

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: STREETWORKS

Report Number: P868231

Luminaire Tested: **MEM2-HSN-SA-110-750-U-5MQ**

Issue Date: 08/21/2024



Test Information

Test Method: LM-79-08
Report Number: P868231
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: MEM2-HSN-SA-110-750-U-5MQ
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 110W 70CRI 5000K
FITURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source: (30) 5000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

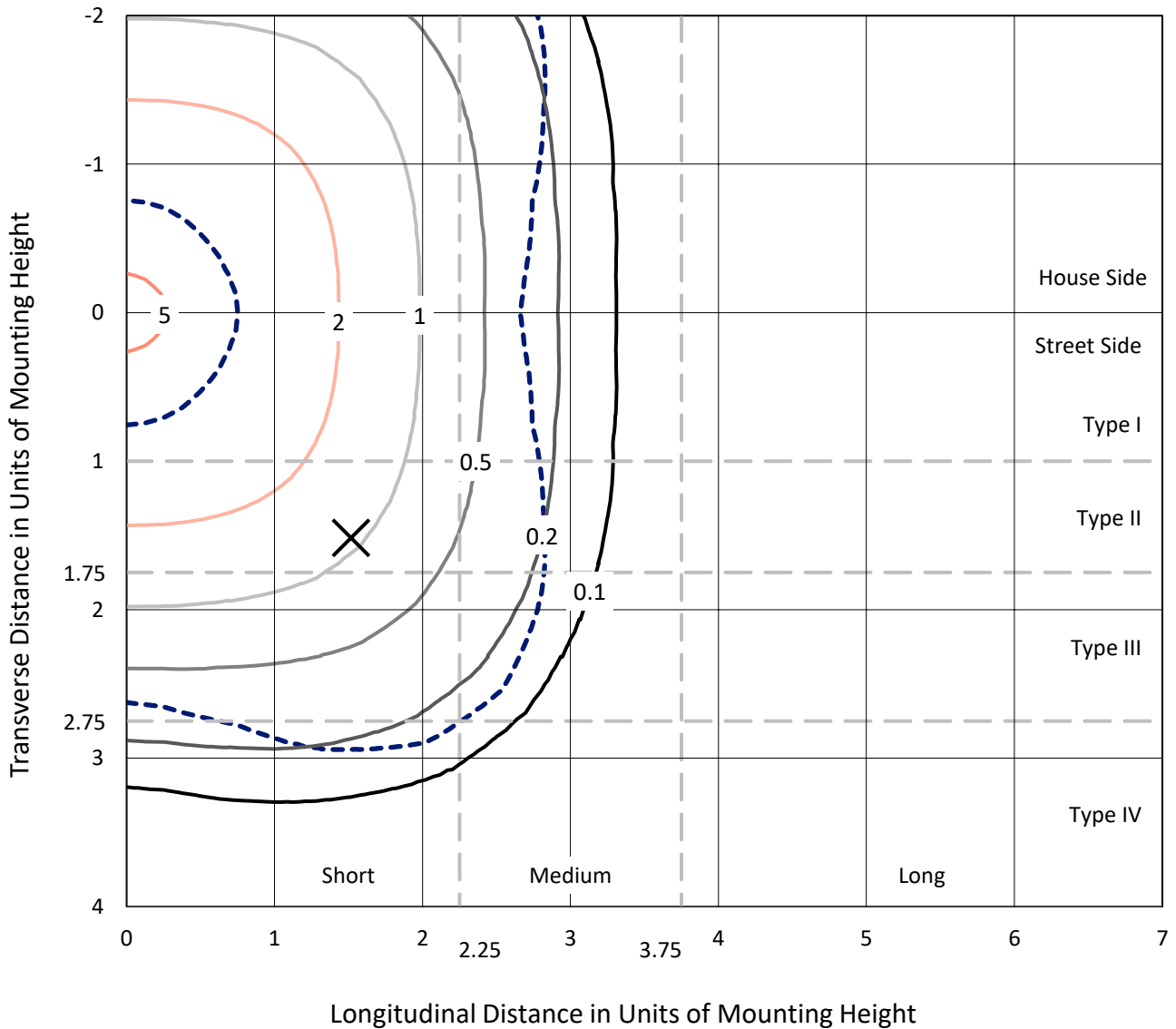
Lumens per Lamp: N/A
Luminaire Lumens: 17292.7 lumens
Efficiency: N/A
Efficacy: 153.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G2

