

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: P868712

Luminaire Tested: **EMM2-HTN-SA1B-740-U-T5M**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868712
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HTN-SA1B-740-U-T5M
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 60W 70CRI 4000K
FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source: (10) 4000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

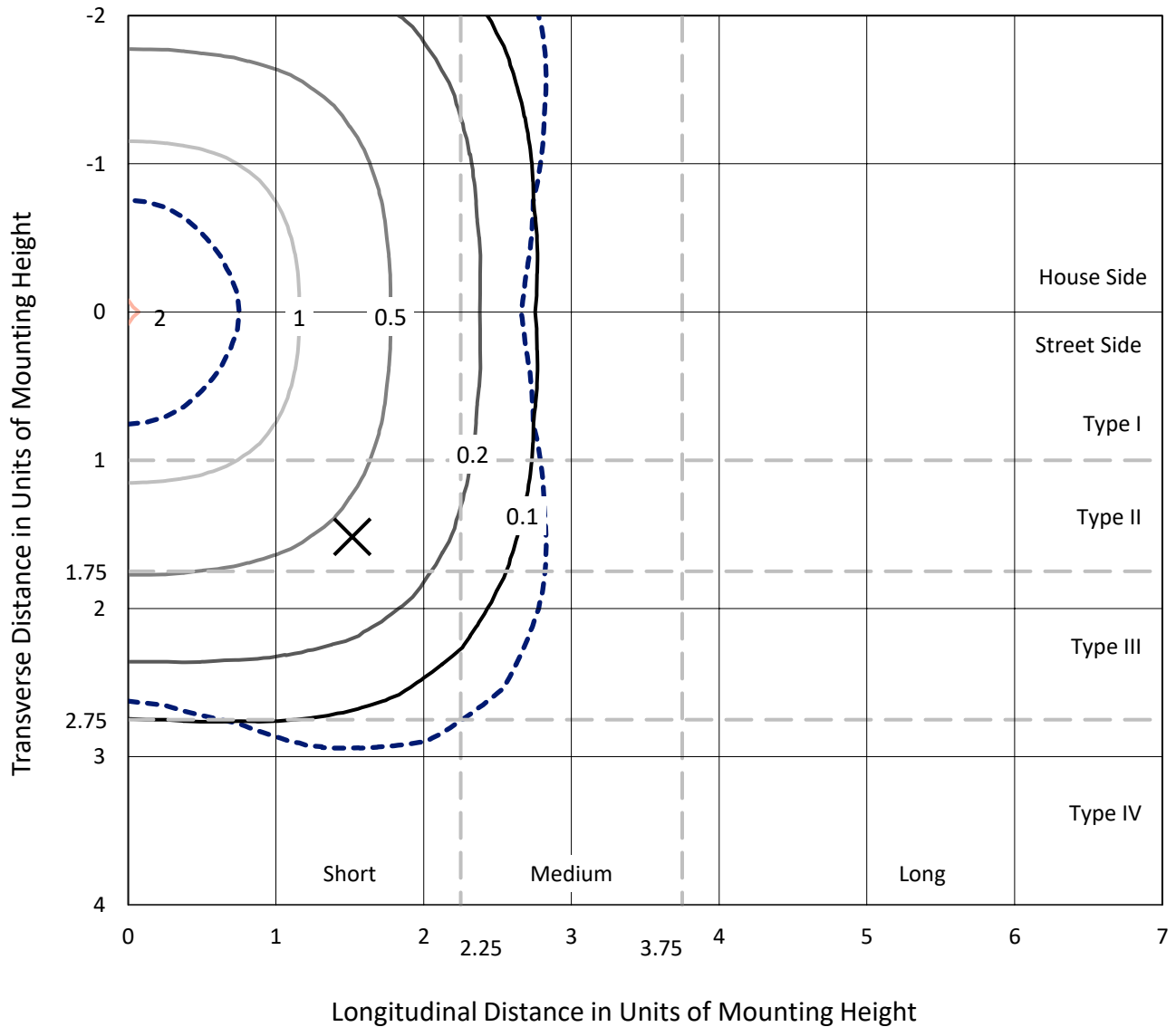
Lumens per Lamp: N/A
Luminaire Lumens: 6493.3 lumens
Efficiency: N/A
Efficacy: 147.6 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G1

Input Watts (W): 44
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.91%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P868712
 CATALOG NUMBER: EMM2-HTN-SA1B-740-U-T5M

