTN-VA-130-750-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-750-U-RW

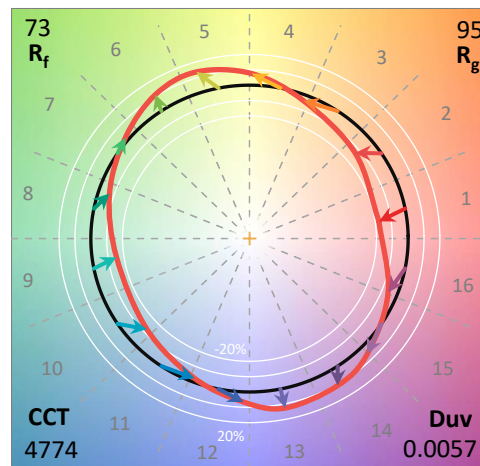
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-10
 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-130-750-U-RW**
 Description: EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K): 4774
 CIE u': 0.2100
 CIE v': 0.4945
 Duv: 0.0057
 CIE x: 0.3535
 CIE y: 0.3699
 CIE z: 0.2766
 Peak Wavelength (nm): 444
 Dominant Wavelength (nm): 571
 Purity: 17.0787
 Rf: 73.1
 Rg: 94.9

CRI (Ra):	70.8		
R1:	67.0	R9:	-40.0
R2:	75.4	R10:	43.4
R3:	83.5	R11:	69.3
R4:	71.8	R12:	45.5
R5:	68.4	R13:	67.9
R6:	67.5	R14:	90.8
R7:	80.0	R15:	58.2
R8:	53.1		



Test Conditions

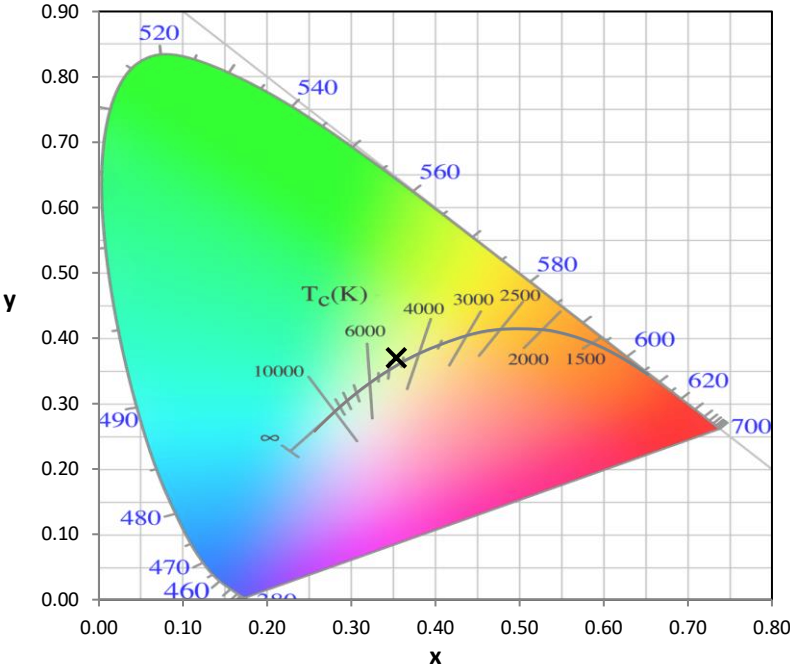
Stabilization Time: 37M
 Operation Time: 1H 37M
 Sphere Temperature (°C): 25.2

