

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: P879678

Luminaire Tested: **EMM2-HSN-VA8-740-U-WQ**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P879678
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-VA8-740-U-WQ
Description: EPIC MODERN SHORT HOUSING 8W 70CRI 4000K WAVESTREAM FIXTURE w/
TYPE V WIDE DISTRIBUTION OPTIC
Light Source: (1) 4000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

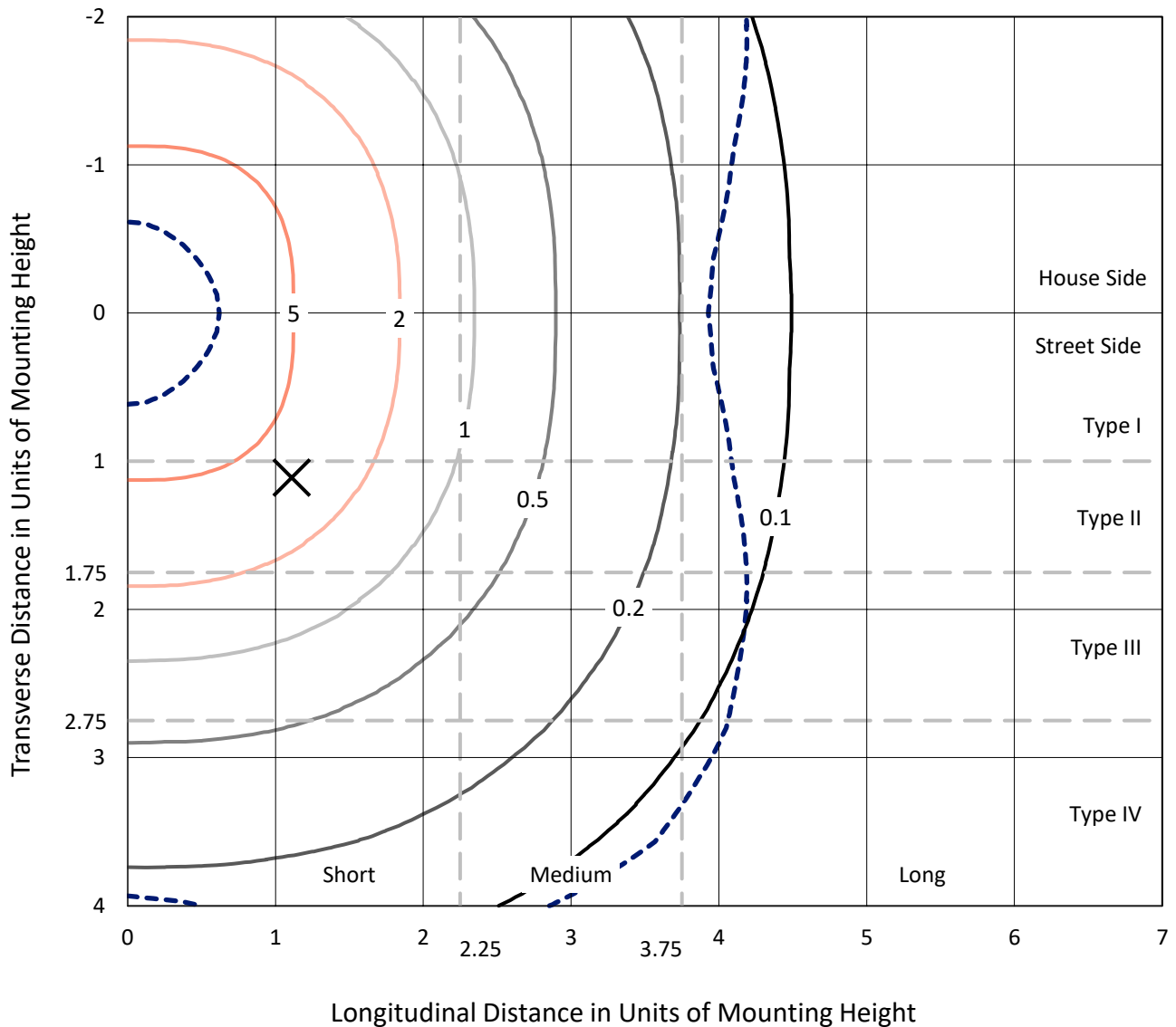
Lumens per Lamp: N/A
Luminaire Lumens: 18554.9 lumens
Efficiency: N/A
Efficacy: 118.9 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G3

Input Watts (W): 156
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.995
Total Harmonic Distortion (THDi): 6.6%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P879678
 CATALOG NUMBER: EMM2-HSN-VA8-740-U-WQ

