

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: P880490

Luminaire Tested: **EMM2-HSN-VA1-750-U-CQ**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P880490  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-VA1-750-U-CQ  
Description: EPIC MODERN SHORT HOUSING 1W 70CRI 5000K VISUAL COMFORT FIXTURE w/  
TYPE V CONCENTRATED DISTRIBUTION OPTIC  
Light Source: (1) 5000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

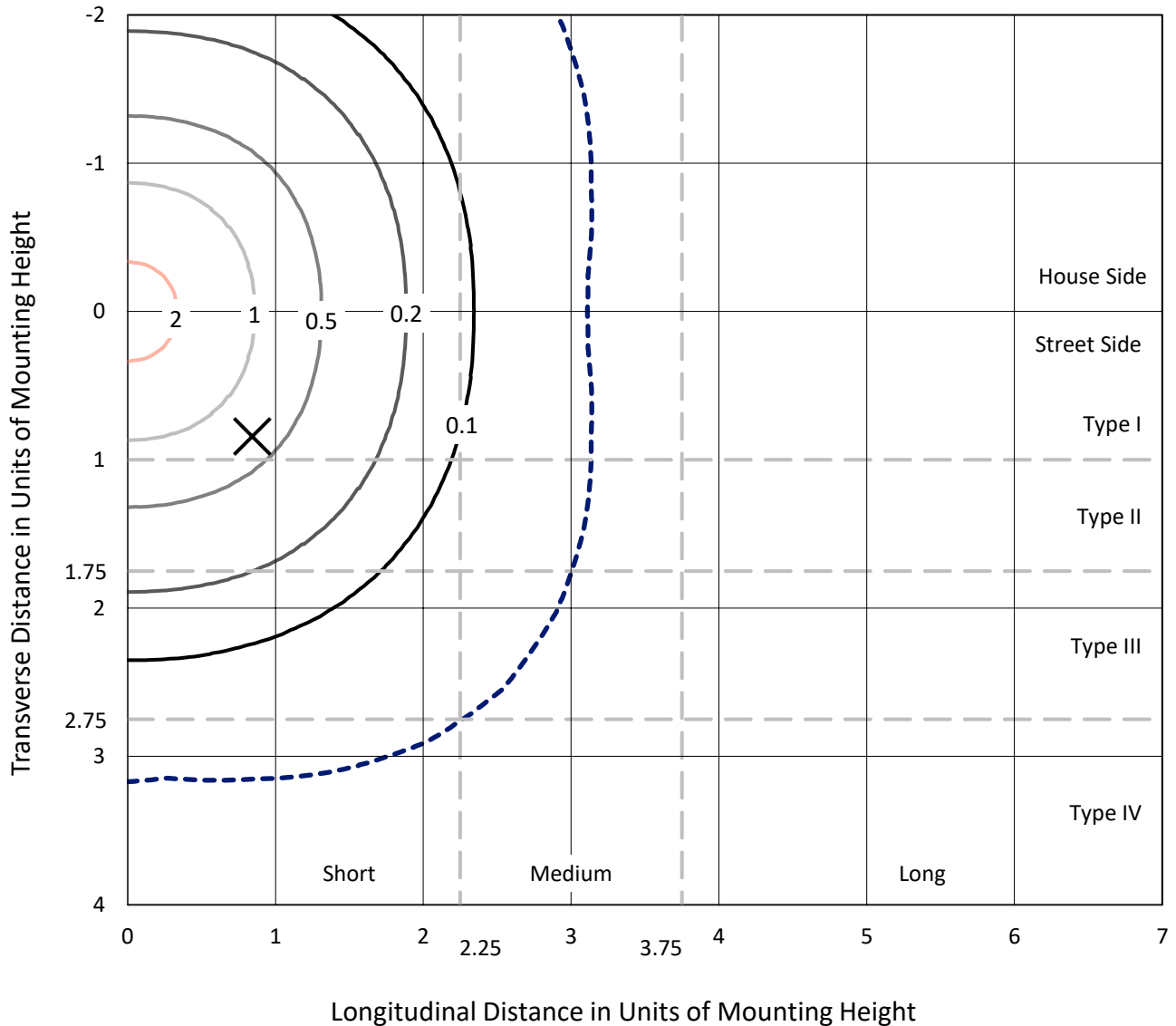
Lumens per Lamp: N/A  
Luminaire Lumens: 2386.6 lumens  
Efficiency: N/A  
Efficacy: 85.2 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B1 - U0 - G1

