

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: P868720

Luminaire Tested: **EMM2-HTN-SA2A-750-U-T5M**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868720
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HTN-SA2A-750-U-T5M
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 70W 70CRI 5000K
FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source: (20) 5000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

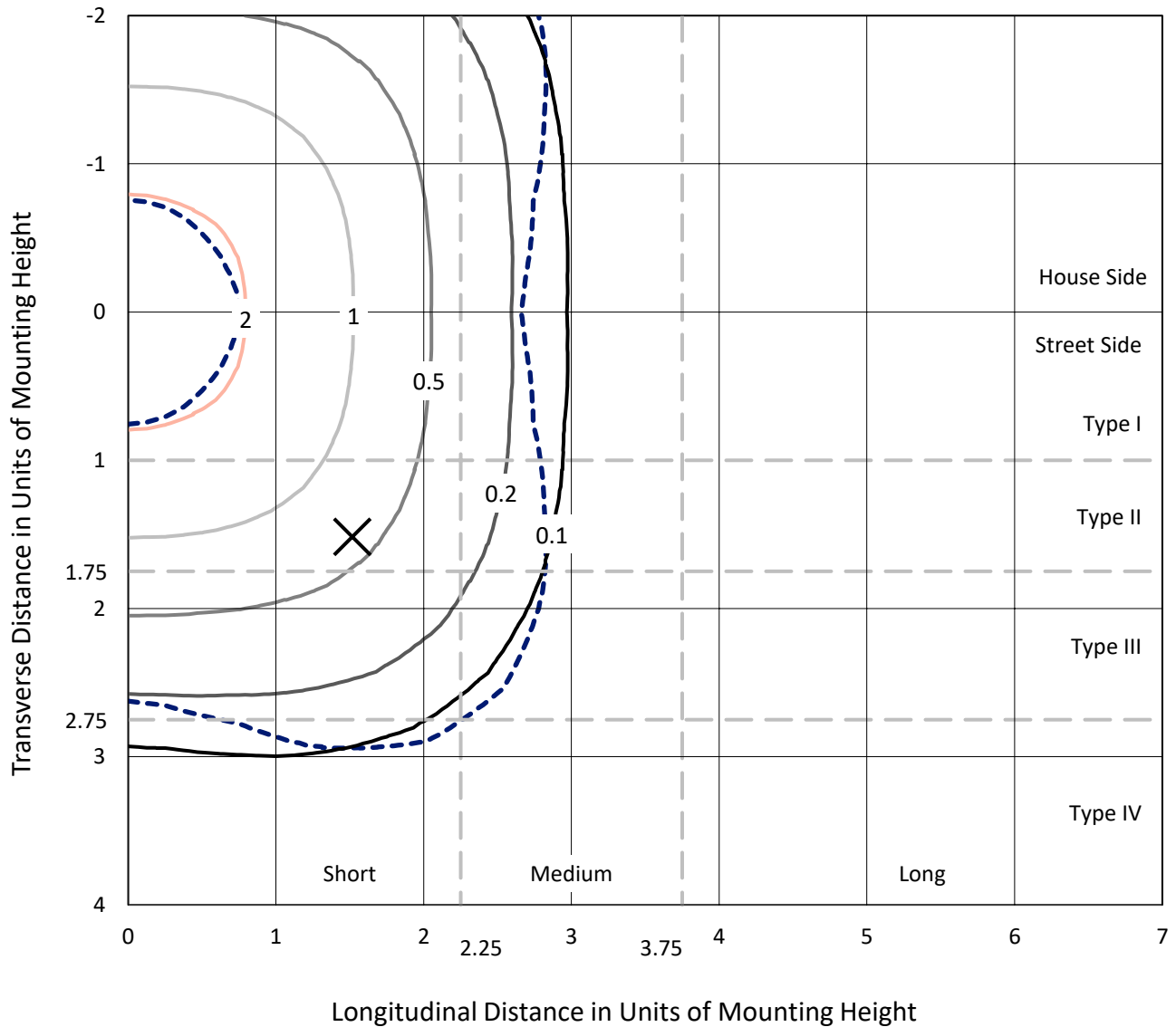
Lumens per Lamp: N/A
Luminaire Lumens: 9570.2 lumens
Efficiency: N/A
Efficacy: 156.9 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G2