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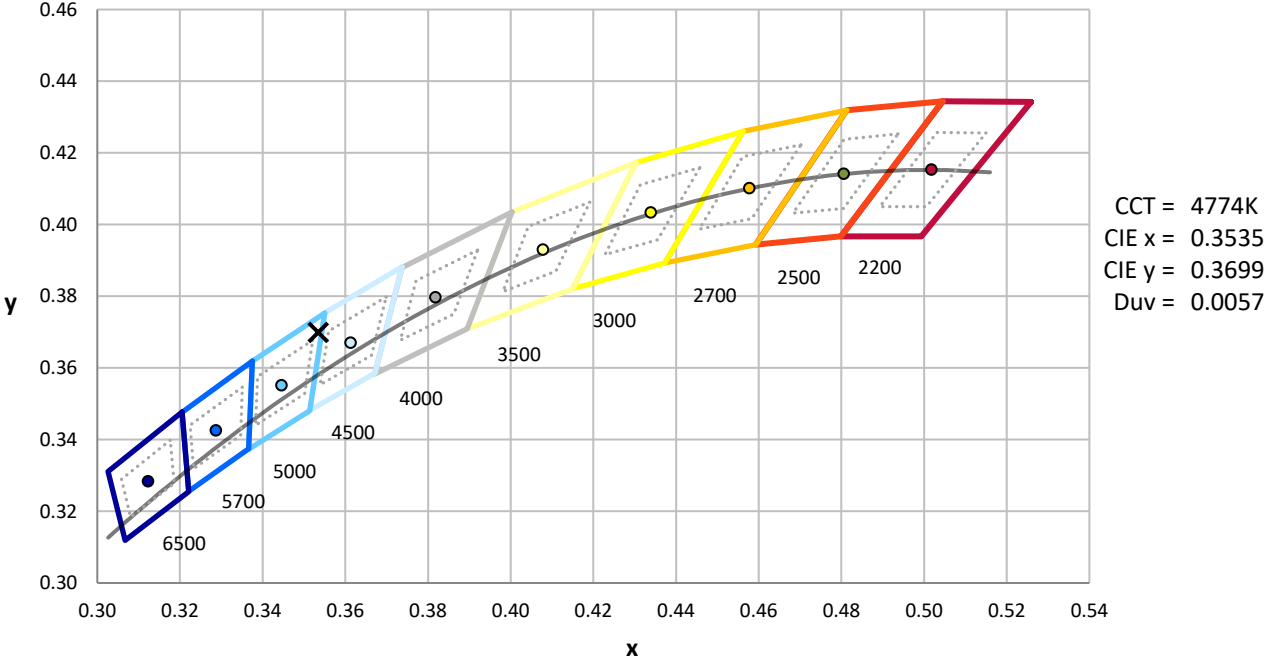
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

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CIE 1931 Chromaticity Diagram



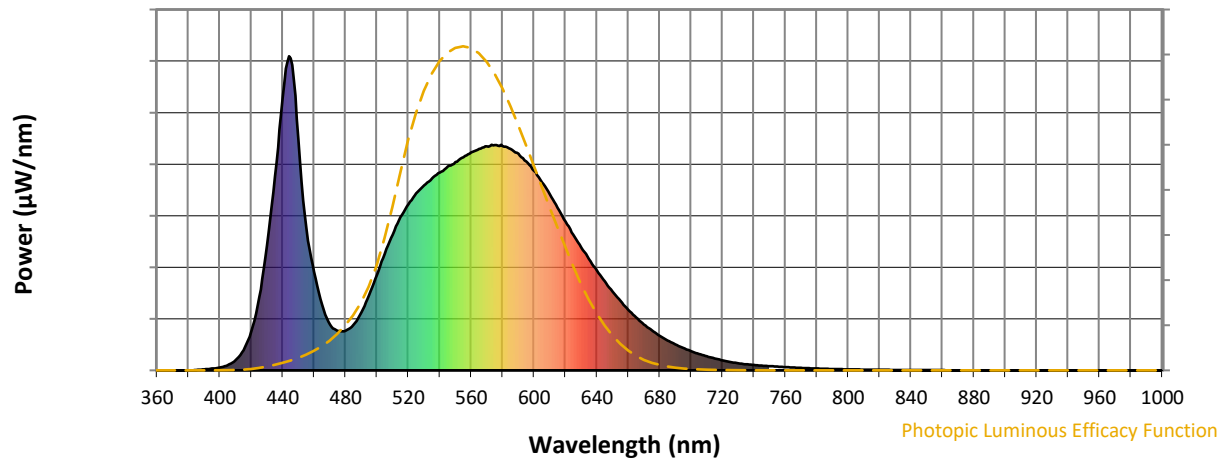
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 7-step quadrangle

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Photopic Flux vs. Wavelength

