

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: P880186

Luminaire Tested: **EMM2-HSN-VA3-730-U-RW**

Issue Date: 10/01/2024



Test Information

Test Method: LM-79-08
Report Number: P880186
Test Lab: INNOVATION CENTER(G3)
Issue Date: 10/01/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: EMM2-HSN-VA3-730-U-RW
Description: EPIC MODERN SHORT HOUSING 3W 70CRI 3000K VISUAL COMFORT FIXTURE w/
RECTANGULAR WIDE DISTRIBUTION OPTIC
Light Source: (1) 3000K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

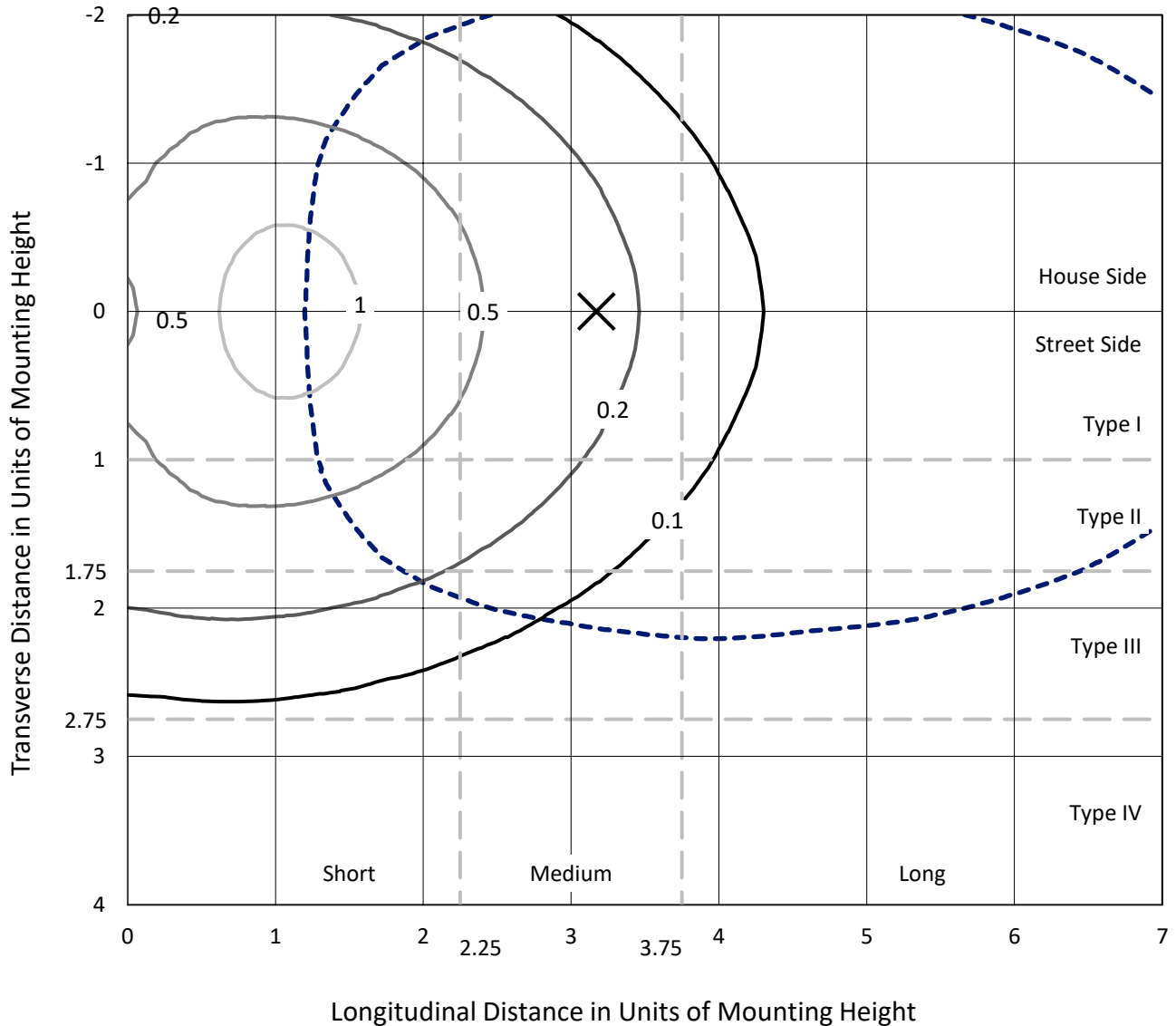
Lumens per Lamp: N/A
Luminaire Lumens: 4007.7 lumens
Efficiency: N/A
Efficacy: 81.8 lumens/watt
Luminous Opening: Circular (Dia: 1.12' x H: 0')
IES Classification: Type III - Short
BUG Rating: B3 - U0 - G3

