

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: P672662

Luminaire Tested: **CCP-SA-2D-727-U-5NQ**

Issue Date: 04/16/2023

Test Information

Test Method: LM-79-08
Report Number: P672662
Test Lab: INNOVATION CENTER(G2)
Issue Date: 04/16/2023
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: CCP-SA-2D-727-U-5NQ
Description: INVUE CLEAR CURVE POLE MOUNT LIGHT SQUARE LUMINAIRE @800mA w/ 5NQ
distribution lens
Light Source: (32) 2700K CCT, 70 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9705.9 lumens
Efficiency: N/A
Efficacy: 120.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G1

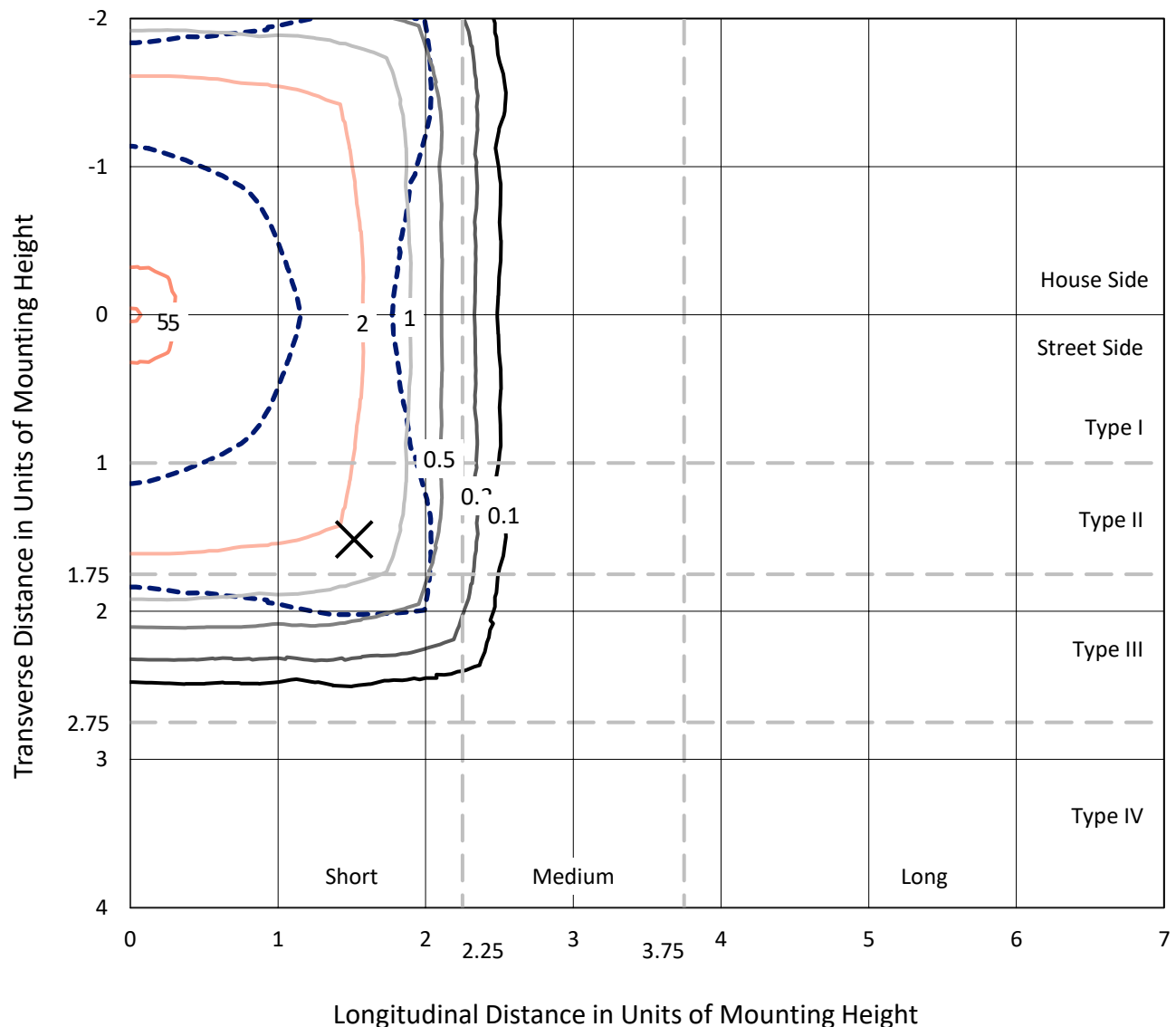
Input Watts (W): 80.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

