

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: P868741

Luminaire Tested: **EMM2-HTN-SA2A-730-U-T5W**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P868741
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HTN-SA2A-730-U-T5W
Description: EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 70W 70CRI 3000K
FIXTURE w/ TYPE V SQUARE WIDE DISTRIBUTION OPTIC
Light Source: (20) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

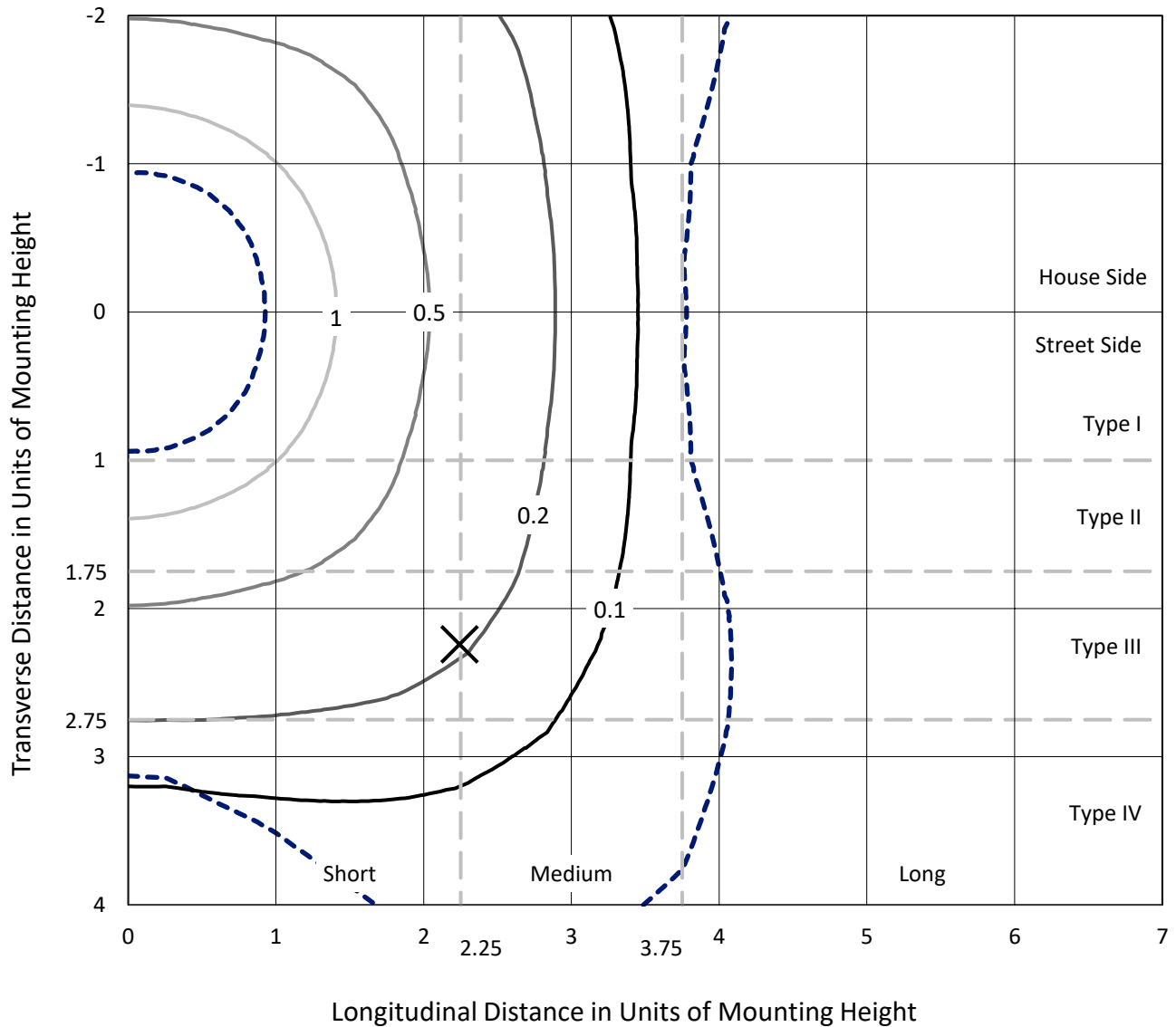
Lumens per Lamp: N/A
Luminaire Lumens: 9099.9 lumens
Efficiency: N/A
Efficacy: 149.2 lumens/watt
Luminous Opening: Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G2

