

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: P880419

Luminaire Tested: **EMM2-HSN-VA2-750-U-MQ**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P880419  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-VA2-750-U-MQ  
Description: EPIC MODERN SHORT HOUSING 2W 70CRI 5000K VISUAL COMFORT FIXTURE w/  
TYPE V MEDIUM DISTRIBUTION OPTIC  
Light Source: (1) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

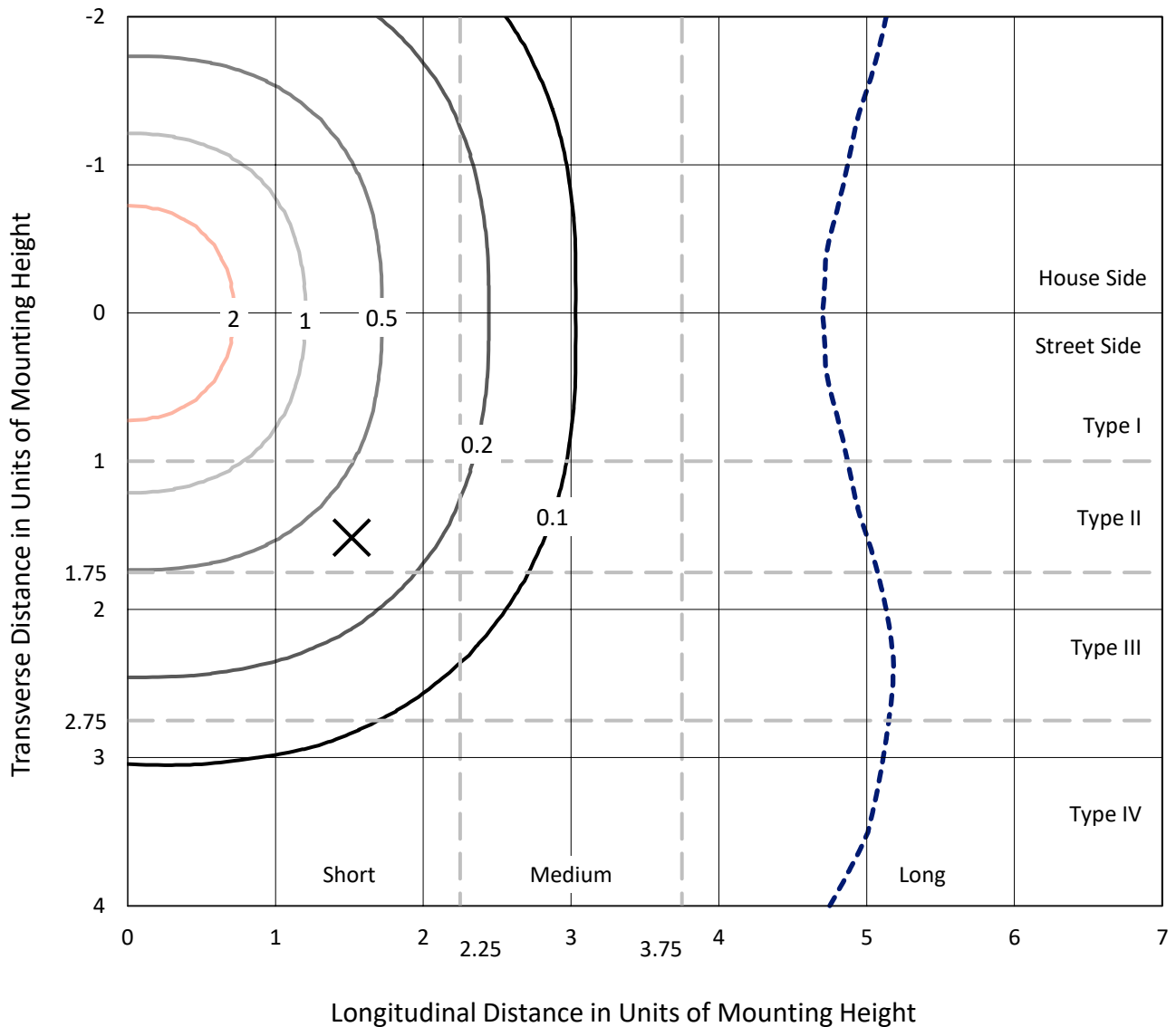
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4746.9 lumens  
Efficiency: N/A  
Efficacy: 123.0 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: P880419  
 CATALOG NUMBER: EMM2-HSN-VA2-750-U-MQ

