

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: P672541

Luminaire Tested: **CCP-SA-2E-735-U-5MQ**

Issue Date: 04/16/2023

Test Information

Test Method: LM-79-08
Report Number: P672541
Test Lab: INNOVATION CENTER(G2)
Issue Date: 04/16/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: CCP-SA-2E-735-U-5MQ
Description: INVUE CLEAR CURVE POLE MOUNT LIGHT SQUARE LUMINAIRE @1050mA w/ 5MQ
distribution lens
Light Source: (32) 3500K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13920.6 lumens
Efficiency: N/A
Efficacy: 130.6 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type V - Short
BUG Rating: B4 - U0 - G2

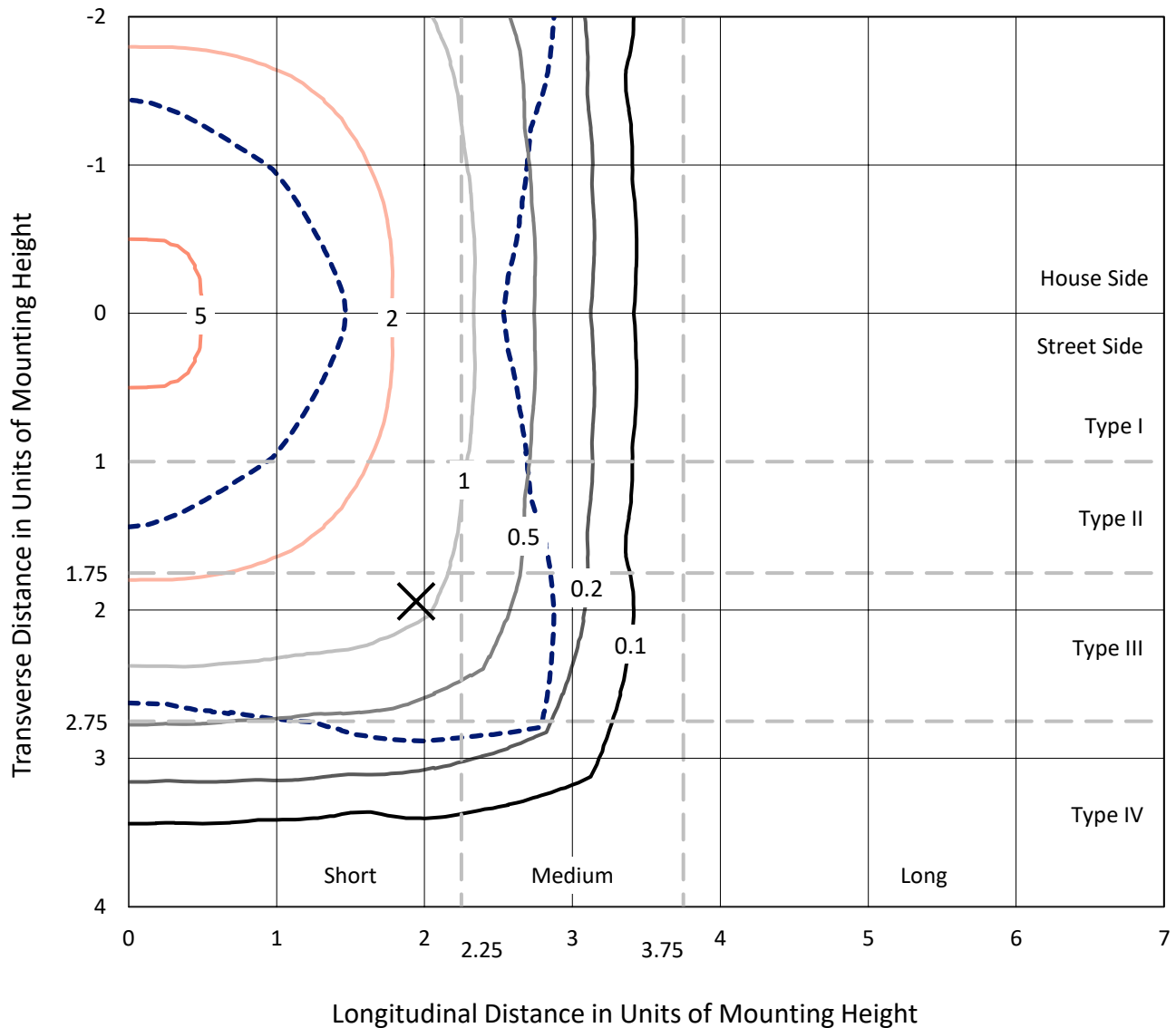
Input Watts (W): 106.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