Input Watts (W): 113
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 7.77%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868231
 CATALOG NUMBER: MEM2-HSN-SA-110-750-U-5MQ

Iso-Footcandle Lines of Horizontal Illumination

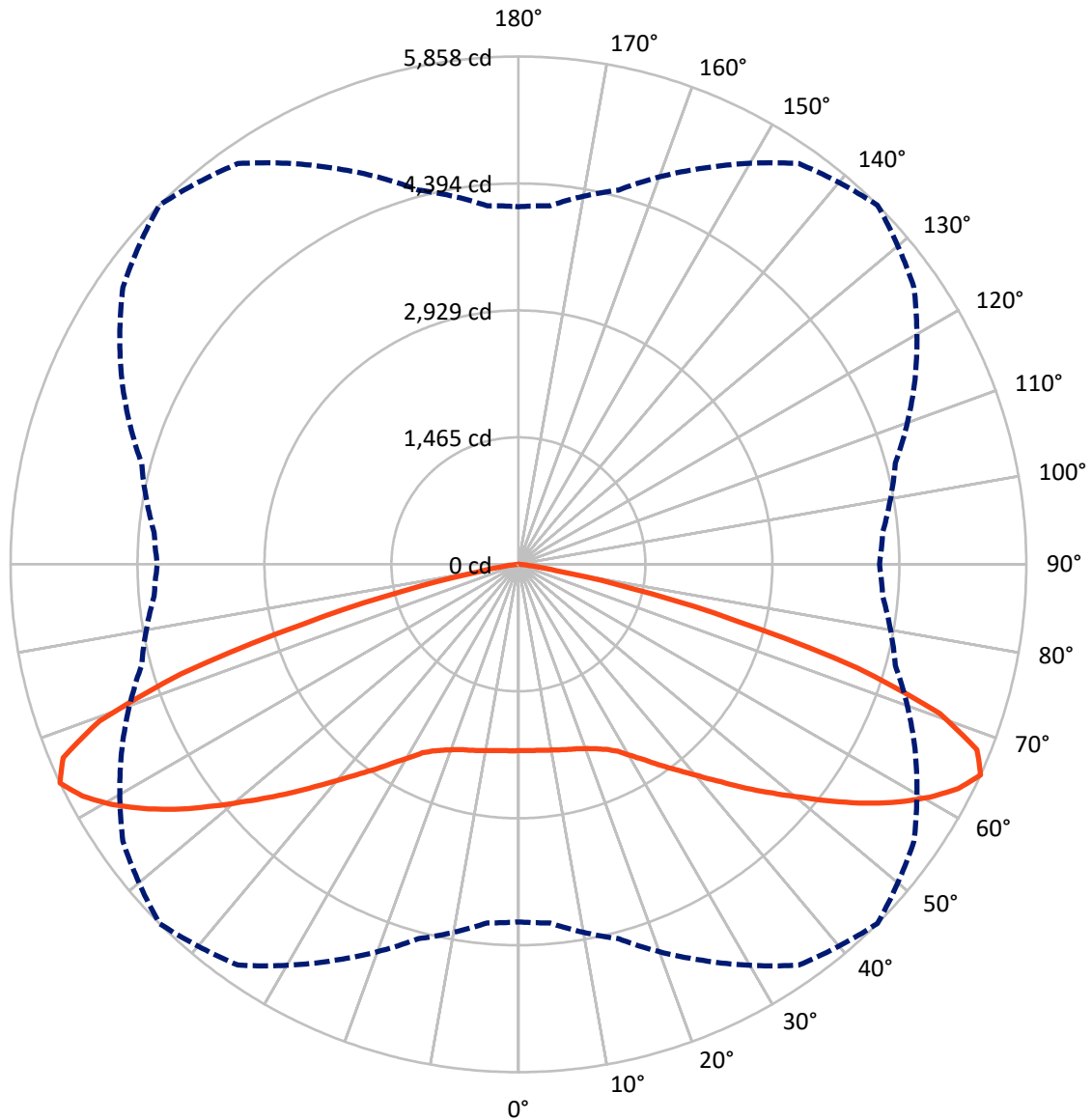
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 5.4 fc
 Type V - Short - N/A