Iso-Footcandle Lines of Horizontal Illumination

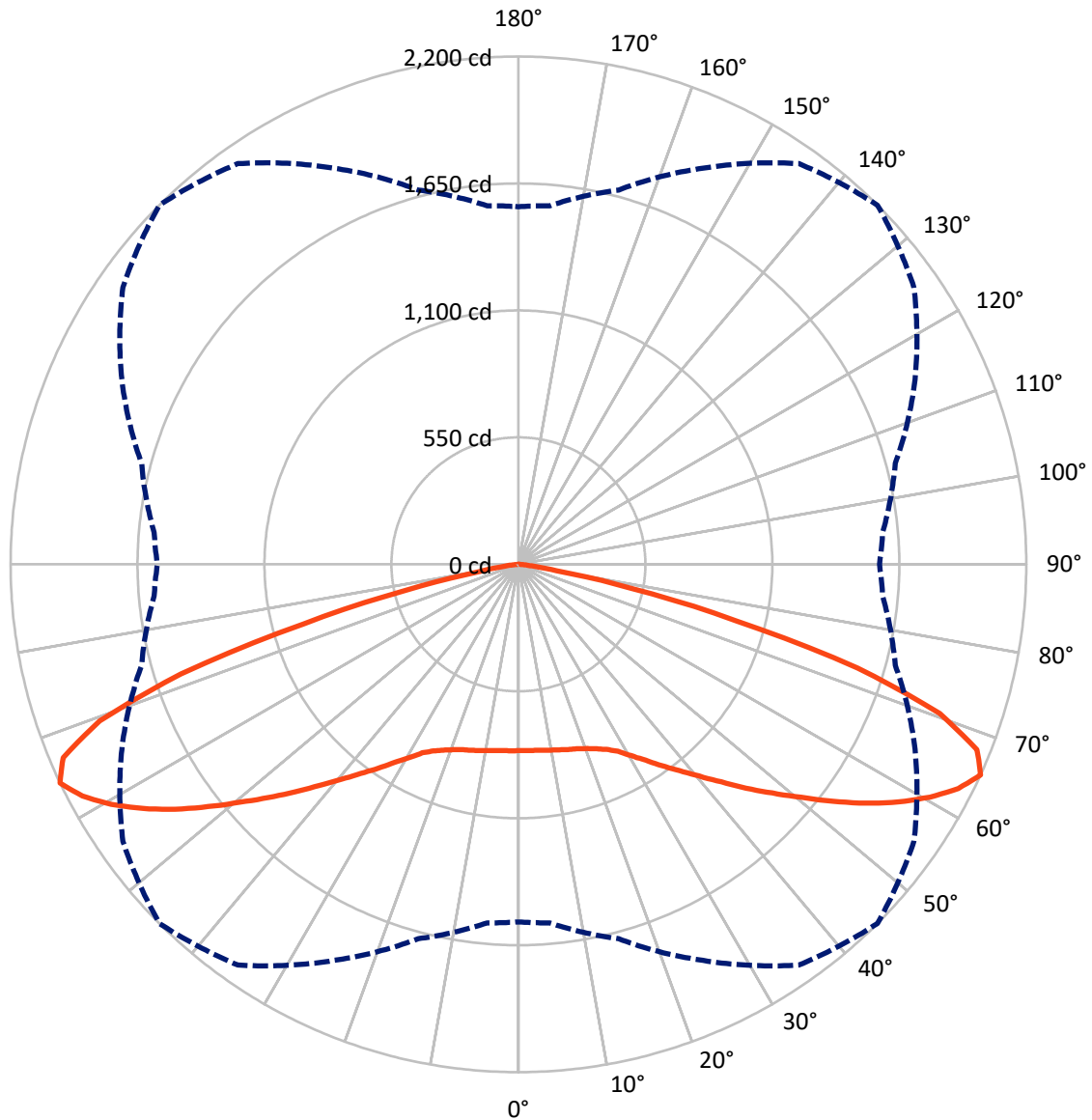
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 2 fc
 Type V - Short - N/A

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Luminous Intensity Polar Plot



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

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3246.7	0.0	3246.7
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3246.7	0.0	3246.7
	% Fixture	50.0	0.0	50.0
Total	Lumens	6493.3	0.0	6493.3
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	77.6	1.2
10°-20°	236.2	3.6
20°-30°	415.4	6.4
30°-40°	671.8	10.3
40°-50°	1046.4	16.1
50°-60°	1530.1	23.6
60°-70°	1761.9	27.1
70°-80°	719.6	11.1
80°-90°	34.4	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°	6493.3	100.0
0°-180°	6493.3	100.0