Input Watts (W): 28  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 16%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

REPORT NUMBER: P880490  
 CATALOG NUMBER: EMM2-HSN-VA1-750-U-CQ

### Iso-Footcandle Lines of Horizontal Illumination

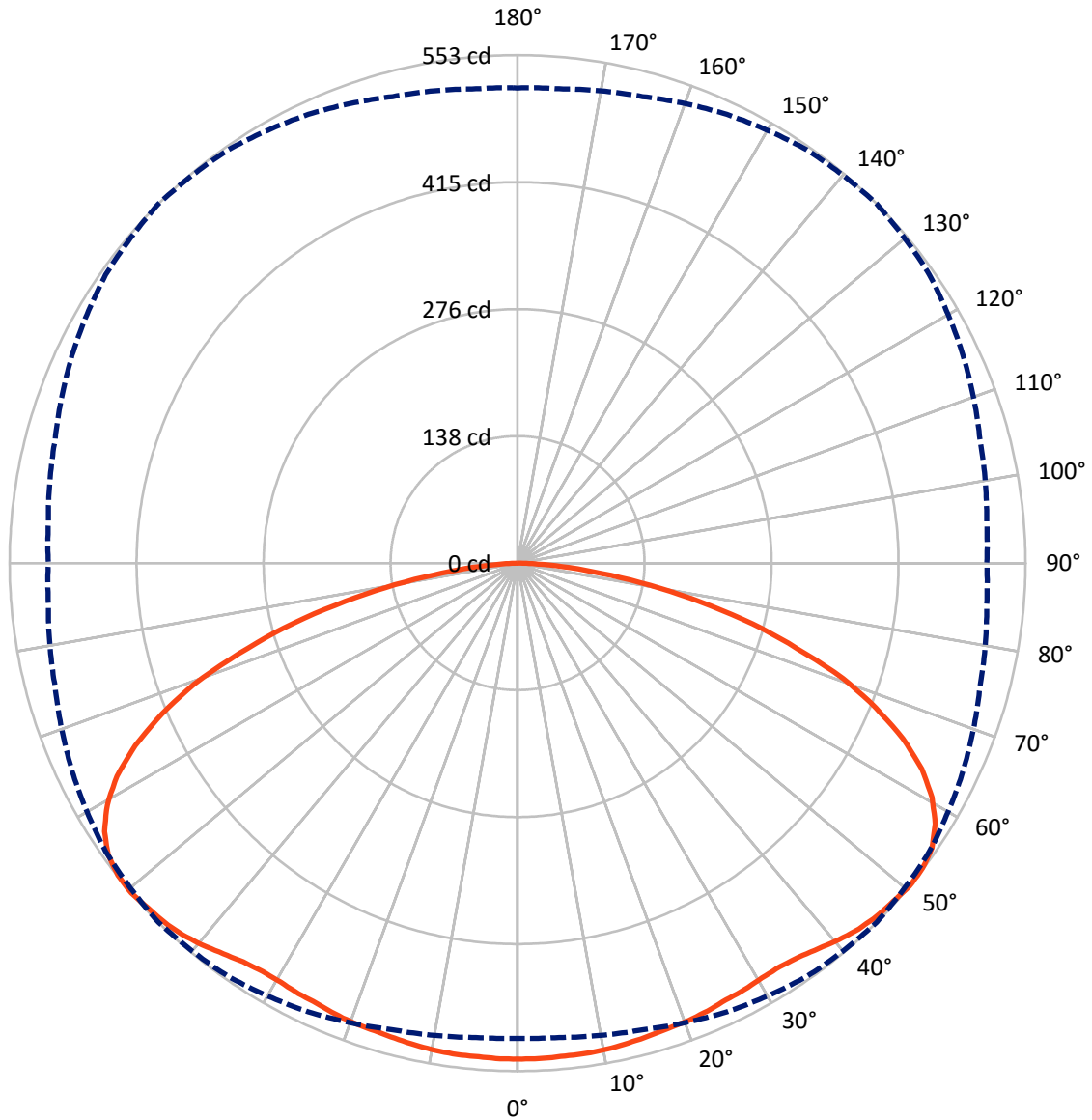
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 2.4 fc  
 Type V - Short - N/A