### Iso-Footcandle Lines of Horizontal Illumination

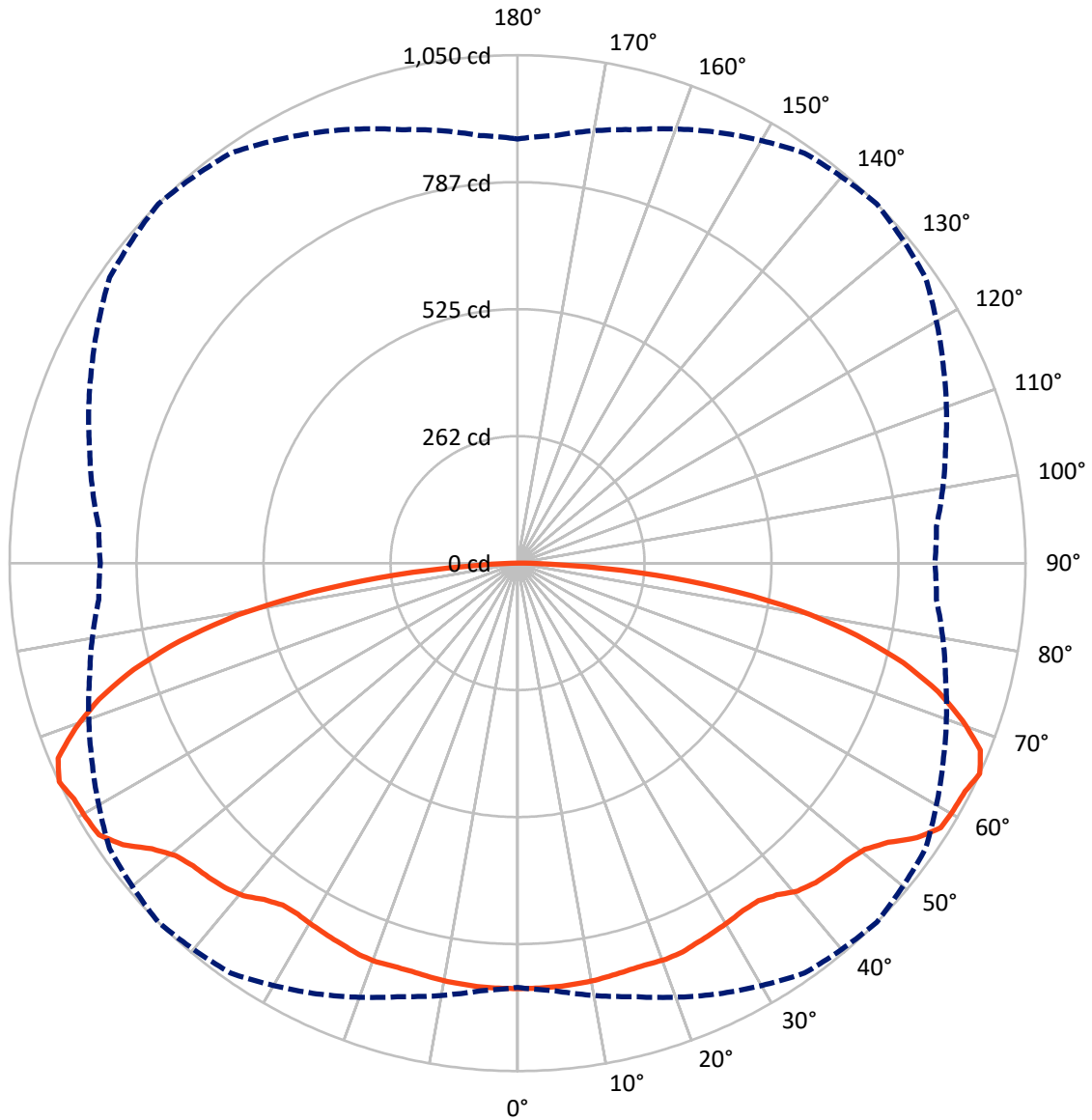
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 3.9 fc  
 Type V - Short - N/A