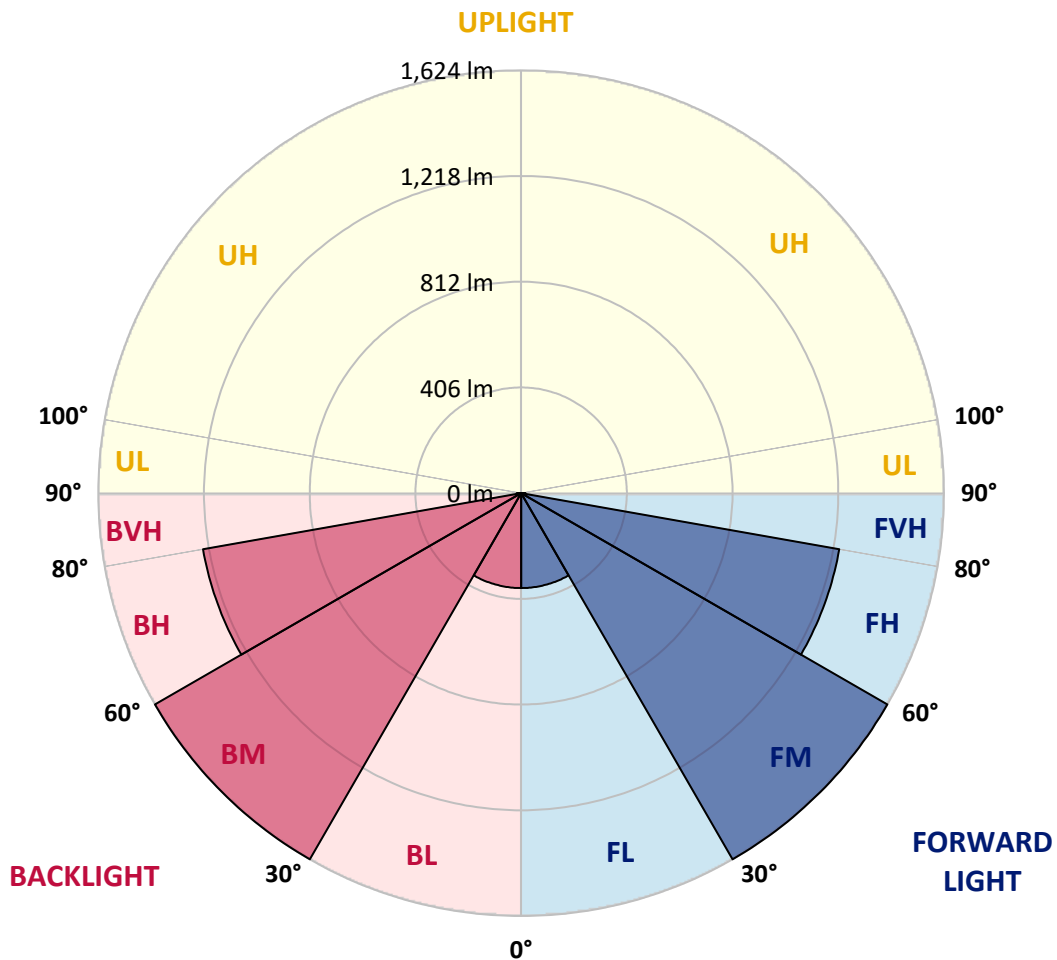


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	364.6	5.6			
FM (30°-60°)	1624.1	25.0			
FH (60°-80°)	1240.8	19.1			G1/1800
FVH (80°-90°)	17.2	0.3			G1/100
BL (0°-30°)	364.6	5.6	B1/500		
BM (30°-60°)	1624.1	25.0	B2/2500		
BH (60°-80°)	1240.8	19.1	B3/2500		G1/1800
BVH (80°-90°)	17.2	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-G1
 Type V Short





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CATALOG NUMBER: EMM2-HTN-SA1B-740-U-T5M

