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: P879720

Luminaire Tested: **EMM2-HSN-VA8-830-U-MQ**

Issue Date: 10/01/2024

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:	P879720
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HSN-VA8-830-U-MQ
Description:	EPIC MODERN SHORT HOUSING 8W 80CRI 3000K WAVESTREAM FIXTURE w/ TYPE V MEDIUM DISTRIBUTION OPTIC
Light Source:	(1) 3000K CCT, 80 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	14417.7 lumens
Efficiency:	N/A
Efficacy:	92.4 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G3

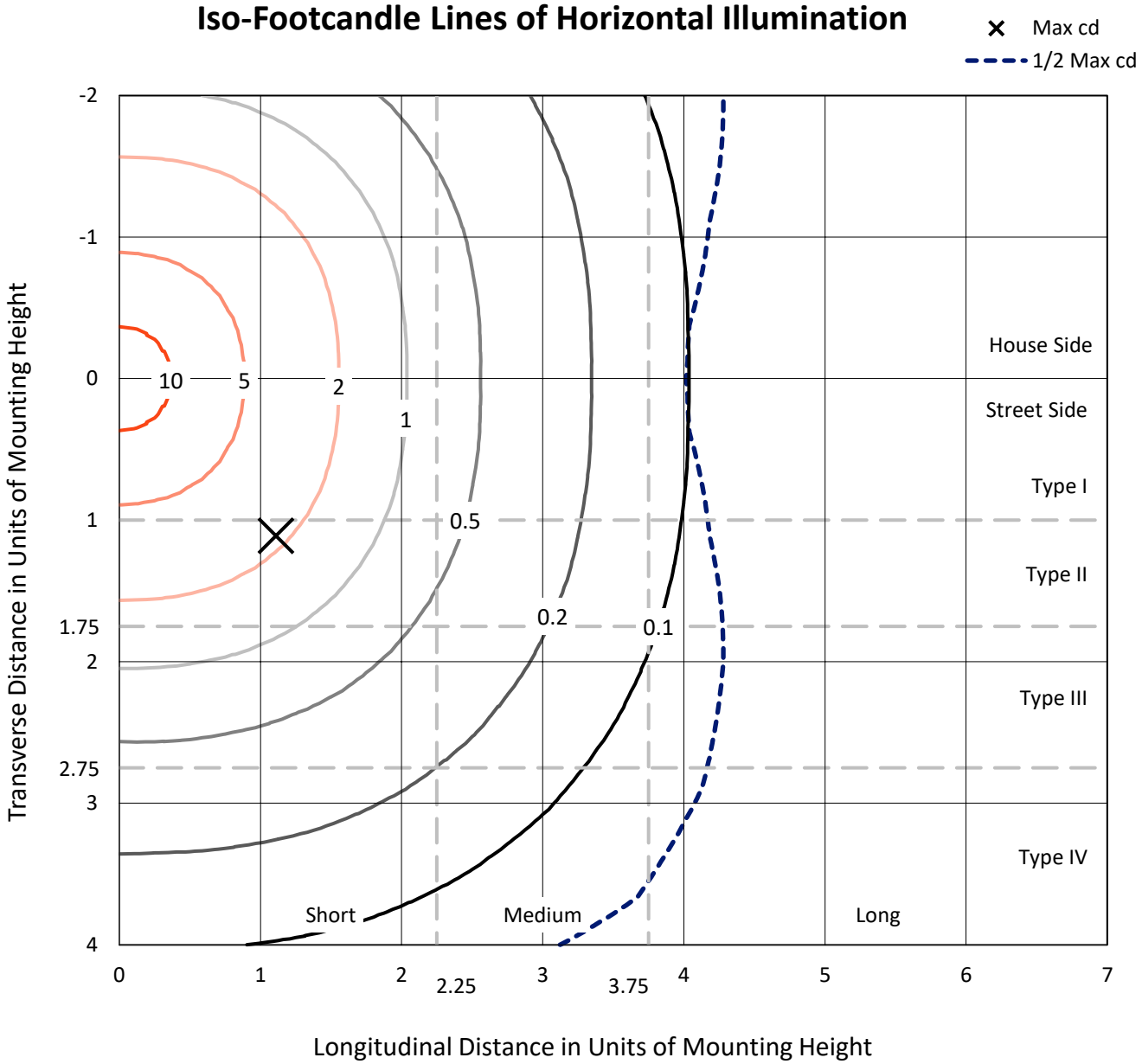
Input Watts (W):	156
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.995
Total Harmonic Distortion (THDi):	6.6%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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

Scaled Data Report

REPORT NUMBER: P879720
CATALOG NUMBER: EMM2-HSN-VA8-830-U-MQ

Iso-Footcandle Lines of Horizontal Illumination



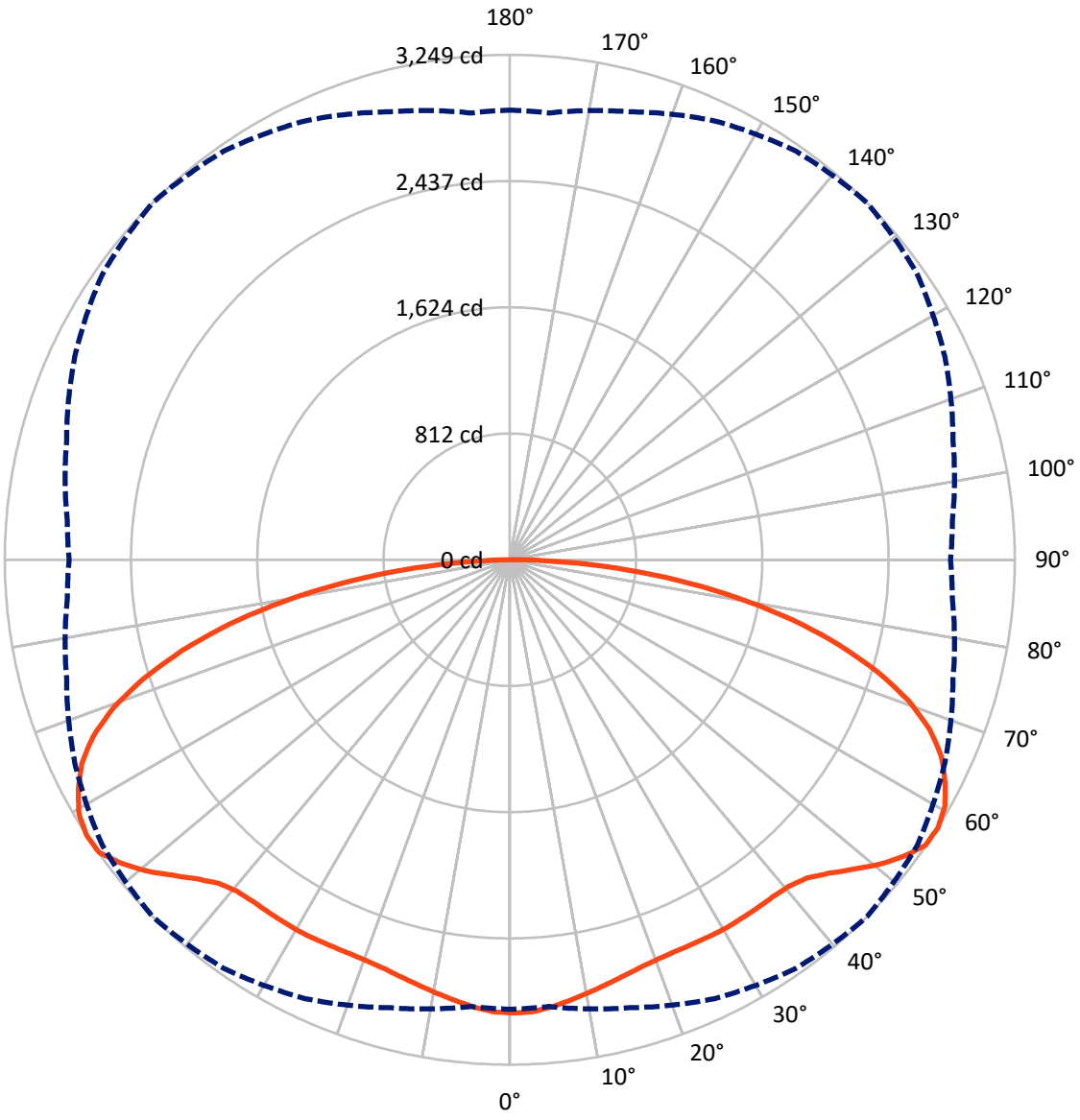
Based on 15 foot mounting height. Maximum calculated value = 13 fc
Type V - Short - N/A