REPORT NUMBER: P880490  
CATALOG NUMBER: EMM2-HSN-VA1-750-U-CQ

### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral      - - - Horizontal Cone Through 50-Deg Vertical

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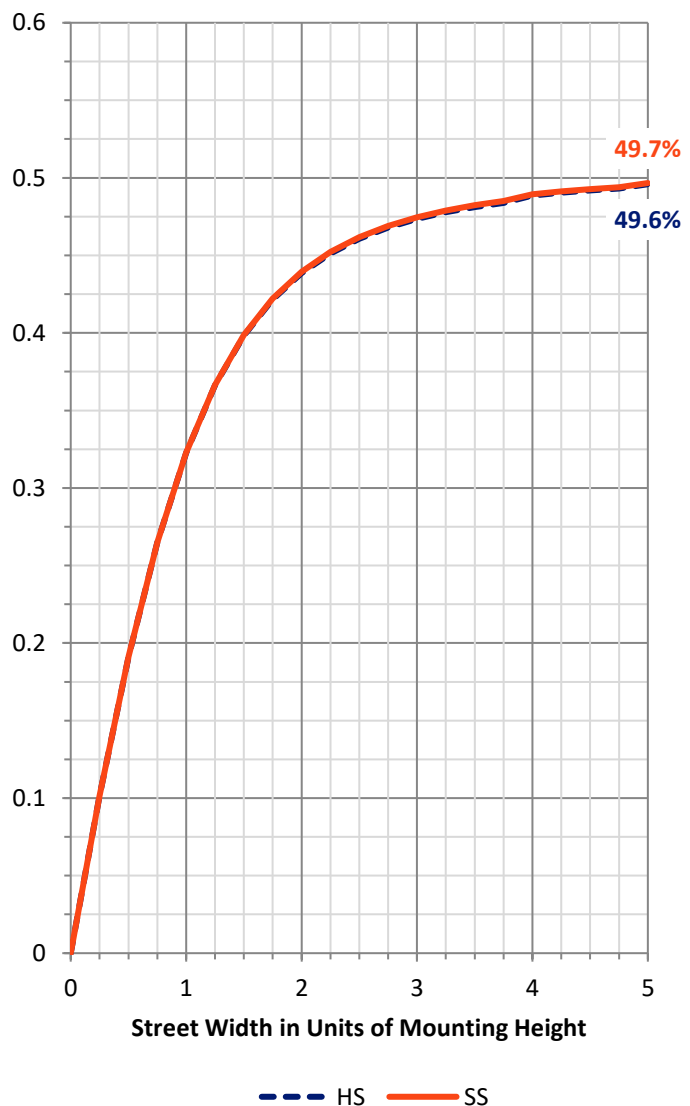
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1193.3	0.0	1193.3
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	1193.3	0.0	1193.3
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	2386.6	0.0	2386.6
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	51.4	2.2
10°-20°	151.2	6.3
20°-30°	243.2	10.2
30°-40°	328.4	13.8
40°-50°	412.9	17.3
50°-60°	464.1	19.4
60°-70°	422.6	17.7
70°-80°	255.2	10.7
80°-90°	57.5	2.4
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°	2386.6	100.0
0°-180°	2386.6	100.0