REPORT NUMBER: P672541

CATALOG NUMBER: CCP-SA-2E-735-U-5MQ

Iso-Footcandle Lines of Horizontal Illumination

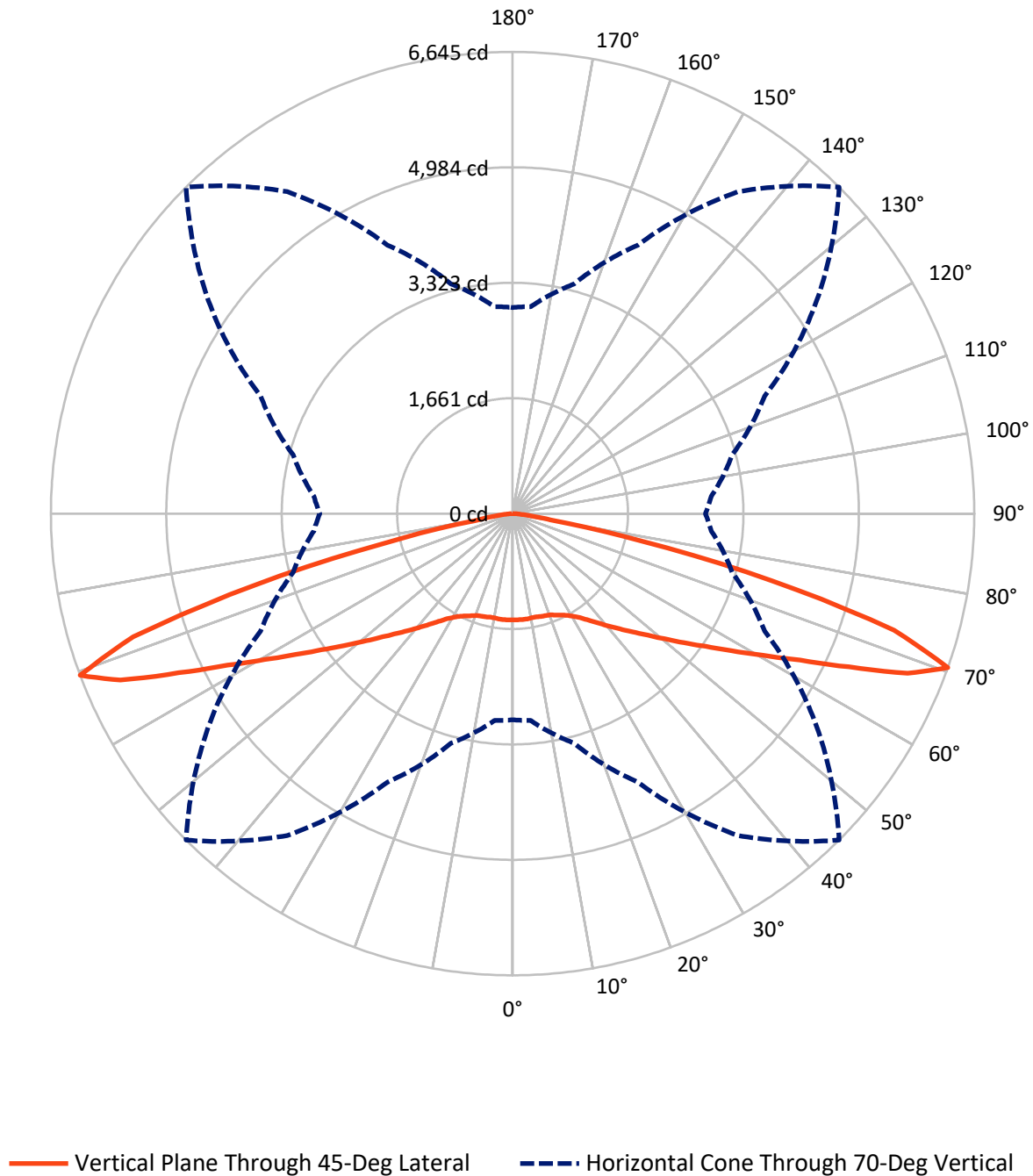
× Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 6.8 fc
 Type V - Short - N/A

REPORT NUMBER: P672541
CATALOG NUMBER: CCP-SA-2E-735-U-5MQ

Luminous Intensity Polar Plot



REPORT NUMBER: P672541

CATALOG NUMBER: CCP-SA-2E-735-U-5MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	6960.3	0.0	6960.3
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	6960.3	0.0	6960.3
	% Fixture	50.0	0.0	50.0
Total	Lumens	13920.6	0.0	13920.6
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.6	1.0
10°-20°	431.0	3.1
20°-30°	736.0	5.3
30°-40°	1174.4	8.4
40°-50°	1895.2	13.6
50°-60°	3034.8	21.8
60°-70°	4442.7	31.9
70°-80°	1953.9	14.0
80°-90°	107.1	0.8
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°	13920.6	100.0
0°-180°	13920.6	100.0