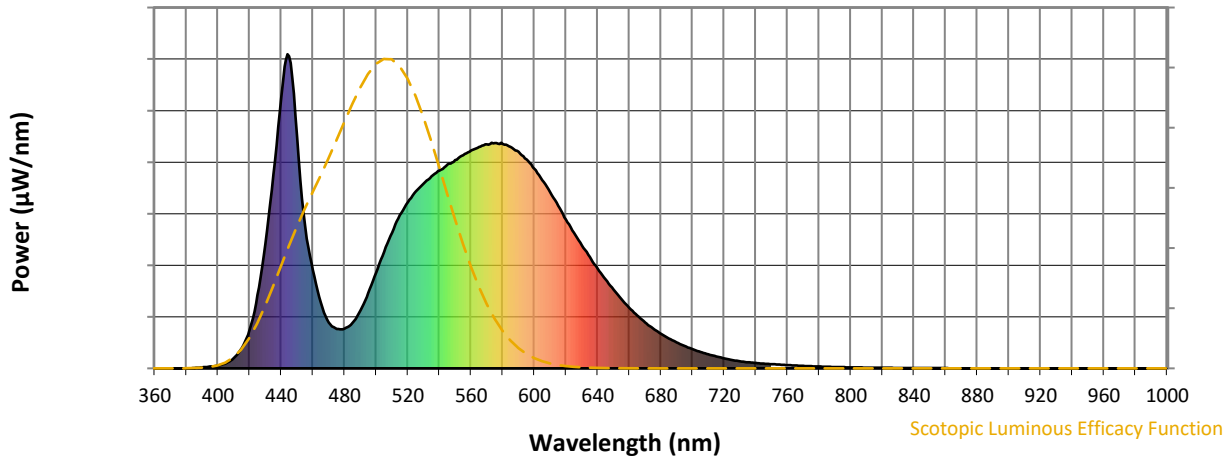


Photopic Lumens: NR

λ (nm)	Power 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	184	NR	620	474	NR	750	13	NR	880	0	NR
365	0	NR	495	239	NR	625	432	NR	755	12	NR	885	0	NR
370	0	NR	500	305	NR	630	392	NR	760	10	NR	890	0	NR
375	0	NR	505	371	NR	635	354	NR	765	9	NR	895	0	NR
380	0	NR	510	432	NR	640	318	NR	770	8	NR	900	0	NR
385	1	NR	515	488	NR	645	283	NR	775	7	NR	905	0	NR
390	3	NR	520	529	NR	650	251	NR	780	6	NR	910	0	NR
395	6	NR	525	563	NR	655	221	NR	785	5	NR	915	0	NR
400	9	NR	530	589	NR	660	193	NR	790	4	NR	920	0	NR
405	16	NR	535	611	NR	665	169	NR	795	4	NR	925	0	NR
410	33	NR	540	629	NR	670	146	NR	800	3	NR	930	0	NR
415	64	NR	545	649	NR	675	127	NR	805	3	NR	935	0	NR
420	124	NR	550	663	NR	680	110	NR	810	2	NR	940	0	NR
425	233	NR	555	678	NR	685	95	NR	815	2	NR	945	0	NR
430	397	NR	560	693	NR	690	83	NR	820	2	NR	950	0	NR
435	617	NR	565	705	NR	695	71	NR	825	2	NR	955	0	NR
440	868	NR	570	713	NR	700	61	NR	830	1	NR	960	0	NR
445	994	NR	575	717	NR	705	52	NR	835	1	NR	965	0	NR
450	736	NR	580	715	NR	710	45	NR	840	1	NR	970	0	NR
455	454	NR	585	705	NR	715	38	NR	845	1	NR	975	0	NR
460	314	NR	590	689	NR	720	32	NR	850	1	NR	980	0	NR
465	210	NR	595	665	NR	725	27	NR	855	1	NR	985	0	NR
470	146	NR	600	635	NR	730	23	NR	860	1	NR	990	0	NR
475	126	NR	605	599	NR	735	19	NR	865	0	NR	995	0	NR
480	126	NR	610	561	NR	740	17	NR	870	0	NR	1000	0	NR
485	144	NR	615	517	NR	745	15	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