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: P868741
 CATALOG NUMBER: EMM2-HTN-SA2A-730-U-T5W

Iso-Footcandle Lines of Horizontal Illumination

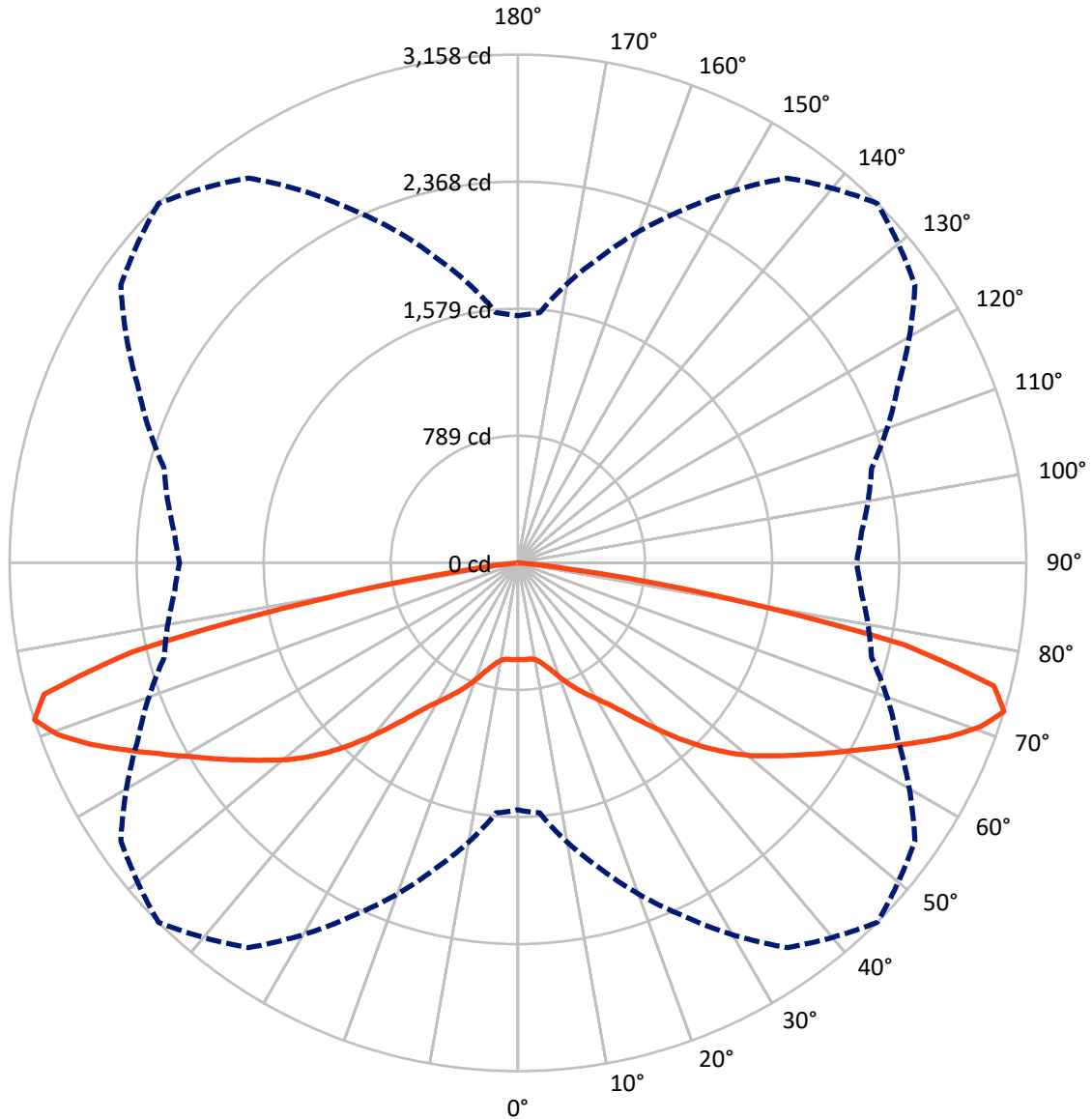
× Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 1.6 fc
 Type V - Short - N/A