Input Watts (W): 49
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.99
Total Harmonic Distortion (THDi): 6%
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

REPORT NUMBER: P880186
 CATALOG NUMBER: EMM2-HSN-VA3-730-U-RW

Iso-Footcandle Lines of Horizontal Illumination

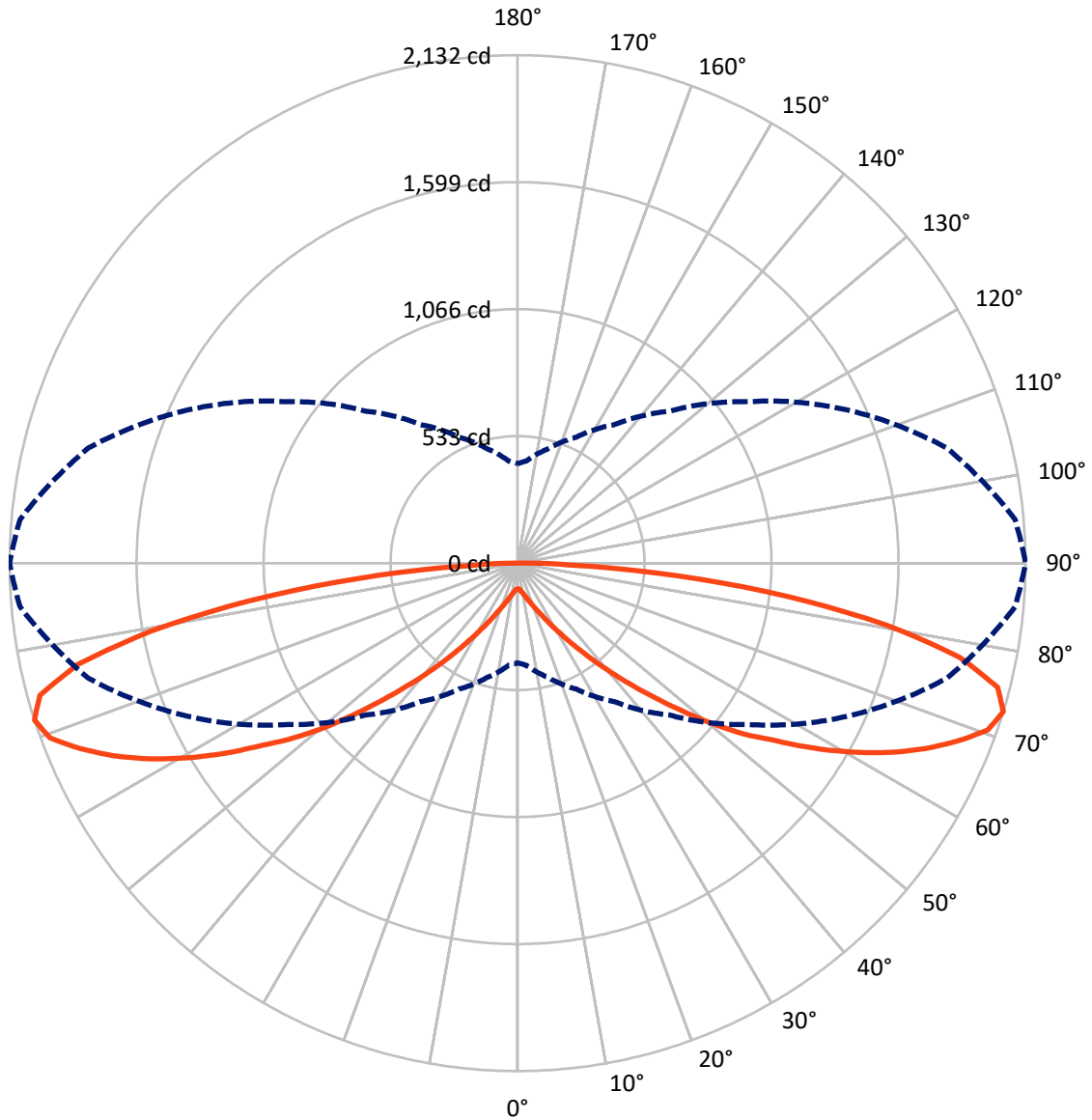
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 1.3 fc
 Type III - Short - N/A