REPORT NUMBER: P672541

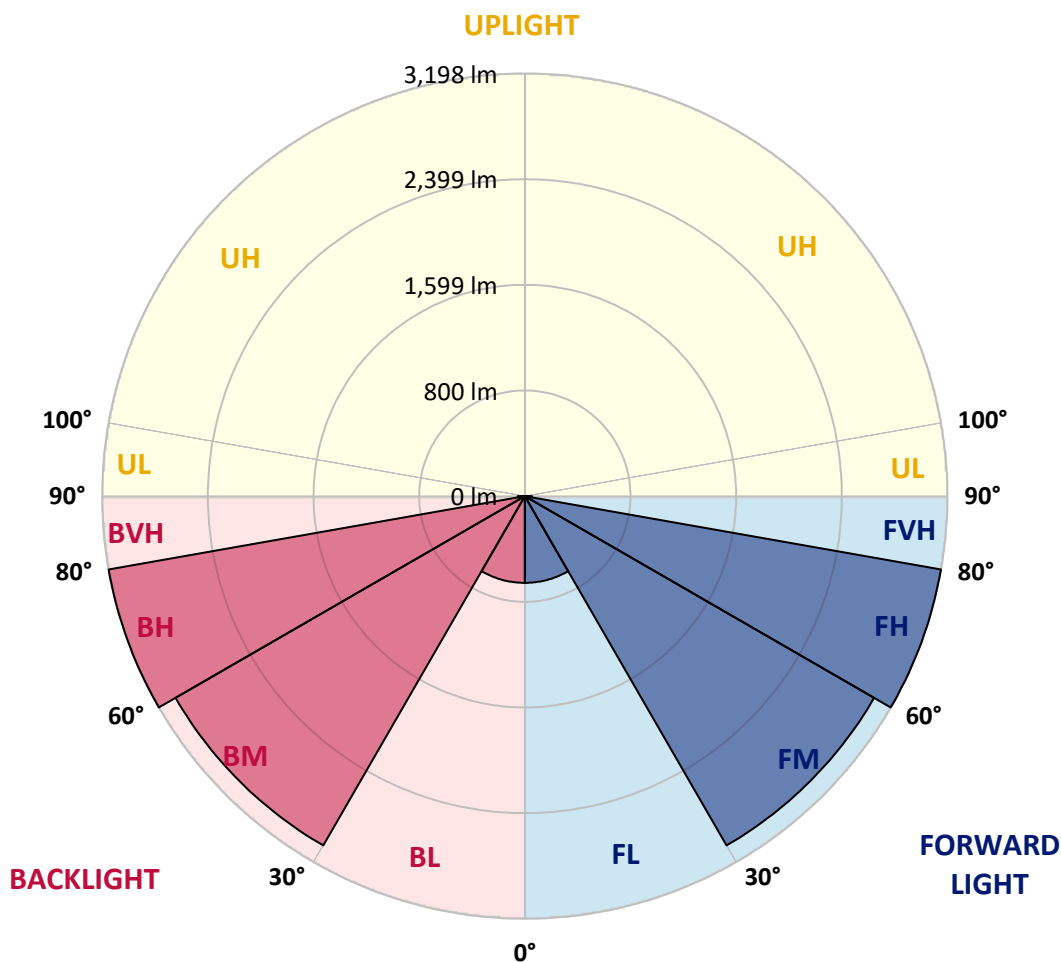
CATALOG NUMBER: CCP-SA-2E-735-U-5MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	656.3	4.7			
FM	(30°-60°)	3052.2	21.9			
FH	(60°-80°)	3198.3	23.0			G2/5000
FVH	(80°-90°)	53.5	0.4			G1/100
BL	(0°-30°)	656.3	4.7	B2/1000		
BM	(30°-60°)	3052.2	21.9	B3/5000		
BH	(60°-80°)	3198.3	23.0	B4/5000		G2/5000
BVH	(80°-90°)	53.5	0.4			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G2

