

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: P880341

Luminaire Tested: **EMM2-HSN-VA2-740-U-WQ**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P880341  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-VA2-740-U-WQ  
Description: EPIC MODERN SHORT HOUSING 2W 70CRI 4000K VISUAL COMFORT FIXTURE w/  
TYPE V WIDE DISTRIBUTION OPTIC  
Light Source: (1) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

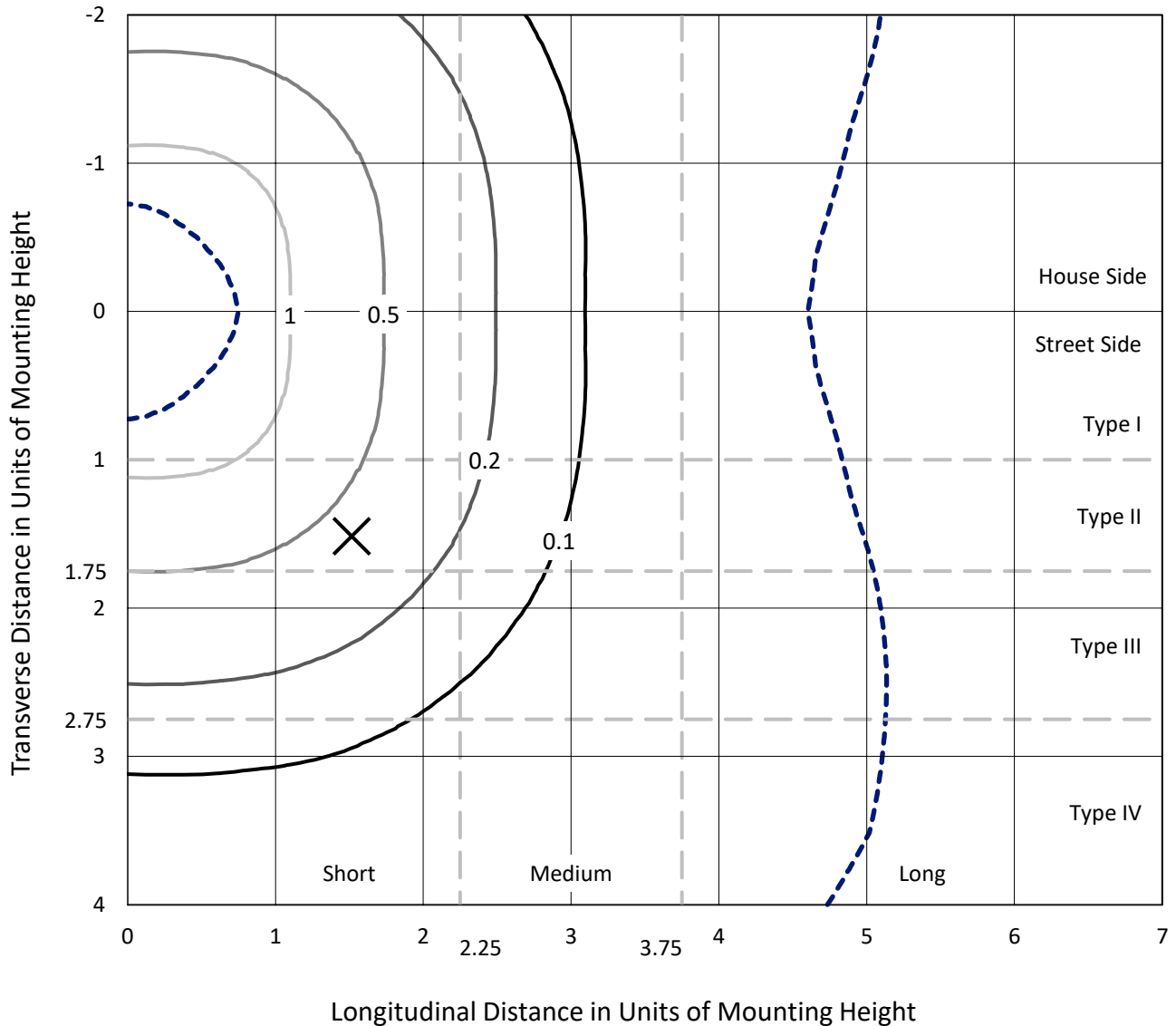
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4261.9 lumens  
Efficiency: N/A  
Efficacy: 110.4 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B2 - U0 - G2  
  