REPORT NUMBER: P868741
CATALOG NUMBER: EMM2-HTN-SA2A-730-U-T5W

Luminous Intensity Polar Plot



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

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 CATALOG NUMBER: EMM2-HTN-SA2A-730-U-T5W

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	4550.0	0.0	4550.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	4550.0	0.0	4550.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	9099.9	0.0	9099.9
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.6	0.6
10°-20°	192.2	2.1
20°-30°	396.5	4.4
30°-40°	729.9	8.0
40°-50°	1283.4	14.1
50°-60°	1861.4	20.5
60°-70°	2426.5	26.7
70°-80°	2017.0	22.2
80°-90°	135.4	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°	9099.9	100.0
0°-180°	9099.9	100.0



REPORT NUMBER: P868741

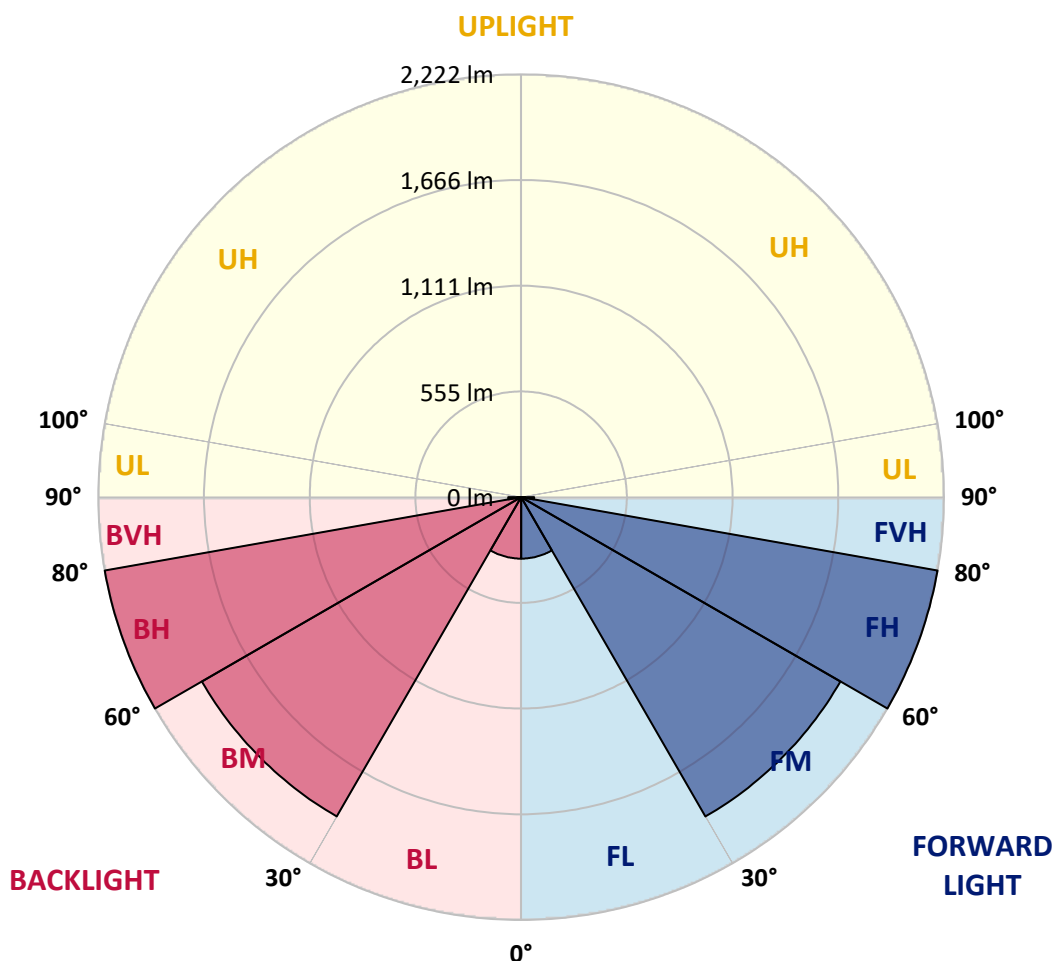
CATALOG NUMBER: EMM2-HTN-SA2A-730-U-T5W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	323.1	3.6			
FM	(30°-60°)	1937.4	21.3			
FH	(60°-80°)	2221.8	24.4			G2/5000
FVH	(80°-90°)	67.7	0.7			G1/100
BL	(0°-30°)	323.1	3.6	B1/500		
BM	(30°-60°)	1937.4	21.3	B2/2500		
BH	(60°-80°)	2221.8	24.4	B3/2500		G2/5000
BVH	(80°-90°)	67.7	0.7			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: P868741

