

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: P879722

Luminaire Tested: **EMM2-HTN-VA7-727-U-CQ**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P879722
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HTN-VA7-727-U-CQ
Description: EPIC MODERN TALL HOUSING 7W 70CRI 2700K WAVESTREAM FIXTURE w/ TYPE V CONCENTRATED DISTRIBUTION OPTIC
Light Source: (1) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

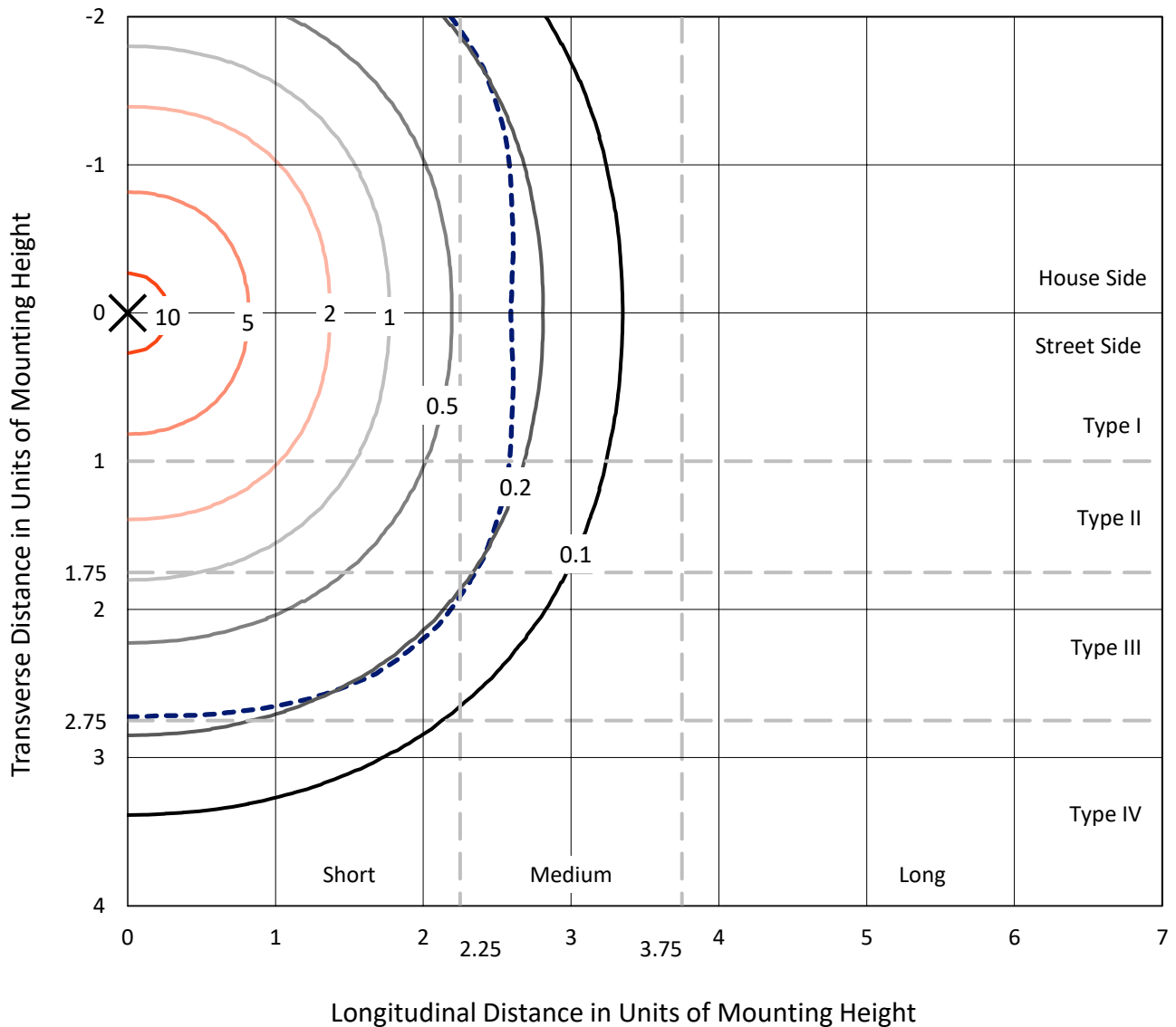
Lumens per Lamp: N/A
Luminaire Lumens: 10478 lumens
Efficiency: N/A
Efficacy: 80.6 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G2

Input Watts (W): 130
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.995
Total Harmonic Distortion (THDi): 8.1%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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 CATALOG NUMBER: EMM2-HTN-VA7-727-U-CQ