Input Watts (W): 38.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 13%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

REPORT NUMBER: P880341  
 CATALOG NUMBER: EMM2-HSN-VA2-740-U-WQ

### Iso-Footcandle Lines of Horizontal Illumination

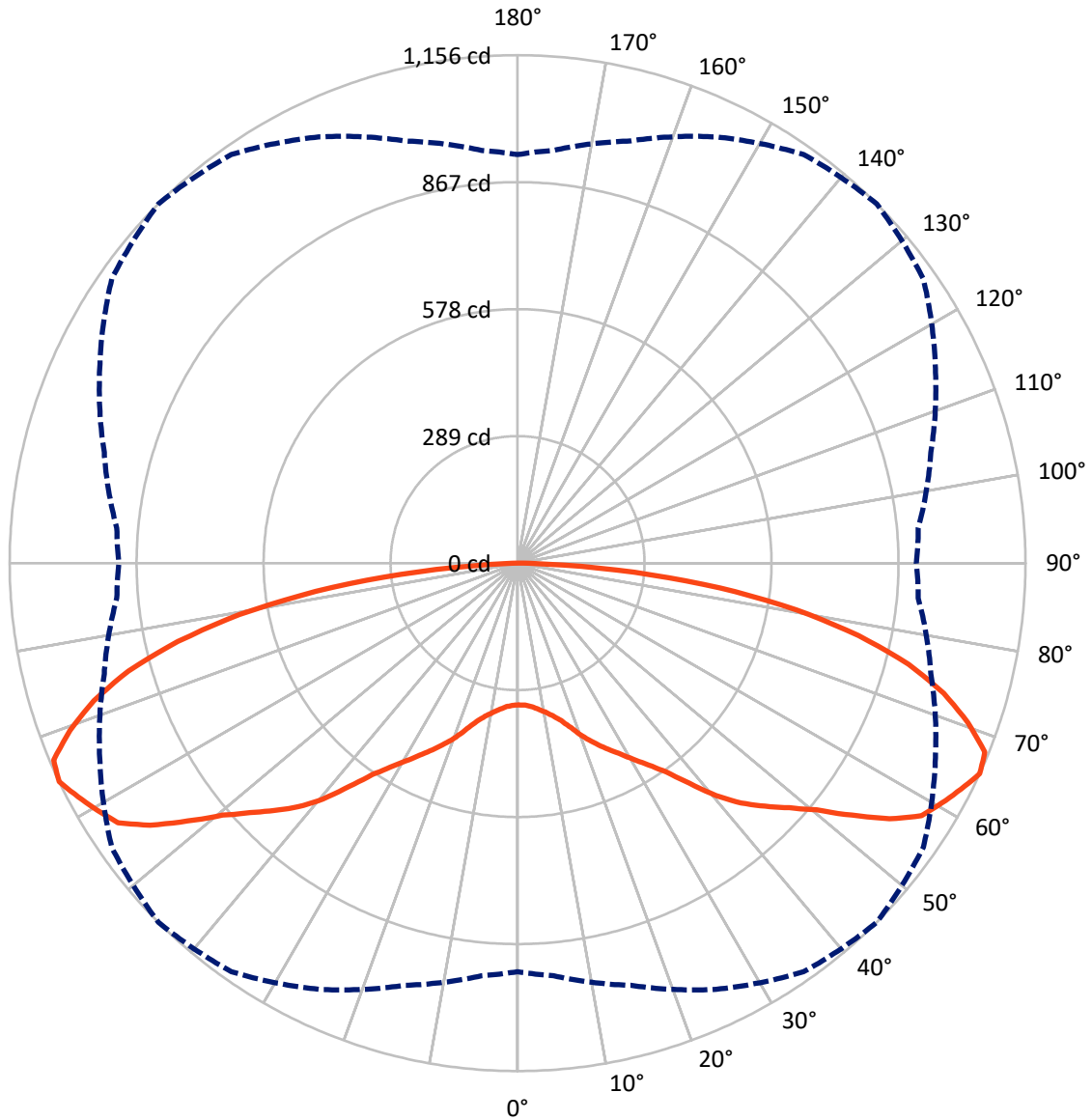
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.5 fc  
 Type V - Short - N/A