CATALOG NUMBER: EMM2-HTN-SA2A-730-U-T5W

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	600.8	600.8	600.8	600.8	600.8	600.8	600.8	600.8	600.8	600.8	600.8
2.5°	598.9	599.8	599.8	599.8	600.8	601.7	602.6	603.6	605.5	606.4	606.4
5°	601.7	600.8	599.8	601.7	601.7	601.7	602.6	603.6	603.6	603.6	604.5
7.5°	598.9	599.8	598.9	598.9	601.7	602.6	601.7	600.8	600.8	601.7	601.7
10°	609.2	608.3	607.4	607.4	610.2	611.1	610.2	609.2	609.2	611.1	611.1
12.5°	632.8	634.7	629.0	629.0	632.8	634.7	631.9	630.9	631.9	633.8	633.8
15°	669.6	668.7	664.9	661.1	664.9	667.7	663.9	662.1	663.0	667.7	663.9
17.5°	710.2	711.1	707.3	703.6	706.4	710.2	704.5	699.8	700.7	702.6	700.7
20°	755.4	754.5	753.5	753.5	759.2	763.9	755.4	744.1	741.3	739.4	739.4
22.5°	788.4	791.3	792.2	800.7	813.9	818.6	807.3	792.2	780.9	775.2	771.5
25°	840.3	837.5	835.6	845.0	864.8	873.3	859.2	838.4	827.1	826.2	829.0
27.5°	887.5	887.5	891.2	900.7	919.5	928.0	915.8	895.0	889.3	889.3	886.5
30°	948.8	945.9	949.7	965.7	979.9	985.5	975.2	961.0	956.3	956.3	951.6
32.5°	1020.4	1021.4	1027.0	1037.4	1051.6	1052.5	1048.7	1042.1	1039.3	1036.5	1041.2
35°	1129.8	1129.8	1127.9	1135.5	1139.3	1141.2	1143.0	1140.2	1140.2	1140.2	1136.4
37.5°	1265.6	1258.1	1257.2	1250.6	1245.8	1250.6	1259.0	1268.5	1276.0	1271.3	1269.4
40°	1400.5	1396.7	1385.4	1375.0	1371.3	1373.2	1383.5	1403.3	1411.8	1411.8	1419.4
42.5°	1545.7	1538.2	1524.0	1511.8	1501.4	1504.2	1513.7	1538.2	1557.1	1565.5	1561.8
45°	1675.9	1669.3	1655.1	1643.8	1636.3	1635.3	1647.6	1663.6	1689.1	1696.6	1702.3
47.5°	1787.2	1782.5	1770.2	1758.9	1761.7	1762.7	1766.4	1780.6	1801.3	1811.7	1810.8
50°	1877.7	1873.9	1862.6	1867.3	1874.9	1882.4	1877.7	1887.1	1900.3	1905.1	1908.8
52.5°	1960.7	1955.0	1947.5	1956.0	1975.8	1990.9	1993.7	1987.1	1990.9	1993.7	1990.9
55°	2042.8	2036.2	2034.3	2049.4	2079.5	2107.8	2105.0	2086.1	2081.4	2075.8	2072.9
57.5°	2109.7	2105.0	2112.5	2138.0	2196.5	2234.2	2221.9	2178.6	2159.7	2146.5	2142.7
60°	2152.2	2151.2	2168.2	2227.6	2316.3	2369.1	2349.3	2274.8	2232.3	2220.1	2214.4
62.5°	2174.8	2175.7	2205.9	2311.5	2453.0	2524.7	2489.8	2375.7	2309.7	2297.4	2299.3
65°	2195.5	2192.7	2232.3	2382.3	2601.1	2698.2	2651.1	2497.3	2401.1	2376.6	2376.6
67.5°	2210.6	2213.5	2272.9	2453.0	2745.4	2884.0	2815.2	2626.5	2499.2	2462.4	2457.7
70°	2020.1	2047.5	2233.3	2500.2	2859.5	3048.1	2957.6	2705.8	2503.0	2398.3	2387.9
72.5°	1534.4	1559.9	1961.6	2416.2	2918.0	3157.5	3010.4	2604.8	2274.8	2141.8	2102.2
75°	1011.9	1029.9	1461.8	2110.7	2755.7	3053.8	2741.6	2243.6	1790.9	1618.4	1628.7
77.5°	450.8	508.3	931.8	1646.7	2270.0	2457.7	2090.9	1530.7	1094.0	926.1	908.2
80°	188.6	206.5	351.8	878.0	1315.6	1259.0	890.3	513.0	326.3	253.7	245.2
82.5°	54.7	56.6	69.8	151.8	267.8	315.0	189.6	96.2	91.5	72.6	67.0
85°	3.8	3.8	5.7	9.4	13.2	21.7	24.5	28.3	32.1	27.3	27.3
87.5°	1.9	1.9	1.9	2.8	2.8	3.8	2.8	2.8	2.8	2.8	2.8
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