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	806.8	806.8	806.8	806.8	806.8	806.8	806.8	806.8	806.8	806.8	806.8
2.5°	809.3	809.3	808.1	808.1	805.6	808.1	806.8	808.1	806.8	806.8	808.1
5°	811.8	811.8	809.3	810.6	808.1	809.3	808.1	810.6	809.3	808.1	810.6
7.5°	815.6	815.6	813.1	814.3	811.8	813.1	811.8	814.3	813.1	813.1	814.3
10°	819.3	820.5	818.1	816.8	816.8	818.1	819.3	820.5	819.3	819.3	821.8
12.5°	825.5	826.8	824.3	823.0	823.0	824.3	825.5	828.0	824.3	824.3	824.3
15°	831.8	831.8	830.5	829.3	830.5	831.8	831.8	834.3	831.8	829.3	829.3
17.5°	834.3	835.5	834.3	836.8	838.0	839.3	840.5	840.5	836.8	835.5	835.5
20°	843.0	844.2	841.7	843.0	846.7	851.7	851.7	851.7	851.7	848.0	848.0
22.5°	858.0	859.2	858.0	858.0	862.9	867.9	867.9	871.7	866.7	864.2	864.2
25°	882.9	882.9	881.7	882.9	885.4	887.9	892.9	895.4	895.4	894.1	895.4
27.5°	912.8	914.1	912.8	912.8	911.6	916.6	924.1	927.8	929.0	930.3	930.3
30°	952.7	955.2	954.0	955.2	957.7	961.5	964.0	965.2	965.2	962.7	962.7
32.5°	996.4	998.9	996.4	1002.6	1011.3	1011.3	1008.9	1013.8	1010.1	1007.6	1005.1
35°	1047.5	1047.5	1050.0	1052.5	1065.0	1071.2	1071.2	1068.7	1061.2	1057.5	1060.0
37.5°	1106.1	1107.4	1109.9	1111.1	1122.3	1133.6	1132.3	1126.1	1117.3	1107.4	1107.4
40°	1176.0	1173.5	1174.7	1183.4	1192.2	1205.9	1207.1	1198.4	1183.4	1173.5	1173.5
42.5°	1239.6	1240.8	1245.8	1257.0	1277.0	1288.2	1282.0	1267.0	1250.8	1238.3	1237.1
45°	1306.9	1305.6	1319.4	1343.1	1369.2	1383.0	1373.0	1351.8	1326.8	1310.6	1310.6
47.5°	1375.5	1374.2	1396.7	1435.3	1469.0	1480.2	1470.3	1442.8	1409.1	1385.5	1381.7
50°	1446.6	1451.5	1475.2	1530.1	1573.8	1586.2	1573.8	1537.6	1492.7	1461.5	1456.5
52.5°	1527.6	1531.4	1562.5	1622.4	1676.0	1704.7	1686.0	1632.4	1575.0	1537.6	1532.6
55°	1602.4	1604.9	1649.8	1722.2	1788.2	1826.9	1797.0	1728.4	1656.1	1608.7	1603.7
57.5°	1654.8	1661.0	1718.4	1811.9	1896.7	1941.6	1896.7	1823.2	1727.1	1668.5	1664.8
60°	1688.5	1698.5	1764.6	1881.8	1999.0	2047.6	2001.5	1899.2	1780.8	1704.7	1701.0
62.5°	1671.0	1684.7	1769.5	1922.9	2086.3	2138.7	2078.8	1935.4	1774.5	1678.5	1668.5
65°	1548.8	1558.8	1678.5	1893.0	2118.7	2199.8	2091.3	1895.5	1689.7	1583.7	1563.8
67.5°	1295.7	1313.1	1471.5	1748.3	2048.9	2142.4	2005.2	1752.1	1503.9	1374.2	1351.8
70°	995.1	1026.3	1199.6	1500.2	1830.6	1936.6	1785.8	1479.0	1187.2	1055.0	1013.8
72.5°	574.9	623.5	877.9	1171.0	1456.5	1536.3	1324.3	1033.8	788.1	694.6	683.4
75°	190.8	208.3	417.8	674.6	929.0	968.9	828.0	652.2	518.8	443.9	447.7
77.5°	93.5	93.5	126.0	246.9	422.7	498.8	452.7	315.5	227.0	172.1	167.1
80°	74.8	74.8	87.3	121.0	142.2	167.1	142.2	103.5	84.8	77.3	81.1
82.5°	36.2	34.9	41.2	58.6	59.9	57.4	53.6	53.6	51.1	47.4	46.1
85°	2.5	2.5	5.0	11.2	18.7	24.9	28.7	27.4	26.2	22.4	24.9
87.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.5	2.5	2.5	2.5
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: SP1-2407-157-5

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-740-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-740-U-5WQ-2

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-5
 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-40-740-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3915
 CIE u': 0.2262
 CIE v': 0.5044
 Duv: 0.0010
 CIE x: 0.3850
 CIE y: 0.3816
 CIE z: 0.2334
 Peak Wavelength (nm): 449
 Dominant Wavelength (nm): 578
 Purity: 30.05482
 Rf: 73.2
 Rg: 93.9

CRI (Ra):	71.0		
R1:	67.6	R9:	-38.4
R2:	78.3	R10:	48.9
R3:	87.1	R11:	65.3
R4:	69.7	R12:	40.4
R5:	67.4	R13:	69.3
R6:	69.3	R14:	92.6
R7:	79.7	R15:	59.9
R8:	48.7		



