

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: P869165

Luminaire Tested: **EMM2-HSN-SA3B-730-U-T5W**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P869165
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-SA3B-730-U-T5W
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 150W 70CRI 3000K
FITXURE w/ TYPE V SQUARE WIDE DISTRIBUTION OPTIC
Light Source: (30) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

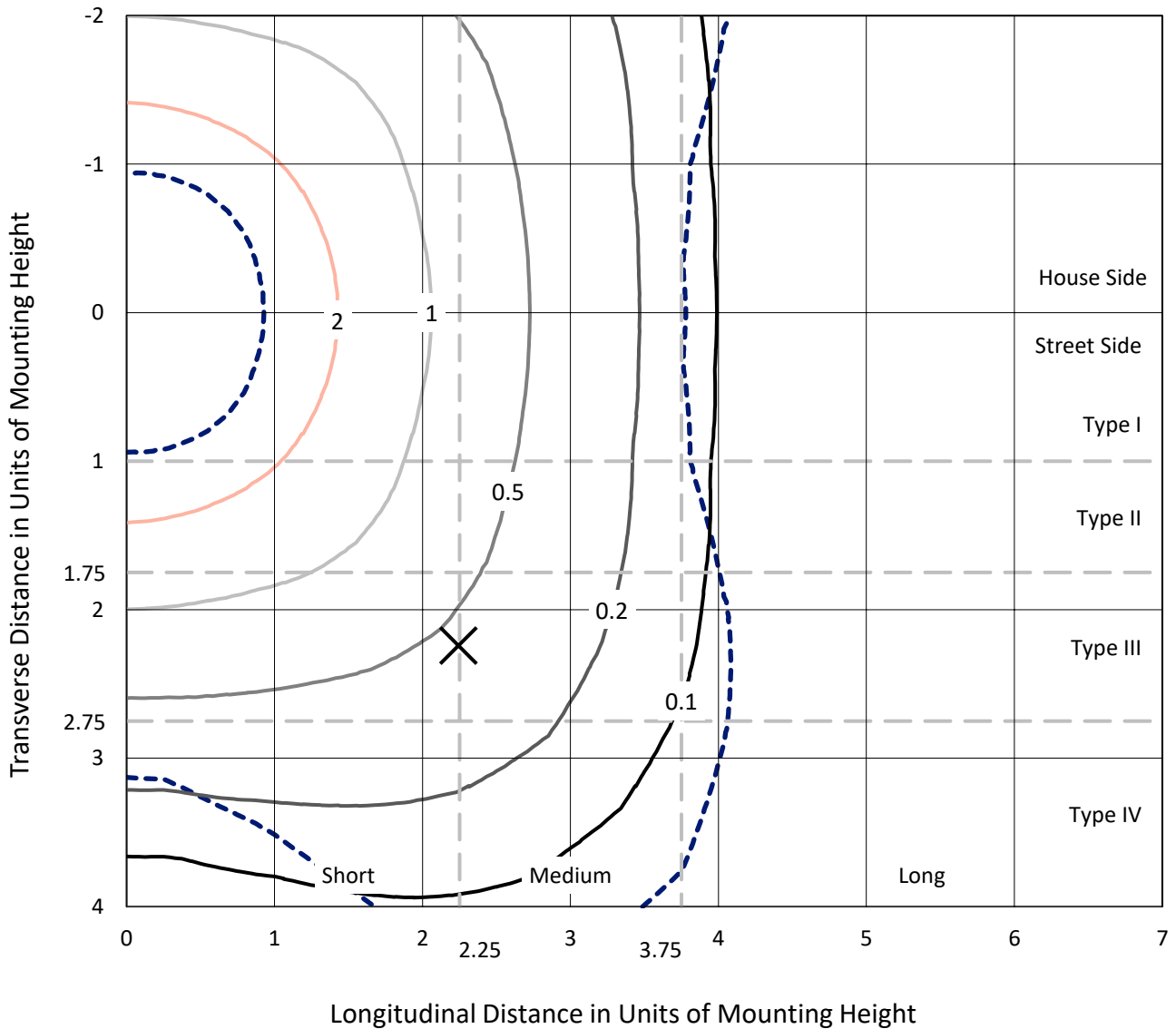
Lumens per Lamp: N/A
Luminaire Lumens: 18581.9 lumens
Efficiency: N/A
Efficacy: 138.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G2

Input Watts (W): 134
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6.70%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P869165
 CATALOG NUMBER: EMM2-HSN-SA3B-730-U-T5W