Iso-Footcandle Lines of Horizontal Illumination

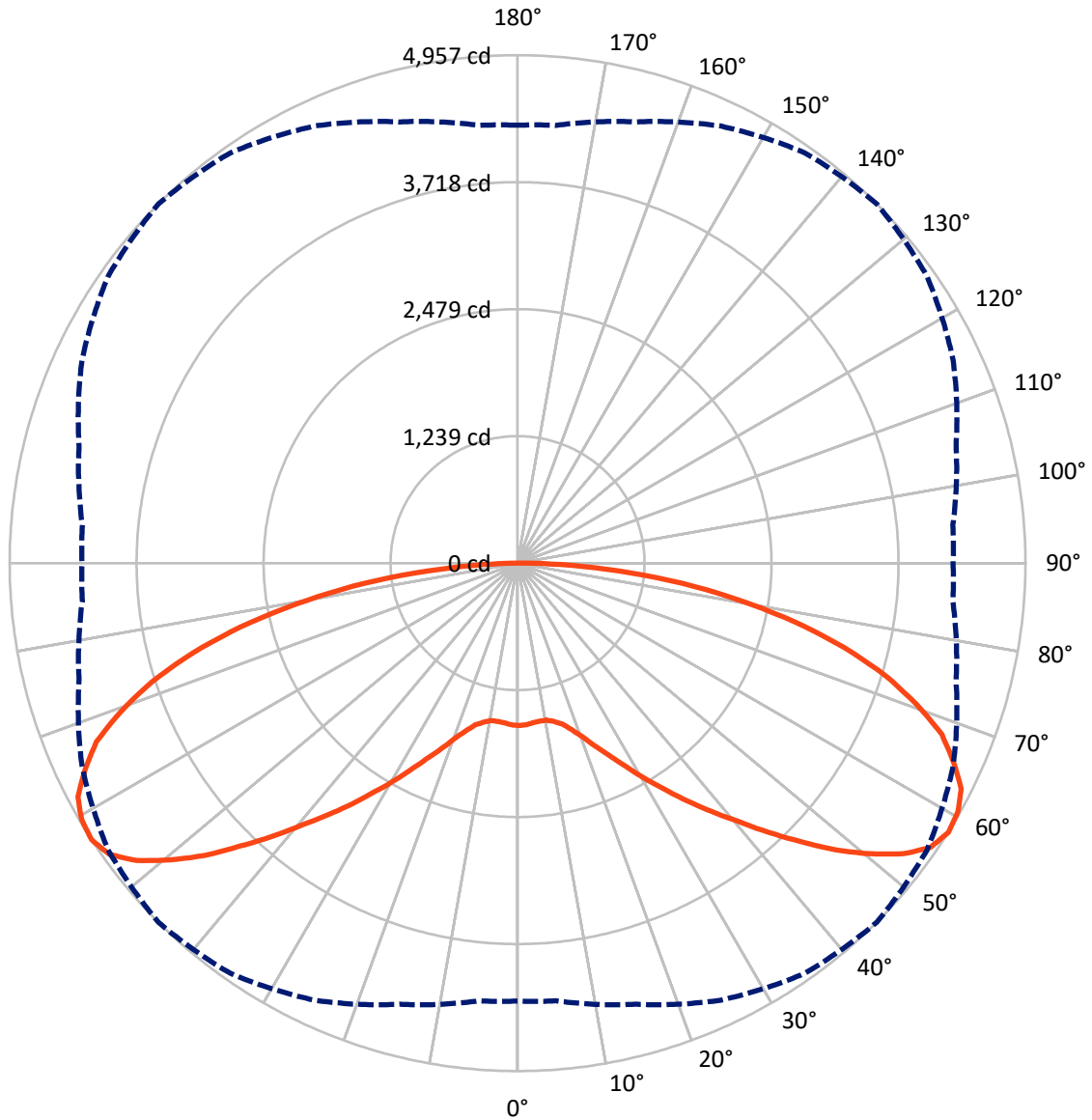
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 7 fc
 Type V - Short - N/A

REPORT NUMBER: P879678
CATALOG NUMBER: EMM2-HSN-VA8-740-U-WQ

Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

REPORT NUMBER: P879678
 CATALOG NUMBER: EMM2-HSN-VA8-740-U-WQ

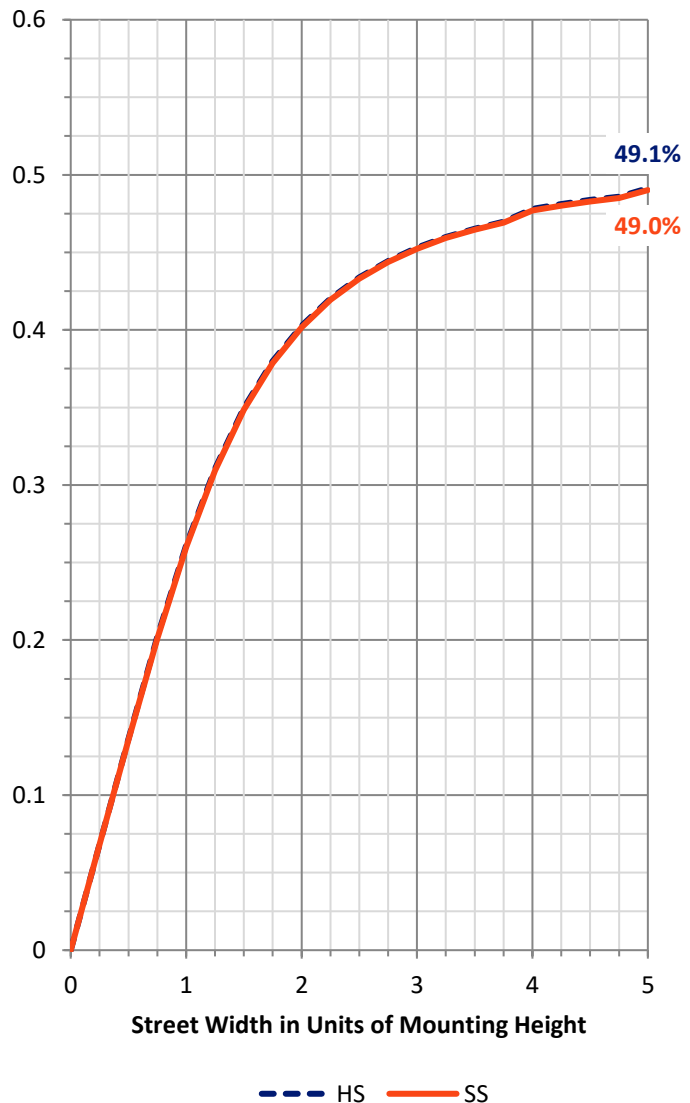
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	9277.4	0.0	9277.4
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	9277.4	0.0	9277.4
	% Fixture	50.0	0.0	50.0
Total	Lumens	18554.9	0.0	18554.9
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.2	0.8
10°-20°	469.1	2.5
20°-30°	964.1	5.2
30°-40°	1759.2	9.5
40°-50°	2884.9	15.5
50°-60°	4042.5	21.8
60°-70°	4229.0	22.8
70°-80°	3089.8	16.7
80°-90°	967.2	5.2
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°	18554.9	100.0
0°-180°	18554.9	100.0