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Iso-Footcandle Lines of Horizontal Illumination

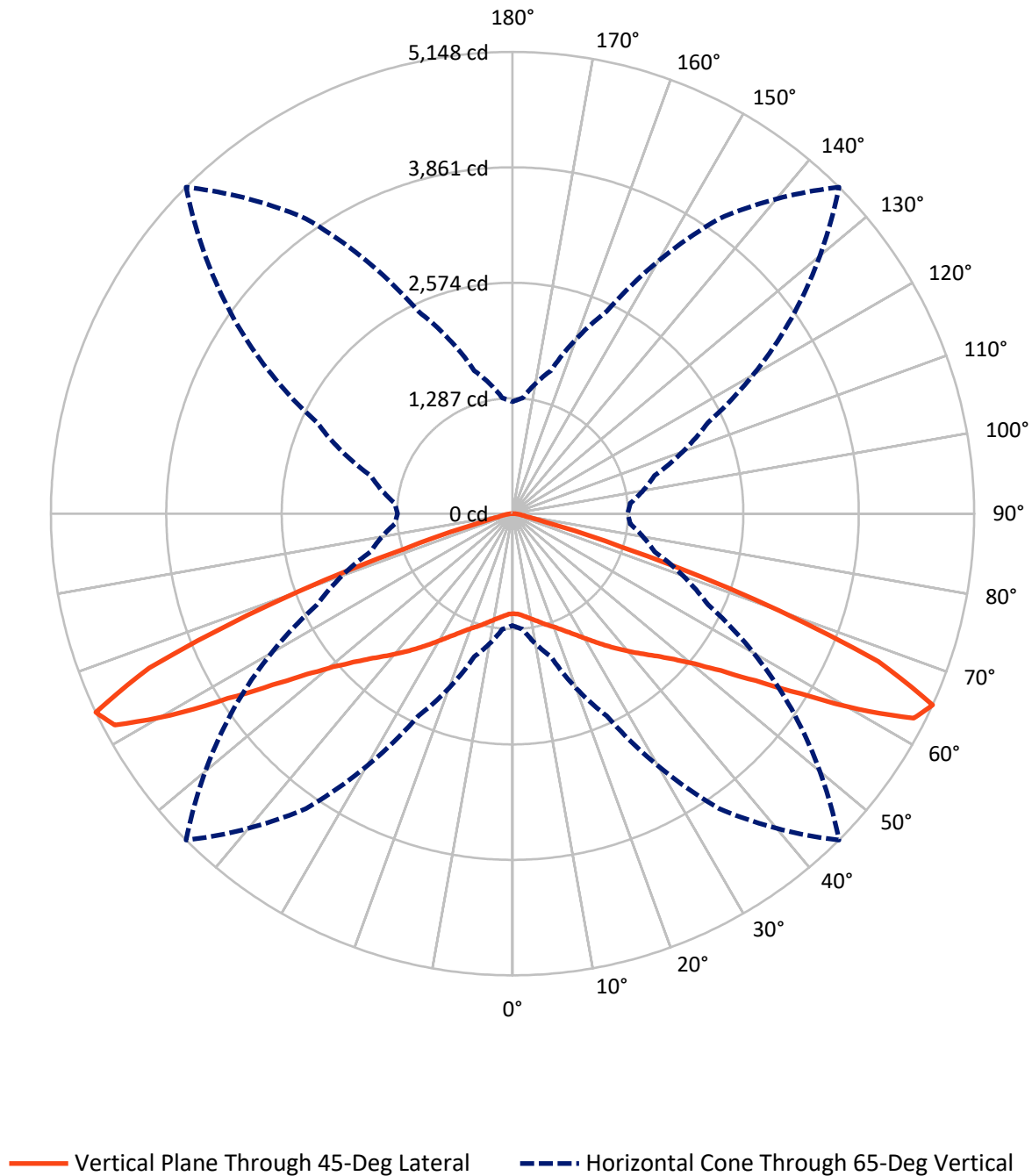
✕ Max cd
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 5.1 fc
 Type V - Short - N/A