Iso-Footcandle Lines of Horizontal Illumination

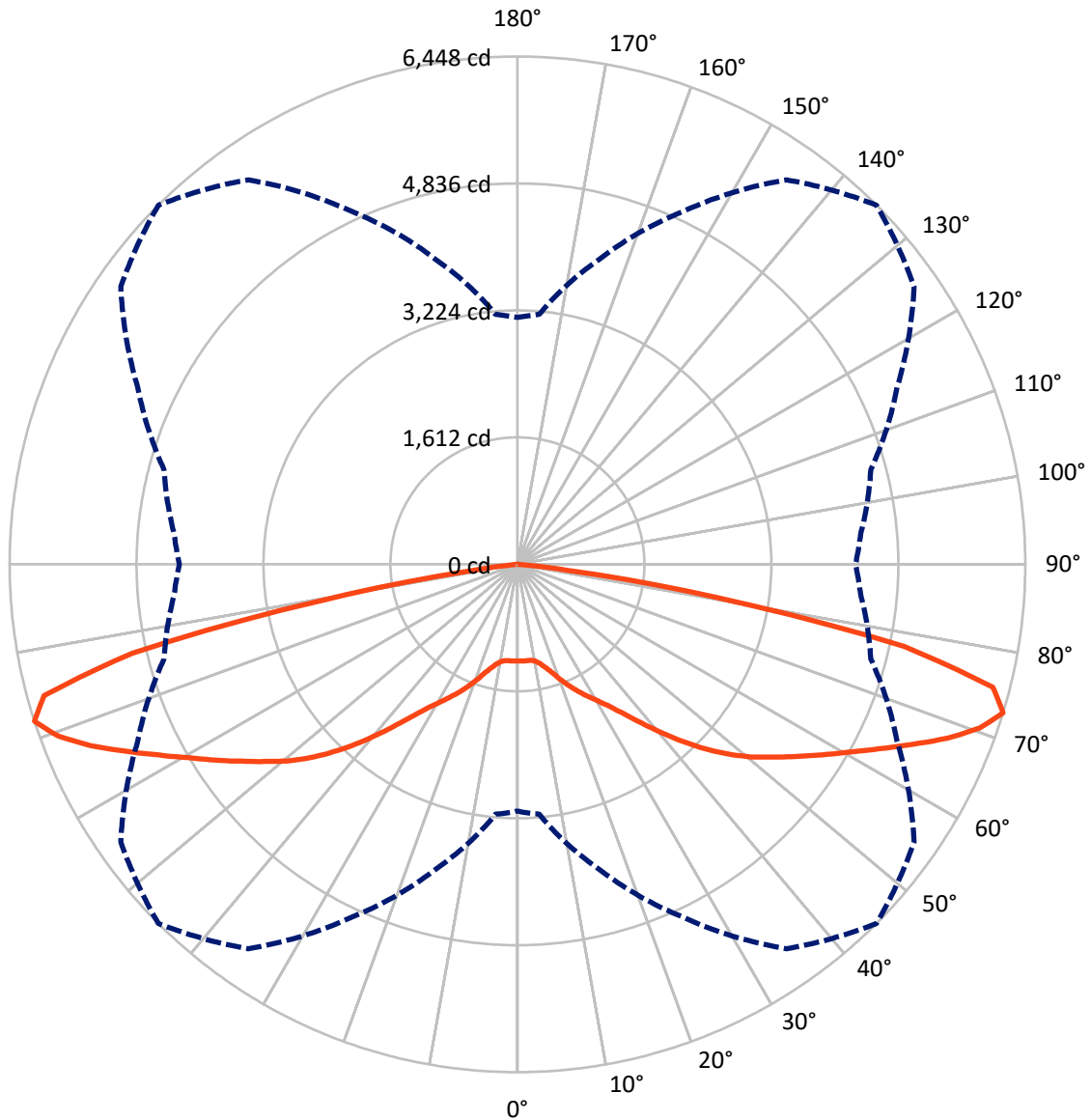
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 3.3 fc
 Type V - Short - N/A

REPORT NUMBER: P869165
CATALOG NUMBER: EMM2-HSN-SA3B-730-U-T5W

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

REPORT NUMBER: P869165
 CATALOG NUMBER: EMM2-HSN-SA3B-730-U-T5W

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	9290.9	0.0	9290.9
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	9290.9	0.0	9290.9
	% Fixture	50.0	0.0	50.0
Total	Lumens	18581.9	0.0	18581.9
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.6	0.6
10°-20°	392.4	2.1
20°-30°	809.6	4.4
30°-40°	1490.5	8.0
40°-50°	2620.7	14.1
50°-60°	3800.9	20.5
60°-70°	4954.9	26.7
70°-80°	4118.7	22.2
80°-90°	276.6	1.5
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°	18581.9	100.0
0°-180°	18581.9	100.0