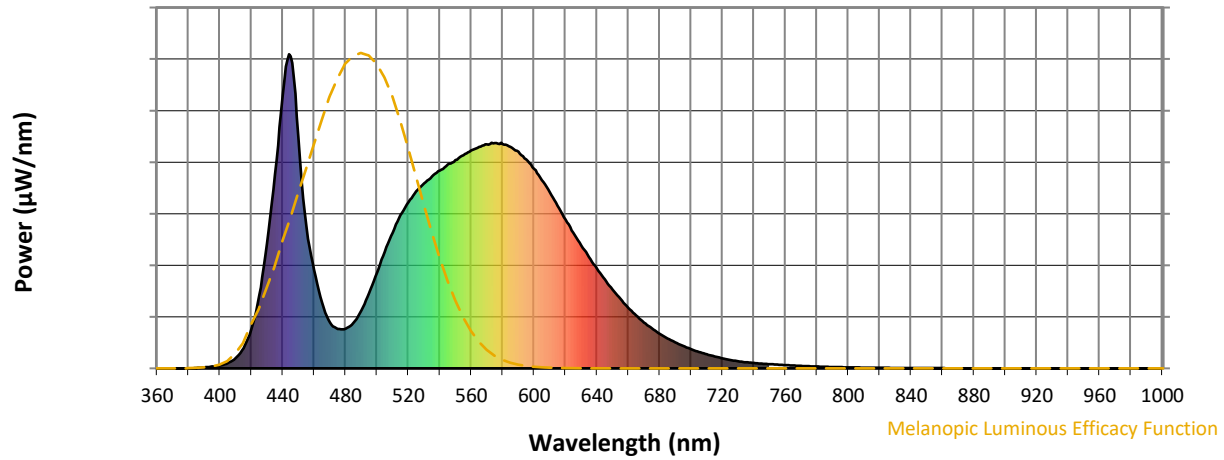
Scotopic Lumens: NR

S/P: 1.71

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	184	NR	620	474	NR	750	13	NR	880	0	NR
365	0	NR	495	239	NR	625	432	NR	755	12	NR	885	0	NR
370	0	NR	500	305	NR	630	392	NR	760	10	NR	890	0	NR
375	0	NR	505	371	NR	635	354	NR	765	9	NR	895	0	NR
380	0	NR	510	432	NR	640	318	NR	770	8	NR	900	0	NR
385	1	NR	515	488	NR	645	283	NR	775	7	NR	905	0	NR
390	3	NR	520	529	NR	650	251	NR	780	6	NR	910	0	NR
395	6	NR	525	563	NR	655	221	NR	785	5	NR	915	0	NR
400	9	NR	530	589	NR	660	193	NR	790	4	NR	920	0	NR
405	16	NR	535	611	NR	665	169	NR	795	4	NR	925	0	NR
410	33	NR	540	629	NR	670	146	NR	800	3	NR	930	0	NR
415	64	NR	545	649	NR	675	127	NR	805	3	NR	935	0	NR
420	124	NR	550	663	NR	680	110	NR	810	2	NR	940	0	NR
425	233	NR	555	678	NR	685	95	NR	815	2	NR	945	0	NR
430	397	NR	560	693	NR	690	83	NR	820	2	NR	950	0	NR
435	617	NR	565	705	NR	695	71	NR	825	2	NR	955	0	NR
440	868	NR	570	713	NR	700	61	NR	830	1	NR	960	0	NR
445	994	NR	575	717	NR	705	52	NR	835	1	NR	965	0	NR
450	736	NR	580	715	NR	710	45	NR	840	1	NR	970	0	NR
455	454	NR	585	705	NR	715	38	NR	845	1	NR	975	0	NR
460	314	NR	590	689	NR	720	32	NR	850	1	NR	980	0	NR
465	210	NR	595	665	NR	725	27	NR	855	1	NR	985	0	NR
470	146	NR	600	635	NR	730	23	NR	860	1	NR	990	0	NR
475	126	NR	605	599	NR	735	19	NR	865	0	NR	995	0	NR
480	126	NR	610	561	NR	740	17	NR	870	0	NR	1000	0	NR
485	144	NR	615	517	NR	745	15	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