REPORT NUMBER: P880419  
CATALOG NUMBER: EMM2-HSN-VA2-750-U-MQ

### 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
<b>House Side</b>	Lumens	2373.5	0.0	2373.5
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	2373.5	0.0	2373.5
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	4746.9	0.0	4746.9
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	83.8	1.8
10°-20°	247.1	5.2
20°-30°	400.1	8.4
30°-40°	537.7	11.3
40°-50°	686.3	14.5
50°-60°	844.3	17.8
60°-70°	940.2	19.8
70°-80°	763.1	16.1
80°-90°	244.3	5.1
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°	4746.9	100.0
0°-180°	4746.9	100.0



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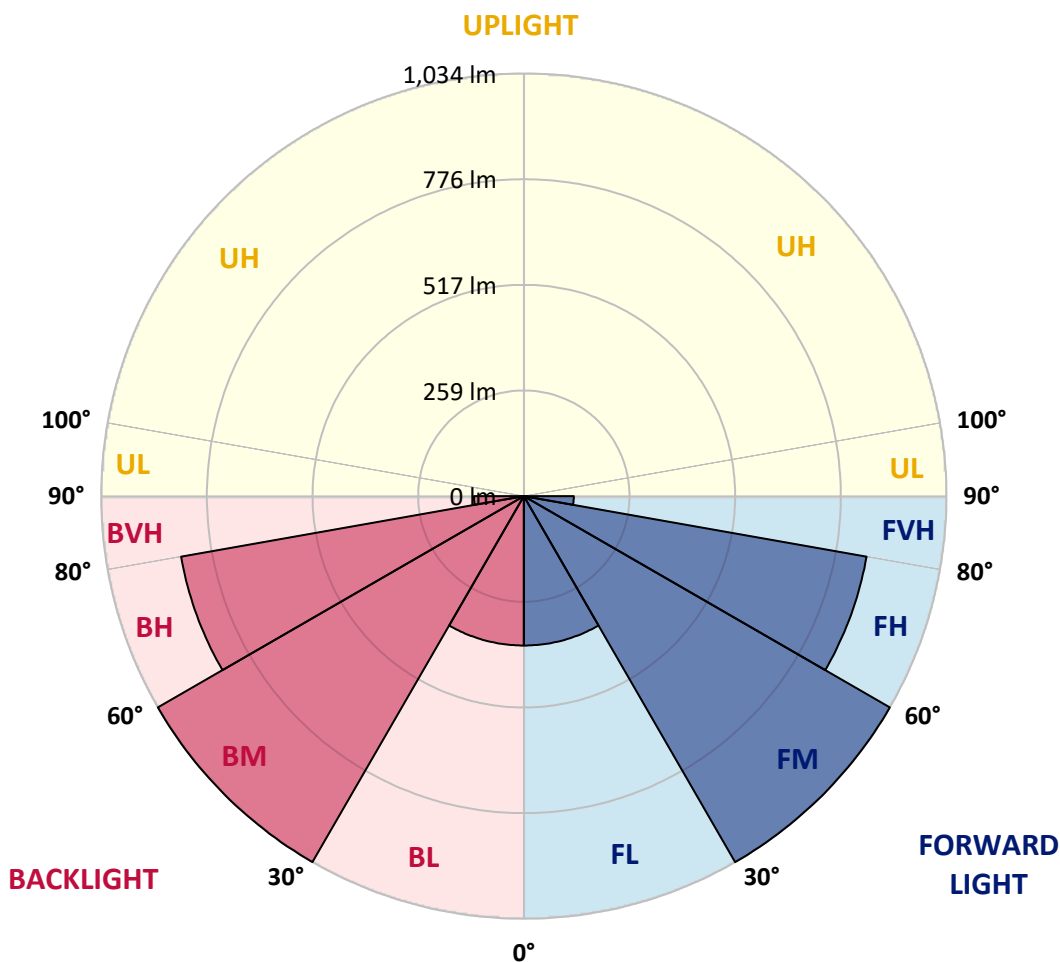
CATALOG NUMBER: EMM2-HSN-VA2-750-U-MQ