REPORT NUMBER: P880341  
CATALOG NUMBER: EMM2-HSN-VA2-740-U-WQ

### Luminous Intensity Polar Plot



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

REPORT NUMBER: P880341  
 CATALOG NUMBER: EMM2-HSN-VA2-740-U-WQ

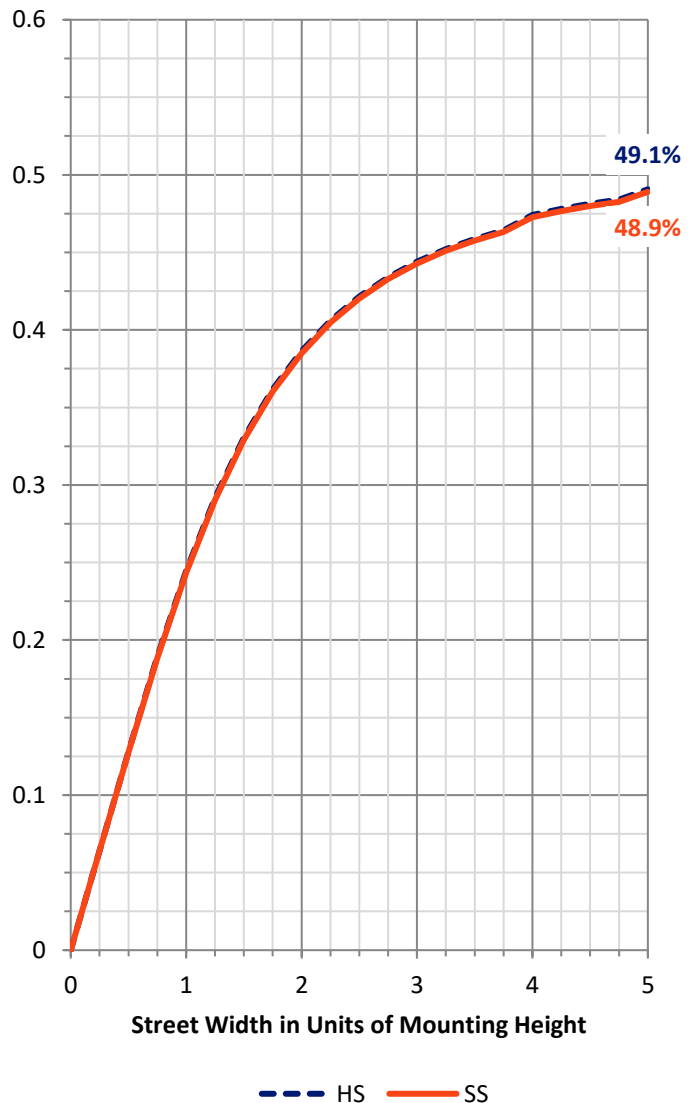
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	2131.0	0.0	2131.0
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	2131.0	0.0	2131.0
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	4261.9	0.0	4261.9
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	31.9	0.7
10°-20°	107.2	2.5
20°-30°	215.5	5.1
30°-40°	364.7	8.6
40°-50°	583.0	13.7
50°-60°	842.1	19.8
60°-70°	1014.0	23.8
70°-80°	840.0	19.7
80°-90°	263.6	6.2
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°	4261.9	100.0
0°-180°	4261.9	100.0