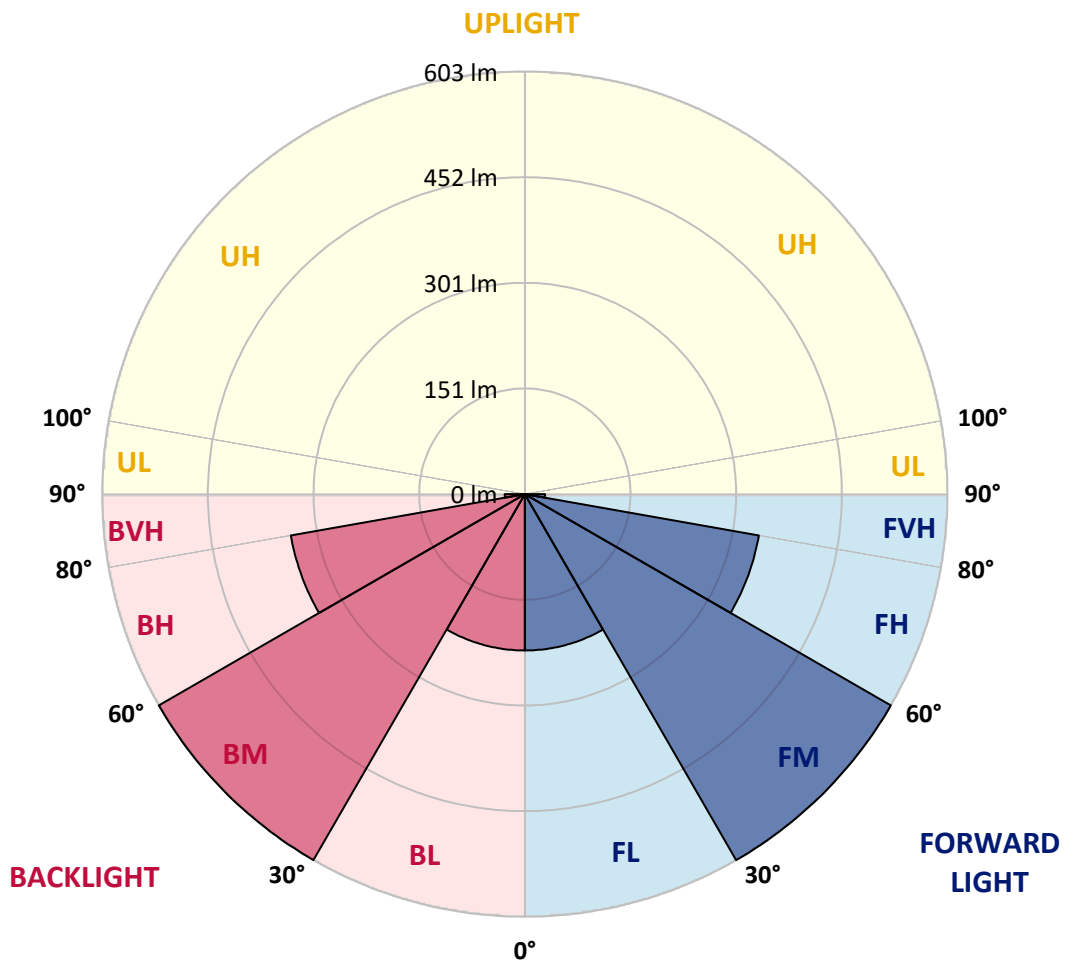
REPORT NUMBER: P880490  
 CATALOG NUMBER: EMM2-HSN-VA1-750-U-CQ

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

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	222.9	9.3			
FM (30°-60°)	602.7	25.3			
FH (60°-80°)	338.9	14.2			G0/660
FVH (80°-90°)	28.8	1.2			G1/100
BL (0°-30°)	222.9	9.3	B1/500		
BM (30°-60°)	602.7	25.3	B1/1000		
BH (60°-80°)	338.9	14.2	B1/500		G0/660
BVH (80°-90°)	28.8	1.2			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B1-U0-G1**