Test Conditions

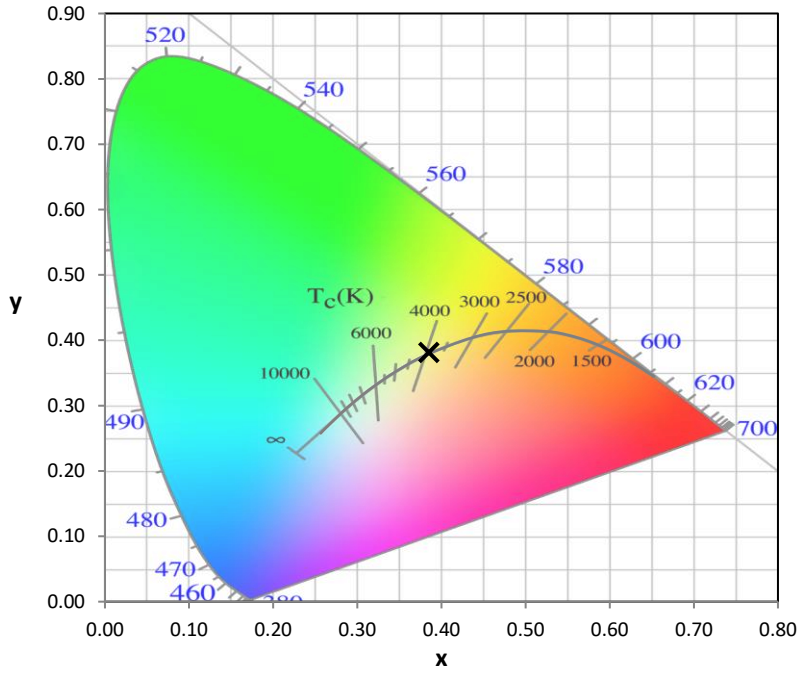
Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 24.2

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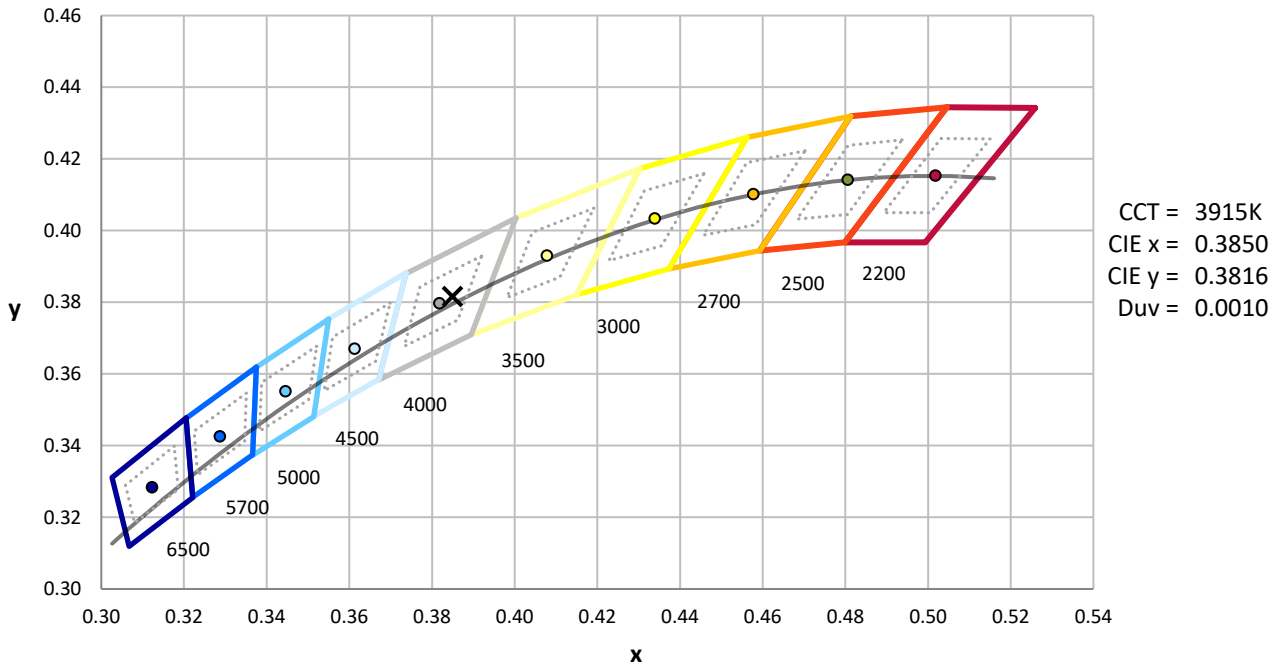
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	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 4000K 4-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	112	NR	620	618	NR	750	15	NR	880	0	NR
365	0	NR	495	153	NR	625	563	NR	755	13	NR	885	0	NR
370	0	NR	500	216	NR	630	510	NR	760	11	NR	890	0	NR
375	0	NR	505	291	NR	635	456	NR	765	9	NR	895	0	NR
380	0	NR	510	366	NR	640	407	NR	770	8	NR	900	0	NR
385	0	NR	515	436	NR	645	359	NR	775	7	NR	905	0	NR
390	0	NR	520	492	NR	650	316	NR	780	6	NR	910	0	NR
395	2	NR	525	536	NR	655	277	NR	785	5	NR	915	0	NR
400	4	NR	530	567	NR	660	240	NR	790	4	NR	920	0	NR
405	7	NR	535	596	NR	665	208	NR	795	4	NR	925	0	NR
410	12	NR	540	619	NR	670	179	NR	800	3	NR	930	0	NR
415	25	NR	545	644	NR	675	154	NR	805	3	NR	935	0	NR
420	51	NR	550	671	NR	680	133	NR	810	3	NR	940	0	NR
425	100	NR	555	701	NR	685	114	NR	815	2	NR	945	0	NR
430	180	NR	560	735	NR	690	98	NR	820	2	NR	950	0	NR
435	315	NR	565	768	NR	695	83	NR	825	2	NR	955	0	NR
440	514	NR	570	798	NR	700	71	NR	830	1	NR	960	0	NR
445	828	NR	575	825	NR	705	61	NR	835	1	NR	965	0	NR
450	992	NR	580	843	NR	710	52	NR	840	1	NR	970	0	NR
455	652	NR	585	848	NR	715	44	NR	845	1	NR	975	0	NR
460	382	NR	590	844	NR	720	38	NR	850	1	NR	980	0	NR
465	282	NR	595	826	NR	725	32	NR	855	1	NR	985	0	NR
470	180	NR	600	800	NR	730	28	NR	860	1	NR	990	0	NR
475	119	NR	605	762	NR	735	24	NR	865	1	NR	995	0	NR
480	101	NR	610	719	NR	740	20	NR	870	1	NR	1000	0	NR
485	98	NR	615	669	NR	745	17	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR S/P: 1.49