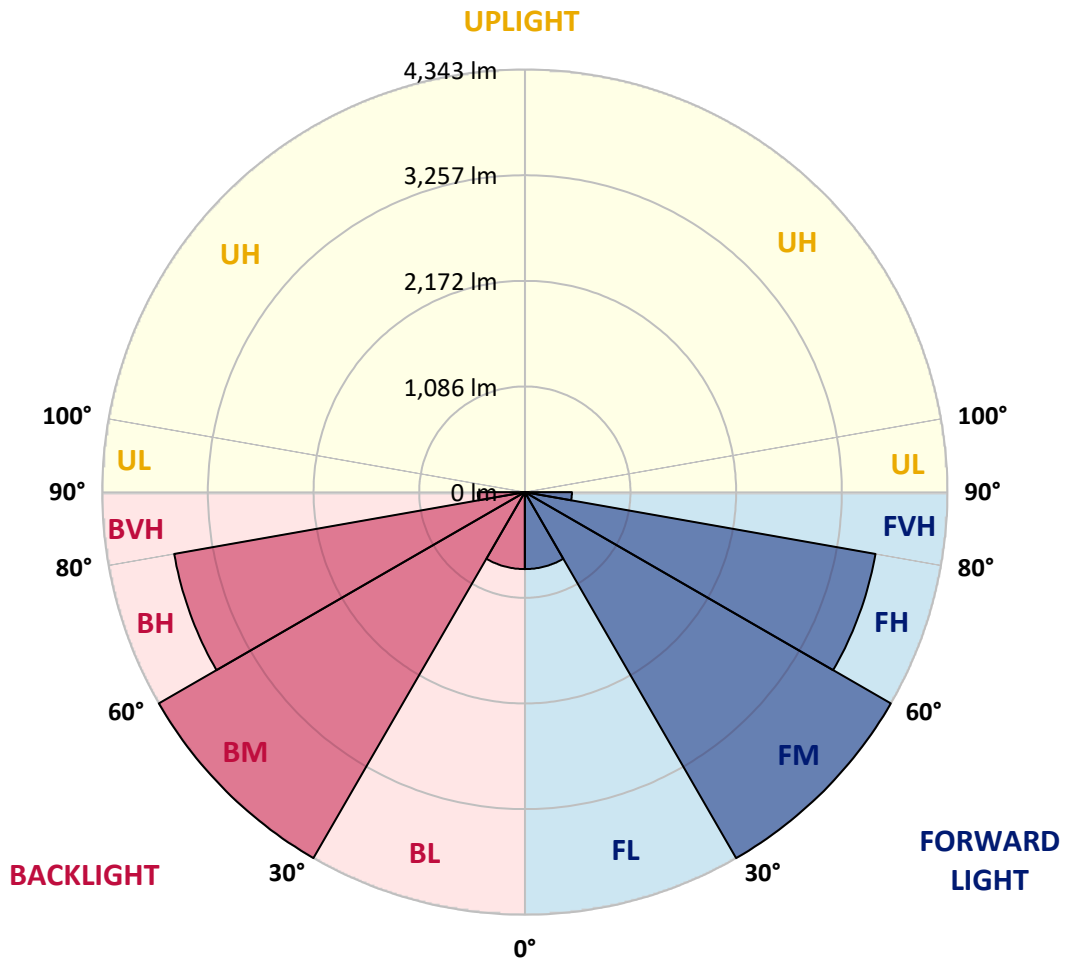
REPORT NUMBER: P879678
 CATALOG NUMBER: EMM2-HSN-VA8-740-U-WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	791.2	4.3			
FM (30°-60°)	4343.3	23.4			
FH (60°-80°)	3659.4	19.7			G2/5000
FVH (80°-90°)	483.6	2.6			G3/500
BL (0°-30°)	791.2	4.3	B2/1000		
BM (30°-60°)	4343.3	23.4	B3/5000		
BH (60°-80°)	3659.4	19.7	B4/5000		G2/5000
BVH (80°-90°)	483.6	2.6			G3/500
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G3