REPORT NUMBER: P880186
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Luminous Intensity Polar Plot



— Vertical Plane Through 90-Deg Lateral - - - Horizontal Cone Through 72.5-Deg Vertical

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FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	2003.8	0.0	2003.8
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	2003.8	0.0	2003.8
	% Fixture	50.0	0.0	50.0
Total	Lumens	4007.7	0.0	4007.7
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	11.0	0.3
10°-20°	41.0	1.0
20°-30°	94.8	2.4
30°-40°	203.1	5.1
40°-50°	419.4	10.5
50°-60°	770.3	19.2
60°-70°	1098.2	27.4
70°-80°	1021.6	25.5
80°-90°	348.3	8.7
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°	4007.7	100.0
0°-180°	4007.7	100.0



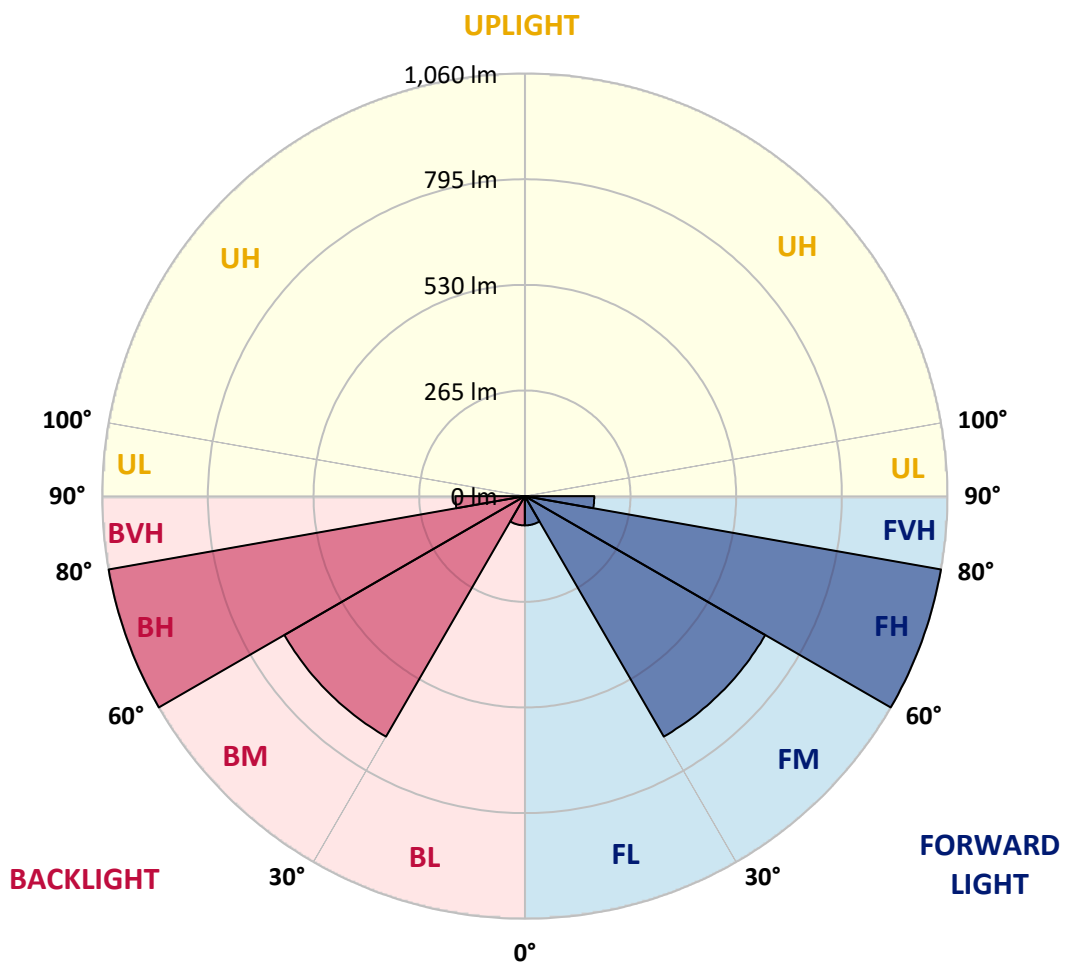
REPORT NUMBER: P880186
 CATALOG NUMBER: EMM2-HSN-VA3-730-U-RW

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	73.4	1.8			
FM (30°-60°)	696.4	17.4			
FH (60°-80°)	1059.9	26.4			G1/1800
FVH (80°-90°)	174.2	4.3			G2/225
BL (0°-30°)	73.4	1.8	B0/110		
BM (30°-60°)	696.4	17.4	B1/1000		
BH (60°-80°)	1059.9	26.4	B3/2500		G3/2500
BVH (80°-90°)	174.2	4.3			G2/225
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type III Short





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CATALOG NUMBER: EMM2-HSN-VA3-730-U-RW

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	107.9	107.9	107.9	107.9	107.9	107.9	107.9	107.9	107.9	107.9	107.9
2.5°	108.4	108.4	108.4	108.4	108.9	108.9	108.9	108.9	108.9	108.9	108.9
5°	109.9	109.9	109.9	110.4	111.4	111.9	112.4	112.4	113.0	113.0	113.0
7.5°	112.4	112.4	113.0	114.5	115.5	117.0	118.5	119.1	120.6	120.6	120.6
10°	116.0	116.0	117.0	118.5	121.1	124.1	126.7	128.7	129.7	130.3	130.8
12.5°	120.6	120.6	122.1	124.7	128.7	132.3	136.4	138.9	141.4	142.5	142.5
15°	126.2	126.2	128.2	131.8	136.4	141.4	147.0	151.6	155.2	156.7	157.2
17.5°	131.8	132.3	134.8	139.4	145.5	152.1	159.3	165.4	171.0	173.0	174.0
20°	138.9	138.9	142.0	148.1	155.7	164.8	174.5	182.7	189.8	193.8	194.4