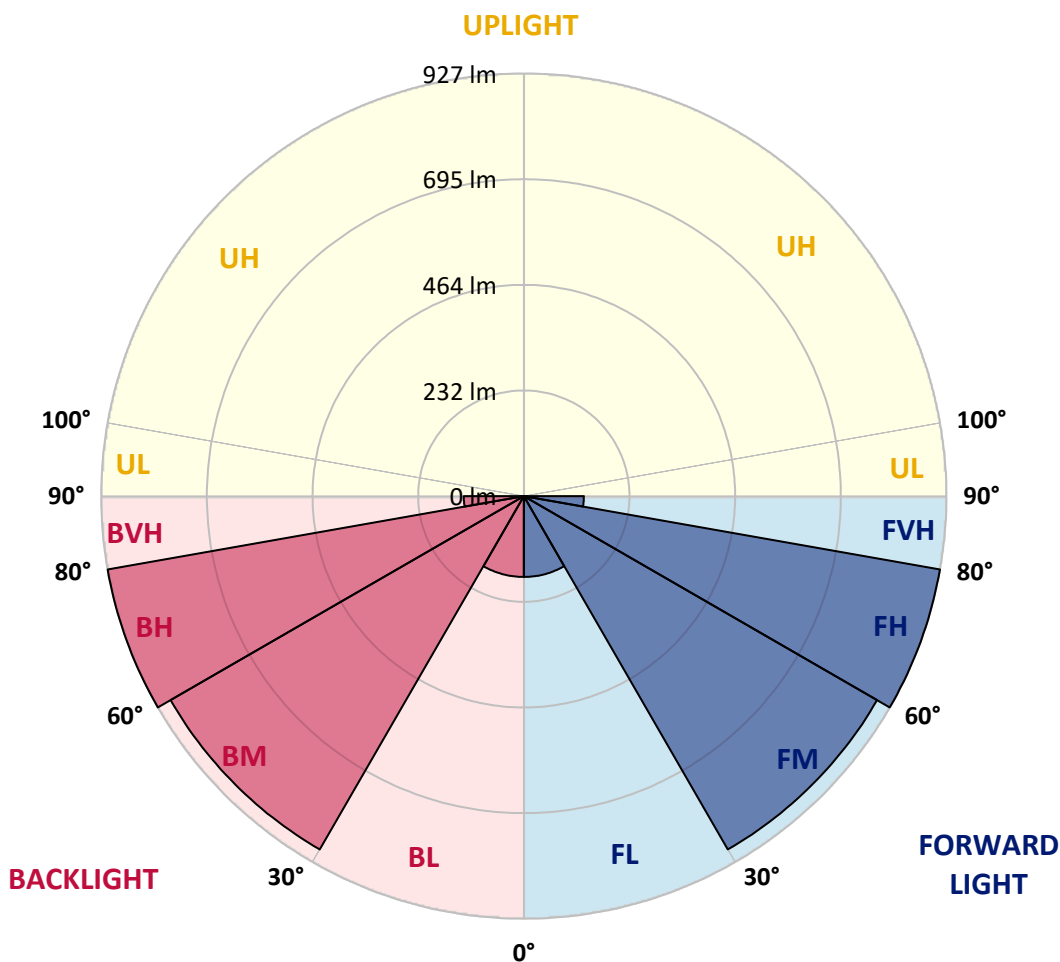


REPORT NUMBER: P880341  
 CATALOG NUMBER: EMM2-HSN-VA2-740-U-WQ

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	177.3	4.2			
FM (30°-60°)	894.9	21.0			
FH (60°-80°)	927.0	21.8			G1/1800
FVH (80°-90°)	131.8	3.1			G2/225
BL (0°-30°)	177.3	4.2	B1/500		
BM (30°-60°)	894.9	21.0	B1/1000		
BH (60°-80°)	927.0	21.8	B2/1000		G1/1800
BVH (80°-90°)	131.8	3.1			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B2-U0-G2**  
 Type V Short