Type V Short





REPORT NUMBER: P879678

CATALOG NUMBER: EMM2-HSN-VA8-740-U-WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1584.2	1584.2	1584.2	1584.2	1584.2	1584.2	1584.2	1584.2	1584.2	1584.2	1584.2
2.5°	1578.4	1580.7	1579.6	1579.6	1578.4	1579.6	1581.9	1583.1	1581.9	1583.1	1581.9
5°	1567.9	1567.9	1566.8	1565.6	1565.6	1565.6	1565.6	1565.6	1566.8	1566.8	1567.9
7.5°	1555.2	1555.2	1555.2	1557.5	1556.3	1557.5	1557.5	1556.3	1555.2	1555.2	1556.3
10°	1557.5	1556.3	1555.2	1557.5	1556.3	1557.5	1557.5	1555.2	1556.3	1557.5	1558.6
12.5°	1577.2	1574.9	1578.4	1581.9	1584.2	1586.5	1585.4	1584.2	1580.7	1577.2	1577.2
15°	1620.2	1617.9	1621.4	1626.1	1627.2	1628.4	1631.9	1627.2	1626.1	1620.2	1619.1
17.5°	1681.9	1680.7	1687.7	1697.0	1701.6	1707.4	1701.6	1697.0	1684.2	1681.9	1685.3
20°	1770.2	1766.7	1780.6	1795.8	1800.4	1807.4	1802.7	1793.4	1780.6	1766.7	1766.7
22.5°	1882.9	1891.1	1898.0	1909.7	1928.3	1939.9	1924.8	1908.5	1889.9	1881.8	1876.0
25°	2029.4	2028.2	2035.2	2058.4	2070.1	2078.2	2075.9	2053.8	2037.5	2025.9	2024.7
27.5°	2170.0	2184.0	2197.9	2213.0	2242.1	2245.6	2242.1	2215.3	2189.8	2180.5	2177.0
30°	2357.1	2354.8	2367.6	2403.6	2432.7	2435.0	2425.7	2393.2	2364.1	2346.7	2349.0
32.5°	2539.6	2521.0	2554.7	2579.1	2603.6	2629.1	2604.7	2579.1	2554.7	2517.5	2529.2
35°	2705.8	2721.0	2739.5	2789.5	2839.5	2850.0	2833.7	2781.4	2733.7	2716.3	2696.5
37.5°	2909.2	2909.2	2940.6	3013.9	3059.2	3075.5	3052.2	2999.9	2933.7	2908.1	2898.8
40°	3113.8	3113.8	3161.5	3223.1	3290.5	3313.7	3288.2	3219.6	3165.0	3098.7	3109.2
42.5°	3312.6	3328.8	3391.6	3467.1	3561.3	3592.7	3556.6	3464.8	3385.8	3323.0	3313.7
45°	3532.2	3557.8	3626.4	3750.8	3830.9	3876.3	3826.3	3747.3	3607.8	3547.3	3514.8
47.5°	3771.7	3789.1	3887.9	4006.5	4136.6	4184.3	4125.0	3996.0	3877.4	3770.5	3765.9
50°	3979.7	3976.2	4102.9	4266.8	4414.4	4459.8	4412.1	4272.6	4079.7	3961.1	3972.8
52.5°	4135.5	4155.2	4288.9	4491.1	4648.0	4714.3	4636.4	4469.1	4268.0	4144.8	4107.6
55°	4236.6	4269.1	4424.9	4643.4	4822.4	4893.3	4816.6	4623.6	4404.0	4244.7	4222.6
57.5°	4273.8	4287.7	4457.4	4705.0	4887.5	4957.2	4878.2	4689.9	4430.7	4264.5	4250.5
60°	4216.8	4230.8	4414.4	4667.8	4877.0	4936.3	4873.5	4652.7	4388.9	4219.2	4195.9
62.5°	4077.4	4115.7	4319.1	4570.2	4809.6	4859.6	4794.5	4552.7	4308.7	4104.1	4070.4
65°	3910.0	3950.7	4123.8	4404.0	4621.3	4674.8	4623.6	4391.2	4125.0	3928.6	3896.0
67.5°	3676.4	3683.3	3886.7	4170.3	4400.5	4465.6	4377.2	4165.7	3876.3	3690.3	3664.7
70°	3384.6	3389.3	3605.5	3868.1	4079.7	4133.1	4075.0	3849.5	3590.4	3388.1	3370.7
72.5°	3010.4	3053.4	3232.4	3492.7	3690.3	3753.1	3677.5	3485.7	3246.3	3046.4	3006.9
75°	2612.9	2639.6	2795.3	3047.6	3217.3	3295.1	3233.5	3047.6	2795.3	2630.3	2595.4
77.5°	2147.9	2184.0	2336.2	2548.9	2689.6	2773.3	2705.8	2540.8	2336.2	2185.1	2184.0
80°	1697.0	1687.7	1826.0	2009.6	2149.1	2197.9	2156.1	1995.7	1812.0	1694.6	1678.4
82.5°	1177.4	1175.1	1325.0	1448.2	1565.6	1621.4	1557.5	1454.0	1312.2	1207.6	1173.9
85°	669.5	684.6	783.4	860.1	960.1	993.8	971.7	874.1	747.4	655.5	649.7
87.5°	232.5	253.4	272.0	327.8	392.9	421.9	390.5	375.4	333.6	289.4	291.7
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: SP1-2407-176-9

Test Date: 09/25/2024

Luminaire Tested: MEM2-HTN-VA-130-740-U-RW

Data in this report applies to families of products including MEM2-HTN-VA-130-740-U-RW

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-9
 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-130-740-U-RW**
 Description: EPIC MODERN VISUAL COMFORT 130W WAVESTREAM RECTANGULAR WIDE

Spectral Parameters

CCT (K): 3887
 CIE u': 0.2262
 CIE v': 0.5060
 Duv: 0.0018
 CIE x: 0.3870
 CIE y: 0.3847
 CIE z: 0.2283
 Peak Wavelength (nm): 583
 Dominant Wavelength (nm): 578
 Purity: 31.59626
 Rf: 74.5
 Rg: 93.5

CRI (Ra):	71.4		
R1:	67.6	R9:	-36.8
R2:	78.8	R10:	50.4
R3:	88.2	R11:	65.0
R4:	69.8	R12:	44.4
R5:	67.7	R13:	69.4
R6:	70.3	R14:	93.3
R7:	80.1	R15:	59.9
R8:	49.0		



Test Conditions

Stabilization Time: 50M
 Operation Time: 1H 50M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-9

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: SP1-2407-176-9

CIE 1931 Chromaticity Diagram



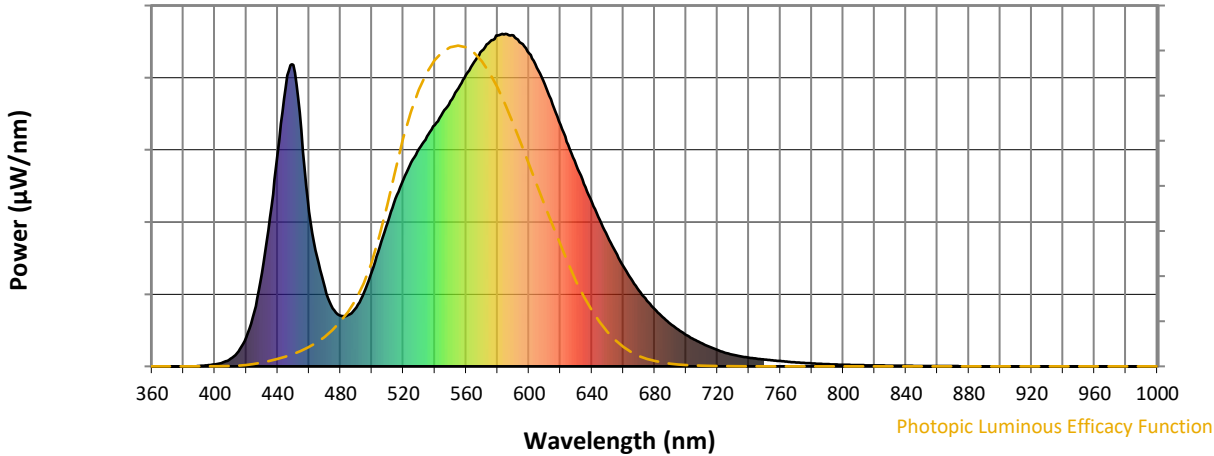
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-9