22.5°	147.0	147.5	150.6	158.2	167.9	179.6	192.3	203.5	213.7	218.8	218.3
25°	155.2	155.7	160.3	169.4	181.6	197.9	214.2	229.0	242.7	248.8	248.8
27.5°	164.8	165.4	171.0	181.6	197.9	218.3	239.6	261.0	274.7	283.9	287.0
30°	176.6	177.1	183.7	197.4	216.2	241.7	270.2	297.6	316.0	329.2	329.7
32.5°	189.3	190.3	198.4	214.2	238.6	270.7	306.3	340.4	365.8	382.6	382.1
35°	206.6	207.6	218.8	236.6	266.1	304.3	347.5	393.8	423.3	442.6	444.7
37.5°	224.4	226.4	239.1	262.5	298.2	343.9	398.4	450.3	494.0	511.8	516.9
40°	245.2	247.3	263.0	291.5	332.7	391.3	458.4	522.0	572.4	596.8	600.4
42.5°	269.2	272.7	291.0	324.1	376.0	443.7	522.0	600.4	664.0	696.0	694.0
45°	303.2	306.3	329.7	366.8	425.3	503.2	598.3	696.5	765.2	802.4	801.9
47.5°	335.8	339.9	367.9	414.7	482.3	572.9	684.8	796.8	875.6	916.8	924.0
50°	369.4	375.0	410.6	463.0	543.4	654.3	780.0	900.1	995.7	1046.6	1058.8
52.5°	426.4	431.5	469.1	524.1	610.0	732.7	877.2	1012.0	1117.8	1171.7	1191.6
55°	465.0	473.2	521.0	589.7	687.4	817.1	975.9	1131.6	1251.1	1304.0	1315.2
57.5°	477.8	486.4	543.9	628.9	750.0	906.2	1079.1	1246.0	1375.8	1447.5	1465.3
60°	478.3	488.9	551.0	643.1	780.5	968.7	1171.2	1369.2	1516.2	1595.1	1610.3
62.5°	494.5	506.8	572.9	658.9	795.7	997.7	1233.8	1473.5	1653.6	1733.5	1750.2
65°	512.9	527.1	597.3	693.0	830.3	1028.8	1273.5	1548.8	1777.2	1870.3	1878.5
67.5°	494.0	506.2	580.0	679.2	822.2	1034.9	1301.5	1595.6	1851.5	1986.3	1992.9
70°	463.0	475.7	545.9	636.5	776.9	988.6	1269.4	1595.6	1895.2	2064.7	2095.2
72.5°	417.7	430.4	497.1	583.6	709.8	901.6	1180.4	1522.3	1865.2	2096.2	2131.8
75°	362.3	374.0	435.5	514.4	624.8	798.3	1051.2	1382.9	1748.2	2037.7	2080.4
77.5°	302.2	312.9	365.3	428.9	522.5	676.7	893.4	1193.6	1543.7	1840.3	1895.8
80°	237.6	248.3	288.5	338.3	413.6	531.7	711.3	960.1	1262.8	1511.1	1565.5
82.5°	178.1	183.2	211.7	247.8	296.1	383.6	515.9	709.8	936.2	1114.3	1138.7
85°	111.9	116.5	135.8	160.8	189.8	235.6	318.0	434.5	565.8	666.0	667.5
87.5°	34.6	40.2	46.3	61.1	69.7	84.0	100.7	142.0	186.7	235.6	221.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-3