Iso-Footcandle Lines of Horizontal Illumination

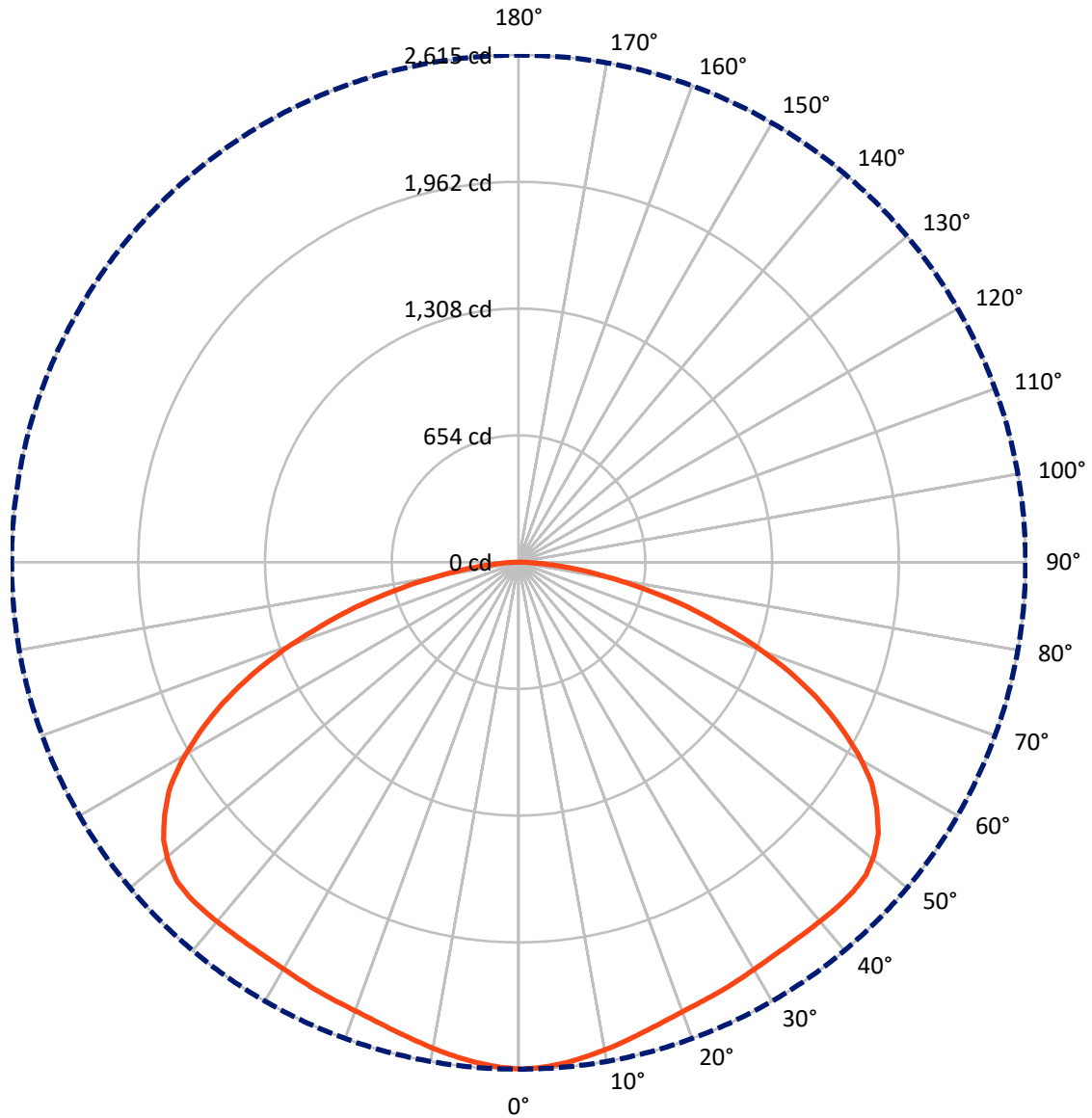
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 11.6 fc
 Type V - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 0-Deg Lateral - - - Horizontal Cone Through 0-Deg Vertical

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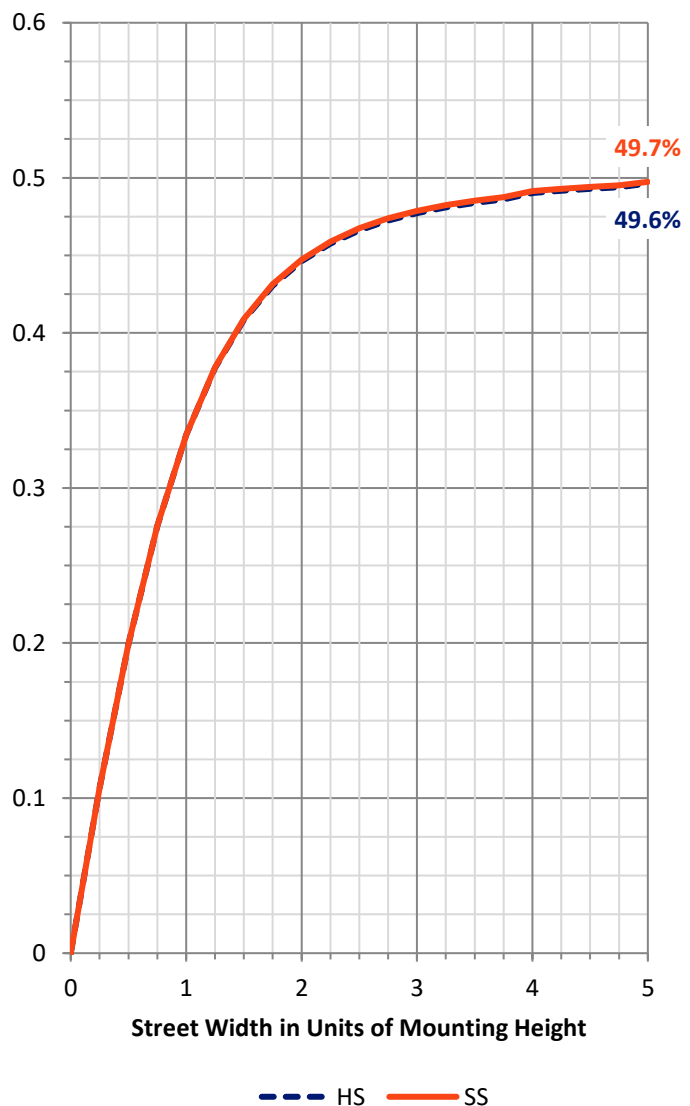
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	5239.0	0.0	5239.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	5239.0	0.0	5239.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	10478.0	0.0	10478.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	246.5	2.4
10°-20°	711.1	6.8
20°-30°	1138.6	10.9
30°-40°	1542.4	14.7
40°-50°	1904.7	18.2
50°-60°	2046.4	19.5
60°-70°	1720.9	16.4
70°-80°	960.9	9.2
80°-90°	206.5	2.0
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°	10478.0	100.0
0°-180°	10478.0	100.0