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

Scaled Data Report

REPORT NUMBER: P879720
CATALOG NUMBER: EMM2-HSN-VA8-830-U-MQ

Luminous Intensity Polar Plot



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

Scaled Data Report

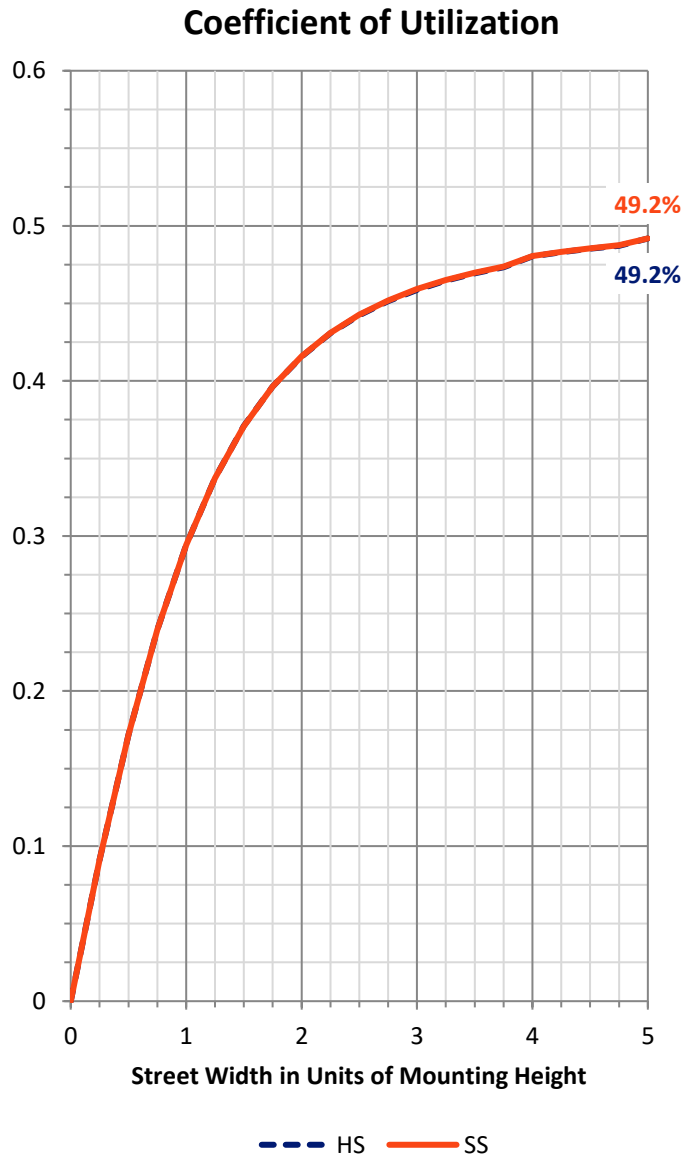
REPORT NUMBER: P879720
CATALOG NUMBER: EMM2-HSN-VA8-830-U-MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	7208.9	0.0	7208.9
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	7208.9	0.0	7208.9
	% Fixture	50.0	0.0	50.0
Total	Lumens	14417.7	0.0	14417.7
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.9
10°-20°	784.8	5.4
20°-30°	1261.2	8.7
30°-40°	1709.6	11.9
40°-50°	2183.4	15.1
50°-60°	2721.6	18.9
60°-70°	2773.2	19.2
70°-80°	2054.8	14.3
80°-90°	655.2	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°	14417.7	100.0
0°-180°	14417.7	100.0