Input Watts (W): 61
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.89%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868720
 CATALOG NUMBER: EMM2-HTN-SA2A-750-U-T5M

Iso-Footcandle Lines of Horizontal Illumination

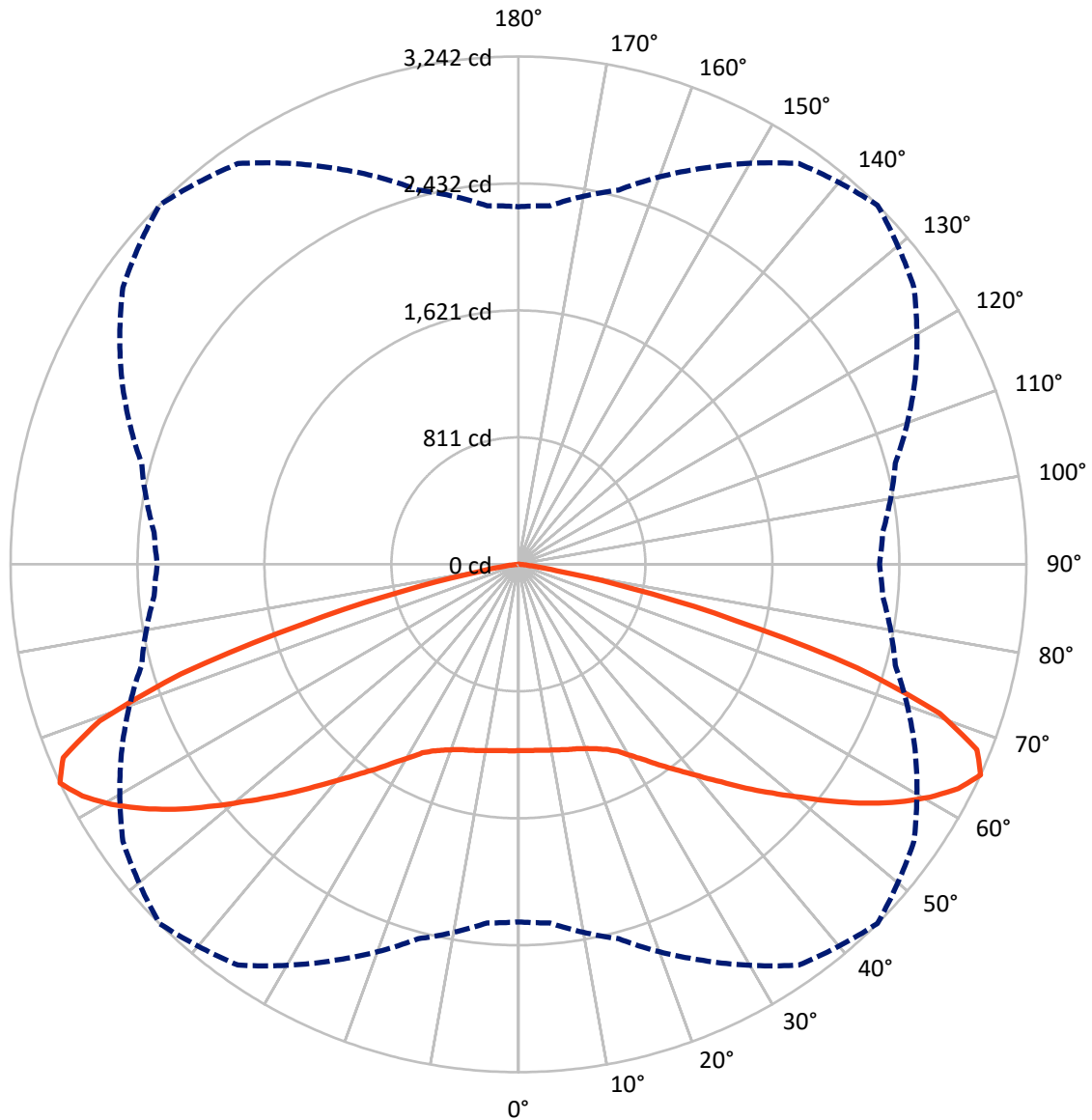
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 3 fc
 Type V - Short - N/A