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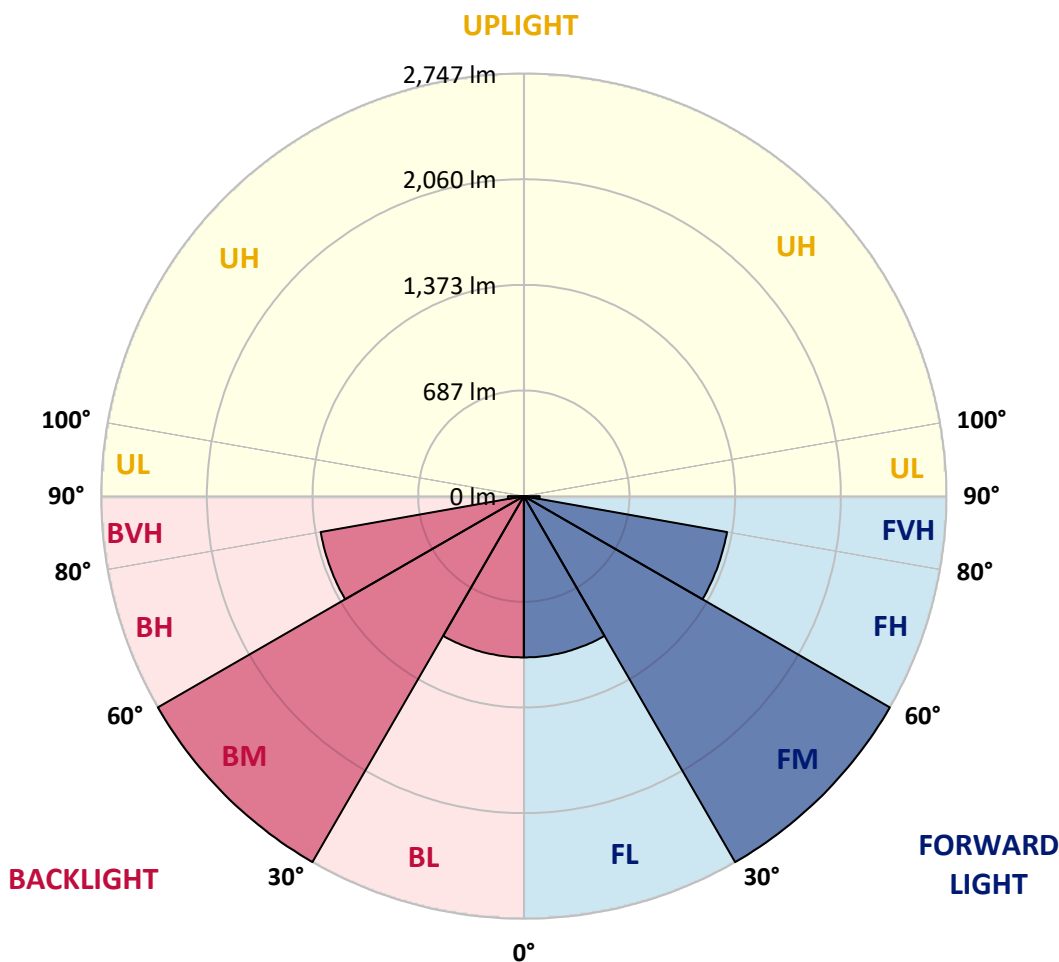
CATALOG NUMBER: EMM2-HTN-VA7-727-U-CQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	1048.1	10.0			
FM (30°-60°)	2746.7	26.2			
FH (60°-80°)	1340.9	12.8			G1/1800
FVH (80°-90°)	103.2	1.0			G2/225
BL (0°-30°)	1048.1	10.0	B3/2500		
BM (30°-60°)	2746.7	26.2	B3/5000		
BH (60°-80°)	1340.9	12.8	B3/2500		G1/1800
BVH (80°-90°)	103.2	1.0			G2/225
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