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	112	NR	620	618	NR	750	15	NR	880	0	NR
365	0	NR	495	153	NR	625	563	NR	755	13	NR	885	0	NR
370	0	NR	500	216	NR	630	510	NR	760	11	NR	890	0	NR
375	0	NR	505	291	NR	635	456	NR	765	9	NR	895	0	NR
380	0	NR	510	366	NR	640	407	NR	770	8	NR	900	0	NR
385	0	NR	515	436	NR	645	359	NR	775	7	NR	905	0	NR
390	0	NR	520	492	NR	650	316	NR	780	6	NR	910	0	NR
395	2	NR	525	536	NR	655	277	NR	785	5	NR	915	0	NR
400	4	NR	530	567	NR	660	240	NR	790	4	NR	920	0	NR
405	7	NR	535	596	NR	665	208	NR	795	4	NR	925	0	NR
410	12	NR	540	619	NR	670	179	NR	800	3	NR	930	0	NR
415	25	NR	545	644	NR	675	154	NR	805	3	NR	935	0	NR
420	51	NR	550	671	NR	680	133	NR	810	3	NR	940	0	NR
425	100	NR	555	701	NR	685	114	NR	815	2	NR	945	0	NR
430	180	NR	560	735	NR	690	98	NR	820	2	NR	950	0	NR
435	315	NR	565	768	NR	695	83	NR	825	2	NR	955	0	NR
440	514	NR	570	798	NR	700	71	NR	830	1	NR	960	0	NR
445	828	NR	575	825	NR	705	61	NR	835	1	NR	965	0	NR
450	992	NR	580	843	NR	710	52	NR	840	1	NR	970	0	NR
455	652	NR	585	848	NR	715	44	NR	845	1	NR	975	0	NR
460	382	NR	590	844	NR	720	38	NR	850	1	NR	980	0	NR
465	282	NR	595	826	NR	725	32	NR	855	1	NR	985	0	NR
470	180	NR	600	800	NR	730	28	NR	860	1	NR	990	0	NR
475	119	NR	605	762	NR	735	24	NR	865	1	NR	995	0	NR
480	101	NR	610	719	NR	740	20	NR	870	1	NR	1000	0	NR
485	98	NR	615	669	NR	745	17	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



