

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: P869138

Luminaire Tested: **EMM2-HSN-SA1A-750-U-T5M**

Issue Date: 08/22/2024



Test Information

Test Method: LM-79-08
Report Number: P869138
Test Lab: INNOVATION CENTER(G3)
Issue Date: 08/22/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-SA1A-750-U-T5M
Description: EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 40W 70CRI 5000K
FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source: (10) 5000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

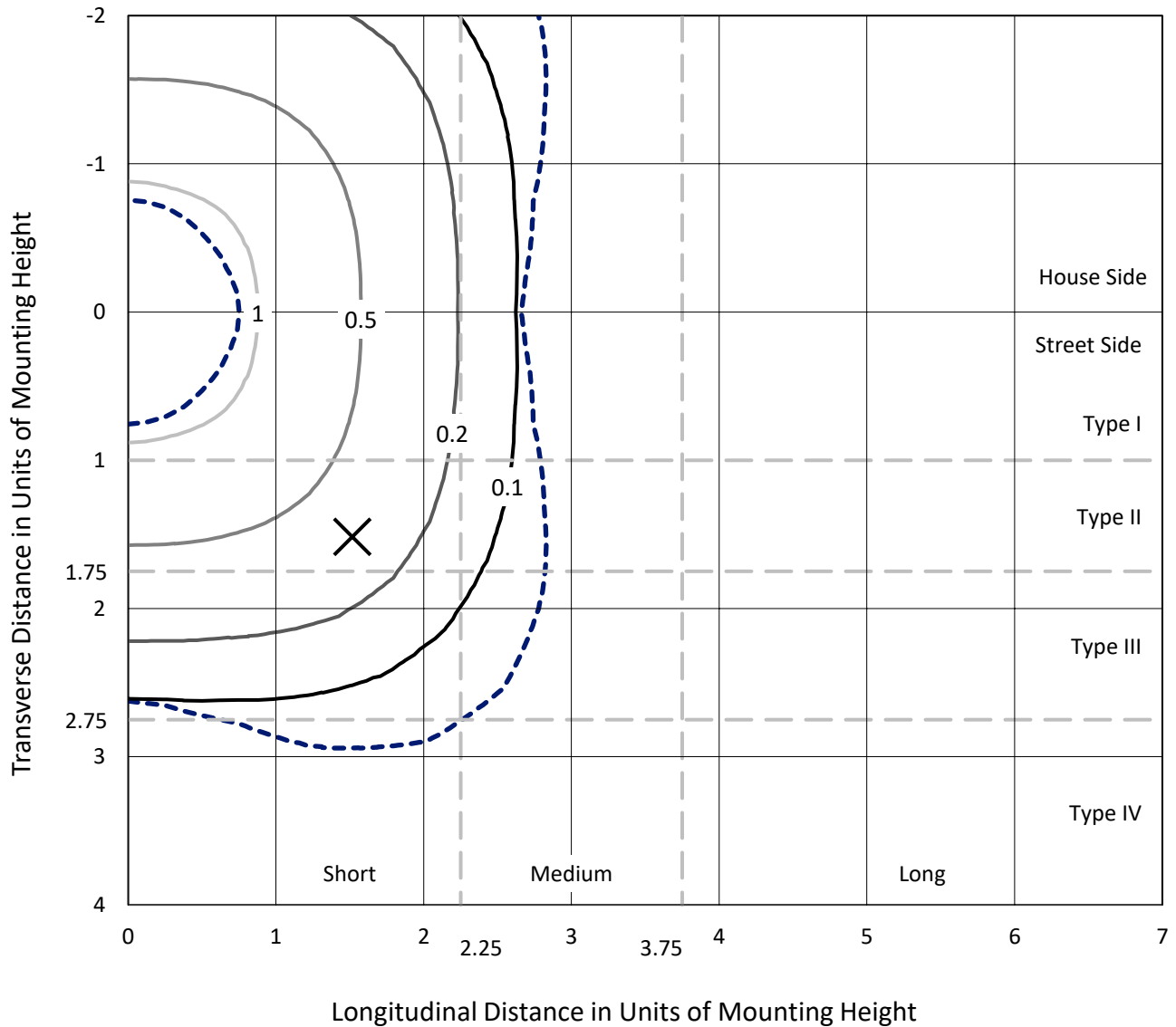
Lumens per Lamp: N/A
Luminaire Lumens: 5077.2 lumens
Efficiency: N/A
Efficacy: 154.8 lumens/watt
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
IES Classification: Type V - Short
BUG Rating: B2 - U0 - G1