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2615.4	2615.4	2615.4	2615.4	2615.4	2615.4	2615.4	2615.4	2615.4	2615.4	2615.4
2.5°	2607.6	2610.2	2609.6	2609.6	2609.6	2610.9	2610.9	2610.9	2611.5	2611.5	2612.2
5°	2592.7	2594.6	2594.6	2594.6	2595.9	2596.6	2596.6	2597.2	2598.5	2597.9	2597.2
7.5°	2572.5	2574.5	2574.5	2574.5	2575.8	2577.1	2577.1	2576.4	2578.4	2578.4	2577.7
10°	2551.1	2551.8	2552.4	2553.7	2555.7	2556.3	2555.7	2555.7	2555.0	2555.7	2555.7
12.5°	2525.8	2529.0	2529.7	2531.0	2534.2	2534.9	2534.9	2534.2	2533.6	2533.6	2532.9
15°	2503.0	2504.3	2506.3	2508.9	2512.8	2514.1	2514.7	2512.8	2510.8	2510.2	2510.8
17.5°	2482.2	2484.2	2486.8	2489.4	2494.6	2497.2	2497.2	2494.6	2492.0	2490.7	2490.7
20°	2465.4	2467.3	2470.6	2474.5	2481.6	2484.8	2483.5	2480.9	2476.4	2474.5	2475.1
22.5°	2454.3	2456.9	2459.5	2465.4	2473.2	2477.0	2475.7	2471.2	2466.0	2462.8	2462.8
25°	2445.2	2447.2	2451.1	2458.9	2467.3	2471.9	2469.9	2464.1	2456.9	2453.0	2452.4
27.5°	2434.8	2437.4	2442.6	2453.0	2463.4	2467.3	2466.0	2457.6	2449.1	2443.9	2442.6
30°	2425.1	2427.7	2434.8	2446.5	2459.5	2465.4	2462.1	2453.0	2442.6	2436.1	2435.5
32.5°	2418.6	2421.8	2430.3	2445.2	2460.8	2469.3	2466.0	2455.0	2441.3	2432.9	2432.2
35°	2416.0	2419.2	2431.6	2449.8	2469.3	2480.9	2476.4	2462.8	2445.9	2435.5	2434.2
37.5°	2416.6	2420.5	2436.1	2460.2	2484.8	2497.2	2491.3	2473.8	2452.4	2438.1	2436.1
40°	2419.2	2423.8	2443.9	2473.8	2503.0	2514.7	2505.6	2479.6	2450.4	2430.3	2426.4
42.5°	2422.5	2429.6	2454.3	2489.4	2519.9	2529.7	2513.4	2475.1	2434.2	2408.2	2404.9
45°	2421.8	2427.7	2456.3	2497.8	2530.3	2535.5	2508.9	2460.8	2412.7	2379.0	2376.4
47.5°	2410.8	2416.6	2449.1	2495.2	2527.1	2528.4	2496.5	2441.3	2384.8	2345.8	2341.9
50°	2376.4	2384.2	2420.5	2471.2	2506.9	2507.6	2472.5	2411.4	2345.8	2300.3	2293.9
52.5°	2323.7	2329.6	2371.8	2426.4	2466.7	2471.9	2433.5	2362.7	2288.0	2239.3	2234.7
55°	2241.9	2253.6	2298.4	2355.6	2399.7	2405.6	2367.3	2290.6	2213.9	2158.1	2152.9
57.5°	2147.0	2149.0	2196.4	2258.8	2304.9	2311.4	2269.8	2191.9	2112.0	2060.0	2047.0
60°	2013.2	2021.0	2065.8	2126.9	2175.6	2184.1	2144.4	2069.1	1985.9	1926.8	1926.2
62.5°	1858.6	1867.7	1913.2	1978.1	2027.5	2035.9	1993.7	1920.3	1837.2	1786.5	1768.3
65°	1691.0	1693.6	1739.1	1803.4	1848.2	1852.8	1819.6	1750.1	1664.4	1612.4	1600.7
67.5°	1502.6	1505.2	1540.3	1600.7	1648.8	1655.3	1621.5	1557.8	1480.5	1425.9	1420.1
70°	1294.1	1294.7	1329.1	1378.5	1426.6	1440.2	1409.7	1348.6	1274.6	1231.1	1219.4
72.5°	1074.5	1080.3	1110.9	1162.2	1203.1	1206.4	1181.7	1129.1	1068.6	1032.9	1026.4
75°	873.8	869.9	895.8	927.0	958.9	969.3	949.1	913.4	857.5	826.3	832.8
77.5°	656.1	657.4	677.6	706.2	726.3	744.5	721.7	704.9	660.0	624.3	625.6
80°	463.8	462.5	481.4	495.0	517.8	520.4	508.0	485.3	456.7	441.8	440.5
82.5°	293.6	287.8	302.1	319.6	329.4	324.8	327.4	312.5	289.7	281.9	274.8
85°	150.1	148.8	156.6	163.1	170.2	170.2	166.3	154.6	150.1	141.0	138.4
87.5°	51.3	53.3	55.9	53.9	57.2	55.9	54.6	46.1	40.9	38.3	35.7
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: SP1-2407-176-12