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	365.5	7.7			
FM (30°-60°)	1034.1	21.8			
FH (60°-80°)	851.7	17.9			G1/1800
FVH (80°-90°)	122.1	2.6			G2/225
BL (0°-30°)	365.5	7.7	B1/500		
BM (30°-60°)	1034.1	21.8	B2/2500		
BH (60°-80°)	851.7	17.9	B2/1000		G1/1800
BVH (80°-90°)	122.1	2.6			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





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CATALOG NUMBER: EMM2-HSN-VA2-750-U-MQ

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1
2.5°	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1
5°	879.1	879.1	879.1	879.1	879.1	879.1	879.1	879.1	877.8	879.1	879.1
7.5°	877.8	877.8	877.8	877.8	877.8	877.8	877.8	877.8	877.8	877.8	877.8
10°	876.5	876.5	876.5	876.5	876.5	876.5	876.5	876.5	876.5	876.5	876.5
12.5°	873.9	873.9	873.9	873.9	873.9	873.9	873.9	873.9	873.9	873.9	873.9
15°	870.0	871.3	871.3	871.3	871.3	871.3	871.3	871.3	871.3	870.0	870.0
17.5°	868.7	868.7	868.7	870.0	871.3	871.3	871.3	870.0	868.7	867.4	867.4
20°	870.0	870.0	870.0	871.3	872.6	873.9	872.6	871.3	868.7	868.7	868.7
22.5°	868.7	870.0	870.0	871.3	872.6	872.6	871.3	870.0	868.7	867.4	867.4
25°	864.8	864.8	866.1	867.4	867.4	867.4	867.4	864.8	863.5	862.2	862.2
27.5°	859.6	860.9	860.9	862.2	863.5	863.5	862.2	859.6	858.3	857.0	857.0
30°	853.1	853.1	854.4	857.0	858.3	859.6	857.0	854.4	850.5	849.2	849.2
32.5°	846.6	847.9	850.5	853.1	854.4	855.7	853.1	850.5	846.6	844.0	842.7
35°	844.0	844.0	847.9	853.1	857.0	857.0	854.4	849.2	844.0	838.8	838.8
37.5°	847.9	849.2	854.4	863.5	870.0	870.0	868.7	859.6	850.5	842.7	841.4
40°	857.0	858.3	867.4	879.1	889.5	890.8	885.6	873.9	860.9	851.8	849.2
42.5°	862.2	864.8	875.2	889.5	898.6	902.5	896.0	884.3	867.4	855.7	854.4
45°	864.8	867.4	879.1	894.7	906.4	910.3	903.8	888.2	870.0	857.0	855.7
47.5°	866.1	868.7	880.4	899.9	912.9	916.8	911.6	893.4	871.3	858.3	857.0
50°	867.4	872.6	886.9	907.7	927.2	929.8	922.0	899.9	876.5	860.9	857.0
52.5°	876.5	880.4	901.2	931.1	950.7	958.5	946.7	924.6	889.5	866.1	863.5
55°	898.6	899.9	924.6	962.4	991.0	1001.4	983.2	953.3	910.3	886.9	885.6
57.5°	905.1	912.9	940.2	983.2	1018.3	1031.3	1015.7	970.2	931.1	899.9	892.1
60°	898.6	905.1	937.6	987.1	1024.8	1035.2	1023.5	980.6	923.3	888.2	881.7
62.5°	892.1	899.9	933.7	989.7	1026.1	1037.8	1018.3	981.9	919.4	884.3	877.8
65°	876.5	886.9	927.2	981.9	1033.9	1049.5	1028.7	970.2	915.5	868.7	862.2
67.5°	846.6	851.8	896.0	959.8	1015.7	1031.3	1009.2	948.1	883.0	837.5	832.3
70°	790.7	802.4	844.0	914.2	967.6	975.4	958.5	897.3	833.6	785.5	779.0
72.5°	716.6	733.5	779.0	850.5	893.4	909.0	886.9	837.5	771.2	716.6	707.5
75°	638.5	647.6	694.5	764.7	808.9	823.2	803.7	755.6	676.2	638.5	629.4
77.5°	552.7	559.2	600.8	663.2	704.9	716.6	697.1	658.0	586.5	551.4	547.5
80°	433.1	446.1	485.1	538.4	569.6	587.8	567.0	529.3	477.3	435.7	429.2
82.5°	309.5	318.6	353.7	390.1	420.1	425.3	416.2	379.7	340.7	308.2	300.4
85°	169.1	173.0	195.1	232.8	244.5	253.6	240.6	213.3	193.8	173.0	166.5
87.5°	44.2	45.5	52.0	61.1	66.3	67.6	66.3	58.5	48.1	37.7	41.6
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: SP1-2407-176-6