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-730-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-730-U-WQ

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-176-3
 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-30-730-U-WQ**
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K): 2986
 CIE u': 0.2503
 CIE v': 0.5248
 Duv: 0.0022
 CIE x: 0.4413
 CIE y: 0.4112
 CIE z: 0.1476
 Peak Wavelength (nm): 596
 Dominant Wavelength (nm): 582
 Purity: 55.87534
 Rf: 73.2
 Rg: 95.9

CRI (Ra):	71.3		
R1:	68.5	R9:	-25.2
R2:	79.2	R10:	51.0
R3:	88.4	R11:	63.6
R4:	69.4	R12:	39.8
R5:	66.3	R13:	69.9
R6:	70.0	R14:	92.9
R7:	80.1	R15:	61.4
R8:	48.3		



Test Conditions

Stabilization Time: 27M
 Operation Time: 1H 27M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-3

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 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-3

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	61	NR	620	859	NR	750	28	NR	880	0	NR
365	0	NR	495	88	NR	625	807	NR	755	25	NR	885	0	NR
370	0	NR	500	137	NR	630	753	NR	760	22	NR	890	0	NR
375	0	NR	505	205	NR	635	697	NR	765	19	NR	895	0	NR
380	0	NR	510	281	NR	640	637	NR	770	16	NR	900	0	NR
385	0	NR	515	363	NR	645	578	NR	775	14	NR	905	0	NR
390	0	NR	520	432	NR	650	520	NR	780	12	NR	910	0	NR
395	1	NR	525	492	NR	655	463	NR	785	10	NR	915	0	NR
400	2	NR	530	539	NR	660	409	NR	790	9	NR	920	0	NR
405	4	NR	535	579	NR	665	359	NR	795	8	NR	925	0	NR
410	9	NR	540	613	NR	670	315	NR	800	6	NR	930	0	NR
415	18	NR	545	648	NR	675	274	NR	805	6	NR	935	0	NR
420	39	NR	550	680	NR	680	239	NR	810	5	NR	940	0	NR
425	81	NR	555	717	NR	685	207	NR	815	4	NR	945	0	NR
430	151	NR	560	759	NR	690	180	NR	820	4	NR	950	0	NR
435	263	NR	565	803	NR	695	155	NR	825	3	NR	955	0	NR
440	375	NR	570	848	NR	700	133	NR	830	3	NR	960	0	NR
445	474	NR	575	892	NR	705	114	NR	835	3	NR	965	0	NR
450	571	NR	580	933	NR	710	97	NR	840	2	NR	970	0	NR
455	421	NR	585	966	NR	715	81	NR	845	2	NR	975	0	NR
460	214	NR	590	991	NR	720	67	NR	850	2	NR	980	0	NR
465	146	NR	595	998	NR	725	55	NR	855	1	NR	985	0	NR
470	101	NR	600	995	NR	730	47	NR	860	1	NR	990	0	NR
475	64	NR	605	977	NR	735	40	NR	865	1	NR	995	0	NR
480	52	NR	610	949	NR	740	35	NR	870	1	NR	1000	0	NR
485	53	NR	615	908	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-3