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Luminous Intensity Polar Plot



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CATALOG NUMBER: CCP-SA-2D-727-U-5NQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	4853.0	0.0	4853.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	4853.0	0.0	4853.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	9705.9	0.0	9705.9
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.5	1.1
10°-20°	360.8	3.7
20°-30°	684.3	7.1
30°-40°	1147.7	11.8
40°-50°	1816.1	18.7
50°-60°	2853.2	29.4
60°-70°	2410.7	24.8
70°-80°	280.7	2.9
80°-90°	41.8	0.4
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°	9705.9	100.0
0°-180°	9705.9	100.0

Coefficient of Utilization



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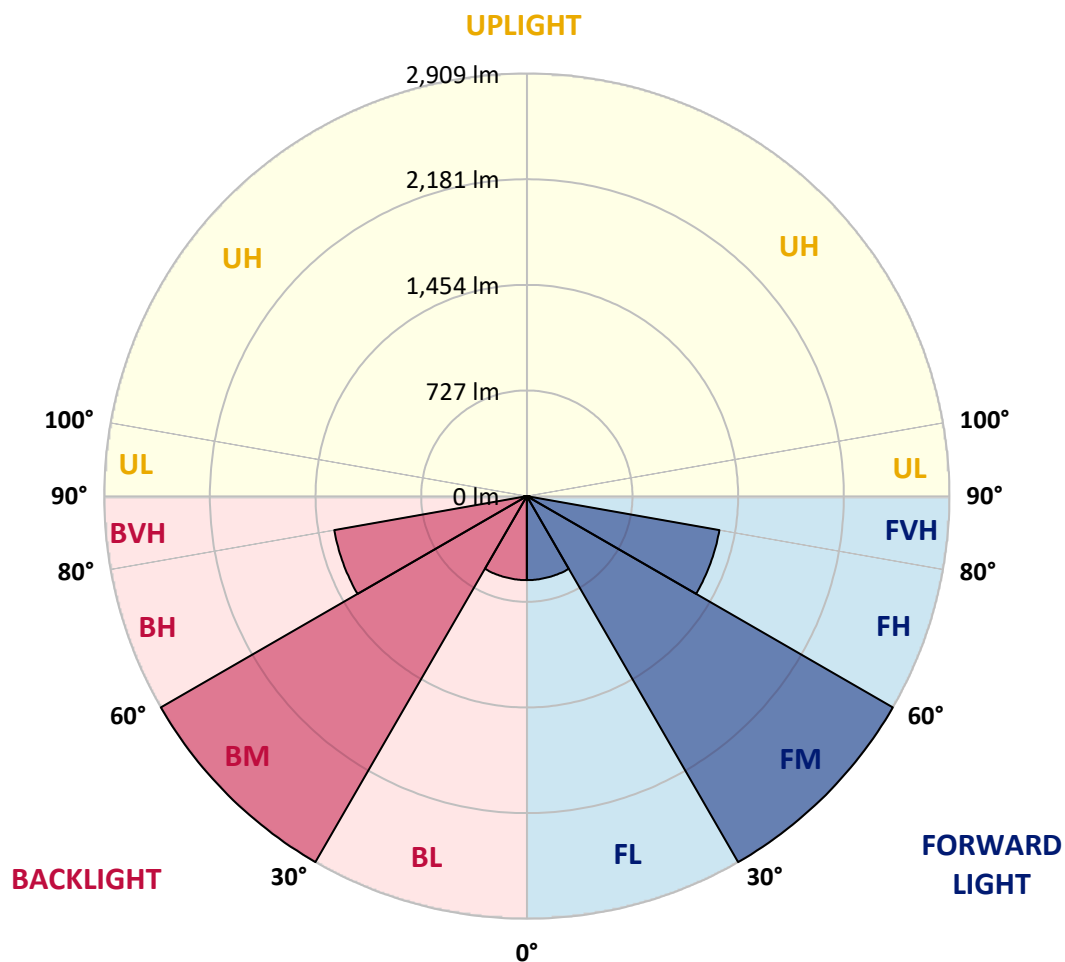
CATALOG NUMBER: CCP-SA-2D-727-U-5NQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	577.8	6.0			
FM	(30°-60°)	2908.5	30.0			
FH	(60°-80°)	1345.7	13.9			G1/1800
FVH	(80°-90°)	20.9	0.2			G1/100
BL	(0°-30°)	577.8	6.0	B2/1000		
BM	(30°-60°)	2908.5	30.0	B3/5000		
BH	(60°-80°)	1345.7	13.9	B3/2500		G1/1800
BVH	(80°-90°)	20.9	0.2			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G1