REPORT NUMBER: P868231
CATALOG NUMBER: MEM2-HSN-SA-110-750-U-5MQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

REPORT NUMBER: P868231
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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	8646.3	0.0	8646.3
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	8646.3	0.0	8646.3
	% Fixture	50.0	0.0	50.0
Total	Lumens	17292.7	0.0	17292.7
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	206.6	1.2
10°-20°	628.9	3.6
20°-30°	1106.2	6.4
30°-40°	1789.0	10.3
40°-50°	2786.7	16.1
50°-60°	4074.8	23.6
60°-70°	4692.3	27.1
70°-80°	1916.4	11.1
80°-90°	91.7	0.5
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°	17292.7	100.0
0°-180°	17292.7	100.0

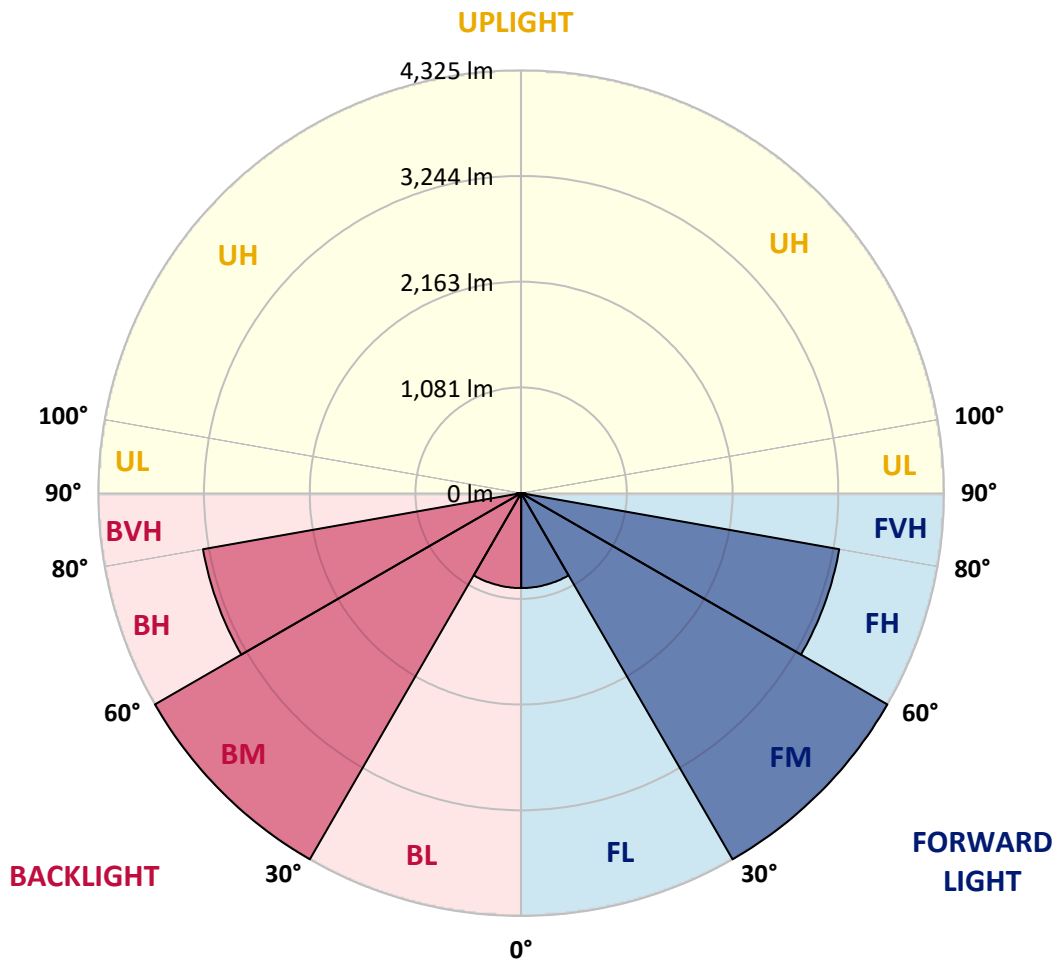


REPORT NUMBER: P868231
 CATALOG NUMBER: MEM2-HSN-SA-110-750-U-5MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	970.9	5.6			
FM (30°-60°)	4325.3	25.0			
FH (60°-80°)	3304.4	19.1			G2/5000
FVH (80°-90°)	45.8	0.3			G1/100
BL (0°-30°)	970.9	5.6	B2/1000		
BM (30°-60°)	4325.3	25.0	B3/5000		
BH (60°-80°)	3304.4	19.1	B4/5000		G2/5000
BVH (80°-90°)	45.8	0.3			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G2
 Type V Short