Photopic Flux vs. Wavelength

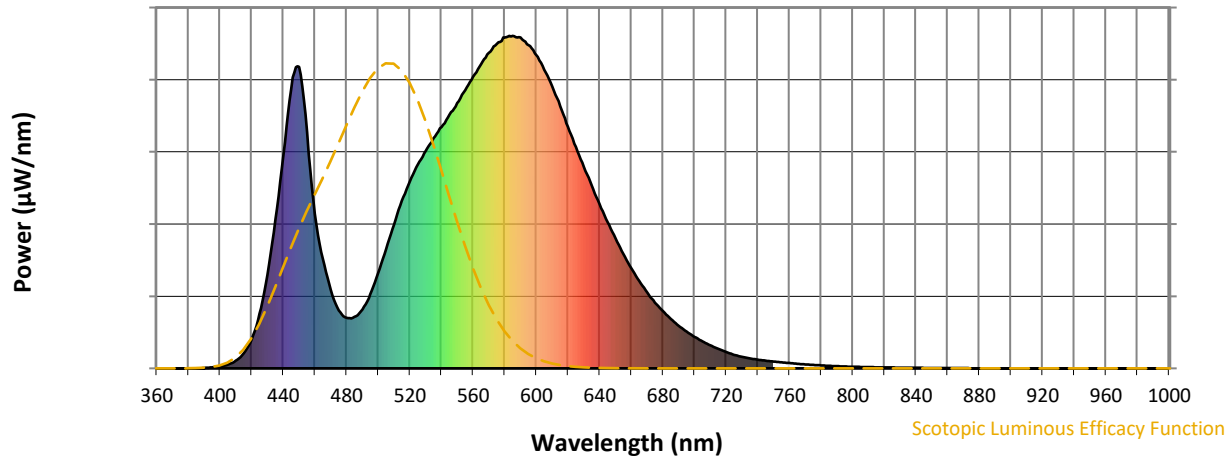


Photopic Lumens: NR

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	177	NR	620	727	NR	750	21	NR	880	0	NR
365	0	NR	495	222	NR	625	666	NR	755	18	NR	885	0	NR
370	0	NR	500	286	NR	630	606	NR	760	16	NR	890	0	NR
375	0	NR	505	359	NR	635	549	NR	765	14	NR	895	0	NR
380	0	NR	510	433	NR	640	493	NR	770	12	NR	900	0	NR
385	0	NR	515	505	NR	645	440	NR	775	10	NR	905	0	NR
390	1	NR	520	562	NR	650	390	NR	780	9	NR	910	0	NR
395	3	NR	525	613	NR	655	344	NR	785	8	NR	915	0	NR
400	6	NR	530	654	NR	660	301	NR	790	7	NR	920	0	NR
405	11	NR	535	692	NR	665	263	NR	795	6	NR	925	0	NR
410	23	NR	540	726	NR	670	228	NR	800	5	NR	930	0	NR
415	45	NR	545	763	NR	675	198	NR	805	4	NR	935	0	NR
420	88	NR	550	798	NR	680	172	NR	810	4	NR	940	0	NR
425	164	NR	555	837	NR	685	148	NR	815	3	NR	945	0	NR
430	281	NR	560	878	NR	690	128	NR	820	3	NR	950	0	NR
435	447	NR	565	915	NR	695	110	NR	825	2	NR	955	0	NR
440	642	NR	570	948	NR	700	95	NR	830	2	NR	960	0	NR
445	838	NR	575	976	NR	705	81	NR	835	2	NR	965	0	NR
450	907	NR	580	995	NR	710	69	NR	840	2	NR	970	0	NR
455	710	NR	585	1000	NR	715	58	NR	845	1	NR	975	0	NR
460	465	NR	590	995	NR	720	49	NR	850	1	NR	980	0	NR
465	330	NR	595	972	NR	725	41	NR	855	1	NR	985	0	NR
470	236	NR	600	941	NR	730	35	NR	860	1	NR	990	0	NR
475	174	NR	605	898	NR	735	30	NR	865	1	NR	995	0	NR
480	152	NR	610	848	NR	740	26	NR	870	1	NR	1000	0	NR
485	155	NR	615	788	NR	745	23	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.49