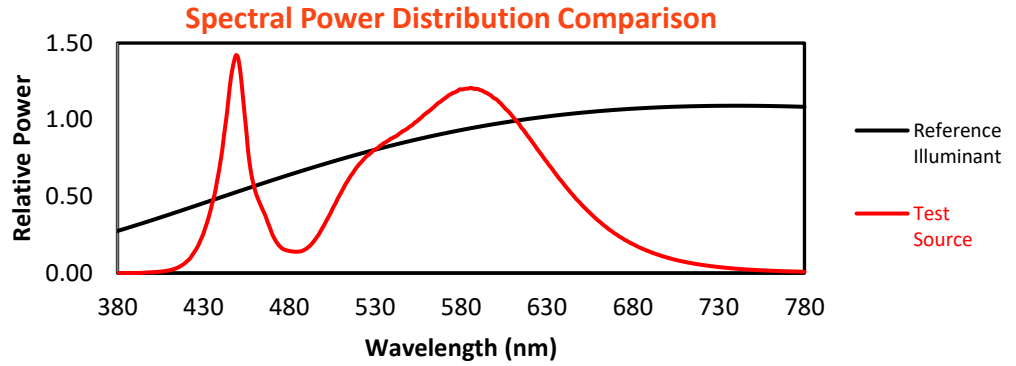
Melanopic Lumens: NR

M/P: 2.88

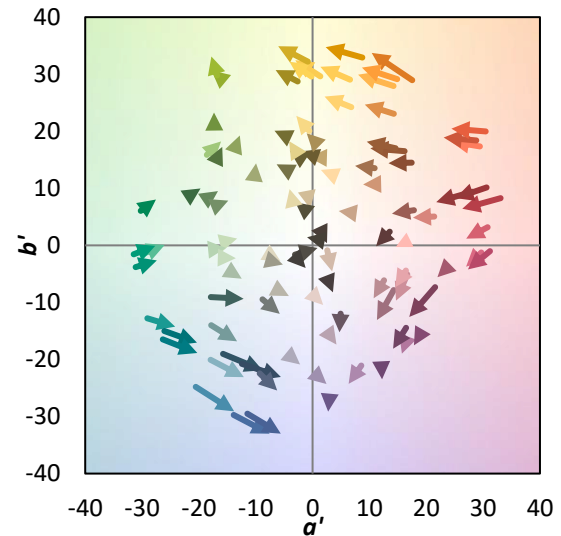
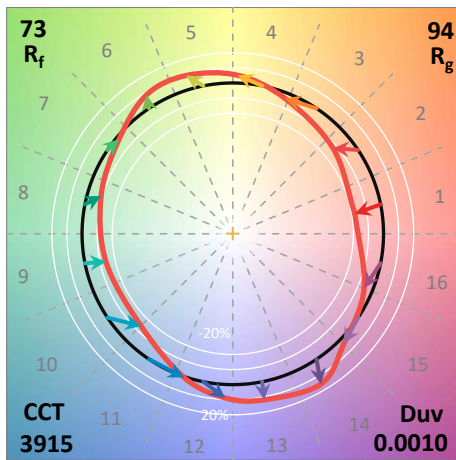
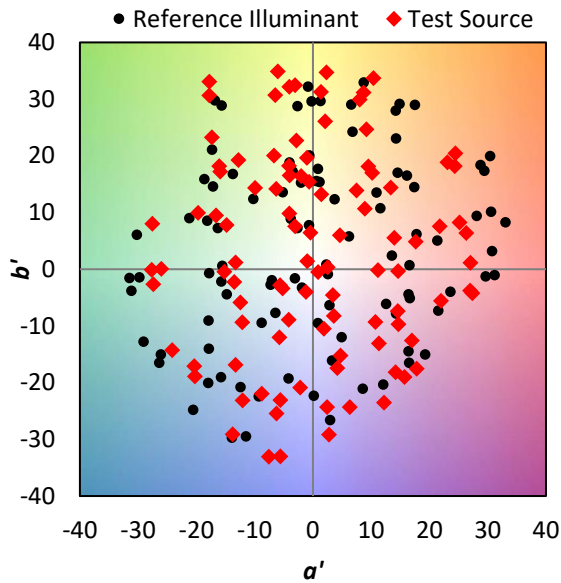
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	112	NR	620	618	NR	750	15	NR	880	0	NR
365	0	NR	495	153	NR	625	563	NR	755	13	NR	885	0	NR
370	0	NR	500	216	NR	630	510	NR	760	11	NR	890	0	NR
375	0	NR	505	291	NR	635	456	NR	765	9	NR	895	0	NR
380	0	NR	510	366	NR	640	407	NR	770	8	NR	900	0	NR
385	0	NR	515	436	NR	645	359	NR	775	7	NR	905	0	NR
390	0	NR	520	492	NR	650	316	NR	780	6	NR	910	0	NR
395	2	NR	525	536	NR	655	277	NR	785	5	NR	915	0	NR
400	4	NR	530	567	NR	660	240	NR	790	4	NR	920	0	NR
405	7	NR	535	596	NR	665	208	NR	795	4	NR	925	0	NR
410	12	NR	540	619	NR	670	179	NR	800	3	NR	930	0	NR
415	25	NR	545	644	NR	675	154	NR	805	3	NR	935	0	NR
420	51	NR	550	671	NR	680	133	NR	810	3	NR	940	0	NR
425	100	NR	555	701	NR	685	114	NR	815	2	NR	945	0	NR
430	180	NR	560	735	NR	690	98	NR	820	2	NR	950	0	NR
435	315	NR	565	768	NR	695	83	NR	825	2	NR	955	0	NR
440	514	NR	570	798	NR	700	71	NR	830	1	NR	960	0	NR
445	828	NR	575	825	NR	705	61	NR	835	1	NR	965	0	NR
450	992	NR	580	843	NR	710	52	NR	840	1	NR	970	0	NR
455	652	NR	585	848	NR	715	44	NR	845	1	NR	975	0	NR
460	382	NR	590	844	NR	720	38	NR	850	1	NR	980	0	NR
465	282	NR	595	826	NR	725	32	NR	855	1	NR	985	0	NR
470	180	NR	600	800	NR	730	28	NR	860	1	NR	990	0	NR
475	119	NR	605	762	NR	735	24	NR	865	1	NR	995	0	NR
480	101	NR	610	719	NR	740	20	NR	870	1	NR	1000	0	NR
485	98	NR	615	669	NR	745	17	NR	875	0	NR			