Type V Short





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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0
2.5°	1122.2	1118.7	1122.2	1122.2	1120.1	1120.8	1118.1	1117.4	1120.8	1118.1	1117.4
5°	1145.3	1142.6	1145.3	1143.3	1139.9	1140.6	1136.5	1135.1	1139.2	1135.1	1135.8
7.5°	1171.9	1167.2	1168.5	1170.6	1167.2	1167.2	1163.8	1161.7	1163.8	1159.7	1162.4
10°	1194.5	1190.4	1192.4	1195.1	1194.5	1196.5	1193.1	1191.7	1189.7	1184.9	1189.0
12.5°	1223.8	1222.4	1225.2	1228.6	1227.2	1229.9	1222.4	1220.4	1219.7	1214.2	1219.0
15°	1262.0	1258.6	1263.4	1267.5	1265.4	1270.2	1264.0	1261.3	1257.9	1251.1	1255.2
17.5°	1300.2	1297.5	1304.3	1306.3	1307.0	1311.1	1306.3	1302.2	1300.9	1296.1	1293.4
20°	1345.9	1342.5	1347.9	1352.0	1348.6	1353.4	1351.4	1348.6	1347.3	1339.8	1339.1
22.5°	1397.1	1392.3	1400.5	1405.2	1400.5	1405.2	1401.2	1400.5	1401.2	1390.2	1391.6
25°	1454.4	1455.0	1463.2	1466.6	1463.9	1466.6	1460.5	1464.6	1462.5	1451.0	1446.9
27.5°	1528.0	1525.3	1534.2	1544.4	1537.6	1537.6	1534.9	1539.0	1538.3	1527.4	1524.6
30°	1614.0	1613.3	1626.3	1632.4	1622.9	1618.8	1618.1	1628.3	1629.0	1617.4	1612.6
32.5°	1704.0	1704.0	1719.7	1727.2	1713.6	1710.9	1708.1	1721.8	1719.7	1704.0	1693.8
35°	1802.9	1798.9	1820.0	1830.9	1817.3	1809.1	1807.7	1820.0	1817.3	1795.4	1783.2
37.5°	1900.5	1903.2	1927.8	1940.1	1923.7	1913.5	1916.9	1925.1	1925.7	1901.9	1888.9
40°	2019.9	2020.6	2051.3	2060.8	2039.7	2024.0	2028.7	2047.2	2045.8	2016.5	2000.1
42.5°	2153.6	2150.8	2189.0	2197.2	2168.6	2138.6	2152.9	2181.5	2188.4	2155.6	2138.6
45°	2296.8	2300.9	2340.5	2349.4	2304.3	2266.1	2296.8	2339.8	2348.7	2313.2	2292.1
47.5°	2470.8	2475.6	2523.3	2526.7	2475.6	2425.8	2466.7	2522.6	2526.0	2476.9	2452.4
50°	2669.3	2685.7	2738.9	2745.7	2695.2	2631.1	2689.8	2739.6	2726.6	2661.1	2638.6
52.5°	2894.4	2907.4	2990.6	3019.2	2974.9	2906.0	2953.1	2983.8	2942.2	2856.2	2821.4
55°	3086.1	3107.9	3218.4	3305.7	3339.2	3287.3	3281.9	3236.8	3120.9	2989.9	2953.8
57.5°	3140.0	3161.1	3332.3	3557.5	3756.0	3781.9	3661.8	3436.0	3186.4	2984.4	2947.6
60°	2921.0	2949.7	3200.0	3626.4	4196.0	4430.6	3996.8	3453.1	3016.5	2745.7	2699.3
62.5°	2294.1	2347.3	2670.7	3339.2	4373.3	5021.4	4134.6	3159.1	2504.2	2184.3	2122.9
65°	1247.7	1293.4	1650.1	2488.5	4013.8	5147.6	3796.9	2405.3	1637.9	1316.6	1283.1
67.5°	468.0	501.4	665.1	1229.9	2837.8	4400.6	2882.1	1377.3	743.6	533.4	486.4
70°	199.2	203.3	240.8	428.4	1290.0	2863.0	1475.5	468.0	248.3	200.6	195.1
72.5°	143.3	143.9	154.2	189.6	392.9	1255.9	446.1	196.5	151.4	136.4	136.4
75°	114.6	115.3	121.4	137.1	185.5	369.7	192.4	137.8	117.3	107.1	105.7
77.5°	90.0	91.4	97.5	107.1	124.2	169.2	130.3	108.5	94.1	84.6	83.2
80°	66.9	68.9	77.1	81.9	87.3	112.6	94.8	84.6	75.0	64.8	62.8
82.5°	44.3	46.4	57.3	60.7	60.0	70.9	65.5	64.8	57.3	43.0	40.9
85°	26.6	28.0	36.8	39.6	36.8	34.8	41.6	45.0	40.2	28.0	25.9
87.5°	11.6	11.6	16.4	17.1	16.4	13.0	19.8	23.2	23.9	14.3	13.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2012-088-8-R2