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	177	NR	620	727	NR	750	21	NR	880	0	NR
365	0	NR	495	222	NR	625	666	NR	755	18	NR	885	0	NR
370	0	NR	500	286	NR	630	606	NR	760	16	NR	890	0	NR
375	0	NR	505	359	NR	635	549	NR	765	14	NR	895	0	NR
380	0	NR	510	433	NR	640	493	NR	770	12	NR	900	0	NR
385	0	NR	515	505	NR	645	440	NR	775	10	NR	905	0	NR
390	1	NR	520	562	NR	650	390	NR	780	9	NR	910	0	NR
395	3	NR	525	613	NR	655	344	NR	785	8	NR	915	0	NR
400	6	NR	530	654	NR	660	301	NR	790	7	NR	920	0	NR
405	11	NR	535	692	NR	665	263	NR	795	6	NR	925	0	NR
410	23	NR	540	726	NR	670	228	NR	800	5	NR	930	0	NR
415	45	NR	545	763	NR	675	198	NR	805	4	NR	935	0	NR
420	88	NR	550	798	NR	680	172	NR	810	4	NR	940	0	NR
425	164	NR	555	837	NR	685	148	NR	815	3	NR	945	0	NR
430	281	NR	560	878	NR	690	128	NR	820	3	NR	950	0	NR
435	447	NR	565	915	NR	695	110	NR	825	2	NR	955	0	NR
440	642	NR	570	948	NR	700	95	NR	830	2	NR	960	0	NR
445	838	NR	575	976	NR	705	81	NR	835	2	NR	965	0	NR
450	907	NR	580	995	NR	710	69	NR	840	2	NR	970	0	NR
455	710	NR	585	1000	NR	715	58	NR	845	1	NR	975	0	NR
460	465	NR	590	995	NR	720	49	NR	850	1	NR	980	0	NR
465	330	NR	595	972	NR	725	41	NR	855	1	NR	985	0	NR
470	236	NR	600	941	NR	730	35	NR	860	1	NR	990	0	NR
475	174	NR	605	898	NR	735	30	NR	865	1	NR	995	0	NR
480	152	NR	610	848	NR	740	26	NR	870	1	NR	1000	0	NR
485	155	NR	615	788	NR	745	23	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-9

Melanopic Flux vs. Wavelength



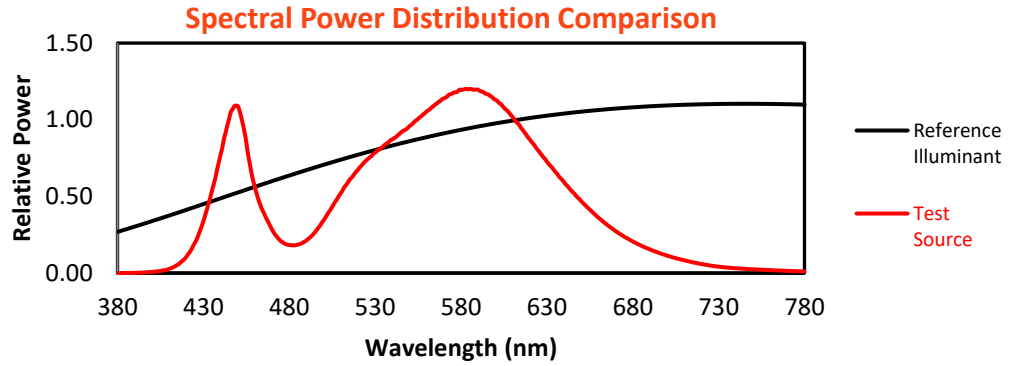
Melanopic Lumens: NR

M/P: 2.89

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	177	NR	620	727	NR	750	21	NR	880	0	NR
365	0	NR	495	222	NR	625	666	NR	755	18	NR	885	0	NR
370	0	NR	500	286	NR	630	606	NR	760	16	NR	890	0	NR
375	0	NR	505	359	NR	635	549	NR	765	14	NR	895	0	NR
380	0	NR	510	433	NR	640	493	NR	770	12	NR	900	0	NR
385	0	NR	515	505	NR	645	440	NR	775	10	NR	905	0	NR
390	1	NR	520	562	NR	650	390	NR	780	9	NR	910	0	NR
395	3	NR	525	613	NR	655	344	NR	785	8	NR	915	0	NR
400	6	NR	530	654	NR	660	301	NR	790	7	NR	920	0	NR
405	11	NR	535	692	NR	665	263	NR	795	6	NR	925	0	NR
410	23	NR	540	726	NR	670	228	NR	800	5	NR	930	0	NR
415	45	NR	545	763	NR	675	198	NR	805	4	NR	935	0	NR
420	88	NR	550	798	NR	680	172	NR	810	4	NR	940	0	NR
425	164	NR	555	837	NR	685	148	NR	815	3	NR	945	0	NR
430	281	NR	560	878	NR	690	128	NR	820	3	NR	950	0	NR
435	447	NR	565	915	NR	695	110	NR	825	2	NR	955	0	NR
440	642	NR	570	948	NR	700	95	NR	830	2	NR	960	0	NR
445	838	NR	575	976	NR	705	81	NR	835	2	NR	965	0	NR
450	907	NR	580	995	NR	710	69	NR	840	2	NR	970	0	NR
455	710	NR	585	1000	NR	715	58	NR	845	1	NR	975	0	NR
460	465	NR	590	995	NR	720	49	NR	850	1	NR	980	0	NR
465	330	NR	595	972	NR	725	41	NR	855	1	NR	985	0	NR
470	236	NR	600	941	NR	730	35	NR	860	1	NR	990	0	NR
475	174	NR	605	898	NR	735	30	NR	865	1	NR	995	0	NR
480	152	NR	610	848	NR	740	26	NR	870	1	NR	1000	0	NR
485	155	NR	615	788	NR	745	23	NR	875	0	NR			