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CATALOG NUMBER: MEM2-HSN-SA-110-750-U-5MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2148.7	2148.7	2148.7	2148.7	2148.7	2148.7	2148.7	2148.7	2148.7	2148.7	2148.7
2.5°	2155.4	2155.4	2152.0	2152.0	2145.4	2152.0	2148.7	2152.0	2148.7	2148.7	2152.0
5°	2162.0	2162.0	2155.4	2158.7	2152.0	2155.4	2152.0	2158.7	2155.4	2152.0	2158.7
7.5°	2172.0	2172.0	2165.3	2168.6	2162.0	2165.3	2162.0	2168.6	2165.3	2165.3	2168.6
10°	2181.9	2185.2	2178.6	2175.3	2175.3	2178.6	2181.9	2185.2	2181.9	2181.9	2188.6
12.5°	2198.5	2201.8	2195.2	2191.9	2191.9	2195.2	2198.5	2205.2	2195.2	2195.2	2195.2
15°	2215.1	2215.1	2211.8	2208.5	2211.8	2215.1	2215.1	2221.8	2215.1	2208.5	2208.5
17.5°	2221.8	2225.1	2221.8	2228.4	2231.7	2235.1	2238.4	2238.4	2228.4	2225.1	2225.1
20°	2245.0	2248.3	2241.7	2245.0	2255.0	2268.3	2268.3	2268.3	2268.3	2258.3	2258.3
22.5°	2284.9	2288.2	2284.9	2284.9	2298.2	2311.4	2311.4	2321.4	2308.1	2301.5	2301.5
25°	2351.3	2351.3	2348.0	2351.3	2357.9	2364.6	2377.9	2384.5	2384.5	2381.2	2384.5
27.5°	2431.0	2434.3	2431.0	2431.0	2427.7	2441.0	2460.9	2470.9	2474.2	2477.5	2477.5
30°	2537.3	2543.9	2540.6	2543.9	2550.6	2560.5	2567.2	2570.5	2570.5	2563.8	2563.8
32.5°	2653.5	2660.1	2653.5	2670.1	2693.4	2693.4	2686.7	2700.0	2690.0	2683.4	2676.8
35°	2789.7	2789.7	2796.3	2803.0	2836.2	2852.8	2852.8	2846.1	2826.2	2816.2	2822.9
37.5°	2945.8	2949.1	2955.7	2959.0	2988.9	3018.8	3015.5	2998.9	2975.6	2949.1	2949.1
40°	3131.7	3125.1	3128.4	3151.7	3174.9	3211.4	3214.8	3191.5	3151.7	3125.1	3125.1
42.5°	3301.1	3304.4	3317.7	3347.6	3400.7	3430.6	3414.0	3374.2	3331.0	3297.8	3294.5
45°	3480.4	3477.1	3513.7	3576.8	3646.5	3683.0	3656.5	3600.0	3533.6	3490.4	3490.4
47.5°	3663.1	3659.8	3719.6	3822.5	3912.2	3942.1	3915.5	3842.4	3752.8	3689.7	3679.7
50°	3852.4	3865.7	3928.8	4074.9	4191.1	4224.4	4191.1	4094.8	3975.3	3892.3	3879.0
52.5°	4068.3	4078.2	4161.3	4320.7	4463.5	4539.9	4490.0	4347.2	4194.5	4094.8	4081.6
55°	4267.5	4274.2	4393.7	4586.4	4762.4	4865.3	4785.6	4603.0	4410.3	4284.1	4270.9
57.5°	4407.0	4423.6	4576.4	4825.5	5051.3	5170.9	5051.3	4855.4	4599.6	4443.5	4433.6
60°	4496.7	4523.3	4699.3	5011.4	5323.6	5453.1	5330.3	5057.9	4742.4	4539.9	4529.9
62.5°	4450.2	4486.7	4712.6	5121.0	5556.1	5695.6	5536.2	5154.2	4725.8	4470.1	4443.5
65°	4124.7	4151.3	4470.1	5041.3	5642.4	5858.3	5569.4	5048.0	4500.0	4217.7	4164.6
67.5°	3450.6	3497.1	3918.8	4656.1	5456.5	5705.5	5340.2	4666.1	4005.2	3659.8	3600.0
70°	2650.2	2733.2	3194.8	3995.2	4875.3	5157.6	4755.7	3938.7	3161.6	2809.6	2700.0
72.5°	1531.0	1660.5	2338.0	3118.5	3879.0	4091.5	3526.9	2753.1	2098.9	1849.8	1819.9
75°	508.1	554.6	1112.5	1796.7	2474.2	2580.4	2205.2	1736.9	1381.6	1182.3	1192.3
77.5°	249.1	249.1	335.4	657.6	1125.8	1328.4	1205.5	840.2	604.4	458.3	445.0
80°	199.3	199.3	232.5	322.1	378.6	445.0	378.6	275.6	225.8	205.9	215.9
82.5°	96.3	93.0	109.6	156.1	159.4	152.8	142.8	142.8	136.2	126.2	122.9
85°	6.6	6.6	13.3	29.9	49.8	66.4	76.4	73.1	69.7	59.8	66.4
87.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	6.6	6.6	6.6	6.6
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: SP1-2407-157-6