REPORT NUMBER: P869165

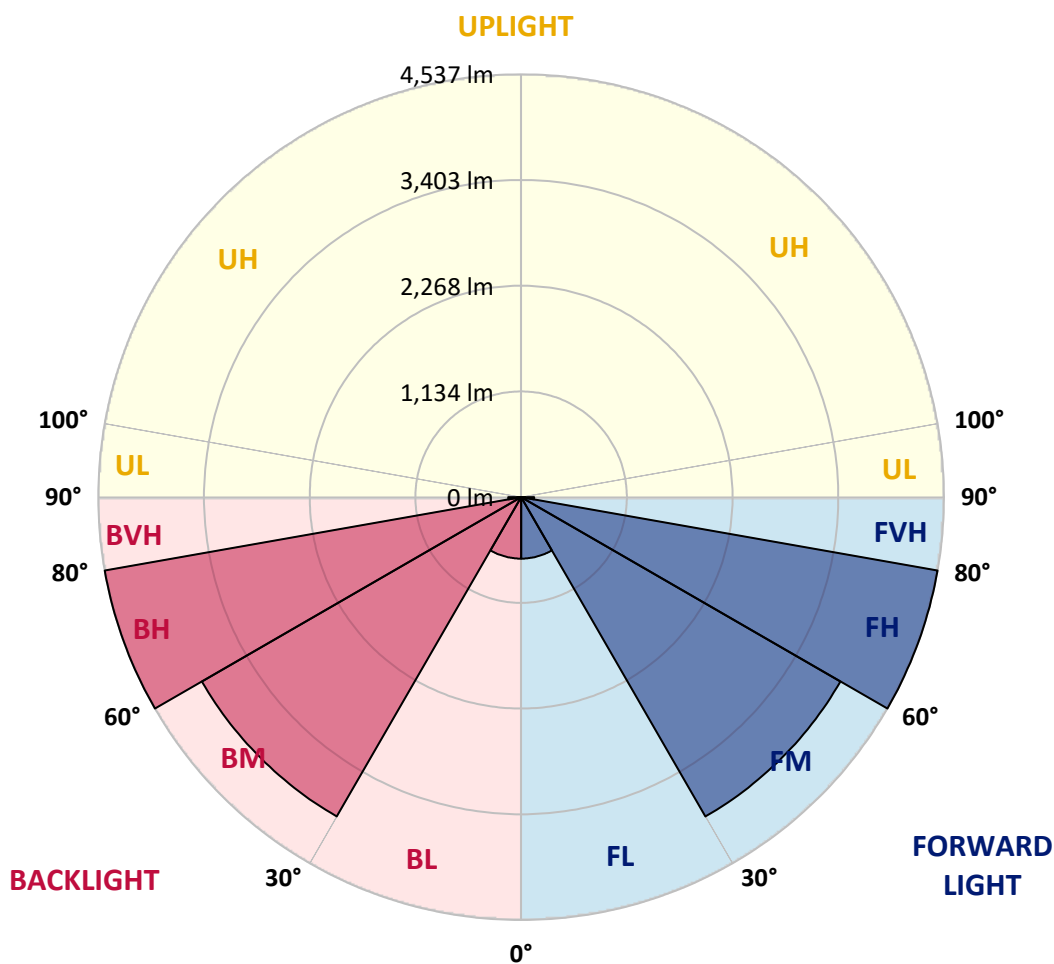
CATALOG NUMBER: EMM2-HSN-SA3B-730-U-T5W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	659.8	3.6			
FM (30°-60°)	3956.0	21.3			
FH (60°-80°)	4536.8	24.4			G2/5000
FVH (80°-90°)	138.3	0.7			G2/225
BL (0°-30°)	659.8	3.6	B2/1000		
BM (30°-60°)	3956.0	21.3	B3/5000		
BH (60°-80°)	4536.8	24.4	B4/5000		G2/5000
BVH (80°-90°)	138.3	0.7			G2/225
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