Summary

$R_f = 74.5$
 $R_g = 93.5$
 $CIE R_a = 71.4$
 $R_g = -36.8$

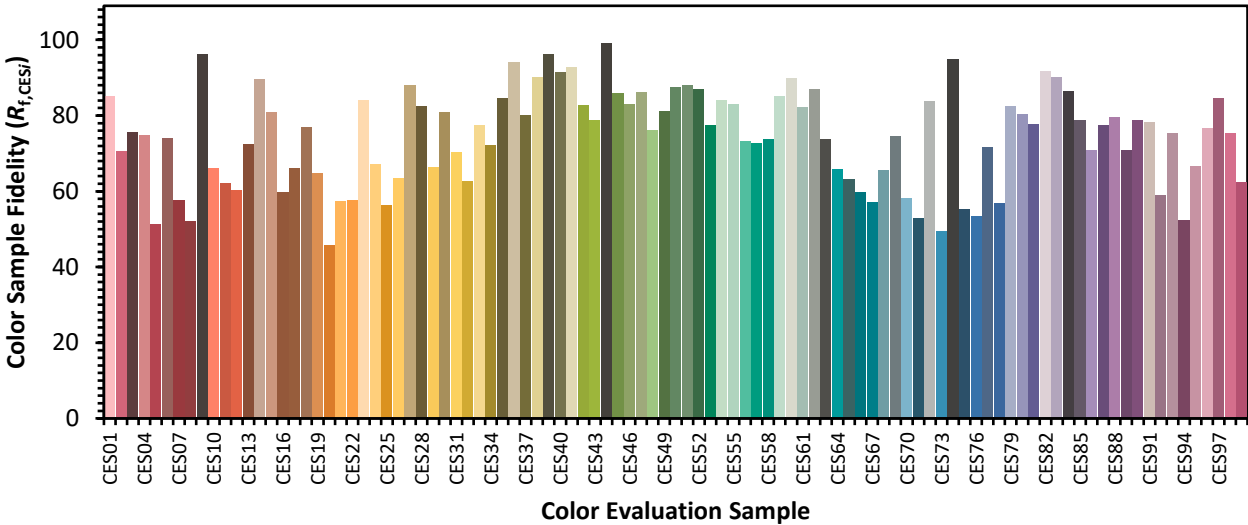


Color Vector Graphics

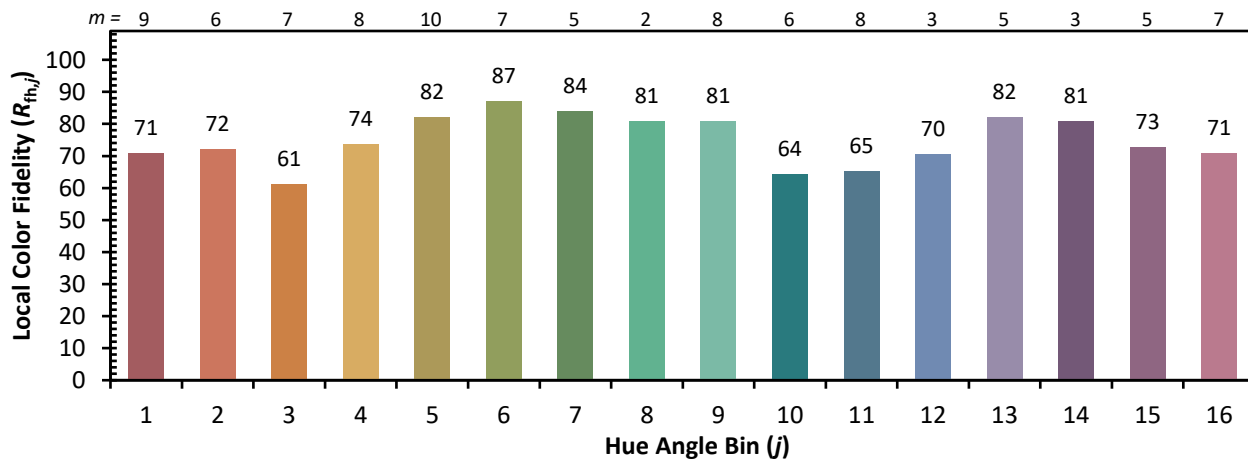
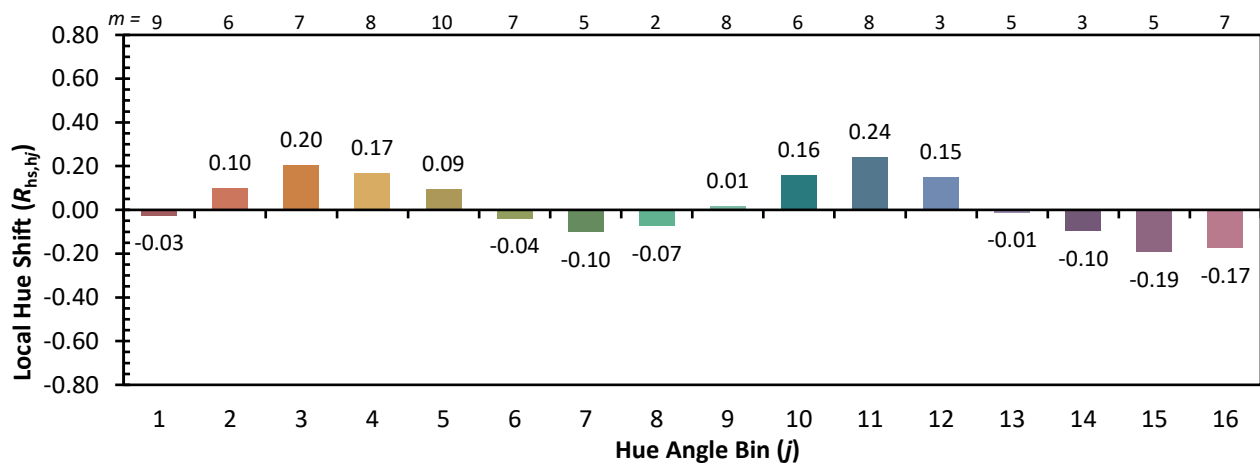
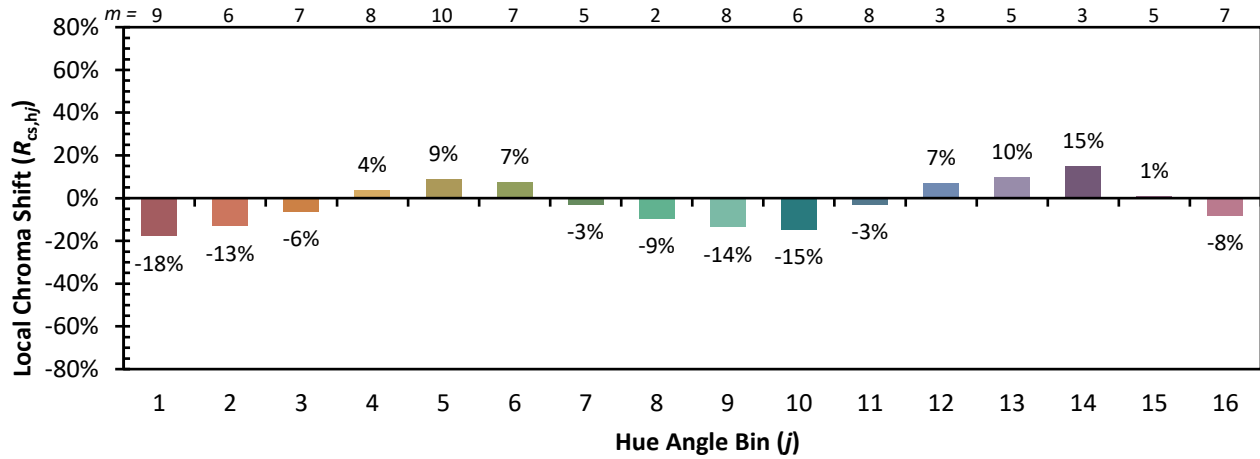