Test Date: 09/26/2024

Luminaire Tested: MEM2-HTN-VA-30-750-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-750-U-WQ



**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-6  
 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-30-750-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

**Spectral Parameters**

CCT (K): 4786  
 CIE u': 0.2093  
 CIE v': 0.4953  
 Duv: 0.0066  
 CIE x: 0.3533  
 CIE y: 0.3716  
 CIE z: 0.2751  
 Peak Wavelength (nm): 449  
 Dominant Wavelength (nm): 570  
 Purity: 17.53512  
 Rf: 73  
 Rg: 94.6

CRI (Ra):	70.9		
R1:	67.8	R9:	-29.8
R2:	75.1	R10:	40.9
R3:	80.6	R11:	67.4
R4:	71.6	R12:	35.3
R5:	67.8	R13:	68.5
R6:	65.4	R14:	89.0
R7:	82.0	R15:	60.9
R8:	57.0		



**Test Conditions**

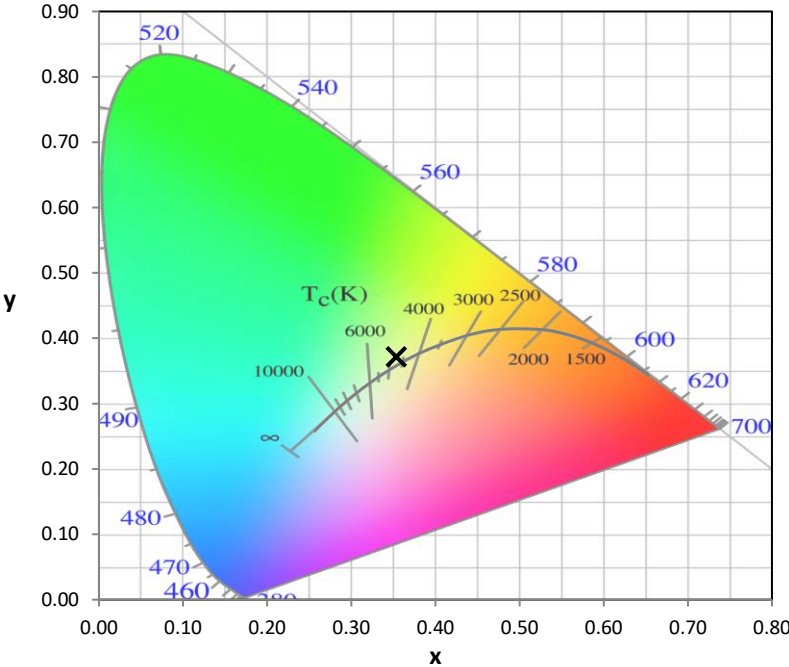
Stabilization Time: 45M  
 Operation Time: 1H 45M  
 Sphere Temperature (°C): 25.2

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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 5000K 7-step quadrangle

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**Photopic Flux vs. Wavelength**