REPORT NUMBER: P869165
 CATALOG NUMBER: EMM2-HSN-SA3B-730-U-T5W

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1226.7	1226.7	1226.7	1226.7	1226.7	1226.7	1226.7	1226.7	1226.7	1226.7	1226.7
2.5°	1222.9	1224.8	1224.8	1224.8	1226.7	1228.7	1230.6	1232.5	1236.4	1238.3	1238.3
5°	1228.7	1226.7	1224.8	1228.7	1228.7	1228.7	1230.6	1232.5	1232.5	1232.5	1234.4
7.5°	1222.9	1224.8	1222.9	1222.9	1228.7	1230.6	1228.7	1226.7	1226.7	1228.7	1228.7
10°	1244.1	1242.1	1240.2	1240.2	1246.0	1247.9	1246.0	1244.1	1244.1	1247.9	1247.9
12.5°	1292.2	1296.1	1284.5	1284.5	1292.2	1296.1	1290.3	1288.4	1290.3	1294.1	1294.1
15°	1367.3	1365.4	1357.7	1350.0	1357.7	1363.5	1355.8	1351.9	1353.8	1363.5	1355.8
17.5°	1450.1	1452.0	1444.3	1436.6	1442.4	1450.1	1438.6	1428.9	1430.9	1434.7	1430.9
20°	1542.6	1540.6	1538.7	1538.7	1550.3	1559.9	1542.6	1519.4	1513.7	1509.8	1509.8
22.5°	1610.0	1615.7	1617.7	1635.0	1662.0	1671.6	1648.5	1617.7	1594.5	1583.0	1575.3
25°	1715.9	1710.1	1706.2	1725.5	1765.9	1783.3	1754.4	1712.0	1688.9	1687.0	1692.8
27.5°	1812.2	1812.2	1819.9	1839.1	1877.6	1895.0	1869.9	1827.6	1816.0	1816.0	1810.2
30°	1937.3	1931.6	1939.3	1972.0	2000.9	2012.4	1991.3	1962.4	1952.7	1952.7	1943.1
32.5°	2083.7	2085.6	2097.2	2118.4	2147.3	2149.2	2141.5	2128.0	2122.2	2116.4	2126.1
35°	2307.1	2307.1	2303.2	2318.6	2326.3	2330.2	2334.1	2328.3	2328.3	2328.3	2320.6
37.5°	2584.4	2569.0	2567.1	2553.6	2544.0	2553.6	2570.9	2590.2	2605.6	2596.0	2592.1
40°	2859.8	2852.1	2829.0	2807.8	2800.1	2803.9	2825.1	2865.6	2882.9	2882.9	2898.3
42.5°	3156.4	3141.0	3112.1	3087.0	3065.8	3071.6	3090.9	3141.0	3179.5	3196.8	3189.1
45°	3422.1	3408.6	3379.8	3356.6	3341.2	3339.3	3364.3	3397.1	3449.1	3464.5	3476.0
47.5°	3649.4	3639.7	3614.7	3591.6	3597.4	3599.3	3607.0	3635.9	3678.2	3699.4	3697.5
50°	3834.2	3826.5	3803.4	3813.1	3828.5	3843.9	3834.2	3853.5	3880.5	3890.1	3897.8
52.5°	4003.7	3992.2	3976.7	3994.1	4034.5	4065.3	4071.1	4057.6	4065.3	4071.1	4065.3
55°	4171.3	4157.8	4153.9	4184.7	4246.4	4304.1	4298.4	4259.8	4250.2	4238.7	4232.9
57.5°	4308.0	4298.4	4313.8	4365.8	4485.2	4562.2	4537.1	4448.6	4410.0	4383.1	4375.4
60°	4394.6	4392.7	4427.4	4548.7	4729.7	4837.6	4797.1	4645.0	4558.3	4533.3	4521.7
62.5°	4440.9	4442.8	4504.4	4720.1	5009.0	5155.3	5084.1	4851.1	4716.2	4691.2	4695.1
65°	4483.2	4477.5	4558.3	4864.5	5311.3	5509.7	5413.4	5099.5	4903.0	4853.0	4853.0
67.5°	4514.0	4519.8	4641.1	5009.0	5606.0	5889.1	5748.5	5363.3	5103.3	5028.2	5018.6
70°	4125.0	4180.9	4560.3	5105.3	5839.0	6224.1	6039.3	5525.1	5111.0	4897.3	4876.1
72.5°	3133.3	3185.2	4005.6	4933.9	5958.4	6447.5	6147.1	5319.0	4645.0	4373.5	4292.6
75°	2066.4	2103.0	2985.0	4309.9	5627.1	6235.7	5598.3	4581.4	3657.1	3304.6	3325.8
77.5°	920.5	1038.0	1902.7	3362.4	4635.4	5018.6	4269.5	3125.5	2233.9	1891.1	1854.5
80°	385.2	421.7	718.3	1792.9	2686.5	2570.9	1817.9	1047.6	666.3	518.0	500.7
82.5°	111.7	115.5	142.5	310.1	546.9	643.2	387.1	196.4	186.8	148.3	136.7
85°	7.7	7.7	11.6	19.3	27.0	44.3	50.1	57.8	65.5	55.8	55.8
87.5°	3.9	3.9	3.9	5.8	5.8	7.7	5.8	5.8	5.8	5.8	5.8
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: SP1-2407-157-4