Individual Sample Fidelity Index ($R_{f,i}$)

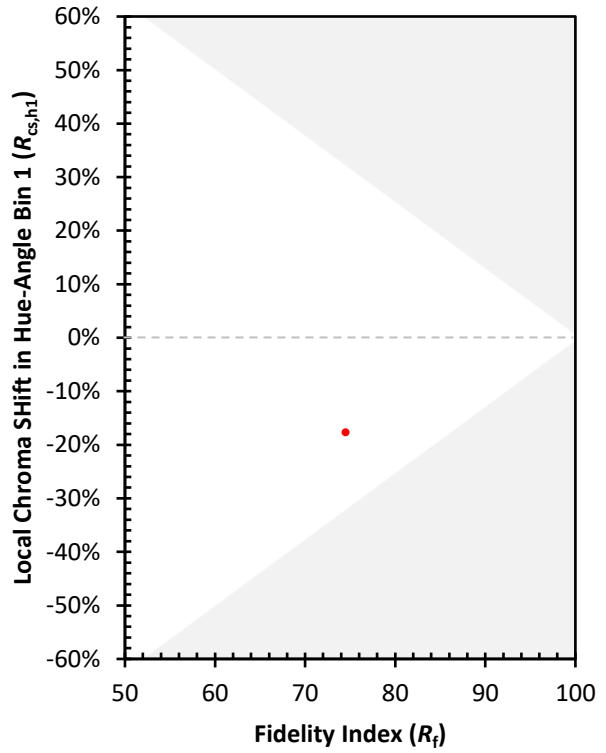
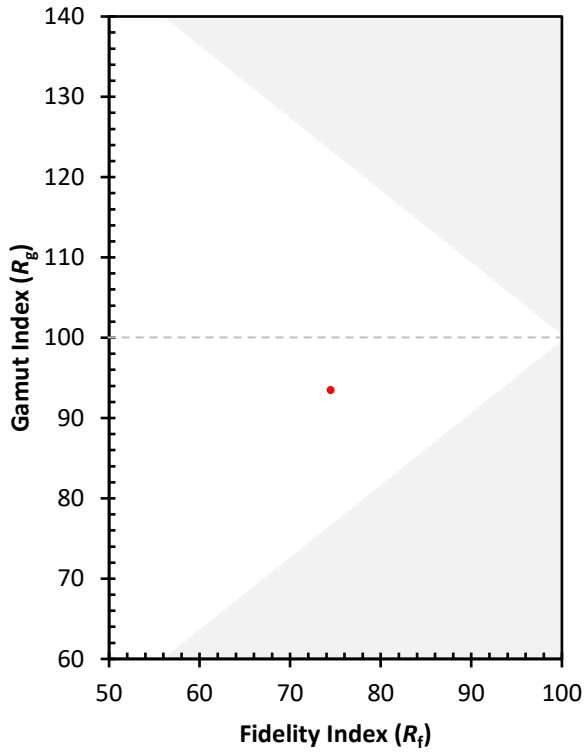
CES01 = 85	CES26 = 63	CES51 = 88	CES76 = 54
CES02 = 61	CES27 = 88	CES52 = 87	CES77 = 72
CES03 = 30	CES28 = 82	CES53 = 77	CES78 = 57
CES04 = 70	CES29 = 66	CES54 = 84	CES79 = 83
CES05 = 47	CES30 = 81	CES55 = 83	CES80 = 80
CES06 = 50	CES31 = 70	CES56 = 73	CES81 = 78
CES07 = 40	CES32 = 63	CES57 = 73	CES82 = 92
CES08 = 39	CES33 = 77	CES58 = 74	CES83 = 90
CES09 = 29	CES34 = 72	CES59 = 85	CES84 = 87
CES10 = 74	CES35 = 85	CES60 = 90	CES85 = 79
CES11 = 57	CES36 = 94	CES61 = 82	CES86 = 71
CES12 = 63	CES37 = 80	CES62 = 87	CES87 = 77
CES13 = 42	CES38 = 90	CES63 = 74	CES88 = 80
CES14 = 74	CES39 = 96	CES64 = 66	CES89 = 71
CES15 = 71	CES40 = 92	CES65 = 63	CES90 = 79
CES16 = 46	CES41 = 93	CES66 = 60	CES91 = 78
CES17 = 49	CES42 = 83	CES67 = 57	CES92 = 59
CES18 = 56	CES43 = 79	CES68 = 65	CES93 = 75
CES19 = 72	CES44 = 99	CES69 = 74	CES94 = 52
CES20 = 65	CES45 = 86	CES70 = 58	CES95 = 67
CES21 = 86	CES46 = 83	CES71 = 53	CES96 = 77
CES22 = 78	CES47 = 86	CES72 = 84	CES97 = 85
CES23 = 92	CES48 = 76	CES73 = 49	CES98 = 75
CES24 = 91	CES49 = 81	CES74 = 95	CES99 = 62
CES25 = 72	CES50 = 88	CES75 = 55	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)