Input Watts (W): 32.8
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 9.76%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P869138
 CATALOG NUMBER: EMM2-HSN-SA1A-750-U-T5M

Iso-Footcandle Lines of Horizontal Illumination

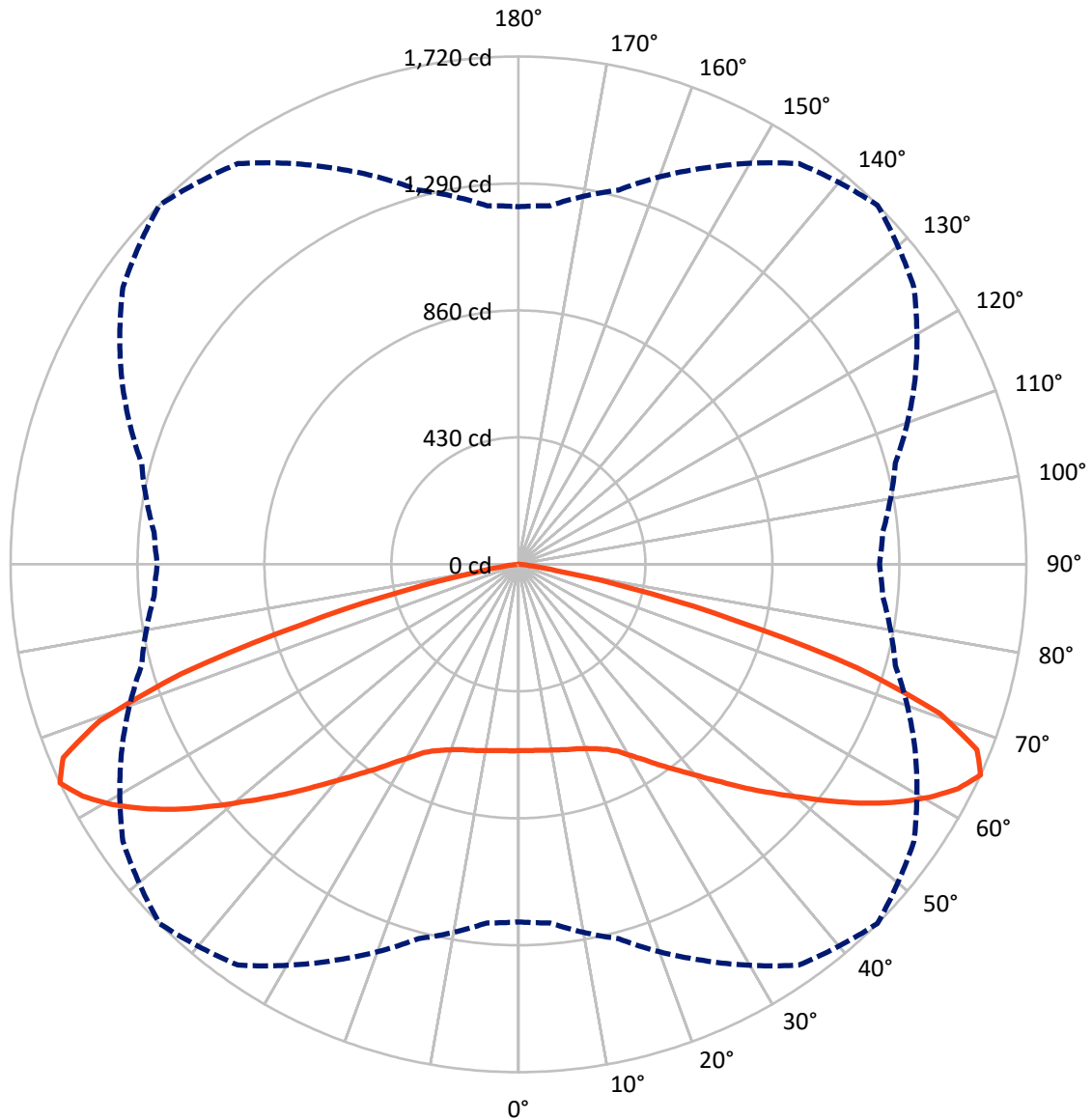
× Max cd
 - - - 1/2 Max cd



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

REPORT NUMBER: P869138
CATALOG NUMBER: EMM2-HSN-SA1A-750-U-T5M

Luminous Intensity Polar Plot



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