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-730-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-730-U-5WQ-2

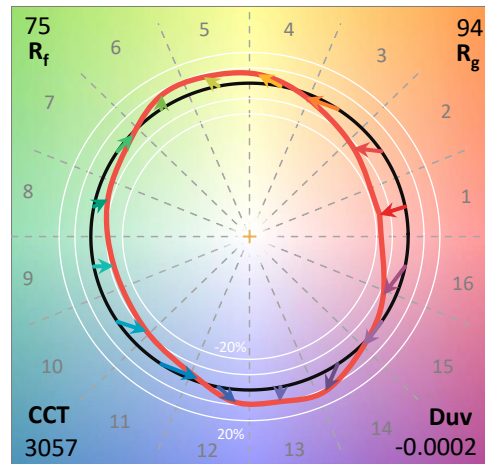
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-4
 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-40-730-U-5WQ-2**
 Description: Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K): 3057
 CIE u': 0.2487
 CIE v': 0.5199
 Duv: -0.0002
 CIE x: 0.4326
 CIE y: 0.4020
 CIE z: 0.1654
 Peak Wavelength (nm): 593
 Dominant Wavelength (nm): 582
 Purity: 50.50735
 R_f: 74.6
 R_g: 94

CRI (Ra):	71.7		
R1:	68.1	R9:	-34.8
R2:	82.0	R10:	58.5
R3:	93.5	R11:	62.5
R4:	67.5	R12:	47.5
R5:	67.2	R13:	70.7
R6:	74.9	R14:	96.4
R7:	77.4	R15:	60.0
R8:	43.1		



Test Conditions

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

REPORT NUMBER: SP1-2407-157-4

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: SP1-2407-157-4

CIE 1931 Chromaticity Diagram



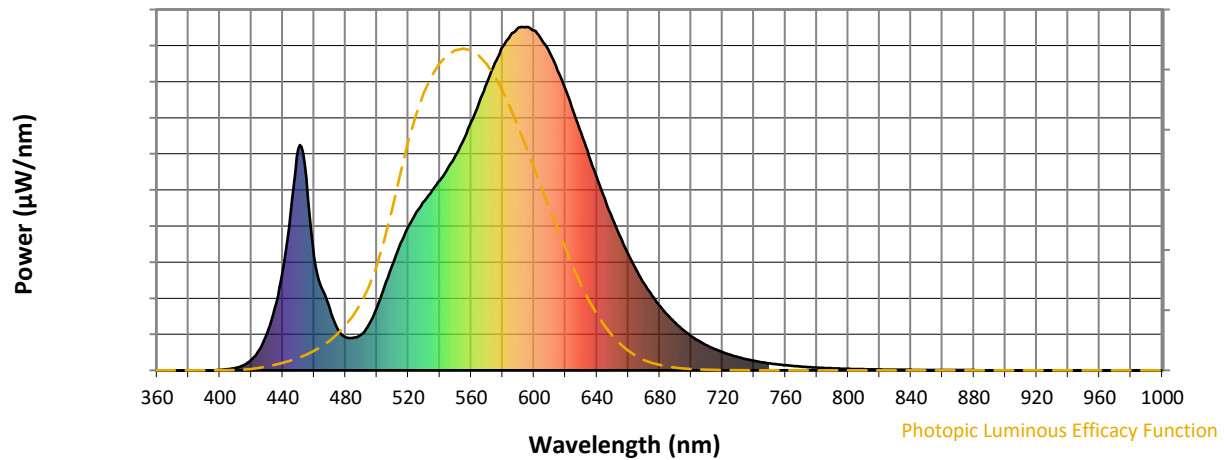
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-4

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	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-4

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.23

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	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