Test Date: 10/23/2024

Luminaire Tested: MEM2-HTN-VA-130-727-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-727-U-RW

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-12
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/24/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Streetworks
 Catalog Number: **MEM2-HTN-VA-130-727-U-RW**
 Description: EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K): 2710
 CIE u': 0.2616
 CIE v': 0.5295
 Duv: 0.0016
 CIE x: 0.4619
 CIE y: 0.4154
 CIE z: 0.1227
 Peak Wavelength (nm): 601
 Dominant Wavelength (nm): 583
 Purity: 63.3407
 Rf: 70.4
 Rg: 96.7

CRI (Ra):	70.4		
R1:	67.3	R9:	-24.6
R2:	79.1	R10:	51.3
R3:	89.5	R11:	61.0
R4:	67.6	R12:	41.2
R5:	64.7	R13:	68.7
R6:	69.6	R14:	93.5
R7:	78.9	R15:	60.6
R8:	46.2		



Test Conditions

Stabilization Time: 47M
 Operation Time: 1H 47M
 Sphere Temperature (°C): 24.4

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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	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

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CIE 1931 Chromaticity Diagram



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



CCT = 2710K
 CIE x = 0.4619
 CIE y = 0.4154
 Duv = 0.0016

Point lies inside the ANSI 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength

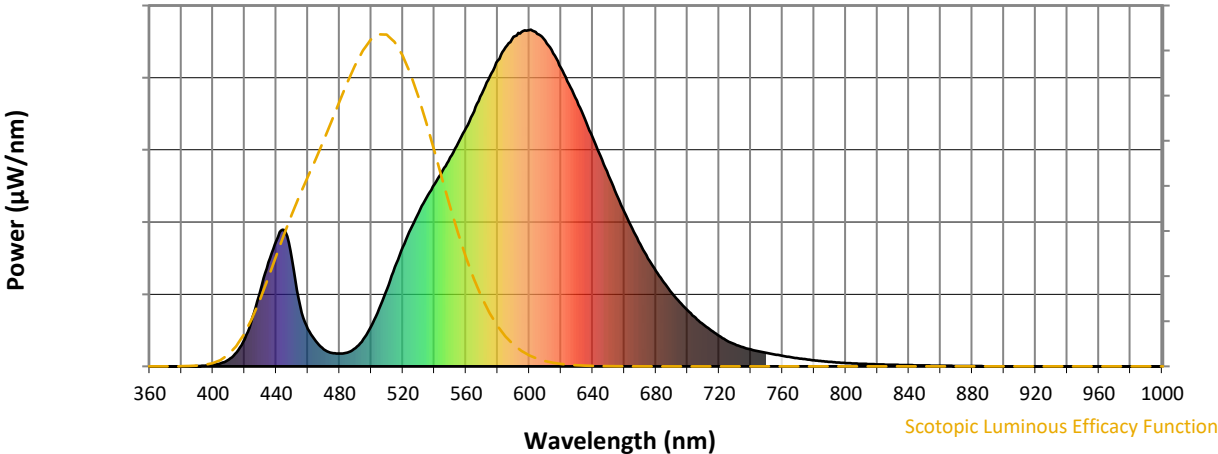


Photopic Lumens: NR

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	54	NR	620	887	NR	750	40	NR	880	1	NR
365	0	NR	495	80	NR	625	838	NR	755	35	NR	885	1	NR
370	0	NR	500	119	NR	630	790	NR	760	31	NR	890	0	NR
375	0	NR	505	171	NR	635	735	NR	765	27	NR	895	0	NR
380	0	NR	510	230	NR	640	681	NR	770	24	NR	900	0	NR
385	0	NR	515	295	NR	645	624	NR	775	21	NR	905	0	NR
390	1	NR	520	354	NR	650	567	NR	780	18	NR	910	0	NR
395	2	NR	525	408	NR	655	512	NR	785	15	NR	915	0	NR
400	5	NR	530	457	NR	660	459	NR	790	13	NR	920	0	NR
405	9	NR	535	500	NR	665	410	NR	795	12	NR	925	0	NR
410	20	NR	540	541	NR	670	363	NR	800	10	NR	930	0	NR
415	42	NR	545	581	NR	675	320	NR	805	9	NR	935	0	NR
420	81	NR	550	620	NR	680	283	NR	810	8	NR	940	0	NR
425	145	NR	555	664	NR	685	249	NR	815	7	NR	945	0	NR
430	225	NR	560	709	NR	690	219	NR	820	6	NR	950	0	NR
435	309	NR	565	758	NR	695	191	NR	825	5	NR	955	0	NR
440	373	NR	570	810	NR	700	166	NR	830	5	NR	960	0	NR
445	405	NR	575	861	NR	705	144	NR	835	4	NR	965	0	NR
450	316	NR	580	908	NR	710	124	NR	840	4	NR	970	0	NR
455	180	NR	585	948	NR	715	106	NR	845	3	NR	975	0	NR
460	111	NR	590	978	NR	720	90	NR	850	3	NR	980	0	NR
465	75	NR	595	993	NR	725	76	NR	855	2	NR	985	0	NR
470	50	NR	600	999	NR	730	65	NR	860	2	NR	990	0	NR
475	40	NR	605	988	NR	735	57	NR	865	2	NR	995	0	NR
480	38	NR	610	967	NR	740	50	NR	870	1	NR	1000	0	NR
485	41	NR	615	930	NR	745	45	NR	875	1	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR S/P: 1.02