Luminaire Tested: CCW-SA1B-727-U-SL4

Test Date: 01/20/2021

Test Information

Test Method: LM-79-08
 Report Number: SP1-2012-088-8-R2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 01/20/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **CCW-SA1B-727-U-SL4**
 Description: INVUE WALL PACK

THIS IS A REVISION OF SP1-2012-088-8. TO UPDATE THE CATALOG INFORMATION.TESTED
 IN SITU. INVUE WALL PACK LIGHT SQUARE SL4 OPTICS 1-SQUARE

Spectral Parameters

CCT (K):	2705	CRI (Ra):	73.8		
CIE u':	0.2629	R1:	72.2	R9:	-7.6
CIE v':	0.5237	R2:	81.9	R10:	56.9
Duv:	-0.0024	R3:	89.3	R11:	66.0
CIE x:	0.4552	R4:	71.3	R12:	47.9
CIE y:	0.4030	R5:	69.5	R13:	73.4
CIE z:	0.1418	R6:	73.6	R14:	93.2
Peak Wavelength (nm):	603	R7:	80.1		
Dominant Wavelength (nm):	585	R8:	52.8		
Purity:	57.7				
Rf:	71.2				
Rg:	100.1				



Test Conditions

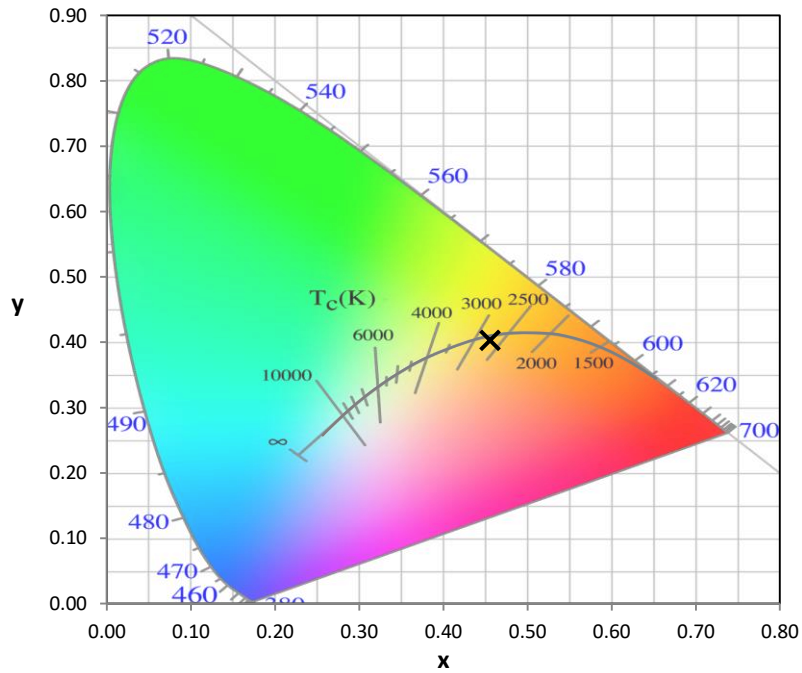
Stabilization Time: 177M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/34%
 Sphere Temperature (°C): 24.7

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Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	7/29/2020	1/29/2021
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

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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 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