REPORT NUMBER: SP1-2407-157-4

Melanopic Flux vs. Wavelength



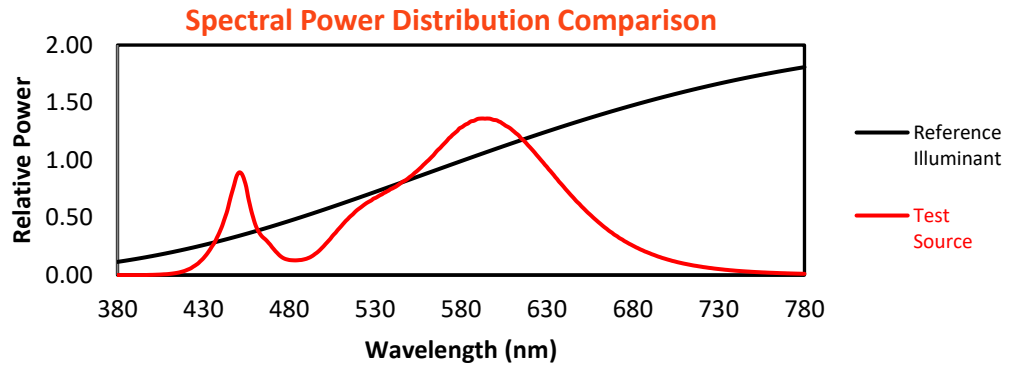
Melanopic Lumens: NR

M/P: 2.27

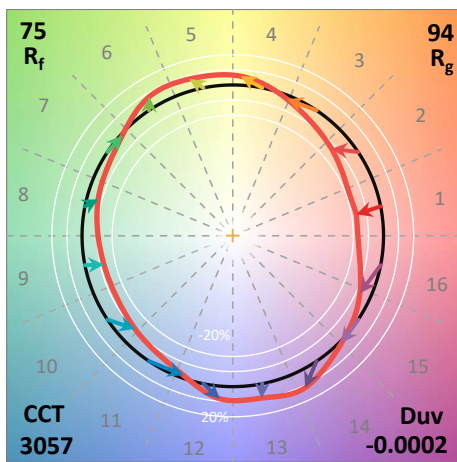
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	184	NR	630	691	NR	760	15	NR	890	0	NR
375	0	NR	505	247	NR	635	625	NR	765	13	NR	895	0	NR
380	0	NR	510	309	NR	640	561	NR	770	11	NR	900	0	NR
385	0	NR	515	369	NR	645	499	NR	775	9	NR	905	0	NR
390	0	NR	520	419	NR	650	441	NR	780	8	NR	910	0	NR
395	0	NR	525	460	NR	655	388	NR	785	7	NR	915	0	NR
400	1	NR	530	492	NR	660	338	NR	790	6	NR	920	0	NR
405	3	NR	535	524	NR	665	294	NR	795	5	NR	925	0	NR
410	7	NR	540	553	NR	670	253	NR	800	4	NR	930	0	NR
415	15	NR	545	588	NR	675	218	NR	805	4	NR	935	0	NR
420	31	NR	550	625	NR	680	188	NR	810	3	NR	940	0	NR
425	60	NR	555	670	NR	685	161	NR	815	3	NR	945	0	NR
430	107	NR	560	723	NR	690	139	NR	820	3	NR	950	0	NR
435	183	NR	565	780	NR	695	118	NR	825	2	NR	955	0	NR
440	289	NR	570	837	NR	700	100	NR	830	2	NR	960	0	NR
445	460	NR	575	894	NR	705	85	NR	835	2	NR	965	0	NR
450	646	NR	580	942	NR	710	73	NR	840	1	NR	970	0	NR
455	561	NR	585	976	NR	715	62	NR	845	1	NR	975	0	NR
460	331	NR	590	998	NR	720	53	NR	850	1	NR	980	0	NR
465	238	NR	595	1000	NR	725	45	NR	855	1	NR	985	0	NR
470	178	NR	600	990	NR	730	39	NR	860	1	NR	990	0	NR
475	120	NR	605	962	NR	735	33	NR	865	1	NR	995	0	NR
480	96	NR	610	925	NR	740	28	NR	870	1	NR	1000	0	NR
485	95	NR	615	873	NR	745	24	NR	875	1	NR			