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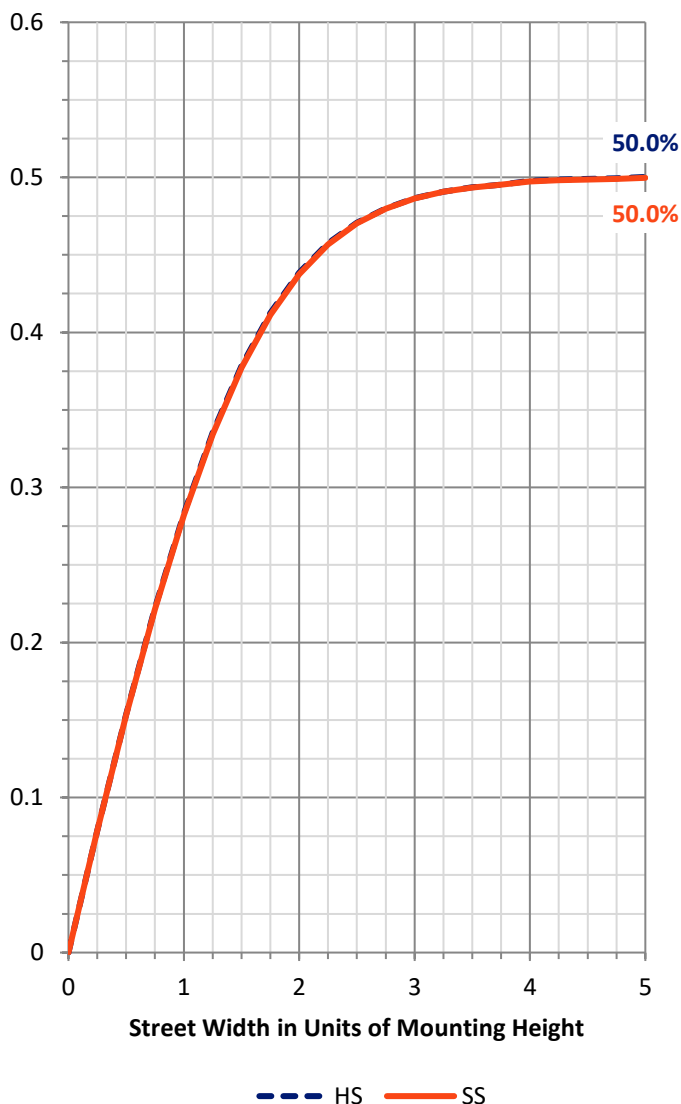
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2538.6	0.0	2538.6
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2538.6	0.0	2538.6
	% Fixture	50.0	0.0	50.0
Total	Lumens	5077.2	0.0	5077.2
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.7	1.2
10°-20°	184.6	3.6
20°-30°	324.8	6.4
30°-40°	525.3	10.3
40°-50°	818.2	16.1
50°-60°	1196.4	23.6
60°-70°	1377.7	27.1
70°-80°	562.7	11.1
80°-90°	26.9	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°	5077.2	100.0
0°-180°	5077.2	100.0