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	926	0.0	490	3601	0.5	620	58340	15.2	750	3861	0.0	880	1742	0.0
365	867	0.0	495	5135	0.9	625	56180	12.4	755	3520	0.0	885	1920	0.0
370	1032	0.0	500	7689	1.7	630	53018	9.6	760	3223	0.0	890	1286	0.0
375	1034	0.0	505	11015	3.1	635	49683	7.5	765	2910	0.0	895	1660	0.0
380	979	0.0	510	14817	5.1	640	46308	5.5	770	2560	0.0	900	1274	0.0
385	938	0.0	515	18962	7.9	645	42927	4.1	775	2242	0.0	905	1020	0.0
390	893	0.0	520	22933	11.1	650	39728	2.9	780	2156	0.0	910	1258	0.0
395	757	0.0	525	26438	14.2	655	36260	2.1	785	1926	0.0	915	1481	0.0
400	728	0.0	530	29492	17.4	660	32543	1.4	790	1871	0.0	920	923	0.0
405	812	0.0	535	32054	19.9	665	29105	0.9	795	1697	0.0	925	1444	0.0
410	1197	0.0	540	34386	22.4	670	25817	0.6	800	1691	0.0	930	1315	0.0
415	2254	0.0	545	36784	24.5	675	22832	0.4	805	1967	0.0	935	1037	0.0
420	4742	0.0	550	39017	26.5	680	20201	0.2	810	1719	0.0	940	1195	0.0
425	8975	0.0	555	41253	28.2	685	17863	0.2	815	1436	0.0	945	914	0.0
430	14905	0.1	560	43733	29.7	690	15761	0.1	820	1465	0.0	950	1373	0.0
435	22096	0.3	565	46694	31.0	695	13762	0.1	825	1365	0.0	955	692	0.0
440	28868	0.5	570	49493	32.2	700	12064	0.0	830	1404	0.0	960	844	0.0
445	31683	0.7	575	52587	32.7	705	10683	0.0	835	1222	0.0	965	1427	0.0
450	25690	0.7	580	55129	32.8	710	9480	0.0	840	1144	0.0	970	654	0.0
455	14802	0.5	585	57737	32.1	715	8582	0.0	845	1078	0.0	975	1127	0.0
460	8755	0.4	590	59688	30.9	720	7530	0.0	850	1254	0.0	980	1935	0.0
465	5978	0.3	595	61458	29.1	725	6824	0.0	855	1203	0.0	985	1754	0.0
470	4047	0.3	600	62443	26.9	730	5968	0.0	860	1183	0.0	990	1822	0.0
475	3070	0.2	605	62403	24.2	735	5266	0.0	865	1505	0.0	995	1176	0.0
480	2814	0.3	610	61581	21.2	740	4712	0.0	870	1624	0.0	1000	2143	0.0
485	2926	0.3	615	60386	18.2	745	4264	0.0	875	1559	0.0			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 1073.3