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

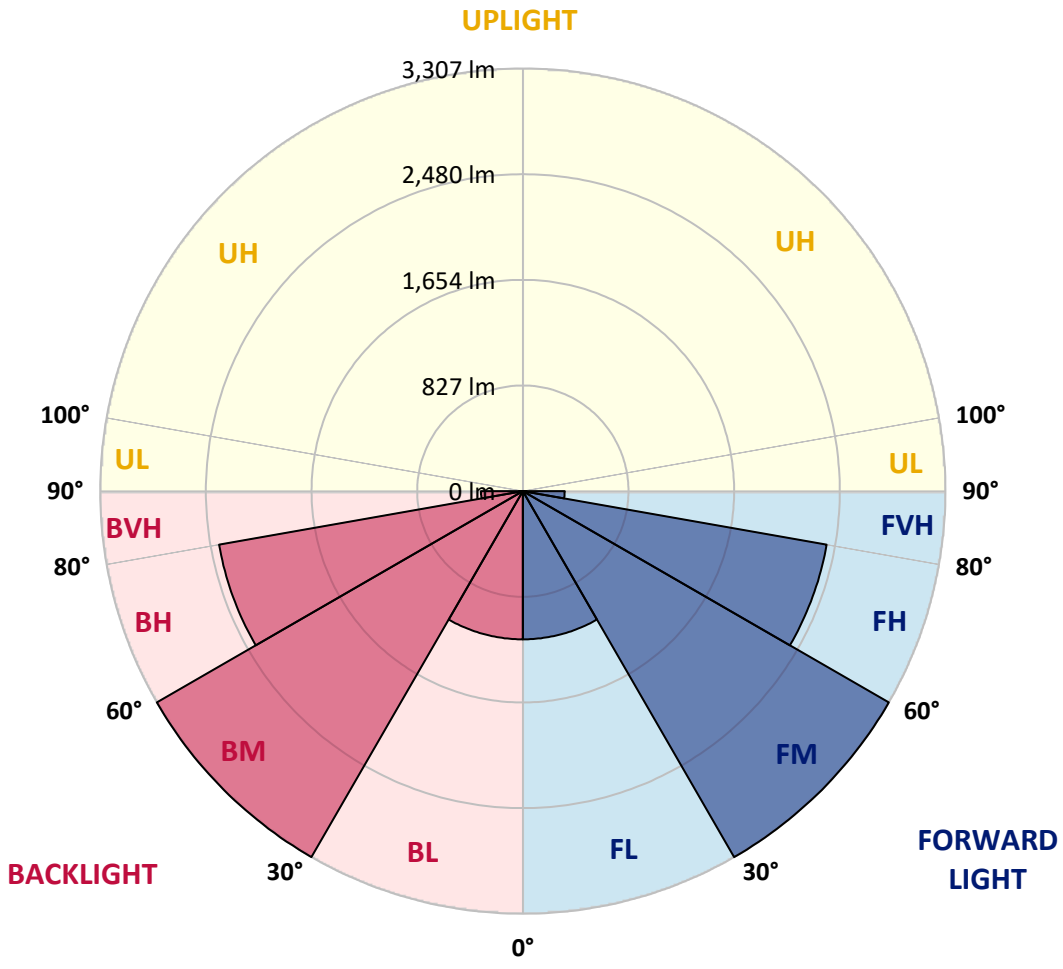
Scaled Data Report

REPORT NUMBER: P879720
CATALOG NUMBER: EMM2-HSN-VA8-830-U-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	1159.9	8.0			
FM	(30°-60°)	3307.3	22.9			
FH	(60°-80°)	2414.0	16.7			G2/5000
FVH	(80°-90°)	327.6	2.3			G3/500
BL	(0°-30°)	1159.9	8.0	B3/2500		
BM	(30°-60°)	3307.3	22.9	B3/5000		
BH	(60°-80°)	2414.0	16.7	B3/2500		G2/5000
BVH	(80°-90°)	327.6	2.3			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3
Type V Short



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

Scaled Data Report

REPORT NUMBER: P879720
CATALOG NUMBER: EMM2-HSN-VA8-830-U-MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2916.6	2916.6	2916.6	2916.6	2916.6	2916.6	2916.6	2916.6	2916.6	2916.6	2916.6
2.5°	2911.6	2911.6	2910.9	2910.9	2910.2	2910.9	2911.6	2911.6	2910.9	2910.2	2909.4
5°	2890.8	2891.5	2891.5	2890.1	2888.6	2888.6	2888.6	2889.4	2887.9	2888.6	2887.9
7.5°	2860.6	2858.5	2860.6	2859.9	2860.6	2858.5	2862.1	2860.6	2858.5	2859.9	2859.9
10°	2826.9	2827.6	2828.3	2827.6	2829.8	2829.1	2828.3	2827.6	2826.2	2827.6	2825.5
12.5°	2795.3	2796.1	2798.2	2798.9	2801.1	2800.4	2801.1	2799.6	2798.9	2796.1	2795.3
15°	2765.2	2766.6	2769.5	2771.7	2773.8	2774.5	2773.1	2772.4	2768.8	2766.6	2765.2
17.5°	2740.1	2740.1	2744.4	2748.0	2751.6	2752.3	2751.6	2748.0	2742.9	2737.9	2738.6
20°	2722.9	2722.9	2727.9	2733.6	2738.6	2740.1	2737.9	2731.5	2723.6	2720.0	2719.3
22.5°	2715.0	2715.7	2720.7	2727.2	2734.3	2735.8	2731.5	2723.6	2715.0	2708.5	2707.8
25°	2715.7	2714.2	2718.5	2728.6	2736.5	2737.9	2734.3	2723.6	2713.5	2707.8	2705.6
27.5°	2713.5	2714.2	2719.3	2729.3	2739.4	2742.2	2736.5	2723.6	2709.9	2704.9	2703.5
30°	2712.8	2713.5	2715.0	2731.5	2742.9	2748.0	2739.4	2722.1	2710.7	2702.8	2702.0
32.5°	2709.9	2706.3	2716.4	2726.4	2740.8	2747.3	2738.6	2722.9	2704.2	2698.5	2695.6
35°	2698.5	2702.0	2710.7	2727.9	2744.4	2748.7	2738.6	2719.3	2702.8	2691.3	2690.6
37.5°	2696.3	2696.3	2709.9	2727.9	2744.4	2750.8	2742.2	2720.7	2697.7	2683.4	2683.4
40°	2693.4	2692.7	2710.7	2732.9	2754.4	2763.0	2751.6	2725.0	2697.0	2683.4	2676.2
42.5°	2701.3	2705.6	2726.4	2758.7	2786.0	2800.4	2783.9	2754.4	2721.4	2695.6	2694.9
45°	2738.6	2748.0	2769.5	2824.0	2860.6	2877.9	2858.5	2807.5	2755.9	2721.4	2719.3
47.5°	2796.8	2793.9	2844.9	2902.3	2956.1	2974.8	2946.8	2887.2	2812.6	2770.9	2760.2
50°	2837.0	2844.1	2896.5	2979.8	3060.2	3081.7	3040.8	2964.0	2882.9	2825.5	2815.4
52.5°	2891.5	2892.9	2959.7	3065.2	3147.7	3171.4	3131.9	3036.5	2927.4	2855.6	2850.6
55°	2898.0	2921.6	3002.7	3117.6	3216.6	3244.6	3195.8	3093.9	2966.9	2877.9	2869.3
57.5°	2892.9	2885.8	2984.1	3116.1	3209.4	3248.9	3200.8	3088.1	2951.8	2857.8	2834.8
60°	2789.6	2819.7	2928.1	3057.3	3177.1	3216.6	3160.6	3045.8	2896.5	2793.2	2783.9
62.5°	2719.3	2732.2	2831.2	3004.9	3103.2	3142.7	3099.6	2964.7	2805.4	2697.7	2684.8
65°	2609.5	2619.5	2735.8	2878.6	3015.7	3050.8	2995.6	2882.2	2711.4	2593.0	2569.3
67.5°	2434.3	2461.6	2576.4	2758.0	2852.8	2913.0	2863.5	2704.2	2549.2	2432.9	2415.7
70°	2230.5	2267.1	2385.5	2534.1	2692.0	2722.1	2654.0	2545.6	2371.9	2247.8	2217.6
72.5°	2033.9	2036.8	2147.3	2321.7	2421.4	2477.4	2438.7	2295.8	2125.7	2020.2	2001.6
75°	1759.0	1759.7	1881.0	2023.8	2150.1	2186.7	2125.0	2024.6	1873.1	1754.7	1743.2
77.5°	1440.4	1459.7	1567.4	1705.2	1804.9	1858.1	1814.3	1700.9	1559.5	1458.3	1446.8
80°	1129.6	1154.0	1230.1	1353.5	1439.7	1486.3	1438.9	1339.9	1232.2	1133.2	1134.6
82.5°	797.3	815.3	887.0	971.0	1055.0	1089.4	1069.3	996.1	897.8	811.0	787.3
85°	445.0	467.9	516.0	589.9	645.9	690.4	665.3	607.9	522.5	467.9	466.5
87.5°	130.6	141.4	160.8	210.3	263.4	282.8	277.0	262.7	230.4	206.7	191.6
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: SP1-2407-176-11