Coefficient of Utilization



REPORT NUMBER: P869138

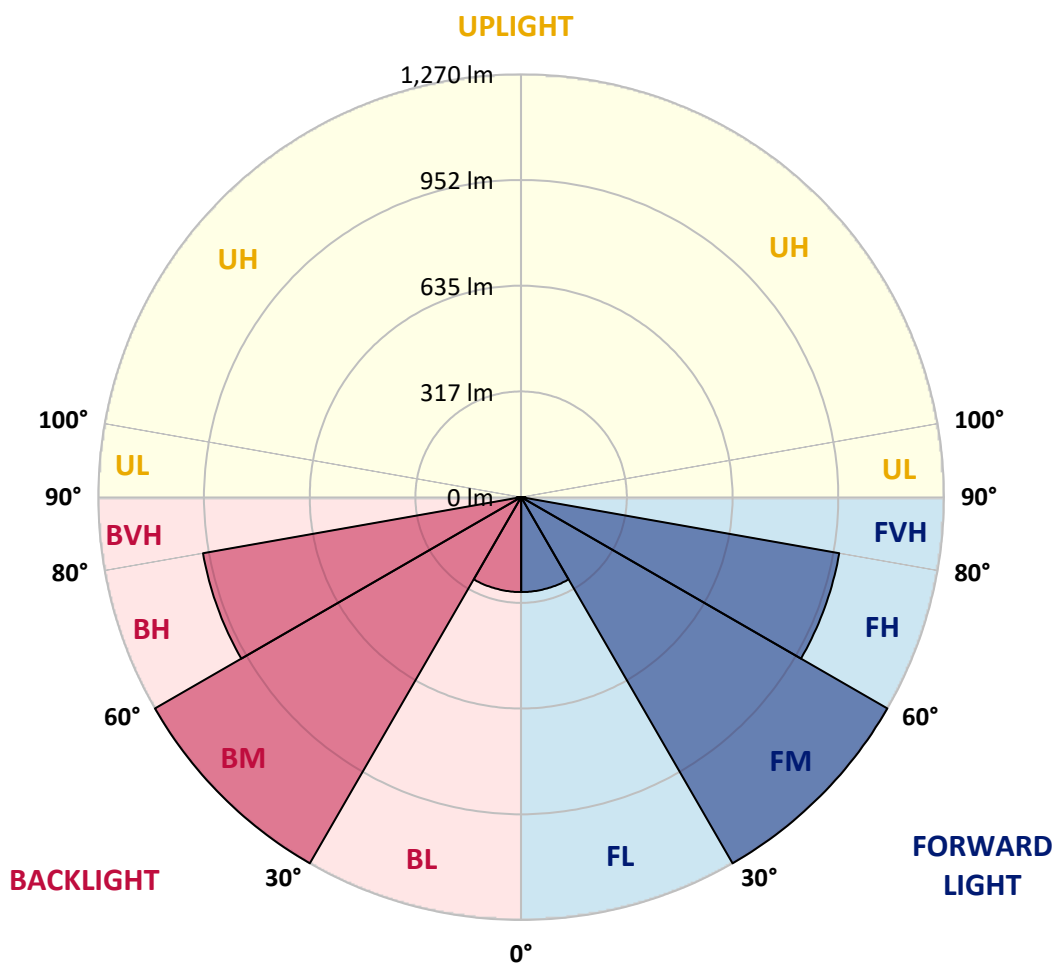
CATALOG NUMBER: EMM2-HSN-SA1A-750-U-T5M

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	285.0	5.6			
FM (30°-60°)	1269.9	25.0			
FH (60°-80°)	970.2	19.1			G1/1800
FVH (80°-90°)	13.5	0.3			G1/100
BL (0°-30°)	285.0	5.6	B1/500		
BM (30°-60°)	1269.9	25.0	B2/2500		
BH (60°-80°)	970.2	19.1	B2/1000		G1/1800
BVH (80°-90°)	13.5	0.3			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G1