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-30-750-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-30-750-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-6
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/20/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-SA-30-750-U-5WQ-2**
 Description: Epic Modern Light Square 30W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 5094
 CIE u': 0.2082
 CIE v': 0.4867
 Duv: 0.0032
 CIE x: 0.3430
 CIE y: 0.3564
 CIE z: 0.3006
 Peak Wavelength (nm): 451
 Dominant Wavelength (nm): 568
 Purity: 9.86439
 Rf: 73.7
 Rg: 93

CRI (Ra):	72.0		
R1:	68.6	R9:	-39.6
R2:	78.1	R10:	47.6
R3:	84.6	R11:	68.2
R4:	71.6	R12:	41.4
R5:	69.6	R13:	70.4
R6:	69.4	R14:	91.4
R7:	80.9	R15:	61.4
R8:	53.1		



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2407-157-6

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



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-6

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	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR	630	294	NR	760	7	NR	890	0	NR
375	0	NR	505	259	NR	635	261	NR	765	6	NR	895	0	NR
380	0	NR	510	319	NR	640	232	NR	770	5	NR	900	0	NR
385	0	NR	515	373	NR	645	204	NR	775	4	NR	905	0	NR
390	0	NR	520	414	NR	650	179	NR	780	4	NR	910	0	NR
395	1	NR	525	445	NR	655	157	NR	785	3	NR	915	0	NR
400	3	NR	530	465	NR	660	136	NR	790	3	NR	920	0	NR
405	5	NR	535	482	NR	665	118	NR	795	2	NR	925	0	NR
410	9	NR	540	493	NR	670	102	NR	800	2	NR	930	0	NR
415	18	NR	545	505	NR	675	87	NR	805	2	NR	935	0	NR
420	36	NR	550	515	NR	680	75	NR	810	2	NR	940	0	NR
425	72	NR	555	527	NR	685	65	NR	815	1	NR	945	0	NR
430	134	NR	560	540	NR	690	56	NR	820	1	NR	950	0	NR
435	242	NR	565	550	NR	695	48	NR	825	1	NR	955	0	NR
440	407	NR	570	557	NR	700	41	NR	830	1	NR	960	0	NR
445	684	NR	575	561	NR	705	35	NR	835	1	NR	965	0	NR
450	988	NR	580	559	NR	710	30	NR	840	1	NR	970	0	NR
455	828	NR	585	551	NR	715	26	NR	845	1	NR	975	0	NR
460	473	NR	590	537	NR	720	22	NR	850	1	NR	980	0	NR
465	333	NR	595	516	NR	725	19	NR	855	0	NR	985	0	NR
470	232	NR	600	491	NR	730	16	NR	860	0	NR	990	0	NR
475	146	NR	605	461	NR	735	14	NR	865	0	NR	995	0	NR
480	113	NR	610	429	NR	740	12	NR	870	0	NR	1000	0	NR
485	106	NR	615	395	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP1-2407-157-6