S/P: 0.36

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	926	0.0	490	3601	5.5	620	58340	0.7	750	3861	0.0	880	1742	0.0
365	867	0.0	495	5135	8.3	625	56180	0.5	755	3520	0.0	885	1920	0.0
370	1032	0.0	500	7689	12.9	630	53018	0.3	760	3223	0.0	890	1286	0.0
375	1034	0.0	505	11015	18.7	635	49683	0.2	765	2910	0.0	895	1660	0.0
380	979	0.0	510	14817	25.1	640	46308	0.1	770	2560	0.0	900	1274	0.0
385	938	0.0	515	18962	31.4	645	42927	0.1	775	2242	0.0	905	1020	0.0
390	893	0.0	520	22933	36.5	650	39728	0.0	780	2156	0.0	910	1258	0.0
395	757	0.0	525	26438	39.6	655	36260	0.0	785	1926	0.0	915	1481	0.0
400	728	0.0	530	29492	40.7	660	32543	0.0	790	1871	0.0	920	923	0.0
405	812	0.0	535	32054	39.9	665	29105	0.0	795	1697	0.0	925	1444	0.0
410	1197	0.1	540	34386	38.0	670	25817	0.0	800	1691	0.0	930	1315	0.0
415	2254	0.2	545	36784	35.3	675	22832	0.0	805	1967	0.0	935	1037	0.0
420	4742	0.8	550	39017	31.9	680	20201	0.0	810	1719	0.0	940	1195	0.0
425	8975	2.2	555	41253	28.2	685	17863	0.0	815	1436	0.0	945	914	0.0
430	14905	5.1	560	43733	24.4	690	15761	0.0	820	1465	0.0	950	1373	0.0
435	22096	9.9	565	46694	20.9	695	13762	0.0	825	1365	0.0	955	692	0.0
440	28868	16.1	570	49493	17.5	700	12064	0.0	830	1404	0.0	960	844	0.0
445	31683	21.2	575	52587	14.3	705	10683	0.0	835	1222	0.0	965	1427	0.0
450	25690	19.9	580	55129	11.4	710	9480	0.0	840	1144	0.0	970	654	0.0
455	14802	12.9	585	57737	8.8	715	8582	0.0	845	1078	0.0	975	1127	0.0
460	8755	8.5	590	59688	6.6	720	7530	0.0	850	1254	0.0	980	1935	0.0
465	5978	6.3	595	61458	4.9	725	6824	0.0	855	1203	0.0	985	1754	0.0
470	4047	4.7	600	62443	3.5	730	5968	0.0	860	1183	0.0	990	1822	0.0
475	3070	3.8	605	62403	2.5	735	5266	0.0	865	1505	0.0	995	1176	0.0
480	2814	3.8	610	61581	1.7	740	4712	0.0	870	1624	0.0	1000	2143	0.0
485	2926	4.2	615	60386	1.1	745	4264	0.0	875	1559	0.0			

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Melanopic Flux vs. Wavelength


Melanopic Lumens: 3157.6 S/P: 1.07

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	926	0.0	490	3601	3.0	620	58340	0.0	750	3861	0.0	880	1742	0.0
365	867	0.0	495	5135	4.2	625	56180	0.0	755	3520	0.0	885	1920	0.0
370	1032	0.0	500	7689	6.2	630	53018	0.0	760	3223	0.0	890	1286	0.0
375	1034	0.0	505	11015	8.5	635	49683	0.0	765	2910	0.0	895	1660	0.0
380	979	0.0	510	14817	10.6	640	46308	0.0	770	2560	0.0	900	1274	0.0
385	938	0.0	515	18962	12.4	645	42927	0.0	775	2242	0.0	905	1020	0.0
390	893	0.0	520	22933	13.4	650	39728	0.0	780	2156	0.0	910	1258	0.0
395	757	0.0	525	26438	13.4	655	36260	0.0	785	1926	0.0	915	1481	0.0
400	728	0.0	530	29492	12.7	660	32543	0.0	790	1871	0.0	920	923	0.0
405	812	0.0	535	32054	11.5	665	29105	0.0	795	1697	0.0	925	1444	0.0
410	1197	0.0	540	34386	10.1	670	25817	0.0	800	1691	0.0	930	1315	0.0
415	2254	0.1	545	36784	8.5	675	22832	0.0	805	1967	0.0	935	1037	0.0
420	4742	0.5	550	39017	7.0	680	20201	0.0	810	1719	0.0	940	1195	0.0
425	8975	1.4	555	41253	5.6	685	17863	0.0	815	1436	0.0	945	914	0.0
430	14905	3.1	560	43733	4.3	690	15761	0.0	820	1465	0.0	950	1373	0.0
435	22096	5.9	565	46694	3.3	695	13762	0.0	825	1365	0.0	955	692	0.0
440	28868	9.6	570	49493	2.4	700	12064	0.0	830	1404	0.0	960	844	0.0
445	31683	12.5	575	52587	1.8	705	10683	0.0	835	1222	0.0	965	1427	0.0
450	25690	11.8	580	55129	1.2	710	9480	0.0	840	1144	0.0	970	654	0.0
455	14802	7.8	585	57737	0.9	715	8582	0.0	845	1078	0.0	975	1127	0.0
460	8755	5.2	590	59688	0.6	720	7530	0.0	850	1254	0.0	980	1935	0.0
465	5978	3.9	595	61458	0.4	725	6824	0.0	855	1203	0.0	985	1754	0.0
470	4047	2.9	600	62443	0.3	730	5968	0.0	860	1183	0.0	990	1822	0.0
475	3070	2.3	605	62403	0.2	735	5266	0.0	865	1505	0.0	995	1176	0.0
480	2814	2.3	610	61581	0.1	740	4712	0.0	870	1624	0.0	1000	2143	0.0
485	2926	2.4	615	60386	0.1	745	4264	0.0	875	1559	0.0			