Type V Short





REPORT NUMBER: P869138

CATALOG NUMBER: EMM2-HSN-SA1A-750-U-T5M

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	630.9	630.9	630.9	630.9	630.9	630.9	630.9	630.9	630.9	630.9	630.9
2.5°	632.8	632.8	631.8	631.8	629.9	631.8	630.9	631.8	630.9	630.9	631.8
5°	634.8	634.8	632.8	633.8	631.8	632.8	631.8	633.8	632.8	631.8	633.8
7.5°	637.7	637.7	635.7	636.7	634.8	635.7	634.8	636.7	635.7	635.7	636.7
10°	640.6	641.6	639.6	638.7	638.7	639.6	640.6	641.6	640.6	640.6	642.6
12.5°	645.5	646.5	644.5	643.5	643.5	644.5	645.5	647.4	644.5	644.5	644.5
15°	650.4	650.4	649.4	648.4	649.4	650.4	650.4	652.3	650.4	648.4	648.4
17.5°	652.3	653.3	652.3	654.3	655.2	656.2	657.2	657.2	654.3	653.3	653.3
20°	659.1	660.1	658.2	659.1	662.1	666.0	666.0	666.0	666.0	663.0	663.0
22.5°	670.8	671.8	670.8	670.8	674.7	678.7	678.7	681.6	677.7	675.7	675.7
25°	690.4	690.4	689.4	690.4	692.3	694.3	698.2	700.1	700.1	699.1	700.1
27.5°	713.8	714.7	713.8	713.8	712.8	716.7	722.5	725.5	726.4	727.4	727.4
30°	745.0	746.9	745.9	746.9	748.9	751.8	753.7	754.7	754.7	752.8	752.8
32.5°	779.1	781.0	779.1	784.0	790.8	790.8	788.8	792.7	789.8	787.9	785.9
35°	819.1	819.1	821.0	823.0	832.7	837.6	837.6	835.6	829.8	826.9	828.8
37.5°	864.9	865.9	867.8	868.8	877.6	886.3	885.4	880.5	873.7	865.9	865.9
40°	919.5	917.5	918.5	925.3	932.2	942.9	943.9	937.0	925.3	917.5	917.5
42.5°	969.2	970.2	974.1	982.9	998.5	1007.2	1002.4	990.7	978.0	968.2	967.3
45°	1021.9	1020.9	1031.6	1050.2	1070.6	1081.4	1073.6	1057.0	1037.5	1024.8	1024.8
47.5°	1075.5	1074.5	1092.1	1122.3	1148.6	1157.4	1149.6	1128.2	1101.8	1083.3	1080.4
50°	1131.1	1135.0	1153.5	1196.4	1230.5	1240.3	1230.5	1202.3	1167.2	1142.8	1138.9
52.5°	1194.5	1197.4	1221.8	1268.6	1310.5	1332.9	1318.3	1276.4	1231.5	1202.3	1198.4
55°	1253.0	1254.9	1290.0	1346.6	1398.3	1428.5	1405.1	1351.5	1294.9	1257.8	1253.9
57.5°	1293.9	1298.8	1343.6	1416.8	1483.1	1518.2	1483.1	1425.6	1350.5	1304.6	1301.7
60°	1320.2	1328.0	1379.7	1471.4	1563.0	1601.1	1565.0	1485.0	1392.4	1332.9	1330.0
62.5°	1306.6	1317.3	1383.6	1503.6	1631.3	1672.2	1625.4	1513.3	1387.5	1312.4	1304.6
65°	1211.0	1218.8	1312.4	1480.2	1656.6	1720.0	1635.2	1482.1	1321.2	1238.3	1222.7
67.5°	1013.1	1026.8	1150.6	1367.1	1602.0	1675.2	1567.9	1370.0	1175.9	1074.5	1057.0
70°	778.1	802.5	938.0	1173.0	1431.4	1514.3	1396.3	1156.4	928.3	824.9	792.7
72.5°	449.5	487.5	686.5	915.6	1138.9	1201.3	1035.5	808.3	616.2	543.1	534.3
75°	149.2	162.8	326.6	527.5	726.4	757.6	647.4	510.0	405.6	347.1	350.1
77.5°	73.1	73.1	98.5	193.1	330.5	390.0	354.0	246.7	177.5	134.6	130.7
80°	58.5	58.5	68.3	94.6	111.2	130.7	111.2	80.9	66.3	60.5	63.4
82.5°	28.3	27.3	32.2	45.8	46.8	44.9	41.9	41.9	40.0	37.1	36.1
85°	2.0	2.0	3.9	8.8	14.6	19.5	22.4	21.5	20.5	17.6	19.5
87.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0
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