REPORT NUMBER: P868720
CATALOG NUMBER: EMM2-HTN-SA2A-750-U-T5M

Luminous Intensity Polar Plot



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

REPORT NUMBER: P868720
 CATALOG NUMBER: EMM2-HTN-SA2A-750-U-T5M

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	4785.1	0.0	4785.1
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	4785.1	0.0	4785.1
	% Fixture	50.0	0.0	50.0
Total	Lumens	9570.2	0.0	9570.2
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	114.3	1.2
10°-20°	348.1	3.6
20°-30°	612.2	6.4
30°-40°	990.1	10.3
40°-50°	1542.2	16.1
50°-60°	2255.1	23.6
60°-70°	2596.9	27.1
70°-80°	1060.6	11.1
80°-90°	50.7	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°	9570.2	100.0
0°-180°	9570.2	100.0



REPORT NUMBER: P868720

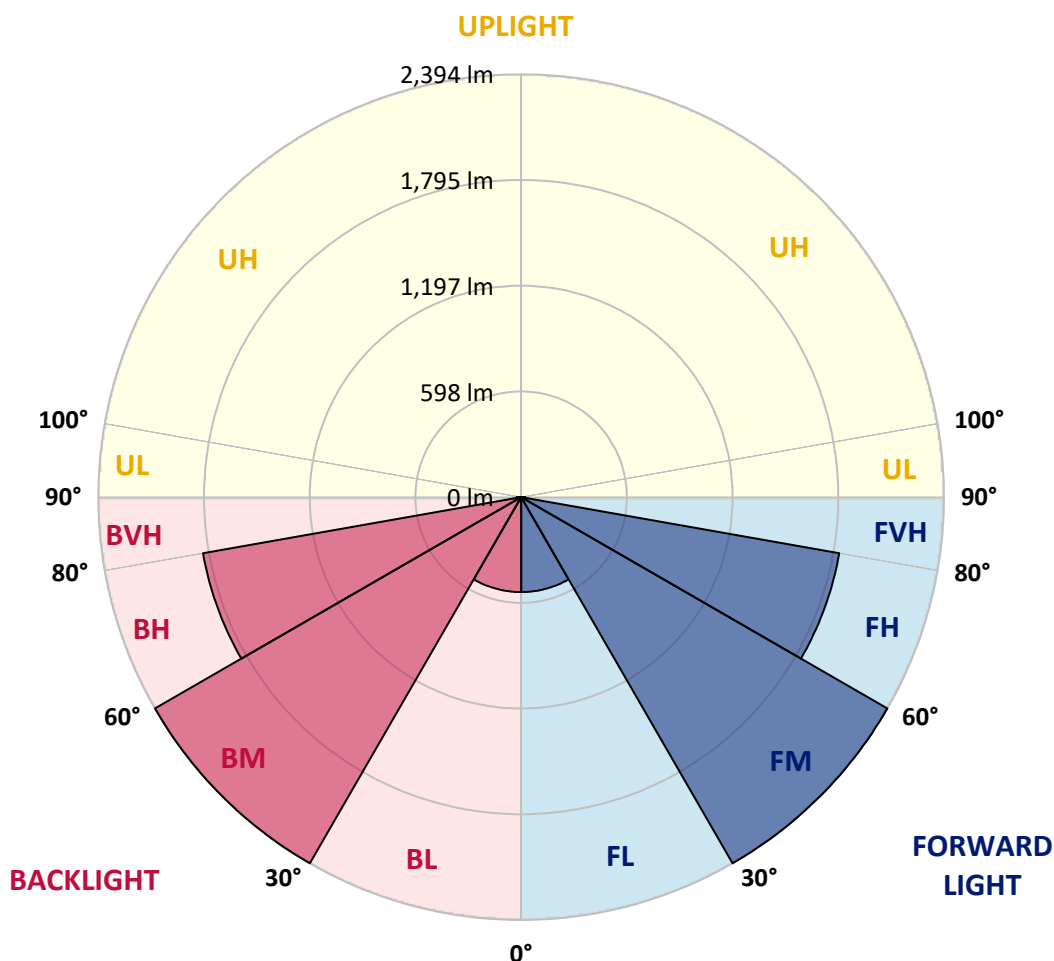
CATALOG NUMBER: EMM2-HTN-SA2A-750-U-T5M

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	537.3	5.6			
FM (30°-60°)	2393.7	25.0			
FH (60°-80°)	1828.7	19.1			G2/5000
FVH (80°-90°)	25.4	0.3			G1/100
BL (0°-30°)	537.3	5.6	B2/1000		
BM (30°-60°)	2393.7	25.0	B2/2500		
BH (60°-80°)	1828.7	19.1	B3/2500		G2/5000
BVH (80°-90°)	25.4	0.3			G1/100
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