Type V Short





REPORT NUMBER: P672541

CATALOG NUMBER: CCP-SA-2E-735-U-5MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1530.8	1530.8	1530.8	1530.8	1530.8	1530.8	1530.8	1530.8	1530.8	1530.8	1530.8
2.5°	1528.8	1527.8	1529.8	1530.8	1528.8	1529.8	1523.9	1523.9	1526.9	1523.9	1527.8
5°	1535.7	1533.8	1535.7	1535.7	1530.8	1530.8	1523.9	1521.9	1523.9	1519.0	1522.9
7.5°	1536.7	1532.8	1535.7	1534.8	1530.8	1530.8	1520.9	1517.0	1518.0	1513.1	1516.0
10°	1526.9	1524.9	1528.8	1526.9	1523.9	1523.9	1516.0	1510.1	1510.1	1505.2	1508.1
12.5°	1520.9	1519.0	1523.9	1524.9	1522.9	1523.9	1514.0	1506.1	1503.2	1497.3	1499.2
15°	1520.9	1517.0	1524.9	1526.9	1528.8	1535.7	1520.9	1507.1	1501.2	1493.3	1495.3
17.5°	1520.0	1518.0	1526.9	1533.8	1535.7	1543.6	1526.9	1512.1	1505.2	1493.3	1495.3
20°	1520.0	1519.0	1529.8	1542.6	1548.6	1555.5	1537.7	1523.9	1512.1	1499.2	1499.2
22.5°	1524.9	1523.9	1538.7	1557.4	1574.2	1586.0	1565.3	1542.6	1526.9	1510.1	1508.1
25°	1545.6	1543.6	1561.4	1584.1	1606.8	1618.6	1597.9	1575.2	1552.5	1533.8	1531.8
27.5°	1588.0	1587.0	1604.8	1632.4	1648.2	1657.1	1639.3	1619.6	1596.9	1575.2	1574.2
30°	1645.2	1645.2	1667.9	1696.5	1705.4	1712.3	1694.5	1680.7	1657.1	1633.4	1631.4
32.5°	1714.3	1718.2	1744.8	1776.4	1782.3	1786.3	1767.5	1758.7	1733.0	1707.4	1703.4
35°	1805.0	1806.0	1838.5	1870.1	1878.0	1881.9	1860.2	1852.4	1828.7	1801.1	1795.1
37.5°	1920.4	1917.5	1948.0	1983.5	1991.4	1996.4	1978.6	1972.7	1943.1	1915.5	1906.6
40°	2049.6	2051.6	2086.1	2119.7	2124.6	2126.6	2117.7	2108.8	2081.2	2049.6	2038.8
42.5°	2199.5	2199.5	2240.0	2279.4	2279.4	2269.6	2265.6	2263.7	2237.0	2201.5	2189.7
45°	2371.2	2373.1	2423.4	2453.0	2455.0	2428.4	2432.3	2444.2	2418.5	2373.1	2357.4
47.5°	2559.6	2562.5	2621.7	2654.3	2648.3	2613.8	2635.5	2641.4	2611.8	2553.6	2532.9
50°	2757.8	2766.7	2832.8	2890.0	2882.1	2831.8	2860.4	2862.4	2814.0	2747.0	2718.4
52.5°	2971.9	2992.6	3080.4	3141.5	3149.4	3086.3	3110.9	3109.0	3046.8	2955.1	2936.3
55°	3237.2	3249.0	3335.8	3422.6	3452.2	3374.3	3401.9	3388.1	3304.3	3199.7	3168.1
57.5°	3502.5	3520.3	3631.7	3729.4	3788.5	3722.5	3728.4	3692.9	3587.3	3461.1	3445.3
60°	3817.2	3825.0	3948.3	4075.6	4178.2	4138.7	4111.1	4037.1	3912.8	3786.6	3763.9
62.5°	4074.6	4090.4	4273.8	4461.2	4634.8	4641.7	4557.9	4447.4	4249.2	4038.1	3992.7
65°	4145.6	4171.3	4428.7	4798.6	5159.6	5320.3	5090.5	4753.2	4310.3	3991.7	3923.7
67.5°	3815.2	3864.5	4232.4	4846.9	5647.8	6130.1	5514.7	4608.2	3989.8	3617.9	3552.8
70°	2966.9	2988.6	3420.6	4264.0	5655.7	6645.0	5344.0	4001.6	3270.7	2871.2	2775.6
72.5°	1576.2	1587.0	1976.6	2871.2	4602.3	5740.5	4415.9	2800.2	1925.3	1562.4	1452.9
75°	509.0	522.8	680.6	1175.7	2538.9	3857.6	2603.9	1164.9	663.8	535.6	507.0
77.5°	259.4	258.4	287.0	378.8	854.2	1890.8	903.5	408.3	287.0	257.4	249.5
80°	161.8	158.8	180.5	207.1	298.9	552.4	324.5	228.8	181.5	155.8	154.9
82.5°	91.7	91.7	121.3	133.2	168.7	227.8	189.4	156.8	124.3	92.7	89.8
85°	51.3	45.4	75.9	83.8	96.7	112.4	115.4	101.6	83.8	51.3	53.3
87.5°	18.7	20.7	35.5	33.5	38.5	26.6	47.3	53.3	47.3	24.7	20.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2104-224-2