REPORT NUMBER: P880341

CATALOG NUMBER: EMM2-HSN-VA2-740-U-WQ

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	322.6	322.6	322.6	322.6	322.6	322.6	322.6	322.6	322.6	322.6	322.6
2.5°	323.9	323.9	323.9	323.9	323.9	323.9	323.9	323.9	323.9	323.9	323.9
5°	329.1	329.1	329.1	327.8	327.8	327.8	329.1	329.1	329.1	329.1	329.1
7.5°	335.6	335.6	335.6	335.6	335.6	335.6	334.3	334.3	334.3	334.3	335.6
10°	344.7	346.0	346.0	344.7	344.7	344.7	343.4	343.4	344.7	344.7	343.4
12.5°	357.7	357.7	357.7	357.7	356.4	356.4	356.4	356.4	356.4	356.4	356.4
15°	372.0	372.0	372.0	372.0	372.0	372.0	372.0	372.0	370.7	369.4	369.4
17.5°	390.2	388.9	391.5	390.2	392.8	394.1	391.5	390.2	388.9	387.6	386.3
20°	412.3	413.6	416.2	417.5	418.8	420.1	416.2	414.9	412.3	411.0	409.7
22.5°	438.3	438.3	440.9	440.9	443.5	443.5	442.2	438.3	435.7	435.7	434.4
25°	460.4	461.7	464.3	464.3	466.9	466.9	465.6	463.0	459.1	456.5	455.2
27.5°	483.8	483.8	485.2	489.1	490.4	490.4	489.1	485.2	479.9	477.3	477.3
30°	506.0	507.3	508.6	513.8	516.4	517.7	512.5	508.6	502.1	499.5	499.5
32.5°	532.0	532.0	534.6	542.4	546.3	547.6	542.4	535.9	528.1	522.9	522.9
35°	560.6	559.3	567.1	574.9	584.0	584.0	580.1	569.7	558.0	551.5	550.2
37.5°	598.3	599.6	607.4	621.7	636.0	636.0	632.1	613.9	600.9	589.2	586.6
40°	642.5	643.8	658.1	675.0	690.7	695.9	688.1	669.8	647.7	630.8	629.5
42.5°	680.3	685.5	699.8	723.2	738.8	746.6	734.9	714.1	689.4	669.8	665.9
45°	716.7	721.9	740.1	764.8	784.3	789.5	779.1	754.4	725.8	705.0	702.4
47.5°	750.5	755.7	773.9	806.4	827.2	832.4	823.3	794.7	759.6	738.8	736.2
50°	781.7	793.4	815.5	850.6	880.6	883.2	870.1	836.3	799.9	771.3	767.4
52.5°	824.6	829.8	861.0	907.9	941.7	953.4	932.6	896.2	842.8	809.0	802.5
55°	876.7	879.3	913.1	967.7	1011.9	1027.5	1001.5	954.7	893.6	859.7	854.5
57.5°	906.6	918.3	957.3	1015.8	1063.9	1084.8	1060.0	998.9	939.1	896.2	884.5
60°	919.6	931.3	974.2	1044.4	1096.5	1109.5	1091.3	1031.4	953.4	905.3	897.5
62.5°	932.6	944.3	987.2	1063.9	1114.7	1132.9	1104.3	1050.9	966.4	919.6	909.2
65°	930.0	943.0	995.0	1070.5	1135.5	1156.3	1127.7	1049.6	974.2	915.7	907.9
67.5°	904.0	915.7	970.3	1053.5	1125.1	1147.2	1116.0	1035.3	950.8	891.0	881.9
70°	851.9	866.2	919.6	1010.6	1077.0	1087.4	1063.9	991.1	902.7	838.9	827.2
72.5°	781.7	796.0	850.6	944.3	996.3	1014.5	988.5	926.1	836.3	771.3	760.9
75°	698.5	707.6	758.3	846.7	902.7	919.6	900.1	832.4	741.4	689.4	677.6
77.5°	600.9	613.9	659.4	733.6	777.8	793.4	775.2	727.1	642.5	598.3	589.2
80°	472.1	487.8	529.4	585.3	632.1	643.8	628.2	576.2	522.9	474.7	464.3
82.5°	340.8	344.7	382.4	422.7	457.8	464.3	452.6	424.0	368.1	335.6	321.3
85°	178.2	183.4	210.7	240.6	262.7	266.6	261.4	230.2	212.0	182.1	170.4
87.5°	40.3	41.6	49.4	54.6	66.3	65.0	68.9	54.6	52.0	42.9	37.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-5

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-740-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-740-U-WQ



**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-5  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 09/27/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Streetworks  
 Catalog Number: **MEM2-HTN-VA-30-740-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

**Spectral Parameters**

CCT (K): 3819  
 CIE u': 0.2261  
 CIE v': 0.5108  
 Duv: 0.0046  
 CIE x: 0.3926  
 CIE y: 0.3942  
 CIE z: 0.2132  
 Peak Wavelength (nm): 450  
 Dominant Wavelength (nm): 577  
 Purity: 36.15483  
 Rf: 75.6  
 Rg: 94.8

CRI (Ra):	72.9		
R1:	70.1	R9:	-21.5
R2:	78.4	R10:	48.5
R3:	85.0	R11:	68.4
R4:	72.9	R12:	39.0
R5:	69.1	R13:	71.1
R6:	69.2	R14:	91.3
R7:	82.8	R15:	63.2
R8:	55.4		