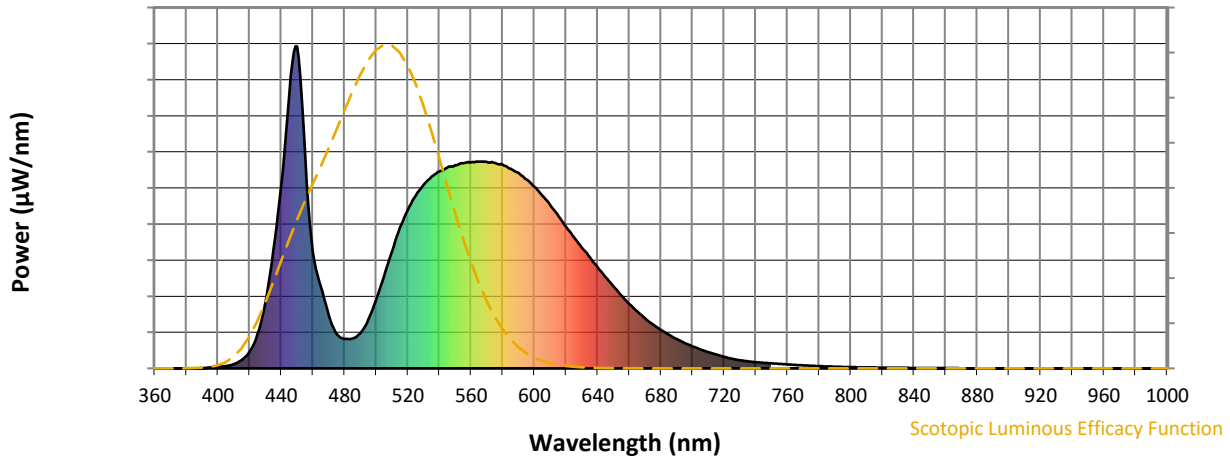


**Photopic Lumens: NR**

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	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.69**

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	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