REPORT NUMBER: P868720

CATALOG NUMBER: EMM2-HTN-SA2A-750-U-T5M

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1189.2	1189.2	1189.2	1189.2	1189.2	1189.2	1189.2	1189.2	1189.2	1189.2	1189.2
2.5°	1192.8	1192.8	1191.0	1191.0	1187.3	1191.0	1189.2	1191.0	1189.2	1189.2	1191.0
5°	1196.5	1196.5	1192.8	1194.7	1191.0	1192.8	1191.0	1194.7	1192.8	1191.0	1194.7
7.5°	1202.0	1202.0	1198.3	1200.2	1196.5	1198.3	1196.5	1200.2	1198.3	1198.3	1200.2
10°	1207.5	1209.4	1205.7	1203.9	1203.9	1205.7	1207.5	1209.4	1207.5	1207.5	1211.2
12.5°	1216.7	1218.6	1214.9	1213.0	1213.0	1214.9	1216.7	1220.4	1214.9	1214.9	1214.9
15°	1225.9	1225.9	1224.1	1222.2	1224.1	1225.9	1225.9	1229.6	1225.9	1222.2	1222.2
17.5°	1229.6	1231.4	1229.6	1233.3	1235.1	1236.9	1238.8	1238.8	1233.3	1231.4	1231.4
20°	1242.5	1244.3	1240.6	1242.5	1248.0	1255.3	1255.3	1255.3	1255.3	1249.8	1249.8
22.5°	1264.5	1266.3	1264.5	1264.5	1271.9	1279.2	1279.2	1284.7	1277.4	1273.7	1273.7
25°	1301.3	1301.3	1299.4	1301.3	1304.9	1308.6	1316.0	1319.6	1319.6	1317.8	1319.6
27.5°	1345.4	1347.2	1345.4	1345.4	1343.5	1350.9	1361.9	1367.4	1369.3	1371.1	1371.1
30°	1404.2	1407.9	1406.0	1407.9	1411.5	1417.1	1420.7	1422.6	1422.6	1418.9	1418.9
32.5°	1468.5	1472.2	1468.5	1477.7	1490.6	1490.6	1486.9	1494.3	1488.7	1485.1	1481.4
35°	1543.9	1543.9	1547.6	1551.2	1569.6	1578.8	1578.8	1575.1	1564.1	1558.6	1562.3
37.5°	1630.3	1632.1	1635.8	1637.6	1654.2	1670.7	1668.9	1659.7	1646.8	1632.1	1632.1
40°	1733.2	1729.5	1731.3	1744.2	1757.1	1777.3	1779.1	1766.3	1744.2	1729.5	1729.5
42.5°	1826.9	1828.8	1836.1	1852.7	1882.1	1898.6	1889.4	1867.4	1843.5	1825.1	1823.2
45°	1926.2	1924.3	1944.6	1979.5	2018.1	2038.3	2023.6	1992.3	1955.6	1931.7	1931.7
47.5°	2027.3	2025.4	2058.5	2115.5	2165.1	2181.6	2166.9	2126.5	2076.9	2042.0	2036.4
50°	2132.0	2139.4	2174.3	2255.2	2319.5	2337.9	2319.5	2266.2	2200.0	2154.1	2146.7
52.5°	2251.5	2257.0	2303.0	2391.2	2470.2	2512.5	2484.9	2405.9	2321.3	2266.2	2258.8
55°	2361.8	2365.4	2431.6	2538.2	2635.6	2692.6	2648.5	2547.4	2440.8	2371.0	2363.6
57.5°	2439.0	2448.2	2532.7	2670.5	2795.5	2861.7	2795.5	2687.1	2545.6	2459.2	2453.7
60°	2488.6	2503.3	2600.7	2773.5	2946.2	3017.9	2949.9	2799.2	2624.6	2512.5	2507.0
62.5°	2462.9	2483.1	2608.1	2834.1	3074.9	3152.1	3063.9	2852.5	2615.4	2473.9	2459.2
65°	2282.7	2297.4	2473.9	2790.0	3122.7	3242.1	3082.2	2793.7	2490.4	2334.2	2304.8
67.5°	1909.6	1935.4	2168.8	2576.8	3019.8	3157.6	2955.4	2582.3	2216.6	2025.4	1992.3
70°	1466.7	1512.6	1768.1	2211.1	2698.1	2854.3	2631.9	2179.8	1749.7	1554.9	1494.3
72.5°	847.3	919.0	1293.9	1725.8	2146.7	2264.4	1951.9	1523.7	1161.6	1023.7	1007.2
75°	281.2	306.9	615.7	994.3	1369.3	1428.1	1220.4	961.2	764.6	654.3	659.8
77.5°	137.8	137.8	185.6	363.9	623.1	735.2	667.2	465.0	334.5	253.6	246.3
80°	110.3	110.3	128.7	178.3	209.5	246.3	209.5	152.5	125.0	114.0	119.5
82.5°	53.3	51.5	60.7	86.4	88.2	84.5	79.0	79.0	75.4	69.8	68.0
85°	3.7	3.7	7.4	16.5	27.6	36.8	42.3	40.4	38.6	33.1	36.8
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	3.7	3.7	3.7	3.7
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-40-750-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-750-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-40-750-U-5WQ-2**
 Description: Epic Modern Light Square 40W 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