Test Date: 09/26/2024

Luminaire Tested: MEM2-HTN-VA-130-830-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-830-U-RW

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

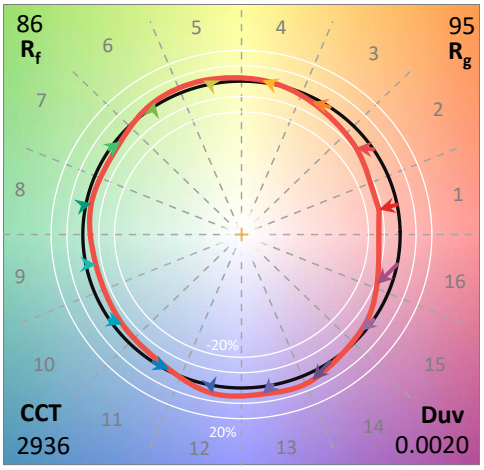
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-11
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-130-830-U-RW**
Description:	EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K):	2936
CIE u':	0.2522
CIE v':	0.5255
Duv:	0.0020
CIE x:	0.4446
CIE y:	0.4117
CIE z:	0.1436
Peak Wavelength (nm):	601
Dominant Wavelength (nm):	582
Purity:	57.05514
Rf:	85.6
Rg:	95.3

CRI (Ra):	82.0
R1:	79.9
R2:	90.0
R3:	96.9
R4:	80.9
R5:	80.4
R6:	88.8
R7:	82.7
R8:	56.8
R9:	1.5
R10:	78.0
R11:	80.9
R12:	73.9
R13:	82.1
R14:	98.8
R15:	71.1



Test Conditions

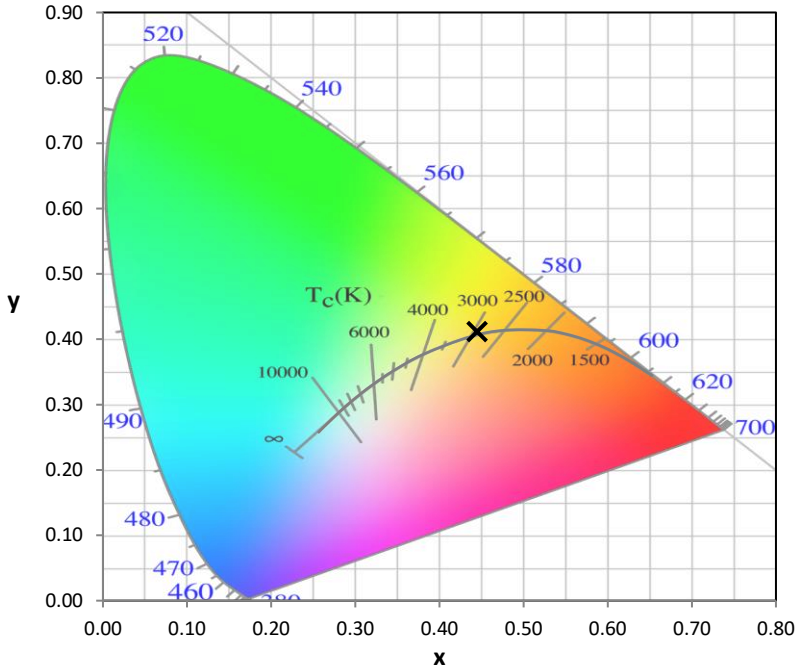
Stabilization Time:	54M
Operation Time:	1H 54M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-11

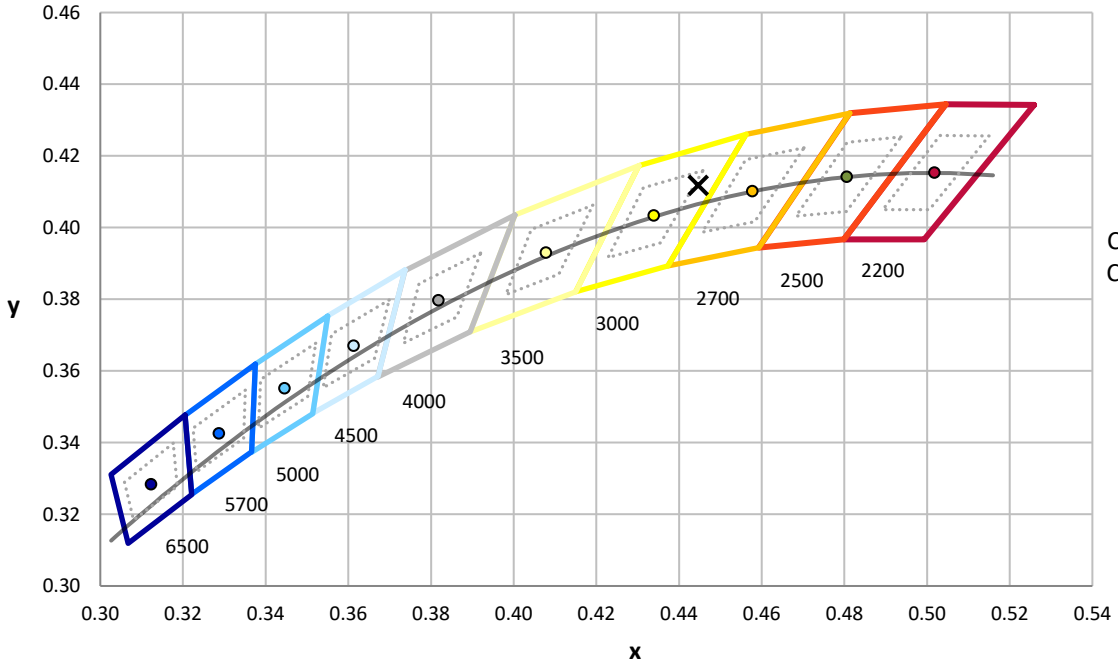
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085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