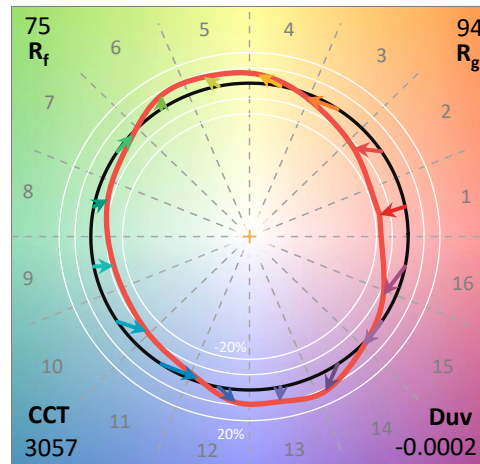
Test Information

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
 Rf: 74.6
 Rg: 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



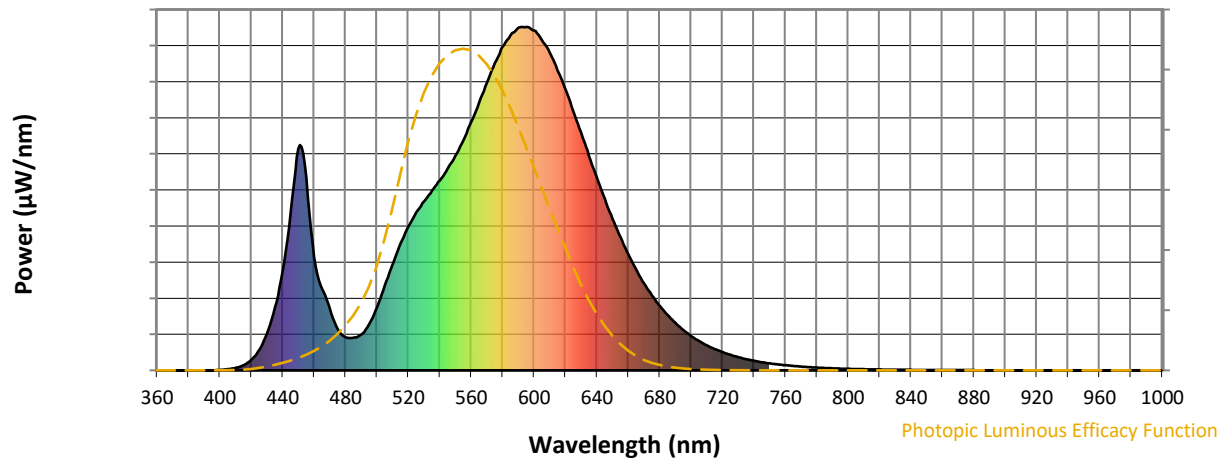
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-157-4