Luminaire Tested: CCW-SA-2A-735-U-SL4

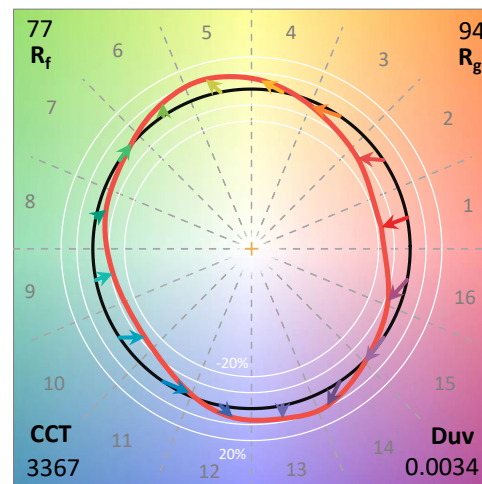
Test Date: 04/26/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2104-224-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 04/26/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **CCW-SA-2A-735-U-SL4**
 Description: INVUE WALL PACK ClearCurve Light Square

Spectral Parameters

CCT (K):	3367	CRI (Ra):	73.3		
CIE u':	0.2376	R1:	69.1	R9:	-34.3
CIE v':	0.5184	R2:	81.3	R10:	58.3
Duv:	0.0034	R3:	93.4	R11:	69.1
CIE x:	0.4168	R4:	71.8	R12:	54.2
CIE y:	0.4041	R5:	69.6	R13:	71.1
CIE z:	0.1791	R6:	75.4	R14:	96.4
Peak Wavelength (nm):	590	R7:	79.5		
Dominant Wavelength (nm):	580	R8:	46.4		
Purity:	46.5				
Rf:	77.2				
Rg:	94.4				



Test Conditions

Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.9/38%
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2104-224-2

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

REPORT NUMBER: SP1-2104-224-2

CIE 1931 Chromaticity Diagram



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



REPORT NUMBER: SP1-2104-224-2

Photopic Flux vs. Wavelength



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λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1840	0.0	490	20271	2.9	620	80709	21.0	750	3465	0.0	880	2800	0.0
365	1514	0.0	495	25910	4.7	625	74695	16.5	755	3075	0.0	885	2582	0.0
370	1514	0.0	500	32216	7.1	630	67709	12.3	760	2794	0.0	890	2353	0.0
375	1843	0.0	505	38336	10.7	635	61156	9.2	765	2593	0.0	895	1819	0.0
380	1796	0.0	510	43738	15.0	640	54795	6.5	770	2401	0.0	900	2024	0.0
385	1575	0.0	515	47977	19.9	645	49111	4.7	775	2233	0.0	905	1851	0.0
390	1527	0.0	520	51818	25.1	650	43533	3.2	780	2166	0.0	910	1602	0.0
395	1326	0.0	525	54890	29.5	655	38234	2.2	785	2051	0.0	915	2200	0.0
400	1233	0.0	530	57872	34.1	660	33754	1.4	790	1765	0.0	920	2530	0.0
405	1329	0.0	535	60410	37.5	665	29162	0.9	795	1903	0.0	925	2487	0.0
410	1902	0.0	540	62857	41.0	670	25117	0.5	800	2127	0.0	930	2089	0.0
415	3436	0.0	545	66165	44.0	675	21511	0.4	805	1867	0.0	935	2293	0.0
420	6571	0.0	550	70124	47.7	680	18435	0.2	810	1775	0.0	940	2315	0.0
425	12957	0.1	555	74973	51.2	685	16004	0.1	815	1812	0.0	945	2481	0.0
430	23376	0.2	560	80227	54.5	690	13701	0.1	820	1973	0.0	950	2701	0.0
435	38205	0.5	565	85358	56.8	695	11765	0.0	825	1773	0.0	955	2892	0.0
440	56691	0.9	570	90422	58.8	700	10145	0.0	830	1925	0.0	960	2609	0.0
445	67585	1.4	575	95259	59.3	705	8865	0.0	835	2001	0.0	965	3066	0.0
450	55963	1.5	580	99033	58.8	710	7954	0.0	840	2142	0.0	970	2566	0.0
455	35549	1.2	585	101572	56.4	715	7285	0.0	845	2101	0.0	975	2375	0.0
460	25268	1.0	590	103264	53.4	720	6412	0.0	850	2097	0.0	980	3526	0.0
465	18712	1.0	595	102194	48.4	725	5721	0.0	855	2090	0.0	985	2982	0.0
470	13835	0.9	600	100645	43.4	730	5017	0.0	860	2535	0.0	990	2305	0.0
475	12398	1.0	605	97644	37.8	735	4459	0.0	865	2101	0.0	995	3671	0.0
480	13406	1.3	610	92487	31.8	740	4062	0.0	870	1798	0.0	1000	2560	0.0
485	15865	1.9	615	87436	26.4	745	3636	0.0	875	2857	0.0			