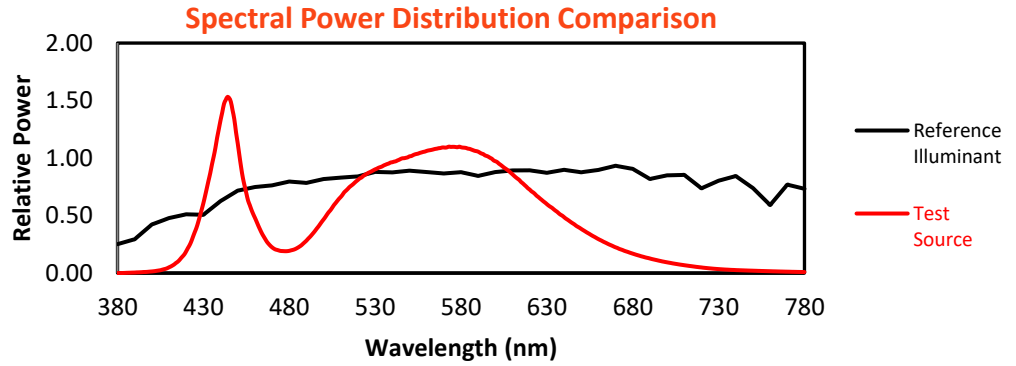
Melanopic Lumens: NR

M/P: 3.39

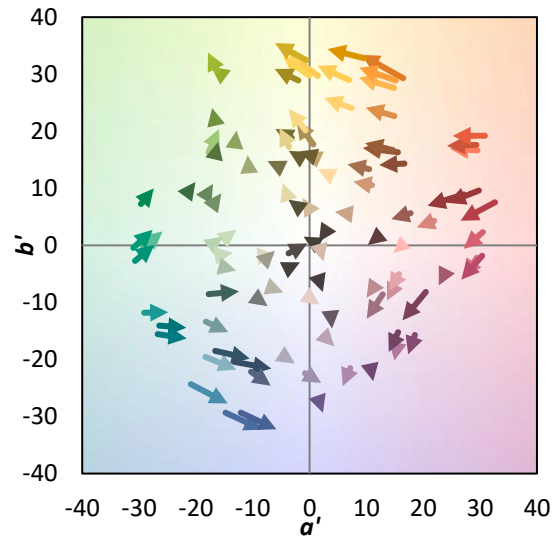
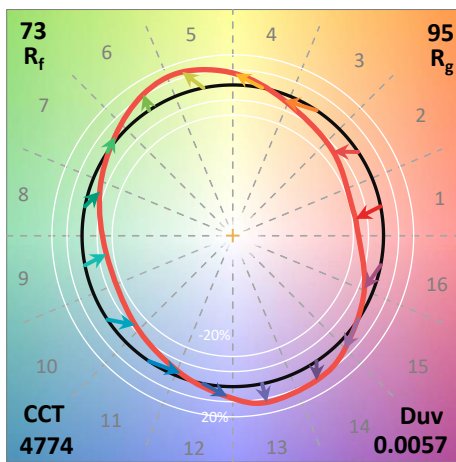
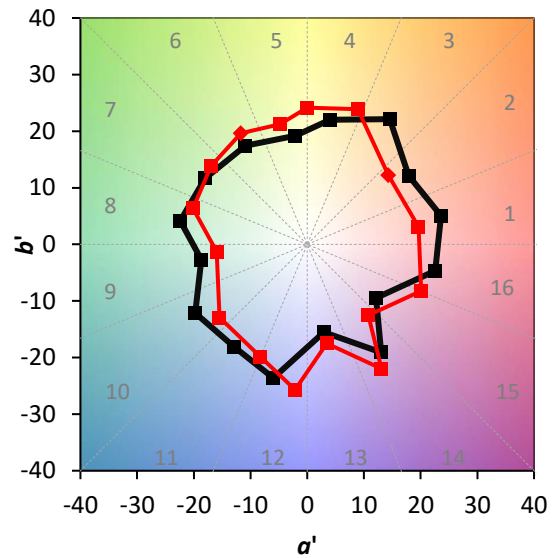
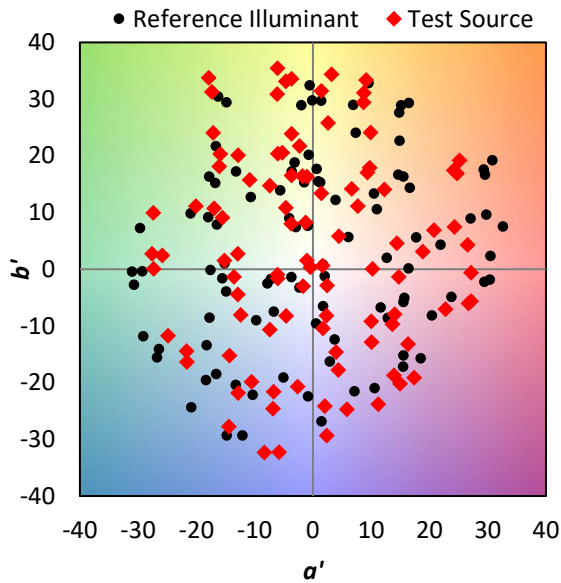
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	184	NR	620	474	NR	750	13	NR	880	0	NR
365	0	NR	495	239	NR	625	432	NR	755	12	NR	885	0	NR
370	0	NR	500	305	NR	630	392	NR	760	10	NR	890	0	NR
375	0	NR	505	371	NR	635	354	NR	765	9	NR	895	0	NR
380	0	NR	510	432	NR	640	318	NR	770	8	NR	900	0	NR
385	1	NR	515	488	NR	645	283	NR	775	7	NR	905	0	NR
390	3	NR	520	529	NR	650	251	NR	780	6	NR	910	0	NR
395	6	NR	525	563	NR	655	221	NR	785	5	NR	915	0	NR
400	9	NR	530	589	NR	660	193	NR	790	4	NR	920	0	NR
405	16	NR	535	611	NR	665	169	NR	795	4	NR	925	0	NR
410	33	NR	540	629	NR	670	146	NR	800	3	NR	930	0	NR
415	64	NR	545	649	NR	675	127	NR	805	3	NR	935	0	NR
420	124	NR	550	663	NR	680	110	NR	810	2	NR	940	0	NR
425	233	NR	555	678	NR	685	95	NR	815	2	NR	945	0	NR
430	397	NR	560	693	NR	690	83	NR	820	2	NR	950	0	NR
435	617	NR	565	705	NR	695	71	NR	825	2	NR	955	0	NR
440	868	NR	570	713	NR	700	61	NR	830	1	NR	960	0	NR
445	994	NR	575	717	NR	705	52	NR	835	1	NR	965	0	NR
450	736	NR	580	715	NR	710	45	NR	840	1	NR	970	0	NR
455	454	NR	585	705	NR	715	38	NR	845	1	NR	975	0	NR
460	314	NR	590	689	NR	720	32	NR	850	1	NR	980	0	NR
465	210	NR	595	665	NR	725	27	NR	855	1	NR	985	0	NR
470	146	NR	600	635	NR	730	23	NR	860	1	NR	990	0	NR
475	126	NR	605	599	NR	735	19	NR	865	0	NR	995	0	NR
480	126	NR	610	561	NR	740	17	NR	870	0	NR	1000	0	NR
485	144	NR	615	517	NR	745	15	NR	875	0	NR			