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	54	NR	620	887	NR	750	40	NR	880	1	NR
365	0	NR	495	80	NR	625	838	NR	755	35	NR	885	1	NR
370	0	NR	500	119	NR	630	790	NR	760	31	NR	890	0	NR
375	0	NR	505	171	NR	635	735	NR	765	27	NR	895	0	NR
380	0	NR	510	230	NR	640	681	NR	770	24	NR	900	0	NR
385	0	NR	515	295	NR	645	624	NR	775	21	NR	905	0	NR
390	1	NR	520	354	NR	650	567	NR	780	18	NR	910	0	NR
395	2	NR	525	408	NR	655	512	NR	785	15	NR	915	0	NR
400	5	NR	530	457	NR	660	459	NR	790	13	NR	920	0	NR
405	9	NR	535	500	NR	665	410	NR	795	12	NR	925	0	NR
410	20	NR	540	541	NR	670	363	NR	800	10	NR	930	0	NR
415	42	NR	545	581	NR	675	320	NR	805	9	NR	935	0	NR
420	81	NR	550	620	NR	680	283	NR	810	8	NR	940	0	NR
425	145	NR	555	664	NR	685	249	NR	815	7	NR	945	0	NR
430	225	NR	560	709	NR	690	219	NR	820	6	NR	950	0	NR
435	309	NR	565	758	NR	695	191	NR	825	5	NR	955	0	NR
440	373	NR	570	810	NR	700	166	NR	830	5	NR	960	0	NR
445	405	NR	575	861	NR	705	144	NR	835	4	NR	965	0	NR
450	316	NR	580	908	NR	710	124	NR	840	4	NR	970	0	NR
455	180	NR	585	948	NR	715	106	NR	845	3	NR	975	0	NR
460	111	NR	590	978	NR	720	90	NR	850	3	NR	980	0	NR
465	75	NR	595	993	NR	725	76	NR	855	2	NR	985	0	NR
470	50	NR	600	999	NR	730	65	NR	860	2	NR	990	0	NR
475	40	NR	605	988	NR	735	57	NR	865	2	NR	995	0	NR
480	38	NR	610	967	NR	740	50	NR	870	1	NR	1000	0	NR
485	41	NR	615	930	NR	745	45	NR	875	1	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