Photopic Flux vs. Wavelength

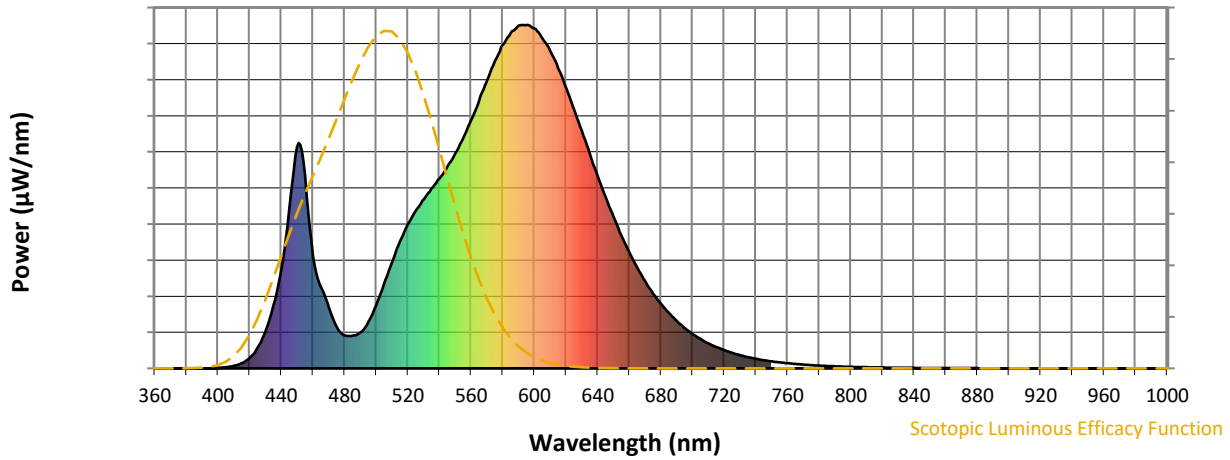


Photopic Lumens: NR

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

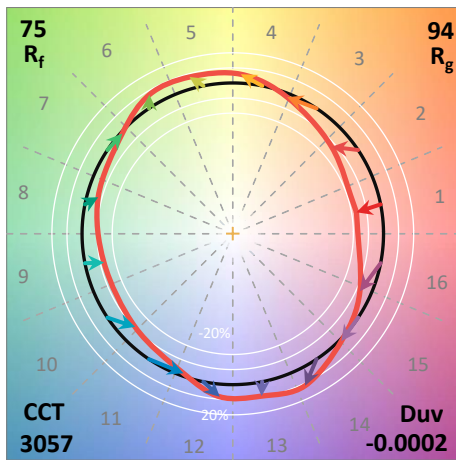
λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)	λ (nm)	Power W [^] /nm	Lumens (ϕ /nm)
360	0	NR	490	104	NR	620	818	NR	750	20	NR	880	1	NR
365	0	NR	495	135	NR	625	755	NR	755	17	NR	885	0	NR
370	0	NR	500	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