Summary

$R_f = 74.6$
 $R_g = 94$
 $CIE R_a = 71.7$
 $R_9 = -34.8$

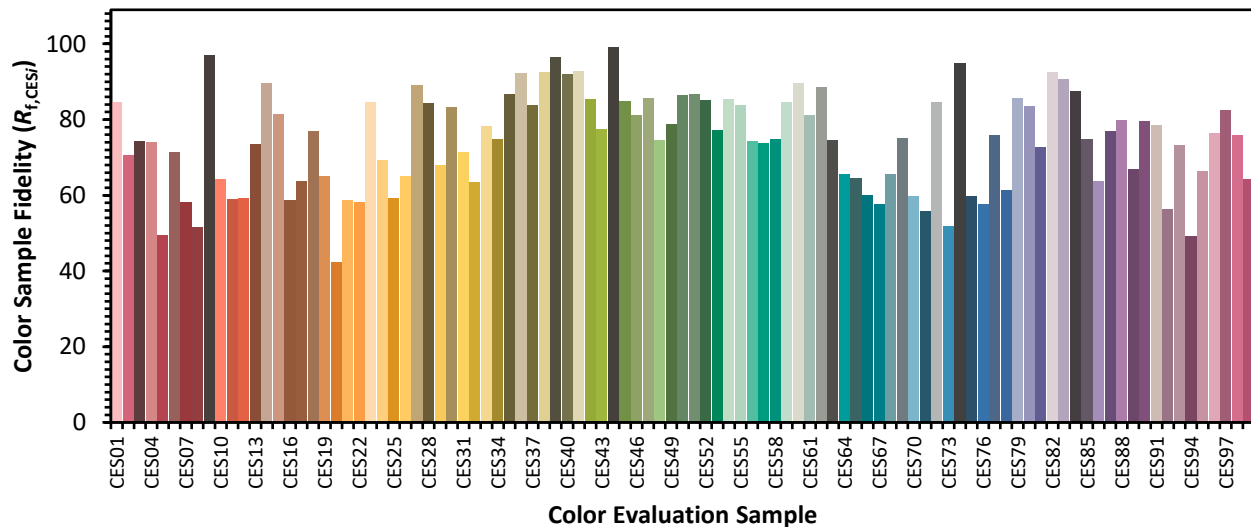


Color Vector Graphics

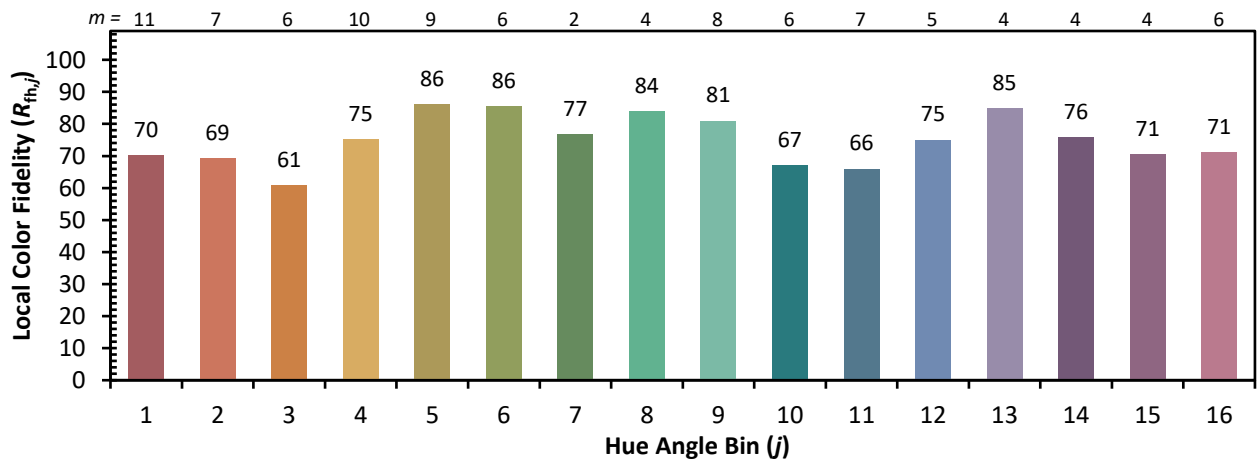


Individual Sample Fidelity Index ($R_{f,i}$)