Summary

$R_f = 73.1$
 $R_g = 94.9$
 $CIE R_a = 70.8$
 $R_9 = -40.0$

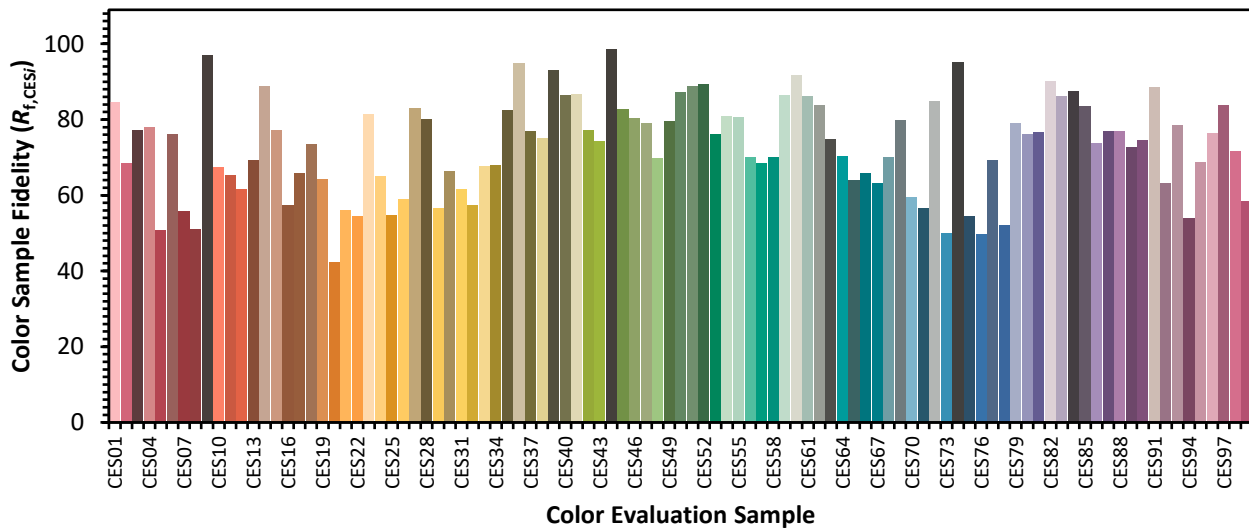


Color Vector Graphics