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR S/P: 1.15

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	61	NR	620	859	NR	750	28	NR	880	0	NR
365	0	NR	495	88	NR	625	807	NR	755	25	NR	885	0	NR
370	0	NR	500	137	NR	630	753	NR	760	22	NR	890	0	NR
375	0	NR	505	205	NR	635	697	NR	765	19	NR	895	0	NR
380	0	NR	510	281	NR	640	637	NR	770	16	NR	900	0	NR
385	0	NR	515	363	NR	645	578	NR	775	14	NR	905	0	NR
390	0	NR	520	432	NR	650	520	NR	780	12	NR	910	0	NR
395	1	NR	525	492	NR	655	463	NR	785	10	NR	915	0	NR
400	2	NR	530	539	NR	660	409	NR	790	9	NR	920	0	NR
405	4	NR	535	579	NR	665	359	NR	795	8	NR	925	0	NR
410	9	NR	540	613	NR	670	315	NR	800	6	NR	930	0	NR
415	18	NR	545	648	NR	675	274	NR	805	6	NR	935	0	NR
420	39	NR	550	680	NR	680	239	NR	810	5	NR	940	0	NR
425	81	NR	555	717	NR	685	207	NR	815	4	NR	945	0	NR
430	151	NR	560	759	NR	690	180	NR	820	4	NR	950	0	NR
435	263	NR	565	803	NR	695	155	NR	825	3	NR	955	0	NR
440	375	NR	570	848	NR	700	133	NR	830	3	NR	960	0	NR
445	474	NR	575	892	NR	705	114	NR	835	3	NR	965	0	NR
450	571	NR	580	933	NR	710	97	NR	840	2	NR	970	0	NR
455	421	NR	585	966	NR	715	81	NR	845	2	NR	975	0	NR
460	214	NR	590	991	NR	720	67	NR	850	2	NR	980	0	NR
465	146	NR	595	998	NR	725	55	NR	855	1	NR	985	0	NR
470	101	NR	600	995	NR	730	47	NR	860	1	NR	990	0	NR
475	64	NR	605	977	NR	735	40	NR	865	1	NR	995	0	NR
480	52	NR	610	949	NR	740	35	NR	870	1	NR	1000	0	NR
485	53	NR	615	908	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-3