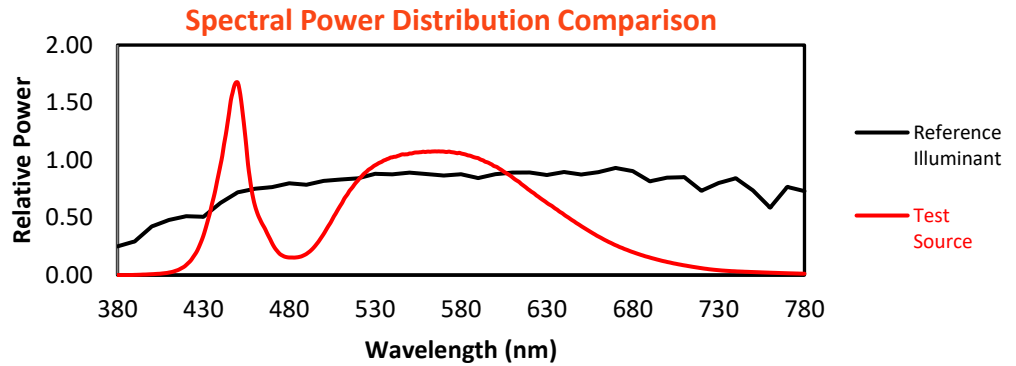
Melanopic Lumens: NR

M/P: 3.36

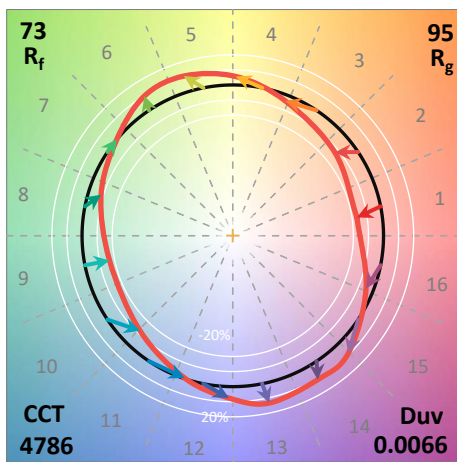
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	110	NR	620	440	NR	750	16	NR	880	0	NR
365	0	NR	495	150	NR	625	407	NR	755	14	NR	885	0	NR
370	0	NR	500	213	NR	630	375	NR	760	12	NR	890	0	NR
375	0	NR	505	288	NR	635	345	NR	765	11	NR	895	0	NR
380	0	NR	510	364	NR	640	314	NR	770	9	NR	900	0	NR
385	0	NR	515	436	NR	645	283	NR	775	8	NR	905	0	NR
390	1	NR	520	492	NR	650	254	NR	780	7	NR	910	0	NR
395	3	NR	525	537	NR	655	227	NR	785	6	NR	915	0	NR
400	5	NR	530	570	NR	660	200	NR	790	5	NR	920	0	NR
405	7	NR	535	595	NR	665	177	NR	795	4	NR	925	0	NR
410	13	NR	540	611	NR	670	155	NR	800	4	NR	930	0	NR
415	25	NR	545	624	NR	675	136	NR	805	3	NR	935	0	NR
420	52	NR	550	631	NR	680	119	NR	810	3	NR	940	0	NR
425	106	NR	555	637	NR	685	104	NR	815	3	NR	945	0	NR
430	204	NR	560	640	NR	690	91	NR	820	2	NR	950	0	NR
435	369	NR	565	642	NR	695	79	NR	825	2	NR	955	0	NR
440	573	NR	570	641	NR	700	68	NR	830	2	NR	960	0	NR
445	844	NR	575	638	NR	705	59	NR	835	2	NR	965	0	NR
450	999	NR	580	632	NR	710	50	NR	840	1	NR	970	0	NR
455	668	NR	585	620	NR	715	43	NR	845	1	NR	975	0	NR
460	361	NR	590	607	NR	720	36	NR	850	1	NR	980	0	NR
465	255	NR	595	586	NR	725	30	NR	855	1	NR	985	0	NR
470	165	NR	600	564	NR	730	25	NR	860	1	NR	990	0	NR
475	106	NR	605	537	NR	735	22	NR	865	1	NR	995	0	NR
480	91	NR	610	507	NR	740	19	NR	870	0	NR	1000	0	NR
485	93	NR	615	474	NR	745	17	NR	875	0	NR			