REPORT NUMBER: SP1-2104-224-2

Scotopic Flux vs. Wavelength



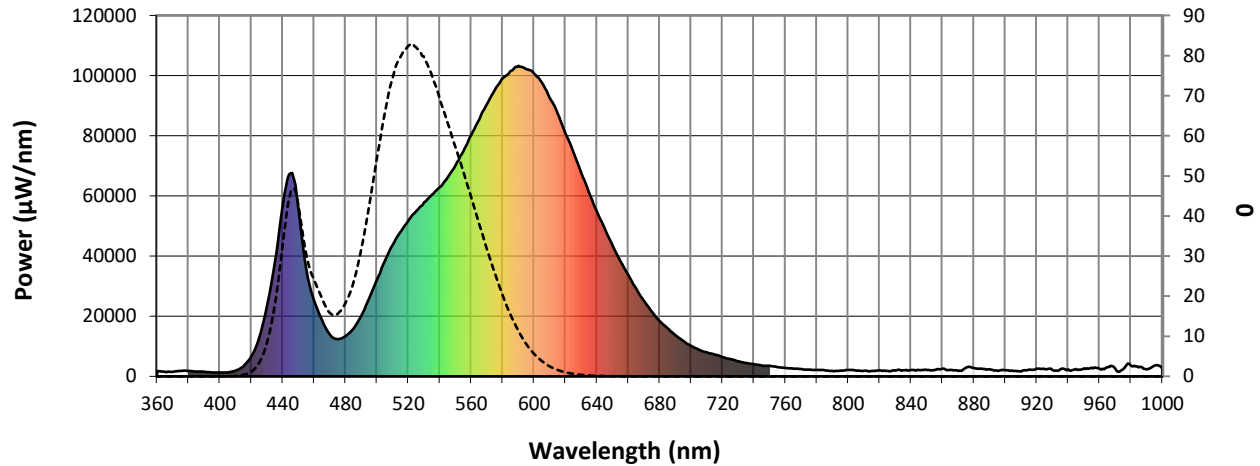
Scotopic Lumens: 7088.7

S/P: 1.35

λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1840	0.0	490	20271	31.2	620	80709	1.0	750	3465	0.0	880	2800	0.0
365	1514	0.0	495	25910	41.9	625	74695	0.6	755	3075	0.0	885	2582	0.0
370	1514	0.0	500	32216	53.9	630	67709	0.4	760	2794	0.0	890	2353	0.0
375	1843	0.0	505	38336	65.2	635	61156	0.2	765	2593	0.0	895	1819	0.0
380	1796	0.0	510	43738	74.1	640	54795	0.1	770	2401	0.0	900	2024	0.0
385	1575	0.0	515	47977	79.5	645	49111	0.1	775	2233	0.0	905	1851	0.0
390	1527	0.0	520	51818	82.4	650	43533	0.1	780	2166	0.0	910	1602	0.0
395	1326	0.0	525	54890	82.1	655	38234	0.0	785	2051	0.0	915	2200	0.0
400	1233	0.0	530	57872	79.8	660	33754	0.0	790	1765	0.0	920	2530	0.0
405	1329	0.0	535	60410	75.3	665	29162	0.0	795	1903	0.0	925	2487	0.0
410	1902	0.1	540	62857	69.5	670	25117	0.0	800	2127	0.0	930	2089	0.0
415	3436	0.4	545	66165	63.4	675	21511	0.0	805	1867	0.0	935	2293	0.0
420	6571	1.1	550	70124	57.3	680	18435	0.0	810	1775	0.0	940	2315	0.0
425	12957	3.2	555	74973	51.2	685	16004	0.0	815	1812	0.0	945	2481	0.0
430	23376	8.0	560	80227	44.8	690	13701	0.0	820	1973	0.0	950	2701	0.0
435	38205	17.1	565	85358	38.3	695	11765	0.0	825	1773	0.0	955	2892	0.0
440	56691	31.7	570	90422	31.9	700	10145	0.0	830	1925	0.0	960	2609	0.0
445	67585	45.3	575	95259	25.9	705	8865	0.0	835	2001	0.0	965	3066	0.0
450	55963	43.4	580	99033	20.4	710	7954	0.0	840	2142	0.0	970	2566	0.0
455	35549	31.1	585	101572	15.5	715	7285	0.0	845	2101	0.0	975	2375	0.0
460	25268	24.4	590	103264	11.5	720	6412	0.0	850	2097	0.0	980	3526	0.0
465	18712	19.8	595	102194	8.1	725	5721	0.0	855	2090	0.0	985	2982	0.0
470	13835	15.9	600	100645	5.7	730	5017	0.0	860	2535	0.0	990	2305	0.0
475	12398	15.5	605	97644	3.8	735	4459	0.0	865	2101	0.0	995	3671	0.0
480	13406	18.1	610	92487	2.5	740	4062	0.0	870	1798	0.0	1000	2560	0.0
485	15865	23.0	615	87436	1.6	745	3636	0.0	875	2857	0.0			