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.81

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	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR	630	294	NR	760	7	NR	890	0	NR
375	0	NR	505	259	NR	635	261	NR	765	6	NR	895	0	NR
380	0	NR	510	319	NR	640	232	NR	770	5	NR	900	0	NR
385	0	NR	515	373	NR	645	204	NR	775	4	NR	905	0	NR
390	0	NR	520	414	NR	650	179	NR	780	4	NR	910	0	NR
395	1	NR	525	445	NR	655	157	NR	785	3	NR	915	0	NR
400	3	NR	530	465	NR	660	136	NR	790	3	NR	920	0	NR
405	5	NR	535	482	NR	665	118	NR	795	2	NR	925	0	NR
410	9	NR	540	493	NR	670	102	NR	800	2	NR	930	0	NR
415	18	NR	545	505	NR	675	87	NR	805	2	NR	935	0	NR
420	36	NR	550	515	NR	680	75	NR	810	2	NR	940	0	NR
425	72	NR	555	527	NR	685	65	NR	815	1	NR	945	0	NR
430	134	NR	560	540	NR	690	56	NR	820	1	NR	950	0	NR
435	242	NR	565	550	NR	695	48	NR	825	1	NR	955	0	NR
440	407	NR	570	557	NR	700	41	NR	830	1	NR	960	0	NR
445	684	NR	575	561	NR	705	35	NR	835	1	NR	965	0	NR
450	988	NR	580	559	NR	710	30	NR	840	1	NR	970	0	NR
455	828	NR	585	551	NR	715	26	NR	845	1	NR	975	0	NR
460	473	NR	590	537	NR	720	22	NR	850	1	NR	980	0	NR
465	333	NR	595	516	NR	725	19	NR	855	0	NR	985	0	NR
470	232	NR	600	491	NR	730	16	NR	860	0	NR	990	0	NR
475	146	NR	605	461	NR	735	14	NR	865	0	NR	995	0	NR
480	113	NR	610	429	NR	740	12	NR	870	0	NR	1000	0	NR
485	106	NR	615	395	NR	745	10	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.73

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	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR	630	294	NR	760	7	NR	890	0	NR
375	0	NR	505	259	NR	635	261	NR	765	6	NR	895	0	NR
380	0	NR	510	319	NR	640	232	NR	770	5	NR	900	0	NR
385	0	NR	515	373	NR	645	204	NR	775	4	NR	905	0	NR
390	0	NR	520	414	NR	650	179	NR	780	4	NR	910	0	NR
395	1	NR	525	445	NR	655	157	NR	785	3	NR	915	0	NR
400	3	NR	530	465	NR	660	136	NR	790	3	NR	920	0	NR
405	5	NR	535	482	NR	665	118	NR	795	2	NR	925	0	NR
410	9	NR	540	493	NR	670	102	NR	800	2	NR	930	0	NR
415	18	NR	545	505	NR	675	87	NR	805	2	NR	935	0	NR
420	36	NR	550	515	NR	680	75	NR	810	2	NR	940	0	NR
425	72	NR	555	527	NR	685	65	NR	815	1	NR	945	0	NR
430	134	NR	560	540	NR	690	56	NR	820	1	NR	950	0	NR
435	242	NR	565	550	NR	695	48	NR	825	1	NR	955	0	NR
440	407	NR	570	557	NR	700	41	NR	830	1	NR	960	0	NR
445	684	NR	575	561	NR	705	35	NR	835	1	NR	965	0	NR
450	988	NR	580	559	NR	710	30	NR	840	1	NR	970	0	NR
455	828	NR	585	551	NR	715	26	NR	845	1	NR	975	0	NR
460	473	NR	590	537	NR	720	22	NR	850	1	NR	980	0	NR
465	333	NR	595	516	NR	725	19	NR	855	0	NR	985	0	NR
470	232	NR	600	491	NR	730	16	NR	860	0	NR	990	0	NR
475	146	NR	605	461	NR	735	14	NR	865	0	NR	995	0	NR
480	113	NR	610	429	NR	740	12	NR	870	0	NR	1000	0	NR
485	106	NR	615	395	NR	745	10	NR	875	0	NR			