REPORT NUMBER: SP1-2407-157-6

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			

REPORT NUMBER: SP1-2407-157-6

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.73

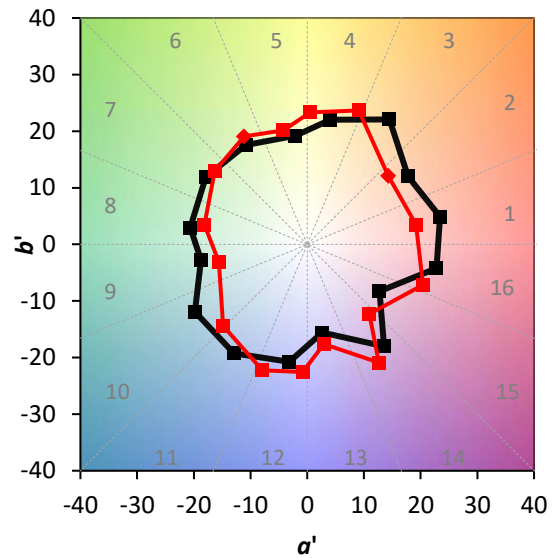
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR	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

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

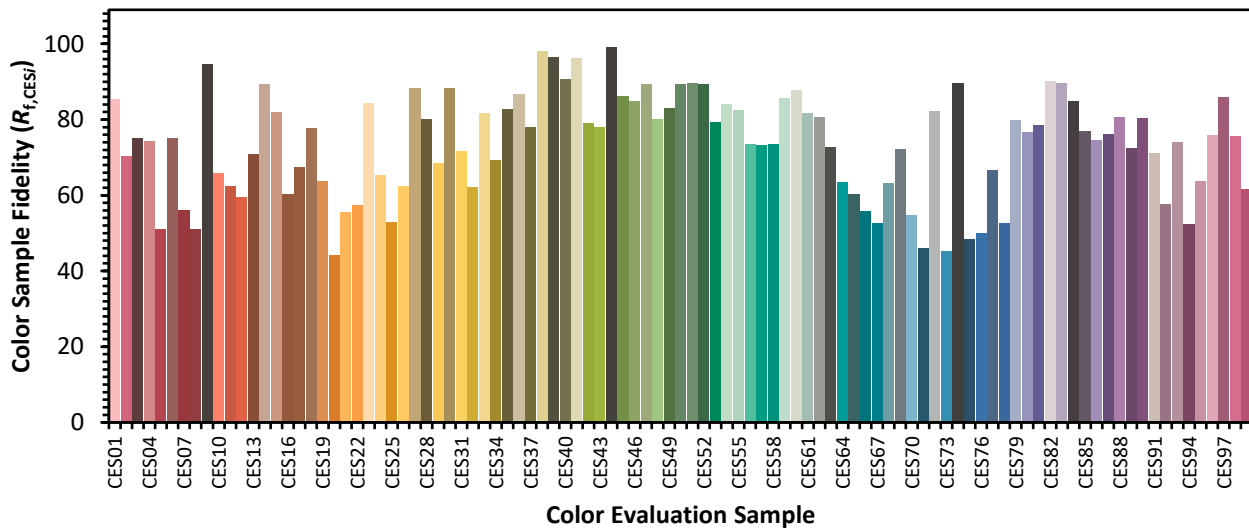


Color Vector Graphics