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.01

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	61	NR	620	859	NR	750	28	NR	880	0	NR
365	0	NR	495	88	NR	625	807	NR	755	25	NR	885	0	NR
370	0	NR	500	137	NR	630	753	NR	760	22	NR	890	0	NR
375	0	NR	505	205	NR	635	697	NR	765	19	NR	895	0	NR
380	0	NR	510	281	NR	640	637	NR	770	16	NR	900	0	NR
385	0	NR	515	363	NR	645	578	NR	775	14	NR	905	0	NR
390	0	NR	520	432	NR	650	520	NR	780	12	NR	910	0	NR
395	1	NR	525	492	NR	655	463	NR	785	10	NR	915	0	NR
400	2	NR	530	539	NR	660	409	NR	790	9	NR	920	0	NR
405	4	NR	535	579	NR	665	359	NR	795	8	NR	925	0	NR
410	9	NR	540	613	NR	670	315	NR	800	6	NR	930	0	NR
415	18	NR	545	648	NR	675	274	NR	805	6	NR	935	0	NR
420	39	NR	550	680	NR	680	239	NR	810	5	NR	940	0	NR
425	81	NR	555	717	NR	685	207	NR	815	4	NR	945	0	NR
430	151	NR	560	759	NR	690	180	NR	820	4	NR	950	0	NR
435	263	NR	565	803	NR	695	155	NR	825	3	NR	955	0	NR
440	375	NR	570	848	NR	700	133	NR	830	3	NR	960	0	NR
445	474	NR	575	892	NR	705	114	NR	835	3	NR	965	0	NR
450	571	NR	580	933	NR	710	97	NR	840	2	NR	970	0	NR
455	421	NR	585	966	NR	715	81	NR	845	2	NR	975	0	NR
460	214	NR	590	991	NR	720	67	NR	850	2	NR	980	0	NR
465	146	NR	595	998	NR	725	55	NR	855	1	NR	985	0	NR
470	101	NR	600	995	NR	730	47	NR	860	1	NR	990	0	NR
475	64	NR	605	977	NR	735	40	NR	865	1	NR	995	0	NR
480	52	NR	610	949	NR	740	35	NR	870	1	NR	1000	0	NR
485	53	NR	615	908	NR	745	31	NR	875	1	NR			

Summary

$R_f = 73.2$
 $R_g = 95.9$
 $CIE R_a = 71.3$
 $R_9 = -25.2$



Color Vector Graphics

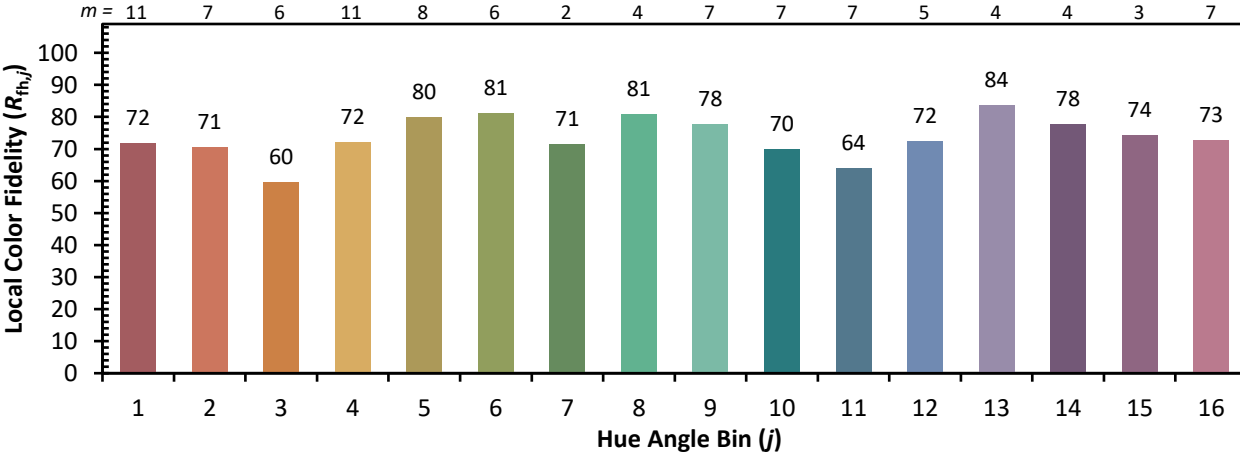


Individual Sample Fidelity Index ($R_{f,i}$)