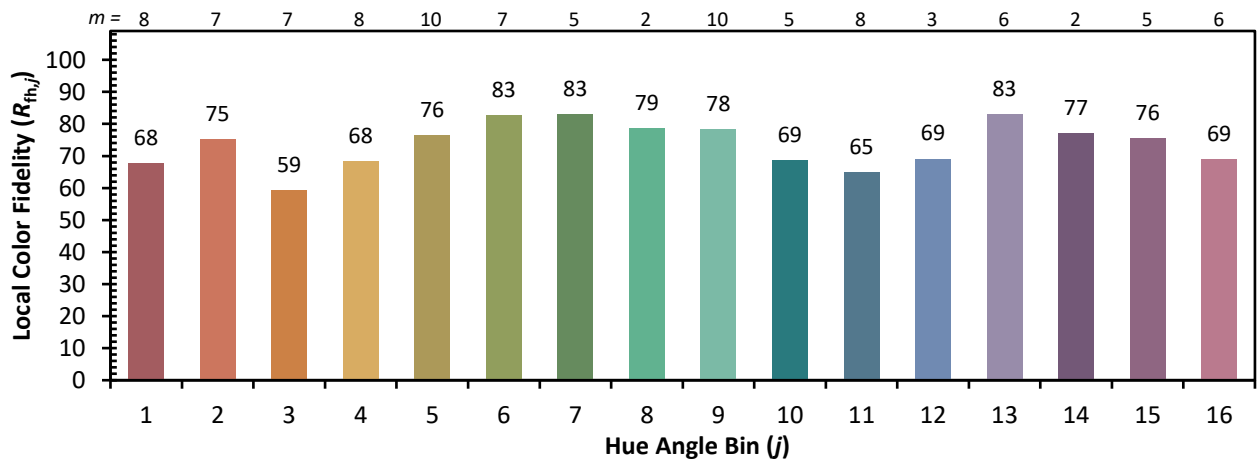
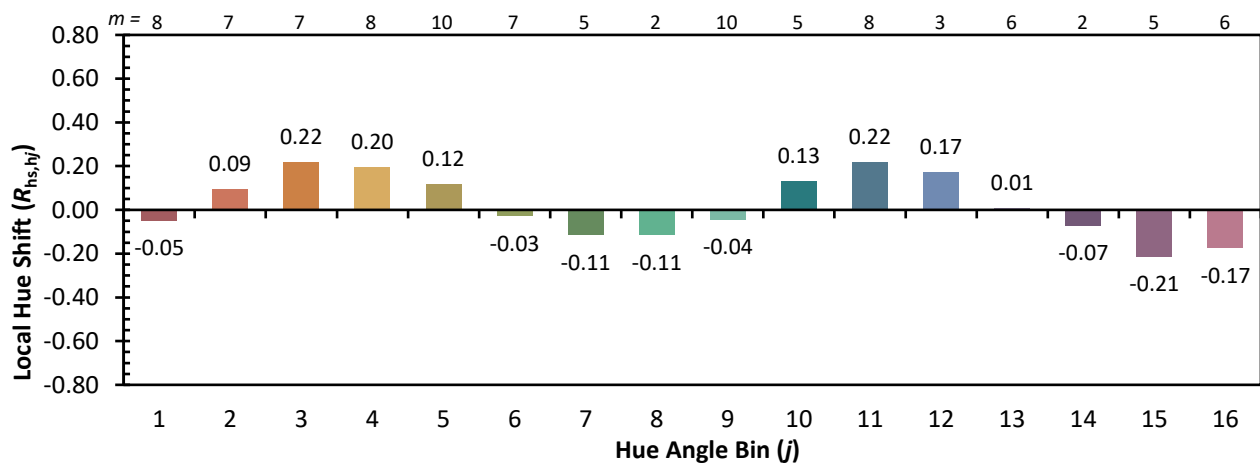
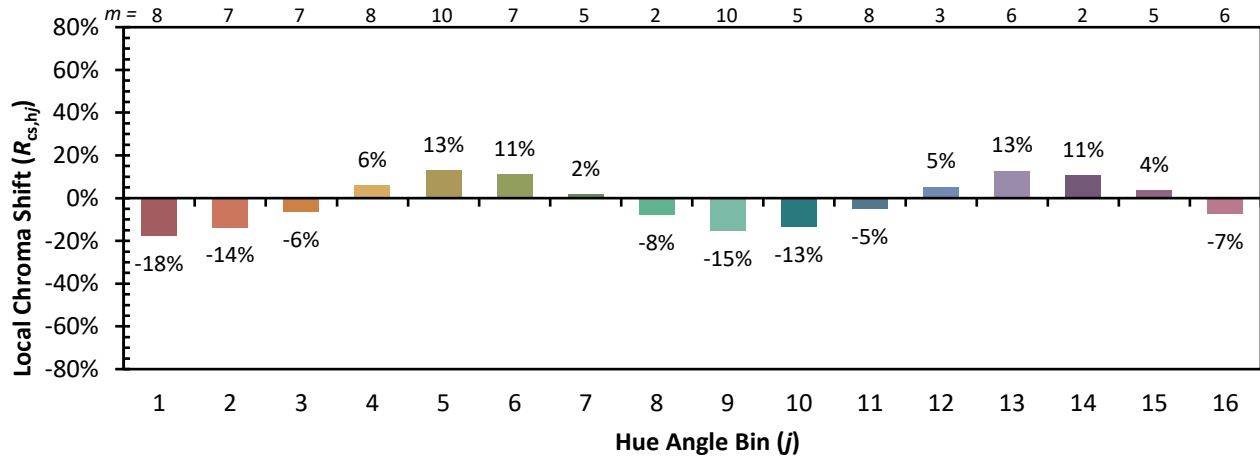


Individual Sample Fidelity Index ($R_{f,i}$)