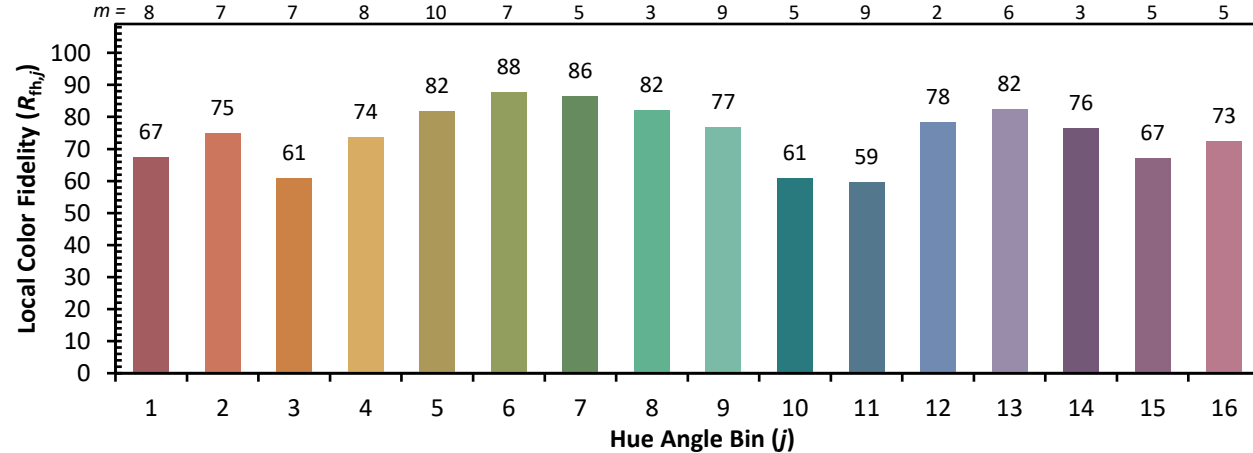


Individual Sample Fidelity Index ($R_{f,i}$)

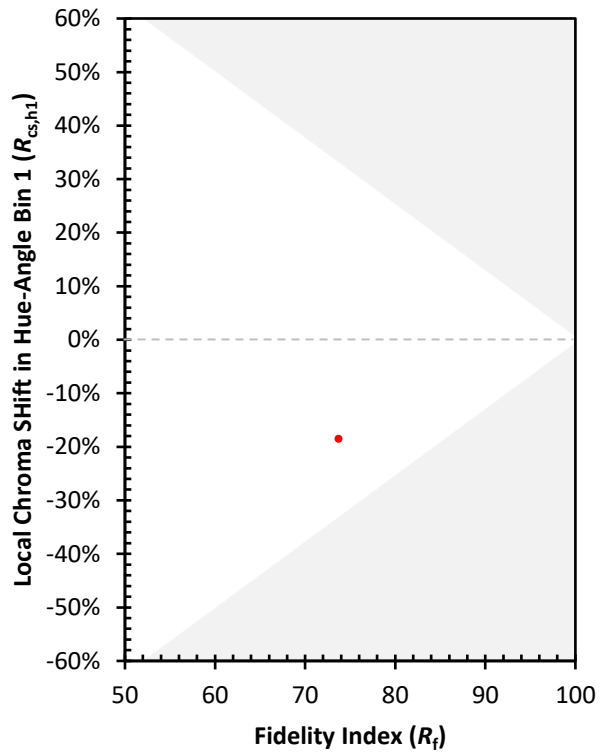
CES01 = 85	CES26 = 62	CES51 = 90	CES76 = 50
CES02 = 59	CES27 = 88	CES52 = 89	CES77 = 67
CES03 = 30	CES28 = 80	CES53 = 79	CES78 = 53
CES04 = 69	CES29 = 69	CES54 = 84	CES79 = 80
CES05 = 46	CES30 = 88	CES55 = 83	CES80 = 77
CES06 = 50	CES31 = 72	CES56 = 74	CES81 = 78
CES07 = 38	CES32 = 62	CES57 = 73	CES82 = 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)