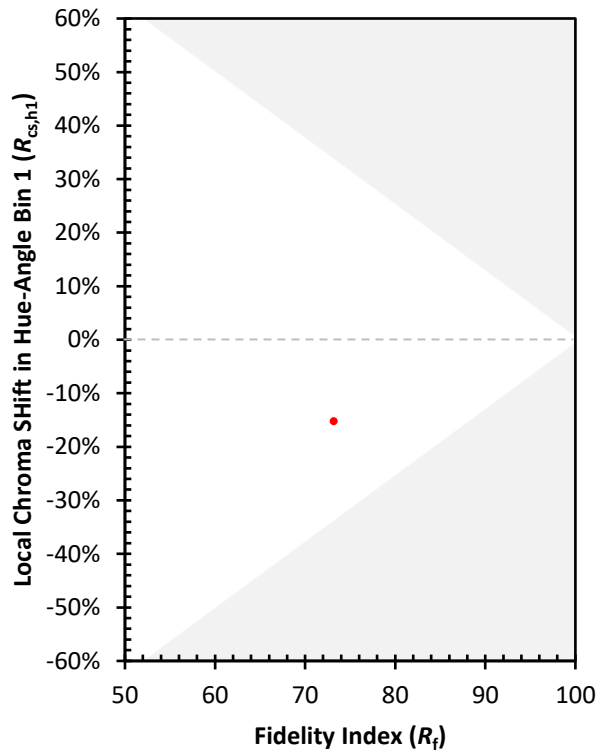
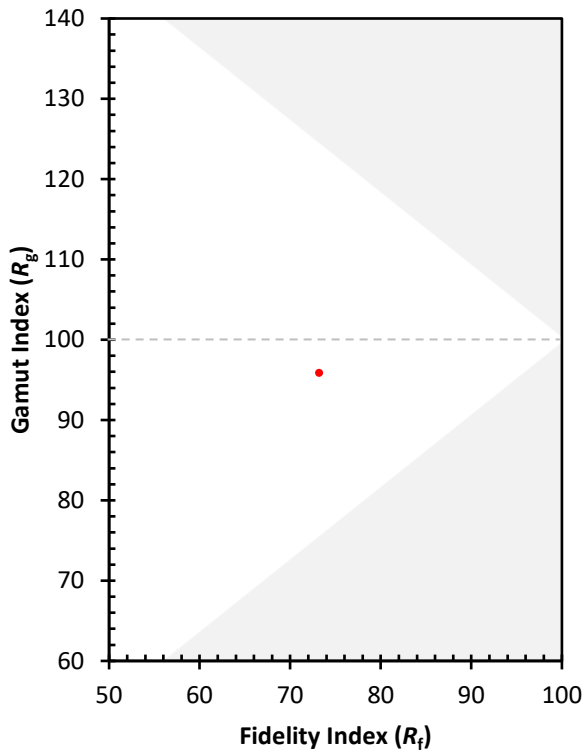
CES01 = 86	CES26 = 61	CES51 = 84	CES76 = 51
CES02 = 62	CES27 = 85	CES52 = 84	CES77 = 74
CES03 = 31	CES28 = 82	CES53 = 73	CES78 = 56
CES04 = 71	CES29 = 59	CES54 = 84	CES79 = 83
CES05 = 49	CES30 = 71	CES55 = 82	CES80 = 81
CES06 = 51	CES31 = 63	CES56 = 70	CES81 = 75
CES07 = 41	CES32 = 57	CES57 = 69	CES82 = 92
CES08 = 40	CES33 = 69	CES58 = 71	CES83 = 88
CES09 = 29	CES34 = 70	CES59 = 85	CES84 = 88
CES10 = 76	CES35 = 84	CES60 = 91	CES85 = 79
CES11 = 59	CES36 = 98	CES61 = 83	CES86 = 67
CES12 = 65	CES37 = 78	CES62 = 87	CES87 = 77
CES13 = 43	CES38 = 79	CES63 = 71	CES88 = 78
CES14 = 74	CES39 = 94	CES64 = 66	CES89 = 68
CES15 = 71	CES40 = 89	CES65 = 64	CES90 = 76
CES16 = 47	CES41 = 87	CES66 = 59	CES91 = 86
CES17 = 50	CES42 = 80	CES67 = 57	CES92 = 63
CES18 = 56	CES43 = 73	CES68 = 66	CES93 = 77
CES19 = 73	CES44 = 99	CES69 = 75	CES94 = 53
CES20 = 66	CES45 = 81	CES70 = 58	CES95 = 70
CES21 = 87	CES46 = 77	CES71 = 54	CES96 = 78
CES22 = 79	CES47 = 77	CES72 = 84	CES97 = 82
CES23 = 92	CES48 = 68	CES73 = 49	CES98 = 75
CES24 = 91	CES49 = 74	CES74 = 98	CES99 = 65
CES25 = 73	CES50 = 83	CES75 = 56	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)