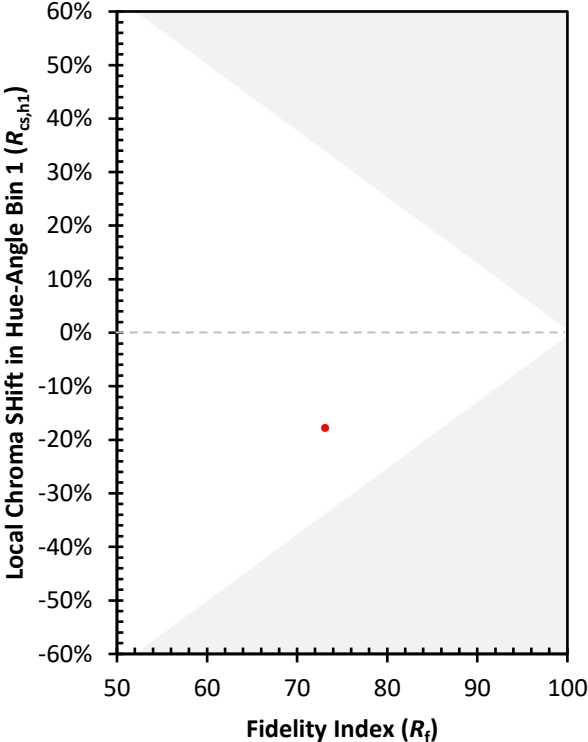
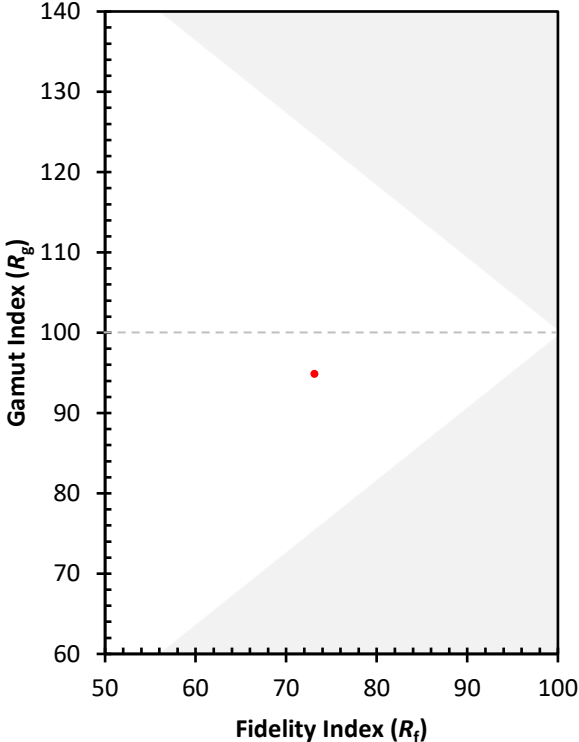
CES01 = 85	CES26 = 59	CES51 = 89	CES76 = 50
CES02 = 59	CES27 = 83	CES52 = 89	CES77 = 69
CES03 = 30	CES28 = 80	CES53 = 76	CES78 = 52
CES04 = 69	CES29 = 57	CES54 = 81	CES79 = 79
CES05 = 46	CES30 = 66	CES55 = 81	CES80 = 76
CES06 = 50	CES31 = 62	CES56 = 70	CES81 = 77
CES07 = 39	CES32 = 57	CES57 = 69	CES82 = 90
CES08 = 38	CES33 = 68	CES58 = 70	CES83 = 86
CES09 = 29	CES34 = 68	CES59 = 86	CES84 = 88
CES10 = 73	CES35 = 83	CES60 = 92	CES85 = 84
CES11 = 56	CES36 = 95	CES61 = 86	CES86 = 74
CES12 = 61	CES37 = 77	CES62 = 84	CES87 = 77
CES13 = 41	CES38 = 75	CES63 = 75	CES88 = 77
CES14 = 74	CES39 = 93	CES64 = 70	CES89 = 73
CES15 = 70	CES40 = 86	CES65 = 64	CES90 = 75
CES16 = 46	CES41 = 87	CES66 = 66	CES91 = 89
CES17 = 49	CES42 = 77	CES67 = 63	CES92 = 63
CES18 = 55	CES43 = 74	CES68 = 70	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 80	CES94 = 54
CES20 = 64	CES45 = 83	CES70 = 60	CES95 = 69
CES21 = 85	CES46 = 80	CES71 = 57	CES96 = 76
CES22 = 77	CES47 = 79	CES72 = 85	CES97 = 84
CES23 = 91	CES48 = 70	CES73 = 50	CES98 = 72
CES24 = 90	CES49 = 80	CES74 = 95	CES99 = 58
CES25 = 71	CES50 = 87	CES75 = 55	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)