**Summary**

$R_f = 73$   
 $R_g = 94.6$   
 $CIE R_a = 70.9$   
 $R_g = -29.8$

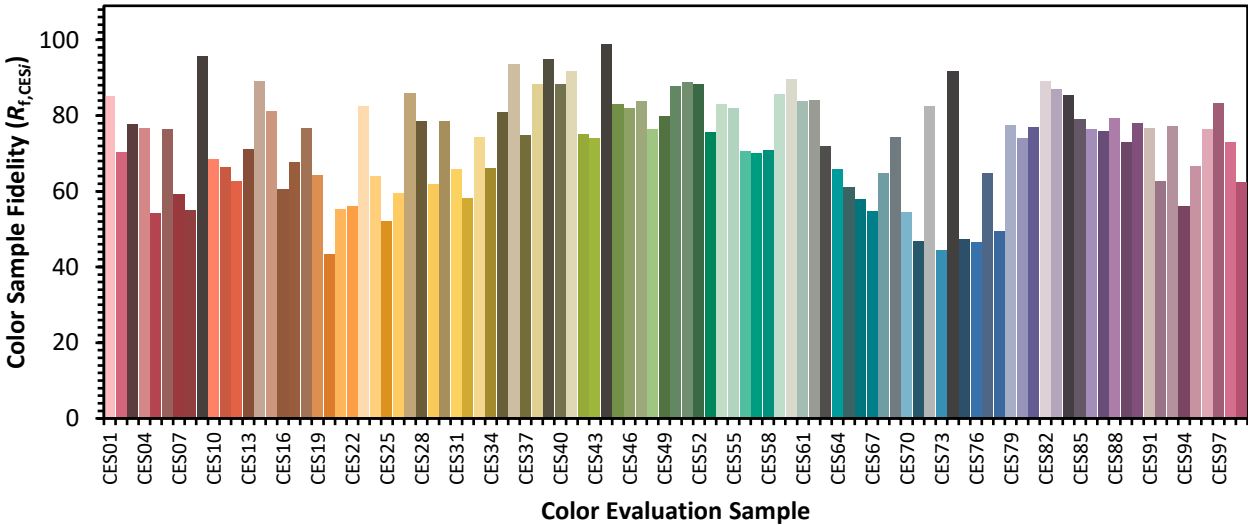


**Color Vector Graphics**



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

CES01 = 85	CES26 = 60	CES51 = 89	CES76 = 46
CES02 = 59	CES27 = 86	CES52 = 88	CES77 = 65
CES03 = 30	CES28 = 78	CES53 = 76	CES78 = 49
CES04 = 69	CES29 = 62	CES54 = 83	CES79 = 78
CES05 = 46	CES30 = 79	CES55 = 82	CES80 = 74
CES06 = 50	CES31 = 66	CES56 = 71	CES81 = 77
CES07 = 39	CES32 = 58	CES57 = 70	CES82 = 89
CES08 = 38	CES33 = 74	CES58 = 71	CES83 = 87
CES09 = 29	CES34 = 66	CES59 = 86	CES84 = 86
CES10 = 72	CES35 = 81	CES60 = 90	CES85 = 79
CES11 = 56	CES36 = 94	CES61 = 84	CES86 = 76
CES12 = 61	CES37 = 75	CES62 = 84	CES87 = 76
CES13 = 41	CES38 = 88	CES63 = 72	CES88 = 79
CES14 = 74	CES39 = 95	CES64 = 66	CES89 = 73
CES15 = 70	CES40 = 88	CES65 = 61	CES90 = 78
CES16 = 46	CES41 = 92	CES66 = 58	CES91 = 77
CES17 = 49	CES42 = 75	CES67 = 55	CES92 = 63
CES18 = 55	CES43 = 74	CES68 = 65	CES93 = 77
CES19 = 71	CES44 = 99	CES69 = 74	CES94 = 56
CES20 = 64	CES45 = 83	CES70 = 55	CES95 = 67
CES21 = 85	CES46 = 82	CES71 = 47	CES96 = 76
CES22 = 77	CES47 = 84	CES72 = 82	CES97 = 83
CES23 = 91	CES48 = 76	CES73 = 44	CES98 = 73
CES24 = 90	CES49 = 80	CES74 = 92	CES99 = 62
CES25 = 71	CES50 = 88	CES75 = 47	

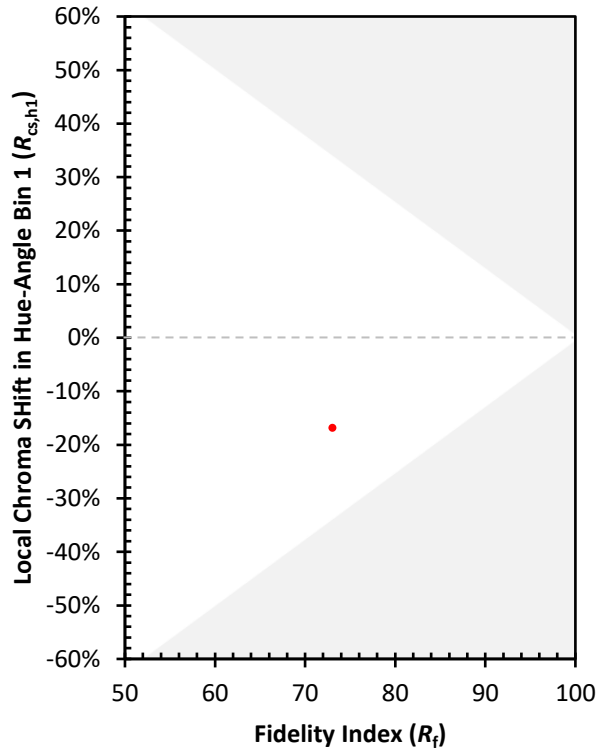




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)