Type V Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6
2.5°	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6
5°	538.7	538.7	538.7	538.7	538.7	538.7	538.7	538.7	538.7	538.7	539.6
7.5°	537.8	538.7	538.7	537.8	538.7	538.7	538.7	538.7	538.7	538.7	538.7
10°	536.8	536.8	537.8	537.8	537.8	537.8	537.8	537.8	537.8	537.8	536.8
12.5°	534.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9	535.9
15°	534.0	534.0	534.0	534.0	534.0	534.0	534.0	534.0	533.1	533.1	534.0
17.5°	531.2	531.2	532.1	532.1	532.1	532.1	532.1	532.1	531.2	531.2	531.2
20°	529.3	529.3	530.3	530.3	530.3	531.2	530.3	529.3	529.3	529.3	529.3
22.5°	527.4	527.4	528.4	528.4	529.3	529.3	528.4	528.4	527.4	527.4	527.4
25°	525.6	525.6	525.6	526.5	527.4	526.5	526.5	525.6	524.6	523.7	523.7
27.5°	522.8	522.8	522.8	524.6	524.6	525.6	524.6	523.7	521.8	520.9	520.9
30°	520.0	520.0	520.9	522.8	523.7	523.7	522.8	520.9	519.0	518.1	518.1
32.5°	517.1	518.1	519.0	521.8	522.8	523.7	521.8	520.0	517.1	515.3	515.3
35°	517.1	517.1	520.0	522.8	525.6	526.5	524.6	520.9	517.1	514.3	514.3
37.5°	518.1	519.0	522.8	526.5	530.3	532.1	529.3	524.6	519.0	515.3	515.3
40°	521.8	521.8	526.5	533.1	537.8	538.7	535.9	529.3	521.8	517.1	516.2
42.5°	523.7	524.6	529.3	536.8	542.4	544.3	540.6	533.1	523.7	517.1	516.2
45°	523.7	524.6	530.3	538.7	546.2	548.1	544.3	534.9	524.6	518.1	516.2
47.5°	520.9	521.8	529.3	539.6	548.1	549.9	545.2	535.9	523.7	516.2	514.3
50°	517.1	518.1	525.6	538.7	549.0	552.7	547.1	534.9	520.9	512.5	510.6
52.5°	509.6	510.6	520.9	534.9	548.1	551.8	545.2	532.1	515.3	505.9	504.0
55°	498.4	500.3	510.6	527.4	542.4	547.1	539.6	524.6	506.8	495.6	493.7
57.5°	483.4	484.4	496.5	515.3	531.2	535.9	528.4	512.5	492.8	480.6	479.7
60°	461.9	463.7	477.8	496.5	513.4	518.1	510.6	493.7	473.1	460.0	459.1
62.5°	435.6	437.5	450.6	472.2	489.0	493.7	486.2	468.4	447.8	433.8	432.8
65°	402.8	404.7	417.8	438.4	456.2	460.9	454.4	435.6	415.0	401.9	400.0
67.5°	366.3	368.2	380.4	398.2	414.1	420.6	414.1	398.2	378.5	362.6	360.7
70°	322.3	322.3	334.5	352.3	367.2	375.7	367.2	351.3	331.6	318.5	318.5
72.5°	276.4	274.5	285.7	302.6	314.8	318.5	316.7	302.6	283.9	271.7	269.8
75°	221.1	224.8	233.3	245.5	258.6	264.2	257.6	245.5	232.3	222.0	221.1
77.5°	171.4	174.3	181.7	192.1	199.5	203.3	201.4	192.1	178.0	173.3	171.4
80°	120.9	122.7	129.3	136.8	142.4	146.1	143.3	135.8	128.3	123.7	121.8
82.5°	78.7	77.8	83.4	88.1	92.7	91.8	90.9	85.3	82.4	78.7	77.8
85°	40.3	41.2	41.2	45.9	46.8	48.7	47.8	45.9	41.2	39.3	40.3
87.5°	13.1	13.1	14.1	14.1	15.9	15.9	16.9	15.0	14.1	12.2	12.2
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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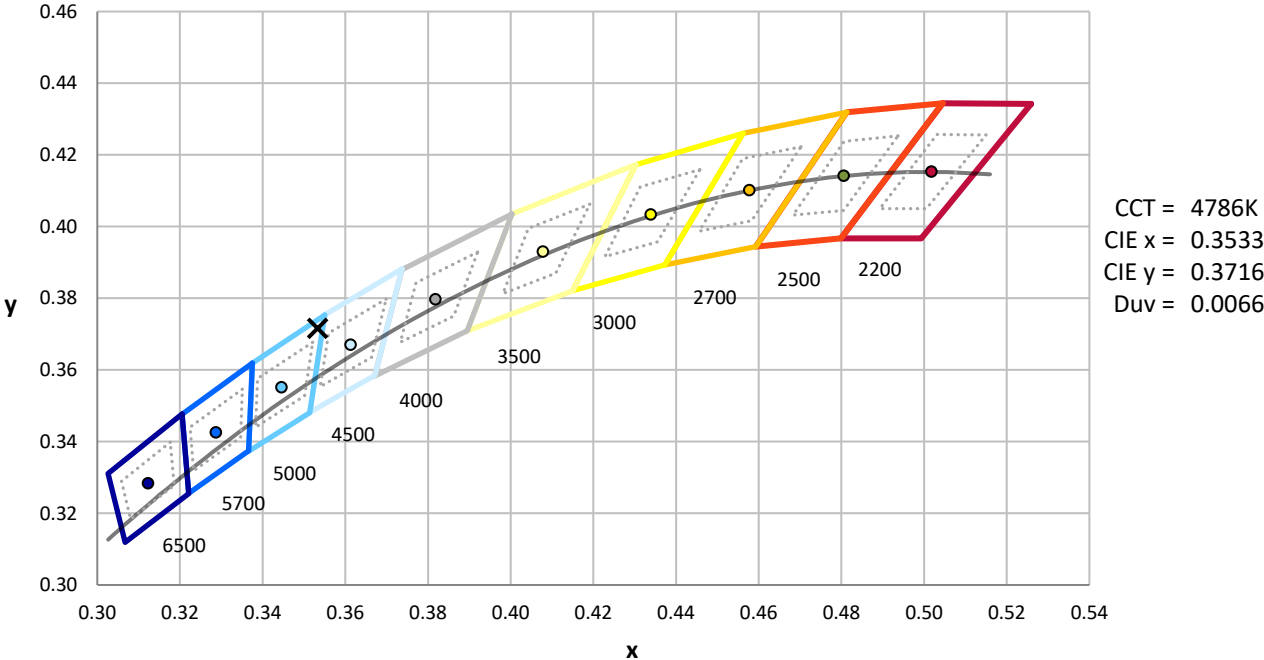
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	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