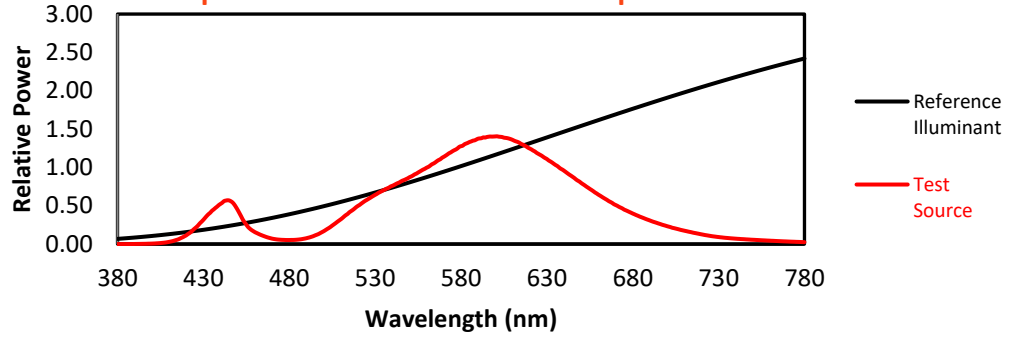
M/P: 1.71

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	54	NR	620	887	NR	750	40	NR	880	1	NR
365	0	NR	495	80	NR	625	838	NR	755	35	NR	885	1	NR
370	0	NR	500	119	NR	630	790	NR	760	31	NR	890	0	NR
375	0	NR	505	171	NR	635	735	NR	765	27	NR	895	0	NR
380	0	NR	510	230	NR	640	681	NR	770	24	NR	900	0	NR
385	0	NR	515	295	NR	645	624	NR	775	21	NR	905	0	NR
390	1	NR	520	354	NR	650	567	NR	780	18	NR	910	0	NR
395	2	NR	525	408	NR	655	512	NR	785	15	NR	915	0	NR
400	5	NR	530	457	NR	660	459	NR	790	13	NR	920	0	NR
405	9	NR	535	500	NR	665	410	NR	795	12	NR	925	0	NR
410	20	NR	540	541	NR	670	363	NR	800	10	NR	930	0	NR
415	42	NR	545	581	NR	675	320	NR	805	9	NR	935	0	NR
420	81	NR	550	620	NR	680	283	NR	810	8	NR	940	0	NR
425	145	NR	555	664	NR	685	249	NR	815	7	NR	945	0	NR
430	225	NR	560	709	NR	690	219	NR	820	6	NR	950	0	NR
435	309	NR	565	758	NR	695	191	NR	825	5	NR	955	0	NR
440	373	NR	570	810	NR	700	166	NR	830	5	NR	960	0	NR
445	405	NR	575	861	NR	705	144	NR	835	4	NR	965	0	NR
450	316	NR	580	908	NR	710	124	NR	840	4	NR	970	0	NR
455	180	NR	585	948	NR	715	106	NR	845	3	NR	975	0	NR
460	111	NR	590	978	NR	720	90	NR	850	3	NR	980	0	NR
465	75	NR	595	993	NR	725	76	NR	855	2	NR	985	0	NR
470	50	NR	600	999	NR	730	65	NR	860	2	NR	990	0	NR
475	40	NR	605	988	NR	735	57	NR	865	2	NR	995	0	NR
480	38	NR	610	967	NR	740	50	NR	870	1	NR	1000	0	NR
485	41	NR	615	930	NR	745	45	NR	875	1	NR			

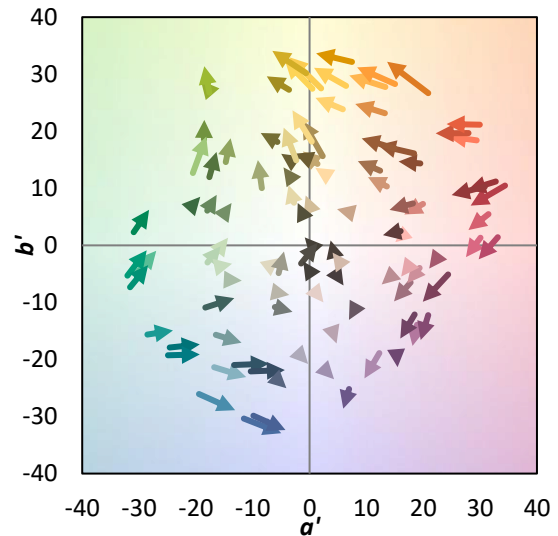
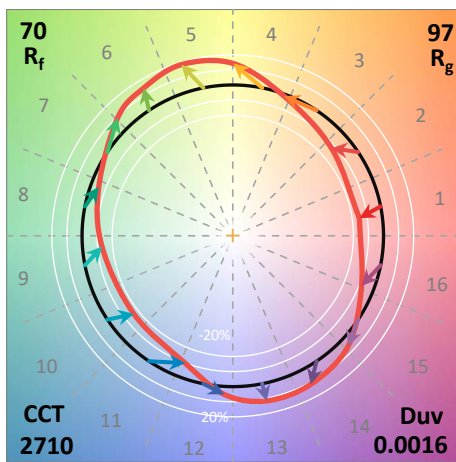
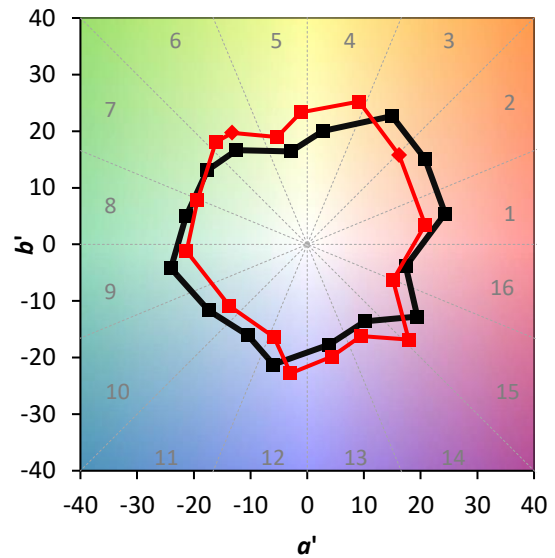
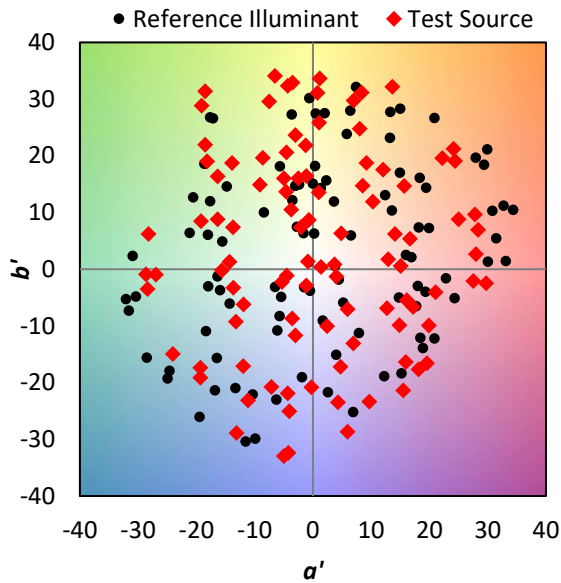
Summary