**Test Conditions**

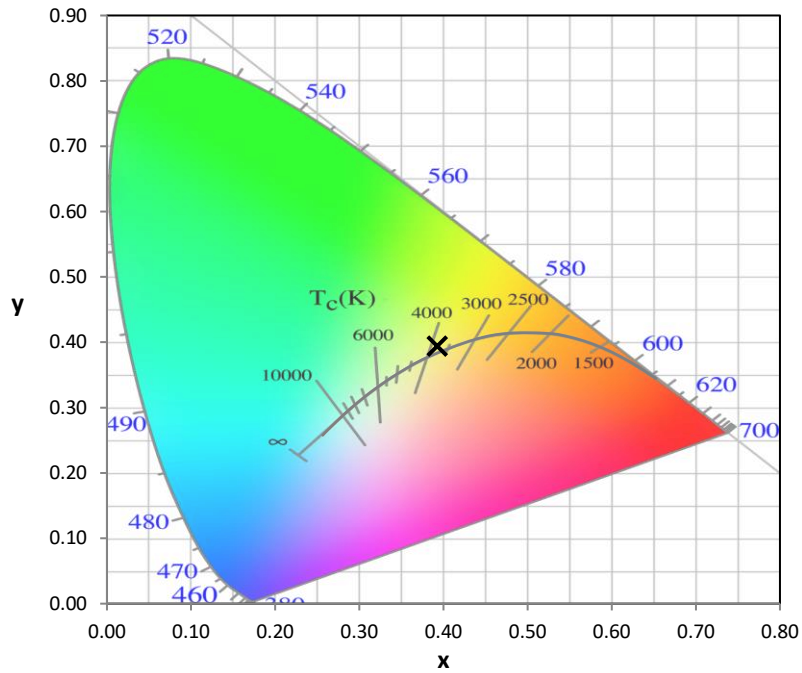
Stabilization Time: 30M  
 Operation Time: 1H 30M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-5

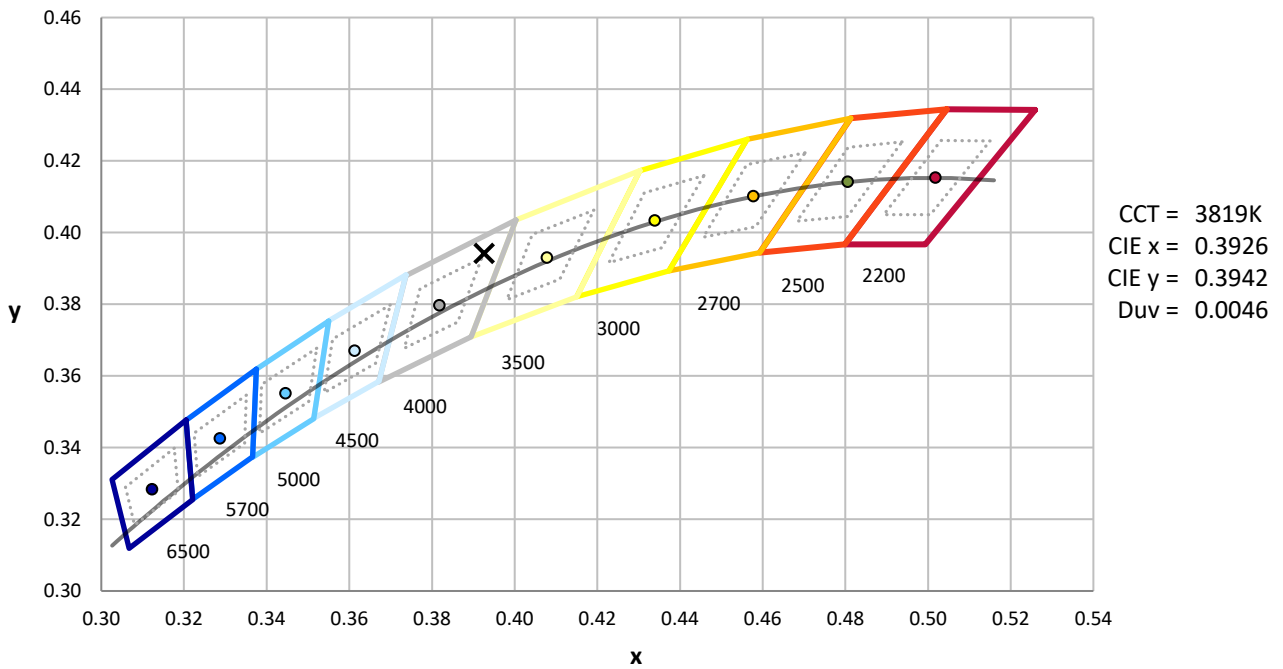
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