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

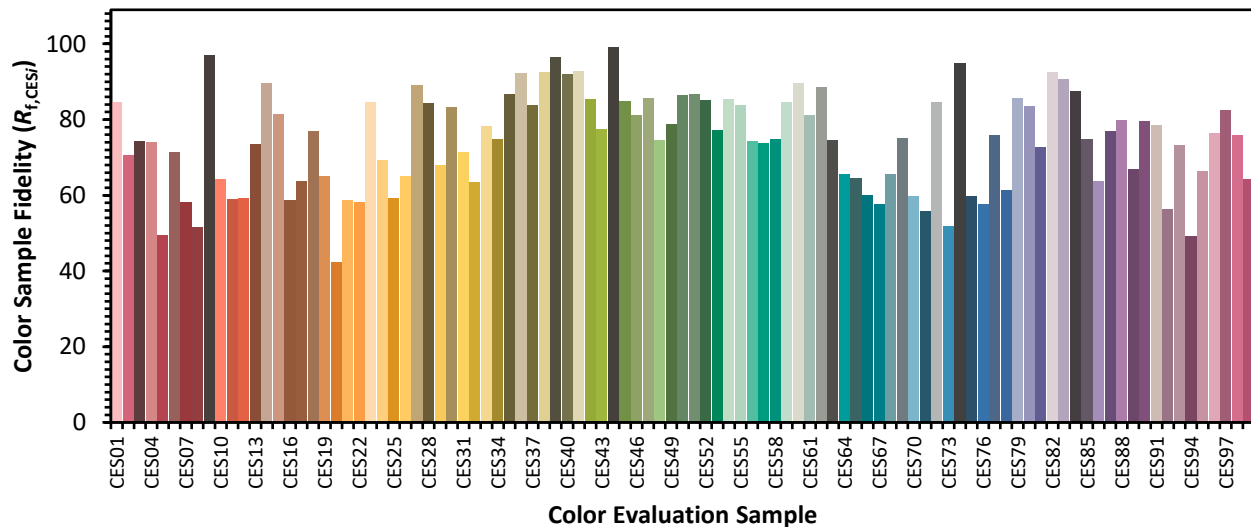


Color Vector Graphics

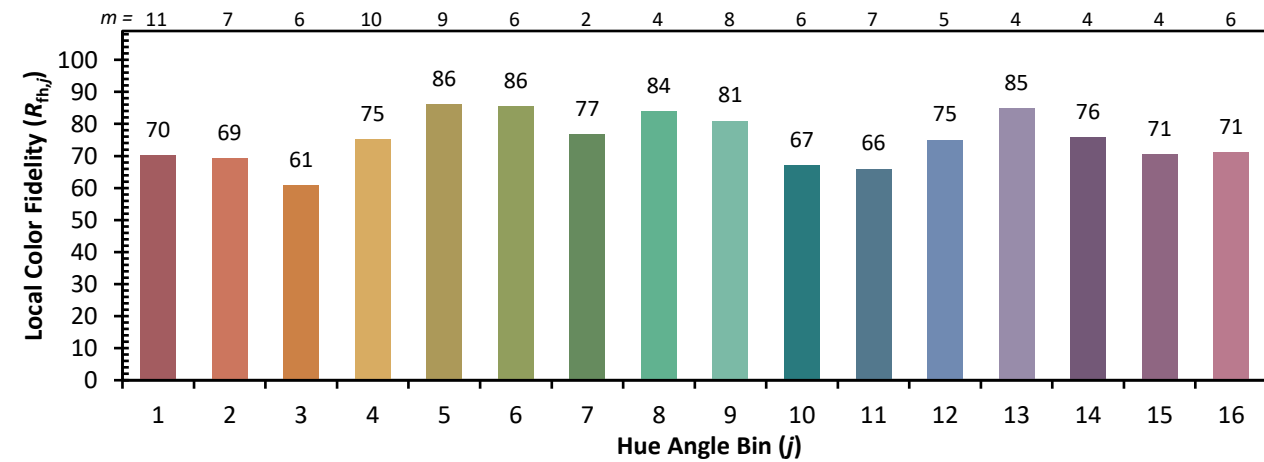