REPORT NUMBER: SP1-2407-176-11

CIE 1931 Chromaticity Diagram



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

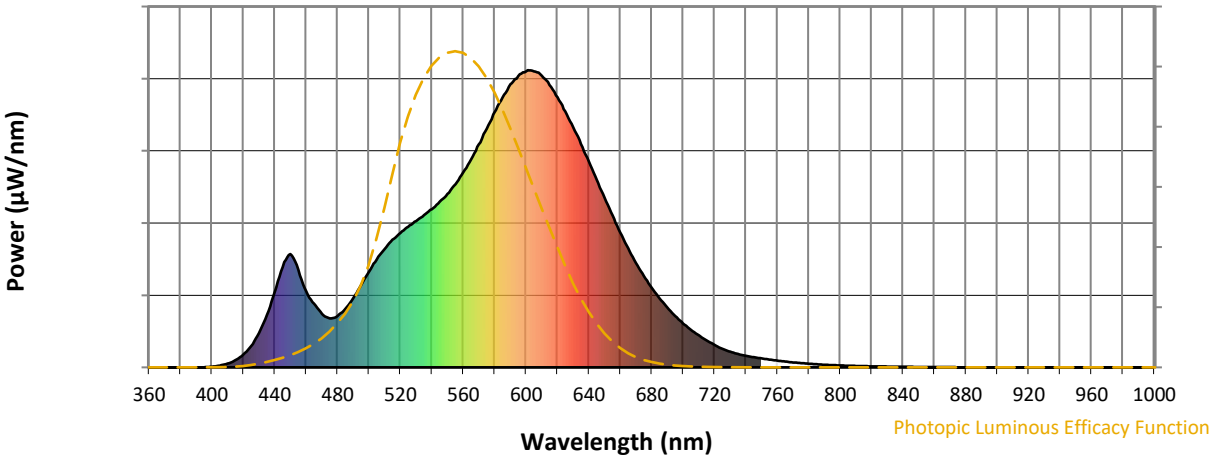


CCT = 2936K
CIE x = 0.4446
CIE y = 0.4117
Duv = 0.0020

Point lies inside the ANSI 3000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-11

Photopic Flux vs. Wavelength

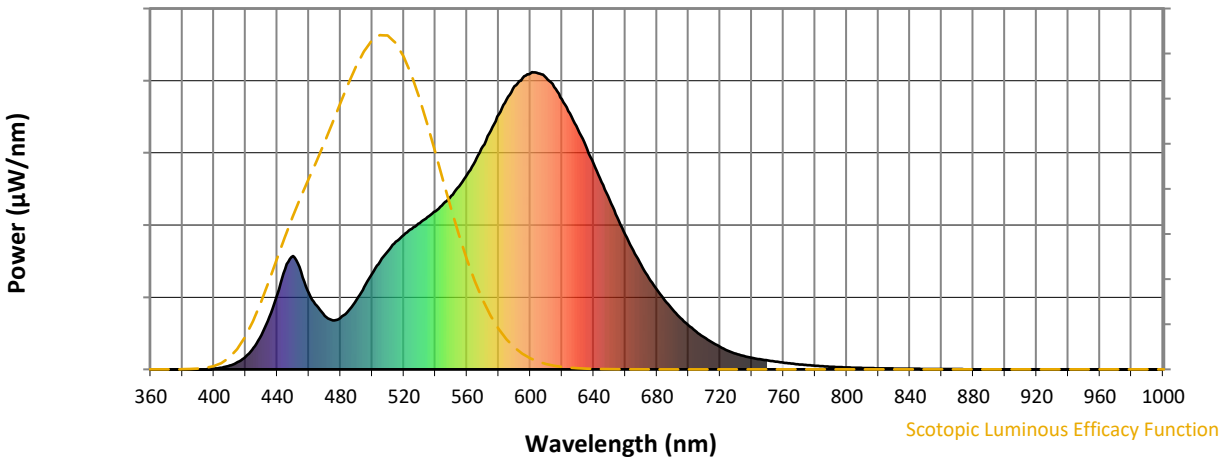


Photopic Lumens: NR

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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-11

Scotopic Flux vs. Wavelength

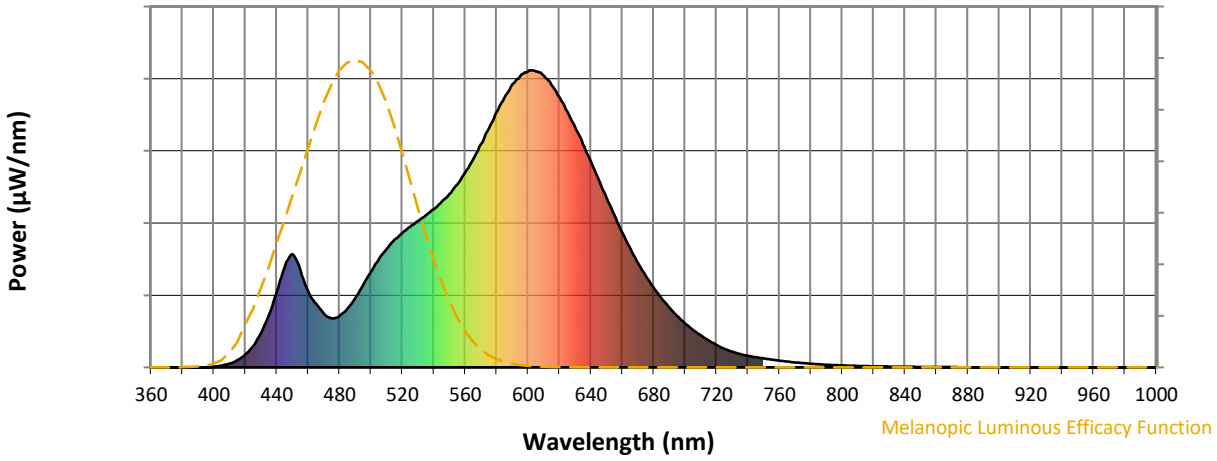


Scotopic Lumens: NR **S/P: 1.3**

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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-11