REPORT NUMBER: SP1-2104-224-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2621

M/P: 0.5

λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	1840	0.0	490	20271	16.9	620	80709	0.1	750	3465	0.0	880	2800	0.0
365	1514	0.0	495	25910	21.4	625	74695	0.0	755	3075	0.0	885	2582	0.0
370	1514	0.0	500	32216	25.9	630	67709	0.0	760	2794	0.0	890	2353	0.0
375	1843	0.0	505	38336	29.4	635	61156	0.0	765	2593	0.0	895	1819	0.0
380	1796	0.0	510	43738	31.4	640	54795	0.0	770	2401	0.0	900	2024	0.0
385	1575	0.0	515	47977	31.3	645	49111	0.0	775	2233	0.0	905	1851	0.0
390	1527	0.0	520	51818	30.2	650	43533	0.0	780	2166	0.0	910	1602	0.0
395	1326	0.0	525	54890	27.8	655	38234	0.0	785	2051	0.0	915	2200	0.0
400	1233	0.0	530	57872	25.0	660	33754	0.0	790	1765	0.0	920	2530	0.0
405	1329	0.0	535	60410	21.7	665	29162	0.0	795	1903	0.0	925	2487	0.0
410	1902	0.1	540	62857	18.4	670	25117	0.0	800	2127	0.0	930	2089	0.0
415	3436	0.2	545	66165	15.4	675	21511	0.0	805	1867	0.0	935	2293	0.0
420	6571	0.8	550	70124	12.6	680	18435	0.0	810	1775	0.0	940	2315	0.0
425	12957	2.0	555	74973	10.1	685	16004	0.0	815	1812	0.0	945	2481	0.0
430	23376	4.9	560	80227	7.9	690	13701	0.0	820	1973	0.0	950	2701	0.0
435	38205	10.2	565	85358	6.0	695	11765	0.0	825	1773	0.0	955	2892	0.0
440	56691	18.9	570	90422	4.4	700	10145	0.0	830	1925	0.0	960	2609	0.0
445	67585	26.7	575	95259	3.2	705	8865	0.0	835	2001	0.0	965	3066	0.0
450	55963	25.8	580	99033	2.2	710	7954	0.0	840	2142	0.0	970	2566	0.0
455	35549	18.6	585	101572	1.5	715	7285	0.0	845	2101	0.0	975	2375	0.0
460	25268	14.9	590	103264	1.0	720	6412	0.0	850	2097	0.0	980	3526	0.0
465	18712	12.2	595	102194	0.7	725	5721	0.0	855	2090	0.0	985	2982	0.0
470	13835	9.9	600	100645	0.4	730	5017	0.0	860	2535	0.0	990	2305	0.0
475	12398	9.5	605	97644	0.3	735	4459	0.0	865	2101	0.0	995	3671	0.0
480	13406	10.8	610	92487	0.2	740	4062	0.0	870	1798	0.0	1000	2560	0.0
485	15865	13.1	615	87436	0.1	745	3636	0.0	875	2857	0.0			