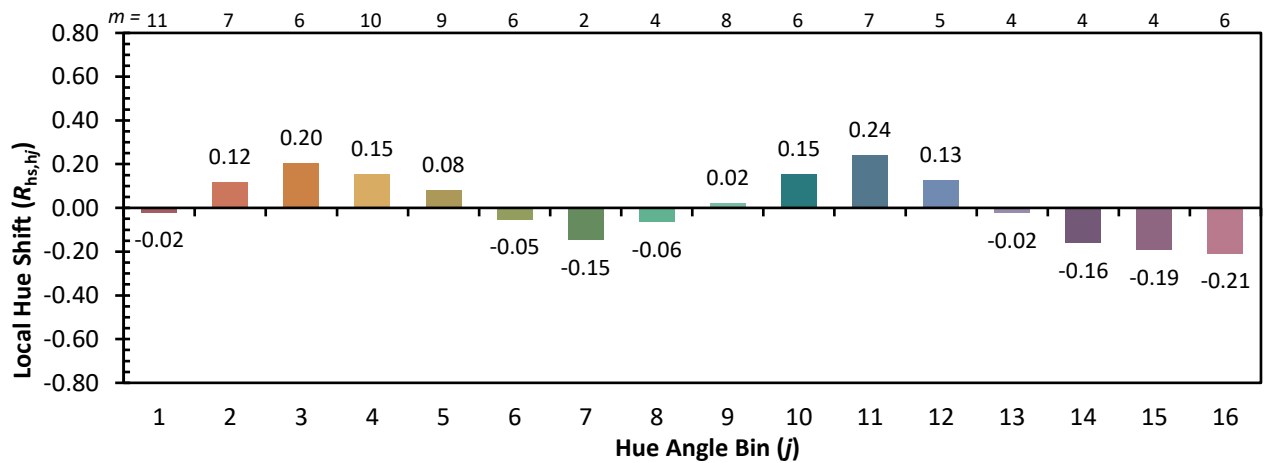
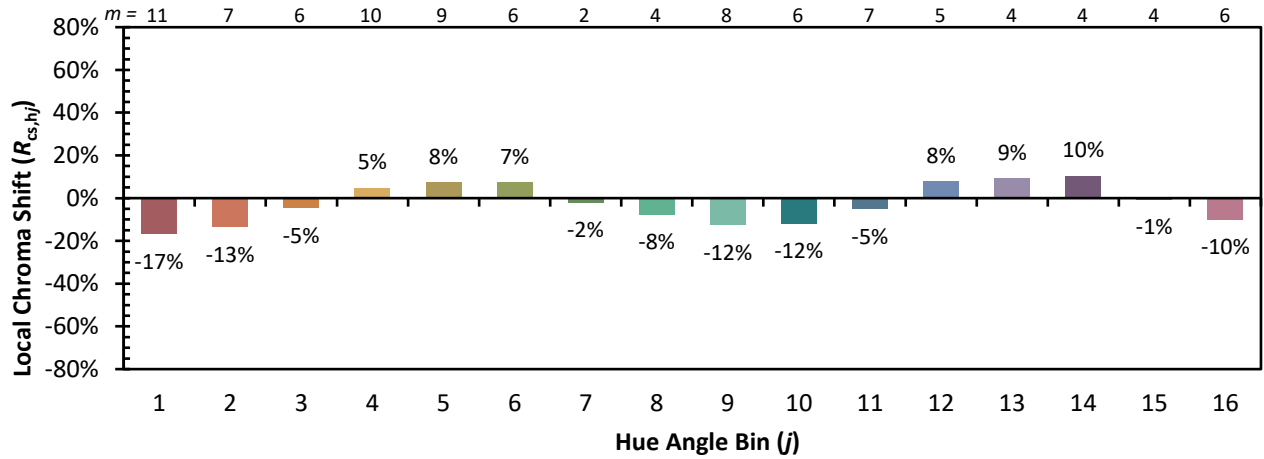


Individual Sample Fidelity Index ($R_{f,i}$)

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)