$R_f = 70.4$
 $R_g = 96.7$
 CIE $R_a = 70.4$
 $R_9 = -24.6$

Spectral Power Distribution Comparison



Color Vector Graphics



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

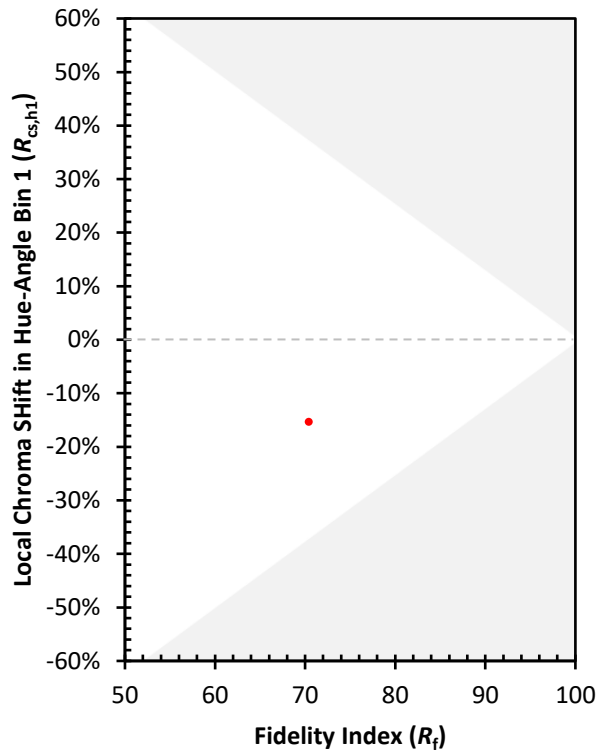
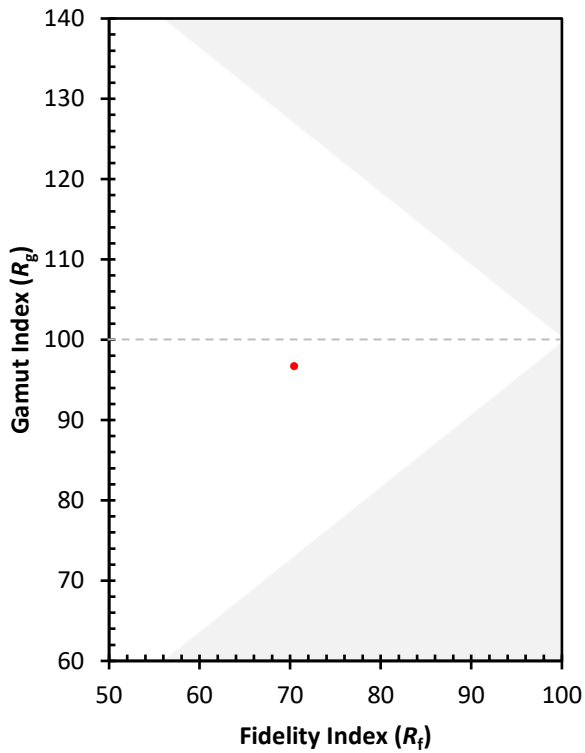
CES01 = 86	CES26 = 56	CES51 = 78	CES76 = 50
CES02 = 63	CES27 = 77	CES52 = 80	CES77 = 76
CES03 = 31	CES28 = 81	CES53 = 67	CES78 = 57
CES04 = 71	CES29 = 48	CES54 = 78	CES79 = 82
CES05 = 50	CES30 = 52	CES55 = 75	CES80 = 82
CES06 = 52	CES31 = 54	CES56 = 65	CES81 = 72
CES07 = 42	CES32 = 52	CES57 = 62	CES82 = 92
CES08 = 41	CES33 = 57	CES58 = 65	CES83 = 85
CES09 = 29	CES34 = 69	CES59 = 84	CES84 = 90
CES10 = 77	CES35 = 84	CES60 = 90	CES85 = 84
CES11 = 60	CES36 = 82	CES61 = 84	CES86 = 63
CES12 = 66	CES37 = 77	CES62 = 73	CES87 = 78
CES13 = 43	CES38 = 59	CES63 = 69	CES88 = 74
CES14 = 74	CES39 = 92	CES64 = 67	CES89 = 66
CES15 = 71	CES40 = 87	CES65 = 64	CES90 = 69
CES16 = 48	CES41 = 78	CES66 = 61	CES91 = 95
CES17 = 51	CES42 = 79	CES67 = 59	CES92 = 67
CES18 = 57	CES43 = 68	CES68 = 67	CES93 = 80
CES19 = 73	CES44 = 98	CES69 = 77	CES94 = 54
CES20 = 67	CES45 = 77	CES70 = 60	CES95 = 75
CES21 = 88	CES46 = 71	CES71 = 57	CES96 = 78
CES22 = 80	CES47 = 66	CES72 = 85	CES97 = 79
CES23 = 92	CES48 = 54	CES73 = 52	CES98 = 71
CES24 = 92	CES49 = 69	CES74 = 92	CES99 = 63
CES25 = 73	CES50 = 78	CES75 = 58	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)