Summary

$R_f = 73.7$
 $R_g = 93$
 $CIE R_a = 72.0$
 $R_9 = -39.6$

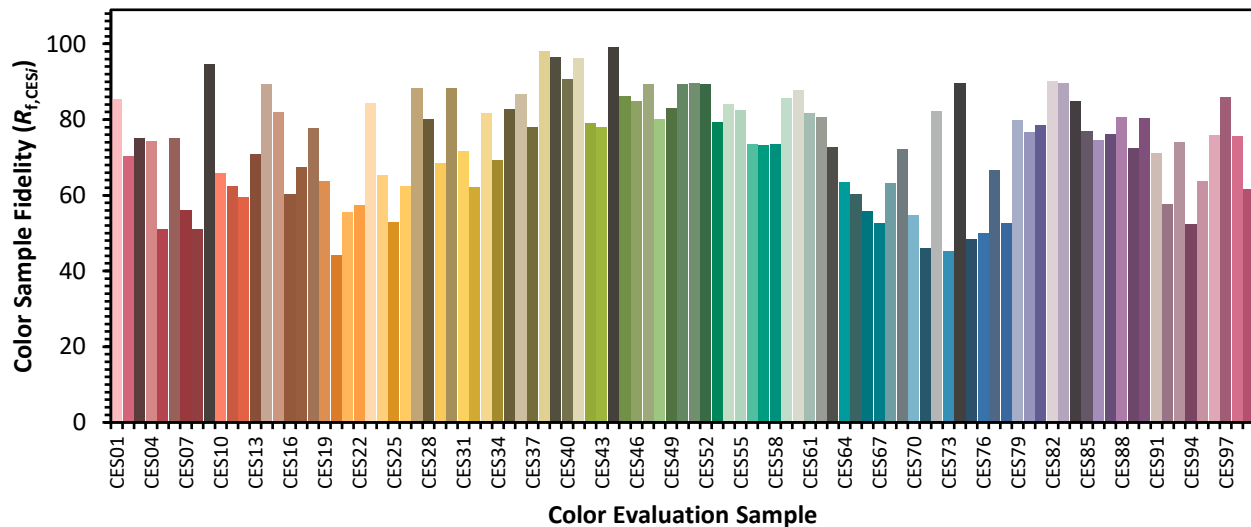


Color Vector Graphics

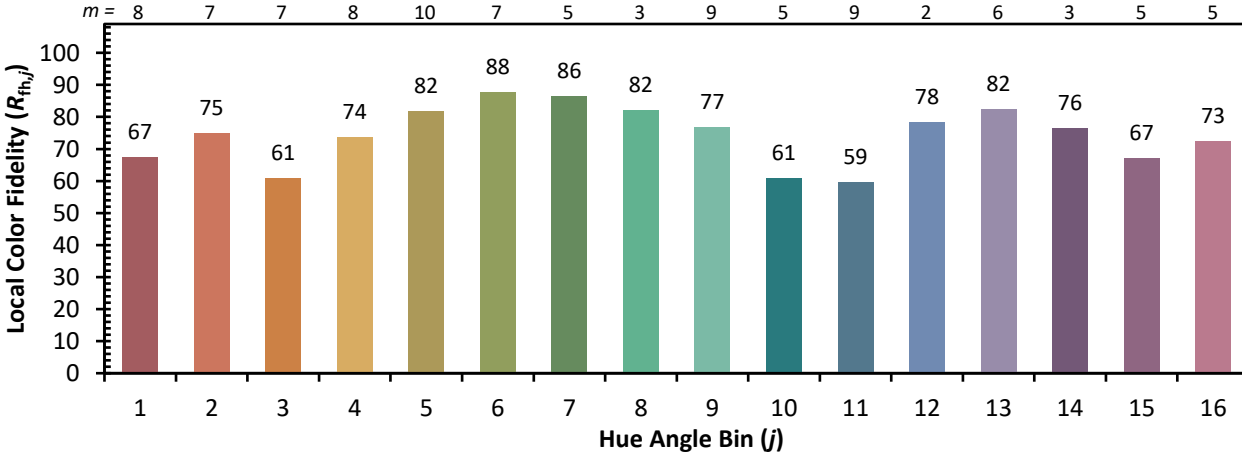


Individual Sample Fidelity Index ($R_{f,i}$)