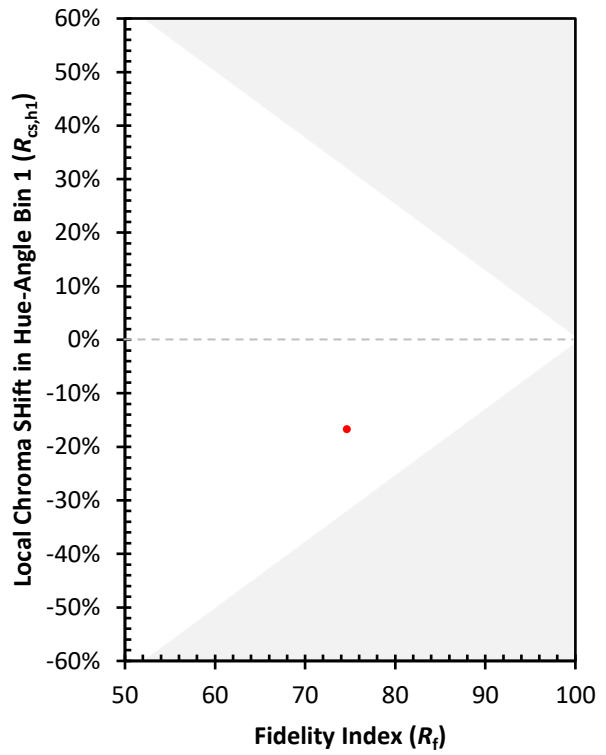
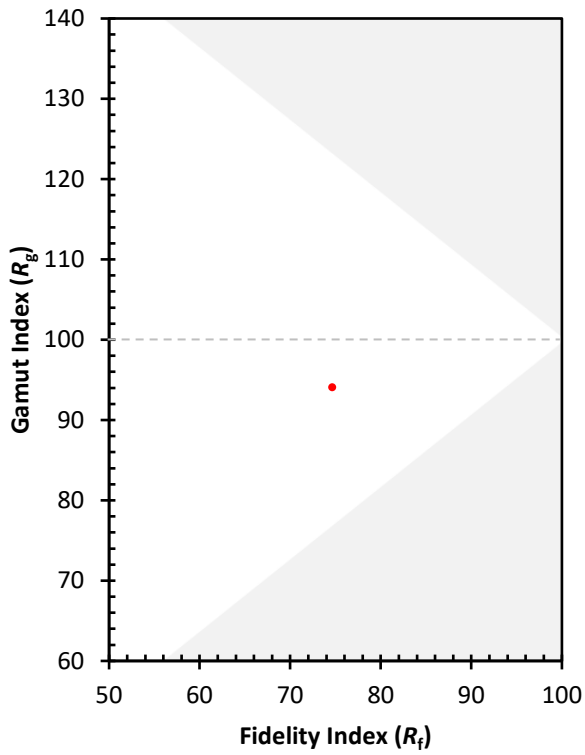
CES01 = 86	CES26 = 65	CES51 = 87	CES76 = 58
CES02 = 62	CES27 = 89	CES52 = 85	CES77 = 76
CES03 = 31	CES28 = 84	CES53 = 77	CES78 = 61
CES04 = 71	CES29 = 68	CES54 = 85	CES79 = 86
CES05 = 49	CES30 = 83	CES55 = 84	CES80 = 83
CES06 = 51	CES31 = 71	CES56 = 74	CES81 = 73
CES07 = 41	CES32 = 64	CES57 = 74	CES82 = 93
CES08 = 40	CES33 = 78	CES58 = 75	CES83 = 91
CES09 = 29	CES34 = 75	CES59 = 85	CES84 = 88
CES10 = 76	CES35 = 87	CES60 = 90	CES85 = 75
CES11 = 59	CES36 = 92	CES61 = 81	CES86 = 64
CES12 = 65	CES37 = 84	CES62 = 89	CES87 = 77
CES13 = 43	CES38 = 92	CES63 = 75	CES88 = 80
CES14 = 74	CES39 = 96	CES64 = 65	CES89 = 67
CES15 = 71	CES40 = 92	CES65 = 64	CES90 = 80
CES16 = 47	CES41 = 93	CES66 = 60	CES91 = 78
CES17 = 50	CES42 = 86	CES67 = 58	CES92 = 56
CES18 = 56	CES43 = 77	CES68 = 66	CES93 = 73
CES19 = 73	CES44 = 99	CES69 = 75	CES94 = 49
CES20 = 66	CES45 = 85	CES70 = 60	CES95 = 66
CES21 = 87	CES46 = 81	CES71 = 56	CES96 = 76
CES22 = 79	CES47 = 86	CES72 = 85	CES97 = 82
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 76
CES24 = 91	CES49 = 79	CES74 = 95	CES99 = 64
CES25 = 73	CES50 = 86	CES75 = 60	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)