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.46**

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	234	NR	620	908	NR	750	30	NR	880	0	NR
365	0	NR	495	276	NR	625	861	NR	755	26	NR	885	0	NR
370	0	NR	500	322	NR	630	808	NR	760	23	NR	890	0	NR
375	0	NR	505	363	NR	635	751	NR	765	20	NR	895	0	NR
380	0	NR	510	398	NR	640	692	NR	770	17	NR	900	0	NR
385	0	NR	515	429	NR	645	630	NR	775	14	NR	905	0	NR
390	0	NR	520	453	NR	650	570	NR	780	12	NR	910	0	NR
395	0	NR	525	473	NR	655	511	NR	785	10	NR	915	0	NR
400	2	NR	530	492	NR	660	453	NR	790	9	NR	920	0	NR
405	6	NR	535	512	NR	665	401	NR	795	8	NR	925	0	NR
410	13	NR	540	532	NR	670	351	NR	800	6	NR	930	0	NR
415	24	NR	545	557	NR	675	306	NR	805	5	NR	935	0	NR
420	43	NR	550	583	NR	680	268	NR	810	5	NR	940	0	NR
425	73	NR	555	616	NR	685	232	NR	815	4	NR	945	0	NR
430	115	NR	560	656	NR	690	201	NR	820	4	NR	950	0	NR
435	176	NR	565	700	NR	695	173	NR	825	3	NR	955	0	NR
440	254	NR	570	750	NR	700	148	NR	830	3	NR	960	0	NR
445	337	NR	575	803	NR	705	126	NR	835	2	NR	965	0	NR
450	381	NR	580	859	NR	710	107	NR	840	2	NR	970	0	NR
455	328	NR	585	907	NR	715	90	NR	845	2	NR	975	0	NR
460	257	NR	590	953	NR	720	76	NR	850	1	NR	980	0	NR
465	214	NR	595	980	NR	725	62	NR	855	1	NR	985	0	NR
470	180	NR	600	996	NR	730	53	NR	860	1	NR	990	0	NR
475	165	NR	605	995	NR	735	45	NR	865	1	NR	995	0	NR
480	173	NR	610	981	NR	740	39	NR	870	1	NR	1000	0	NR
485	197	NR	615	950	NR	745	34	NR	875	1	NR			

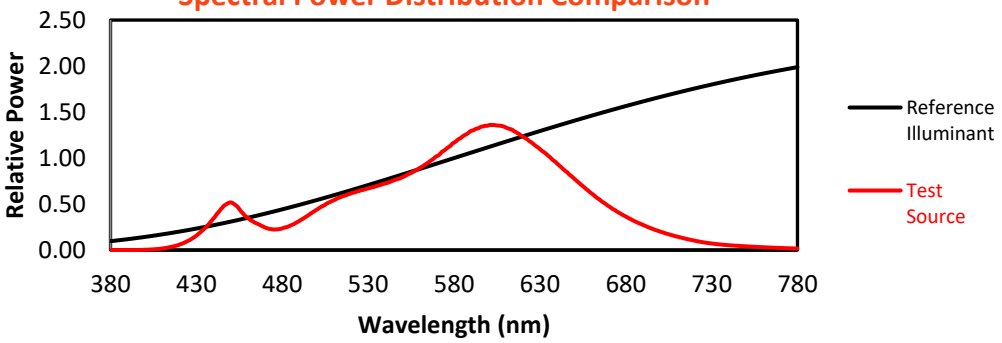
REPORT NUMBER: SP1-2407-176-11

TM-30-18

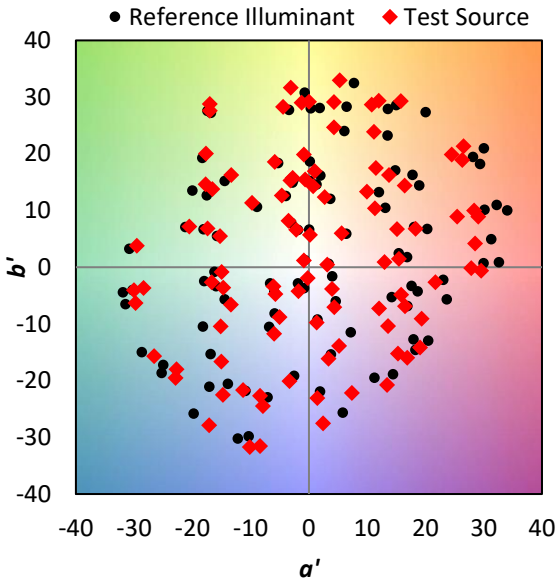
Summary

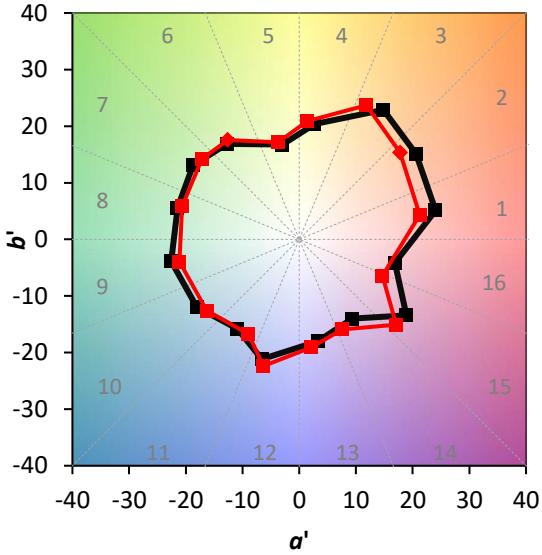
R_f = 85.6
R_g = 95.3
CIE R_a = 82.0
R_9 = 1.5