REPORT NUMBER: SP1-2407-176-5

**CIE 1931 Chromaticity Diagram**



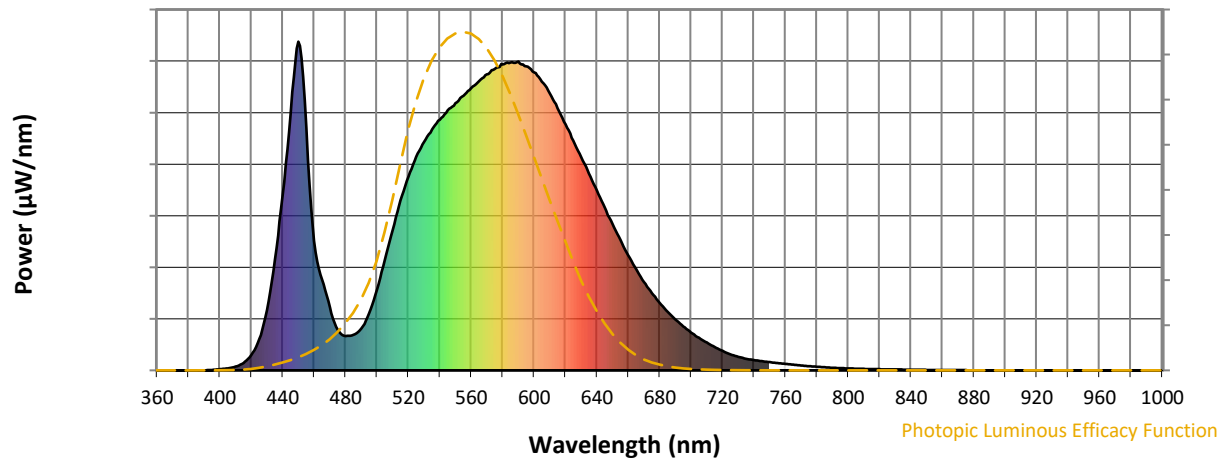
**CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles**



Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2407-176-5

**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-5

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.45**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.76

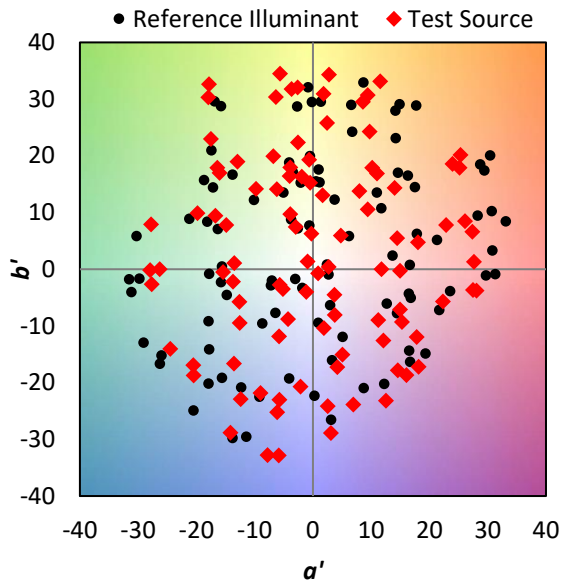
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