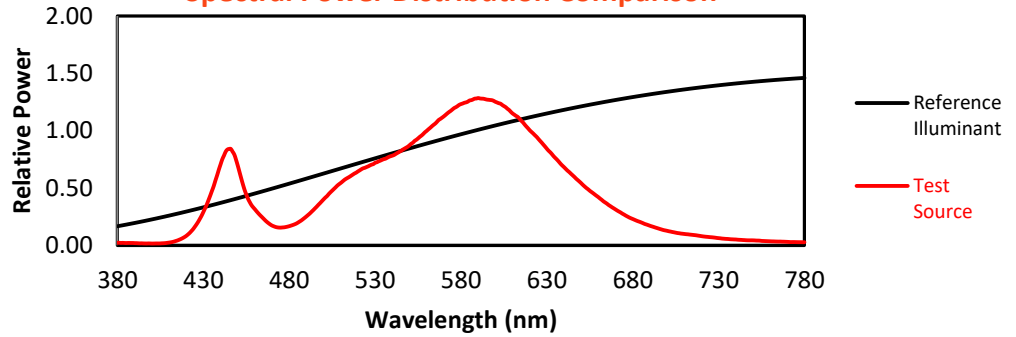
REPORT NUMBER: SP1-2104-224-2

TM-30-18

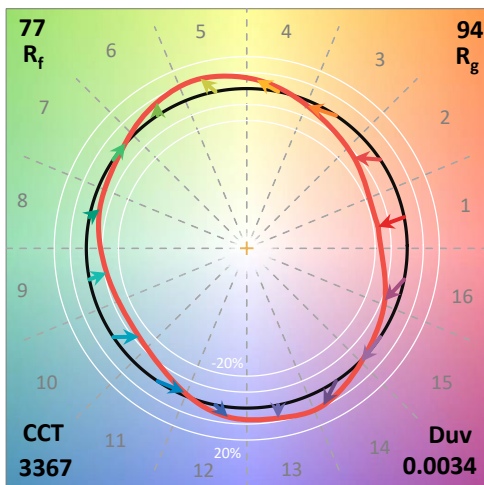
Summary

$R_f = 77.2$
 $R_g = 94.4$
 CIE $R_a = 73.3$
 $R_g = -34.3$

Spectral Power Distribution Comparison

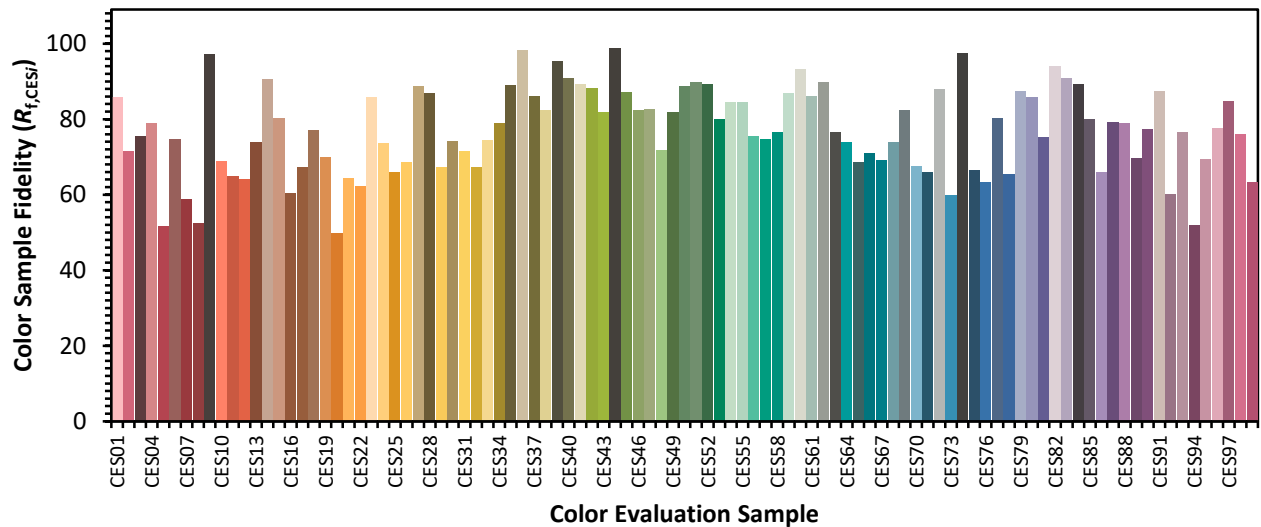


Color Vector Graphics



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

CES01 = 86	CES26 = 69	CES51 = 90	CES76 = 63
CES02 = 62	CES27 = 89	CES52 = 89	CES77 = 80
CES03 = 31	CES28 = 87	CES53 = 80	CES78 = 65
CES04 = 70	CES29 = 67	CES54 = 85	CES79 = 87
CES05 = 48	CES30 = 74	CES55 = 84	CES80 = 86
CES06 = 51	CES31 = 71	CES56 = 76	CES81 = 75
CES07 = 41	CES32 = 67	CES57 = 75	CES82 = 94
CES08 = 39	CES33 = 75	CES58 = 77	CES83 = 91
CES09 = 29	CES34 = 79	CES59 = 87	CES84 = 89
CES10 = 75	CES35 = 89	CES60 = 93	CES85 = 80
CES11 = 58	CES36 = 98	CES61 = 86	CES86 = 66
CES12 = 64	CES37 = 86	CES62 = 90	CES87 = 79
CES13 = 43	CES38 = 82	CES63 = 77	CES88 = 79
CES14 = 74	CES39 = 95	CES64 = 74	CES89 = 70
CES15 = 71	CES40 = 91	CES65 = 69	CES90 = 77
CES16 = 47	CES41 = 89	CES66 = 71	CES91 = 87
CES17 = 50	CES42 = 88	CES67 = 69	CES92 = 60
CES18 = 56	CES43 = 82	CES68 = 74	CES93 = 76
CES19 = 72	CES44 = 99	CES69 = 82	CES94 = 52
CES20 = 65	CES45 = 87	CES70 = 67	CES95 = 69
CES21 = 86	CES46 = 82	CES71 = 66	CES96 = 78
CES22 = 79	CES47 = 83	CES72 = 88	CES97 = 85
CES23 = 92	CES48 = 72	CES73 = 60	CES98 = 76
CES24 = 91	CES49 = 82	CES74 = 97	CES99 = 63
CES25 = 72	CES50 = 89	CES75 = 67	



Color Rendition by Hue-Angle Bin


Measure Comparisons



(END OF REPORT)