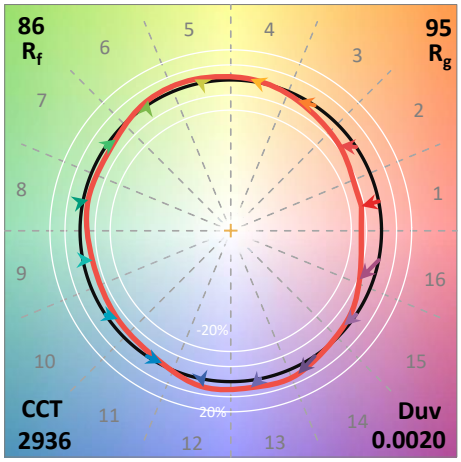
Spectral Power Distribution Comparison

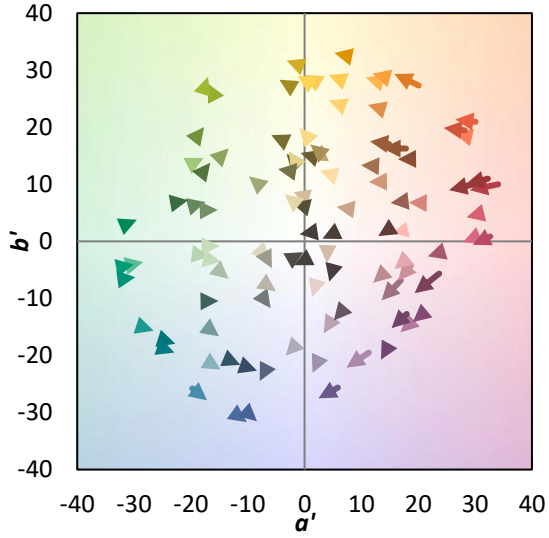


Color Vector Graphics







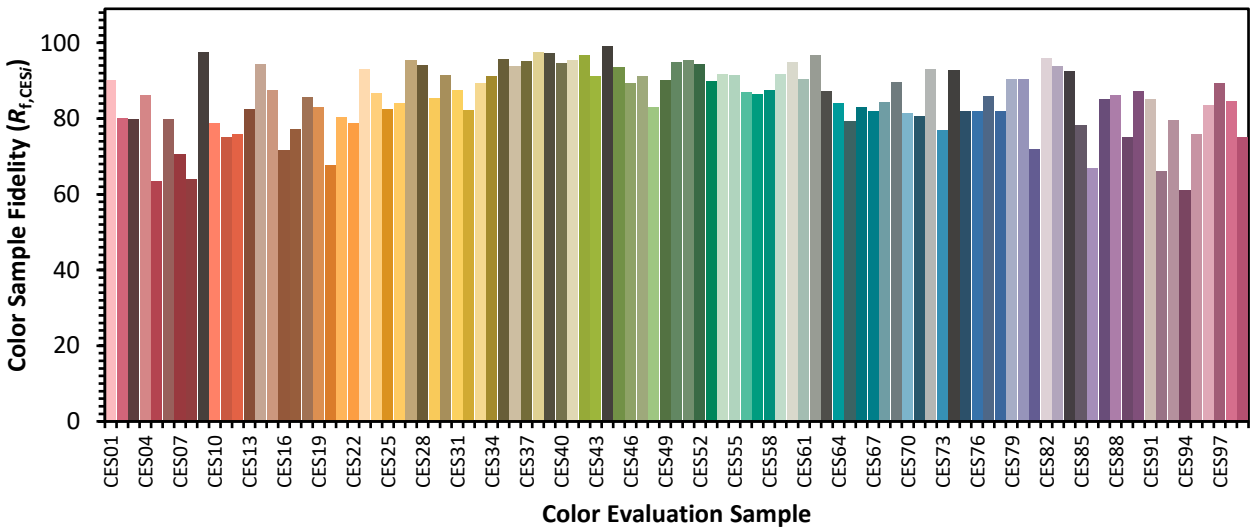


REPORT NUMBER: SP1-2407-176-11

TM-30-18

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

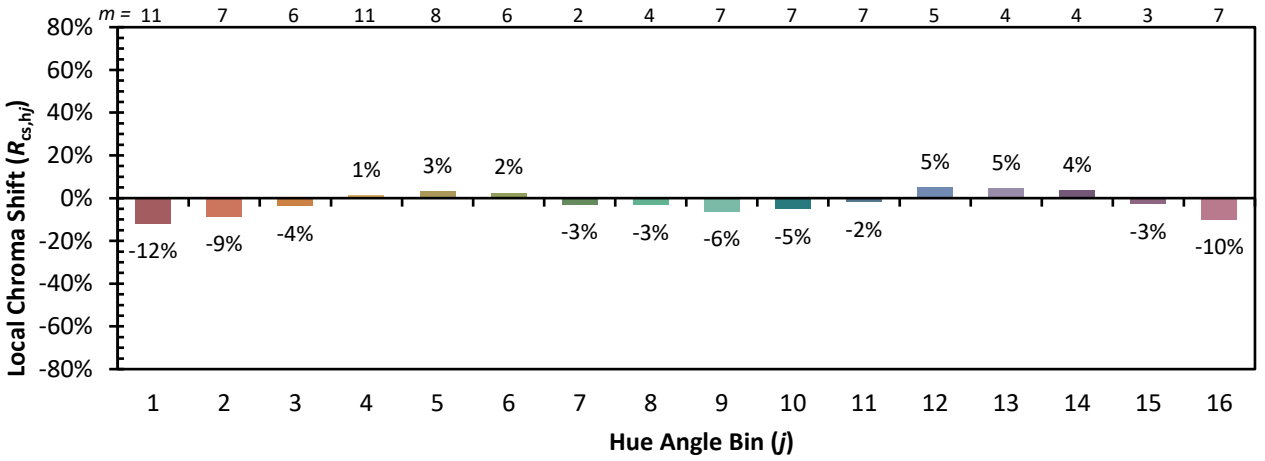
CES01 = 86	CES26 = 84	CES51 = 95	CES76 = 82
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 94	CES53 = 90	CES78 = 82
CES04 = 71	CES29 = 85	CES54 = 92	CES79 = 90
CES05 = 50	CES30 = 91	CES55 = 92	CES80 = 90
CES06 = 51	CES31 = 87	CES56 = 87	CES81 = 72
CES07 = 42	CES32 = 82	CES57 = 87	CES82 = 96
CES08 = 41	CES33 = 89	CES58 = 88	CES83 = 94
CES09 = 29	CES34 = 91	CES59 = 92	CES84 = 93
CES10 = 76	CES35 = 96	CES60 = 95	CES85 = 78
CES11 = 59	CES36 = 94	CES61 = 90	CES86 = 67
CES12 = 65	CES37 = 95	CES62 = 97	CES87 = 85
CES13 = 44	CES38 = 98	CES63 = 87	CES88 = 86
CES14 = 74	CES39 = 97	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 79	CES90 = 87
CES16 = 48	CES41 = 95	CES66 = 83	CES91 = 85
CES17 = 50	CES42 = 97	CES67 = 82	CES92 = 66
CES18 = 57	CES43 = 91	CES68 = 84	CES93 = 80
CES19 = 72	CES44 = 99	CES69 = 90	CES94 = 61
CES20 = 67	CES45 = 93	CES70 = 81	CES95 = 76
CES21 = 87	CES46 = 89	CES71 = 81	CES96 = 84
CES22 = 79	CES47 = 91	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 85
CES24 = 91	CES49 = 90	CES74 = 93	CES99 = 75
CES25 = 72	CES50 = 95	CES75 = 82	