**Summary**

$R_f = 75.6$   
 $R_g = 94.8$   
 $CIE R_a = 72.9$   
 $R_g = -21.5$

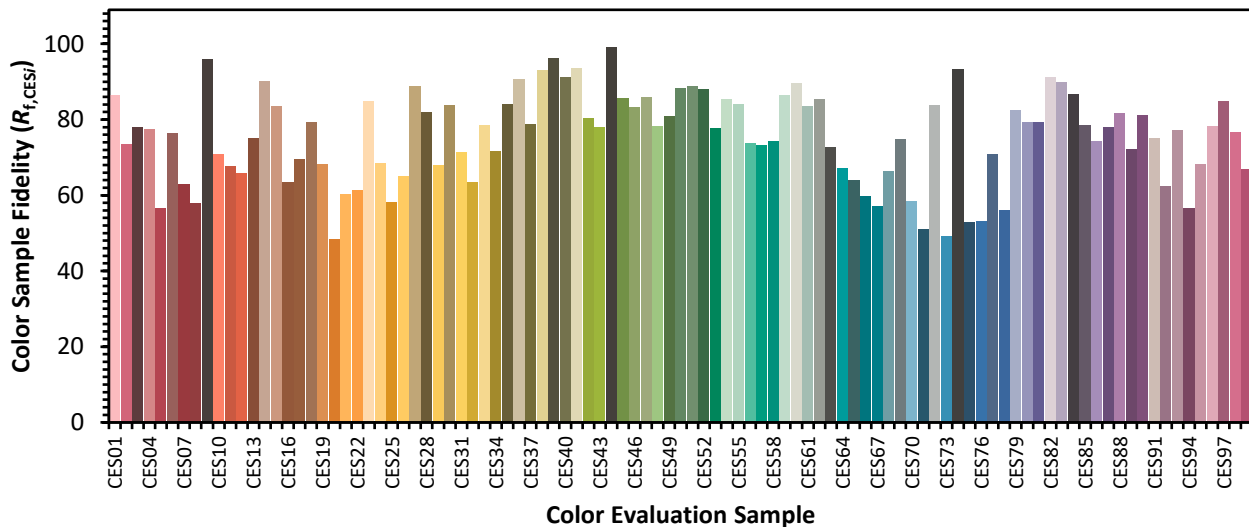


**Color Vector Graphics**



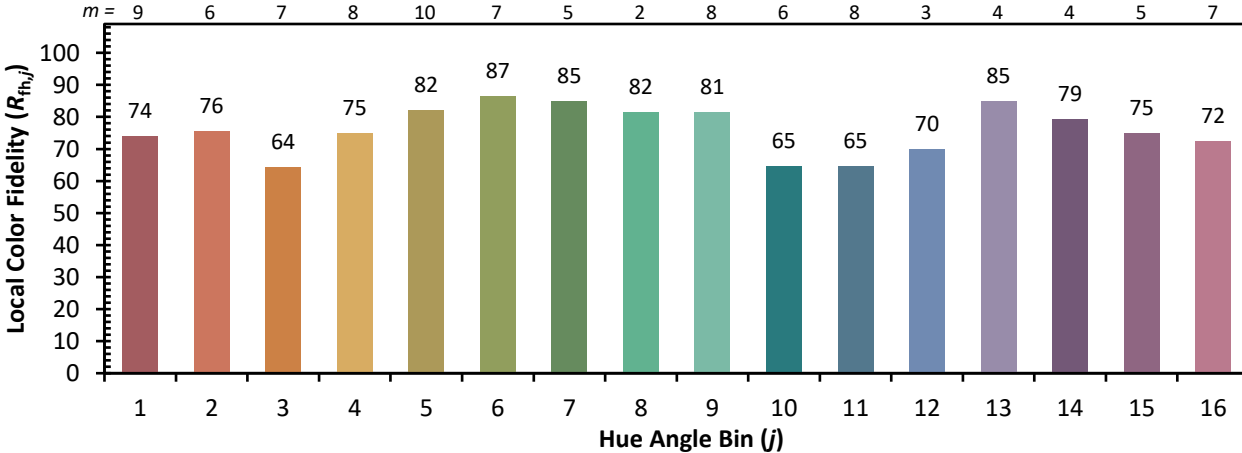
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 85	CES26 = 65	CES51 = 89	CES76 = 53
CES02 = 61	CES27 = 89	CES52 = 88	CES77 = 71
CES03 = 30	CES28 = 82	CES53 = 78	CES78 = 56
CES04 = 70	CES29 = 68	CES54 = 85	CES79 = 83
CES05 = 48	CES30 = 84	CES55 = 84	CES80 = 79
CES06 = 50	CES31 = 71	CES56 = 74	CES81 = 79
CES07 = 40	CES32 = 63	CES57 = 73	CES82 = 91
CES08 = 39	CES33 = 79	CES58 = 74	CES83 = 90
CES09 = 29	CES34 = 72	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 84	CES60 = 90	CES85 = 78
CES11 = 57	CES36 = 91	CES61 = 84	CES86 = 74
CES12 = 63	CES37 = 79	CES62 = 85	CES87 = 78
CES13 = 42	CES38 = 93	CES63 = 73	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 67	CES89 = 72
CES15 = 71	CES40 = 91	CES65 = 64	CES90 = 81
CES16 = 47	CES41 = 93	CES66 = 60	CES91 = 75
CES17 = 49	CES42 = 80	CES67 = 57	CES92 = 62
CES18 = 56	CES43 = 78	CES68 = 66	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 75	CES94 = 57
CES20 = 65	CES45 = 86	CES70 = 58	CES95 = 68
CES21 = 86	CES46 = 83	CES71 = 51	CES96 = 78
CES22 = 78	CES47 = 86	CES72 = 84	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 49	CES98 = 77
CES24 = 91	CES49 = 81	CES74 = 93	CES99 = 67
CES25 = 72	CES50 = 88	CES75 = 53	





Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)