Summary

$R_f = 73.2$
 $R_g = 93.9$
 CIE $R_a = 71.0$
 $R_g = -38.4$



Color Vector Graphics

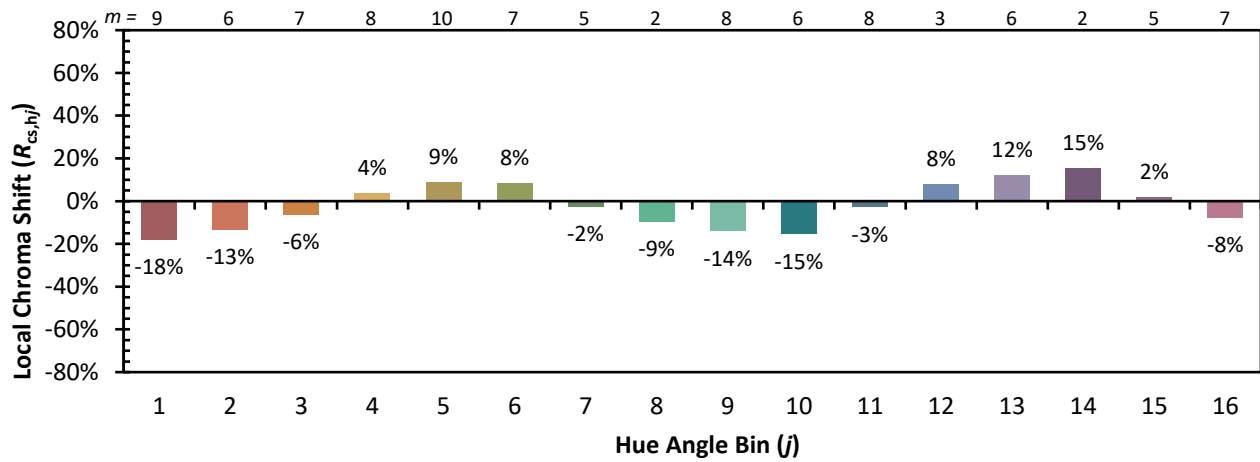


Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 61	CES51 = 88	CES76 = 50
CES02 = 61	CES27 = 88	CES52 = 87	CES77 = 69
CES03 = 30	CES28 = 81	CES53 = 77	CES78 = 53
CES04 = 70	CES29 = 65	CES54 = 84	CES79 = 81
CES05 = 47	CES30 = 81	CES55 = 83	CES80 = 78
CES06 = 50	CES31 = 69	CES56 = 73	CES81 = 77
CES07 = 40	CES32 = 60	CES57 = 72	CES82 = 91
CES08 = 39	CES33 = 76	CES58 = 73	CES83 = 89
CES09 = 29	CES34 = 70	CES59 = 85	CES84 = 86
CES10 = 74	CES35 = 83	CES60 = 89	CES85 = 77
CES11 = 57	CES36 = 91	CES61 = 81	CES86 = 71
CES12 = 63	CES37 = 79	CES62 = 85	CES87 = 76
CES13 = 42	CES38 = 92	CES63 = 72	CES88 = 80
CES14 = 74	CES39 = 96	CES64 = 64	CES89 = 70
CES15 = 71	CES40 = 91	CES65 = 61	CES90 = 79
CES16 = 46	CES41 = 93	CES66 = 57	CES91 = 74
CES17 = 49	CES42 = 80	CES67 = 54	CES92 = 57
CES18 = 56	CES43 = 76	CES68 = 63	CES93 = 74
CES19 = 72	CES44 = 99	CES69 = 73	CES94 = 51
CES20 = 65	CES45 = 85	CES70 = 55	CES95 = 65
CES21 = 86	CES46 = 82	CES71 = 48	CES96 = 76
CES22 = 78	CES47 = 86	CES72 = 83	CES97 = 84
CES23 = 92	CES48 = 77	CES73 = 45	CES98 = 75
CES24 = 91	CES49 = 80	CES74 = 93	CES99 = 62
CES25 = 72	CES50 = 88	CES75 = 51	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)