REPORT NUMBER: SP1-2407-176-6

**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**



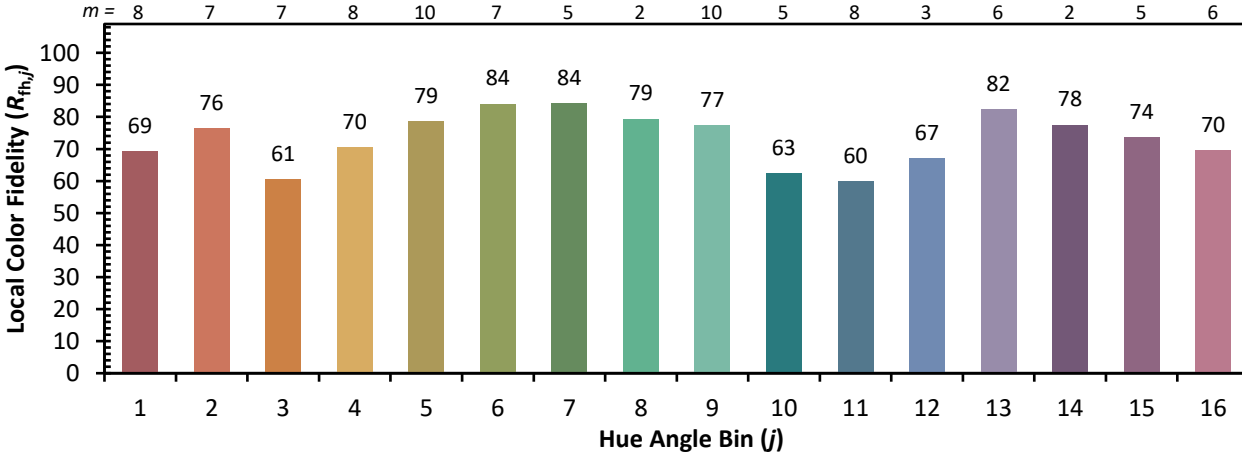
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

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)