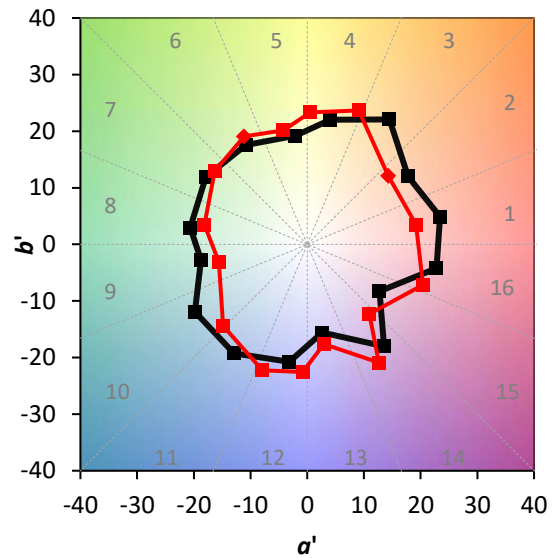
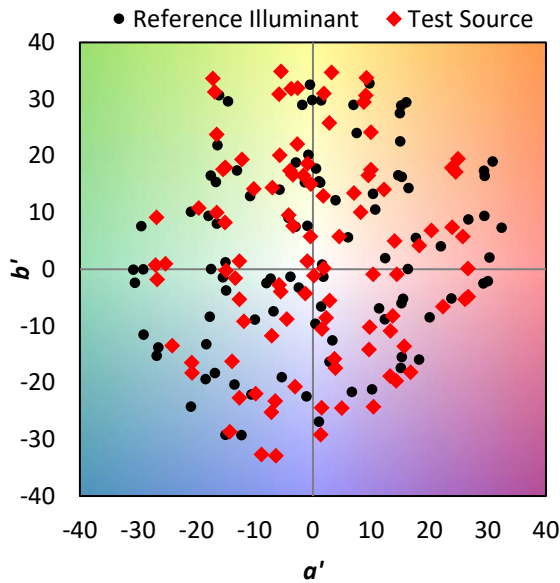
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR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

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

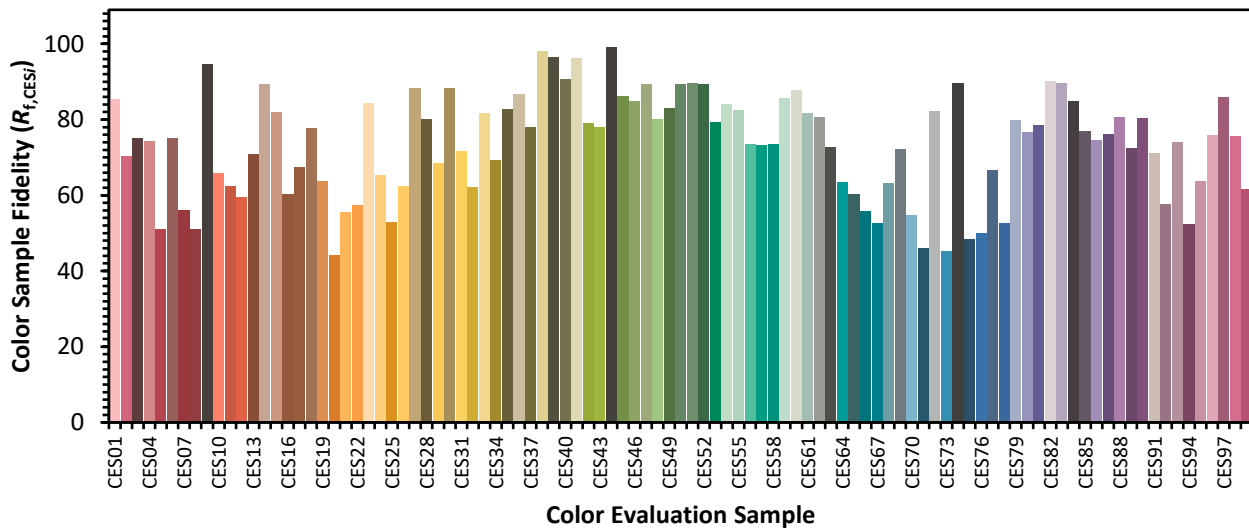


Color Vector Graphics



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)