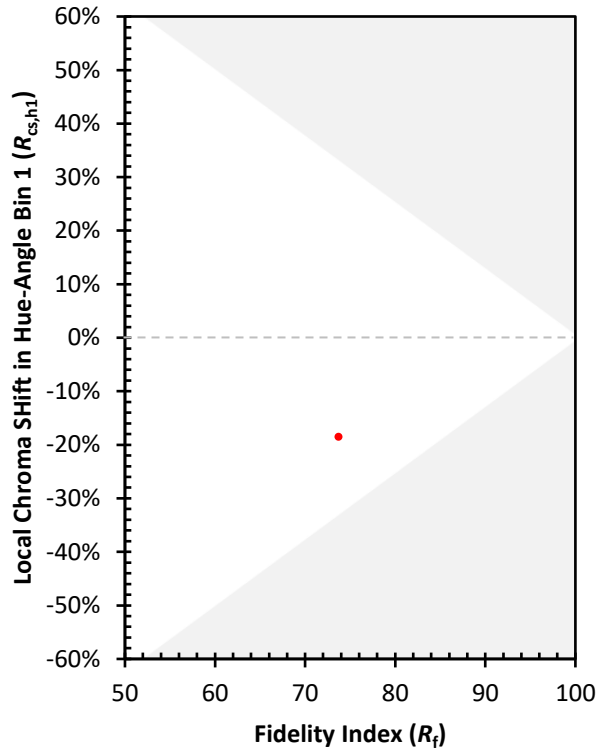
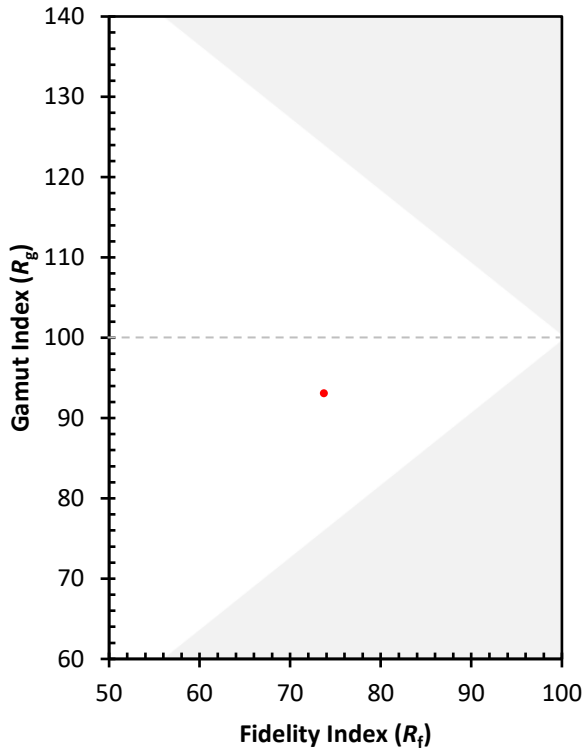
CES01 = 85	CES26 = 62	CES51 = 90	CES76 = 50
CES02 = 59	CES27 = 88	CES52 = 89	CES77 = 67
CES03 = 30	CES28 = 80	CES53 = 79	CES78 = 53
CES04 = 69	CES29 = 69	CES54 = 84	CES79 = 80
CES05 = 46	CES30 = 88	CES55 = 83	CES80 = 77
CES06 = 50	CES31 = 72	CES56 = 74	CES81 = 78
CES07 = 38	CES32 = 62	CES57 = 73	CES82 = 90
CES08 = 38	CES33 = 82	CES58 = 73	CES83 = 90
CES09 = 29	CES34 = 69	CES59 = 86	CES84 = 85
CES10 = 72	CES35 = 83	CES60 = 88	CES85 = 77
CES11 = 56	CES36 = 87	CES61 = 82	CES86 = 75
CES12 = 61	CES37 = 78	CES62 = 81	CES87 = 76
CES13 = 41	CES38 = 98	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 63	CES89 = 72
CES15 = 70	CES40 = 91	CES65 = 60	CES90 = 80
CES16 = 46	CES41 = 96	CES66 = 56	CES91 = 71
CES17 = 49	CES42 = 79	CES67 = 53	CES92 = 58
CES18 = 55	CES43 = 78	CES68 = 63	CES93 = 74
CES19 = 71	CES44 = 99	CES69 = 72	CES94 = 52
CES20 = 63	CES45 = 86	CES70 = 55	CES95 = 64
CES21 = 85	CES46 = 85	CES71 = 46	CES96 = 76
CES22 = 77	CES47 = 89	CES72 = 82	CES97 = 86
CES23 = 91	CES48 = 80	CES73 = 45	CES98 = 76
CES24 = 90	CES49 = 83	CES74 = 90	CES99 = 62
CES25 = 71	CES50 = 89	CES75 = 48	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)