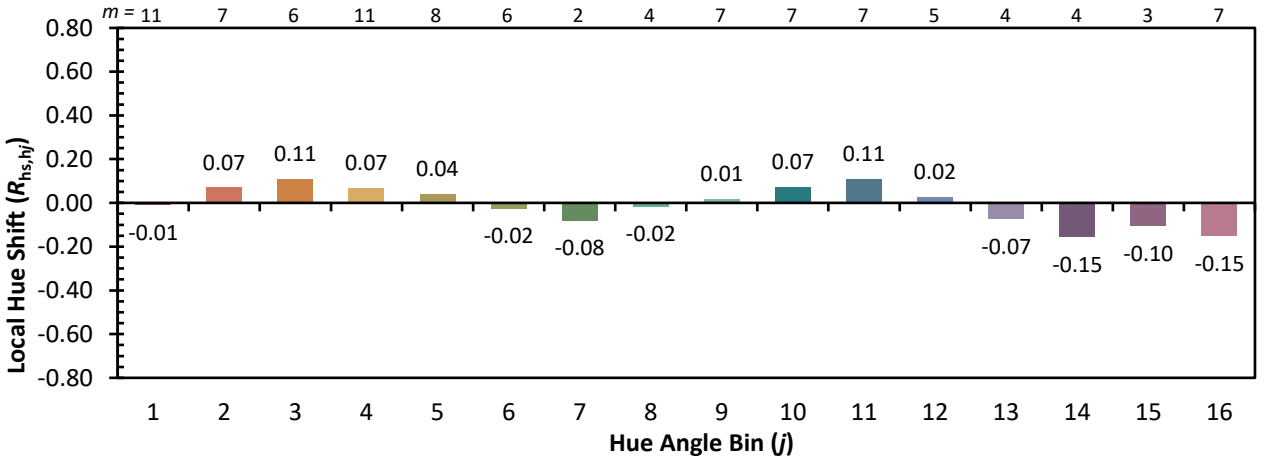


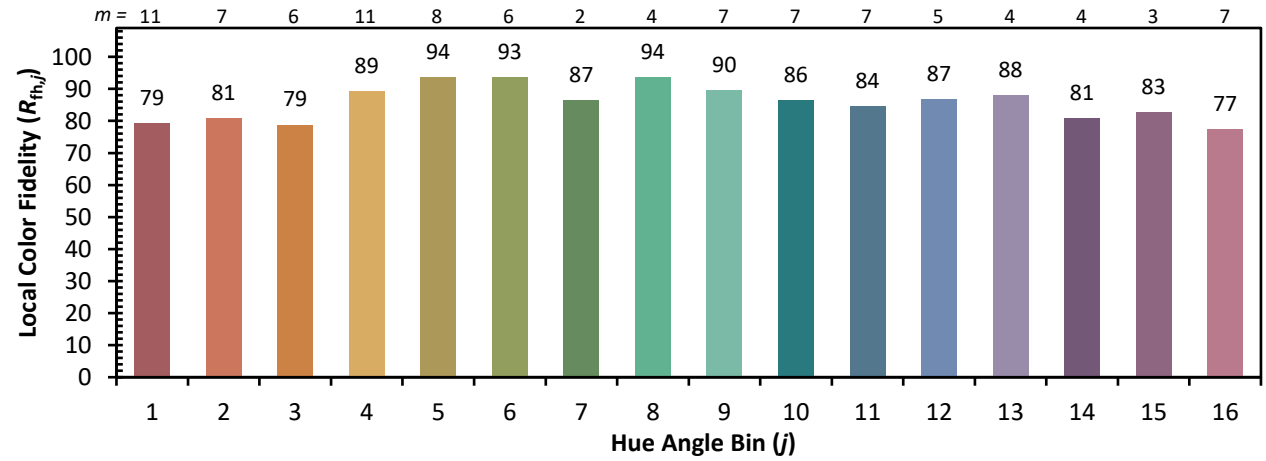
REPORT NUMBER: SP1-2407-176-11

TM-30-18

Color Rendition by Hue-Angle Bin



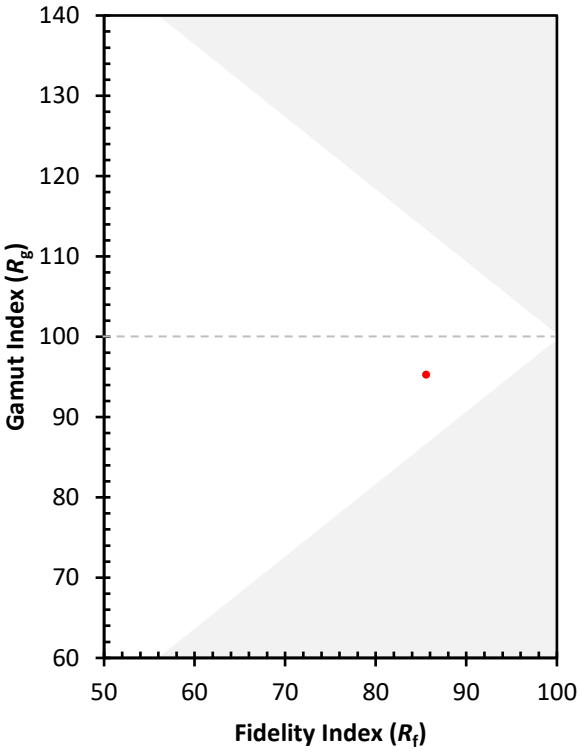


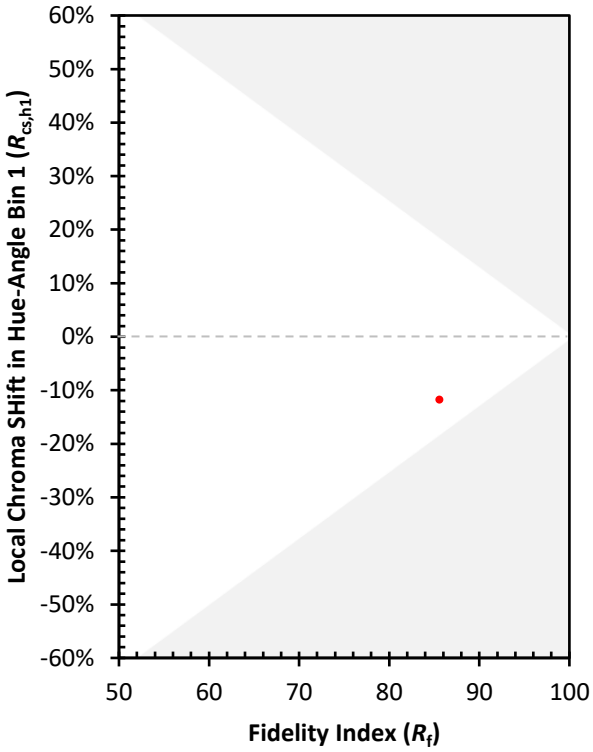


REPORT NUMBER: SP1-2407-176-11

TM-30-18

Measure Comparisons





(END OF REPORT)