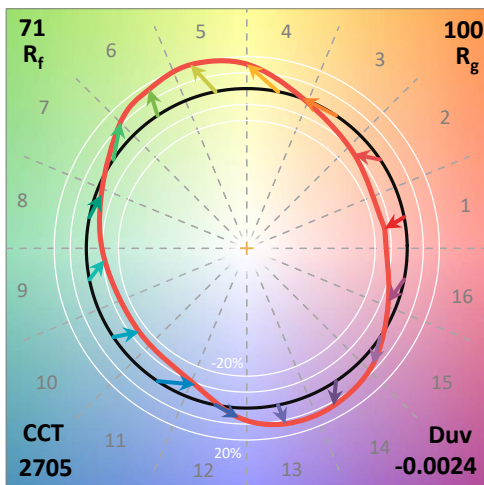
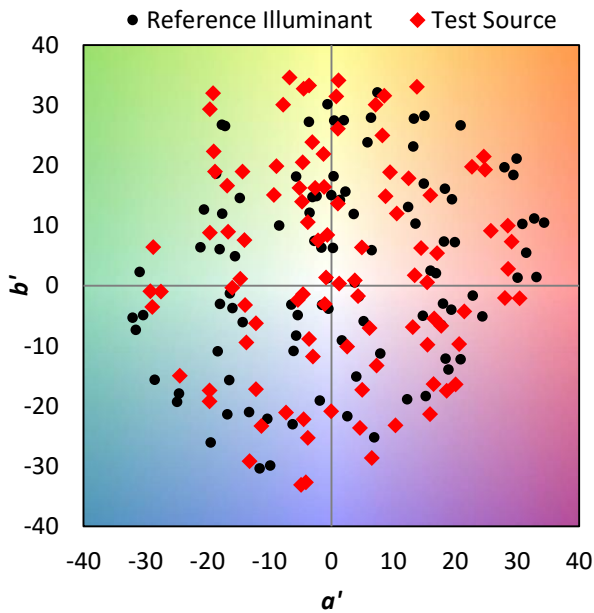
Summary

$R_f = 71.2$
 $R_g = 100.1$
 CIE $R_a = 73.8$
 $R_g = -7.6$

Spectral Power Distribution Comparison



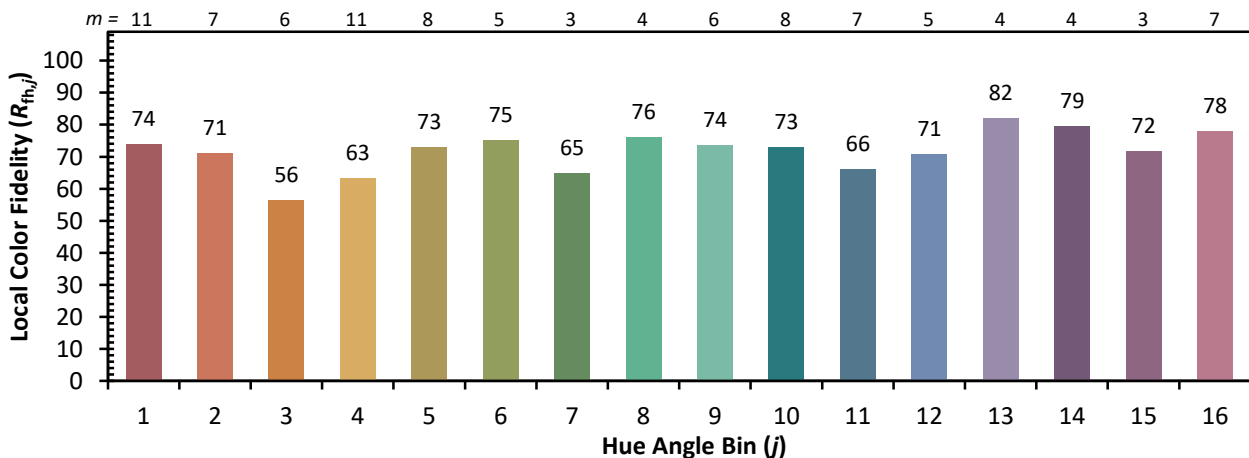
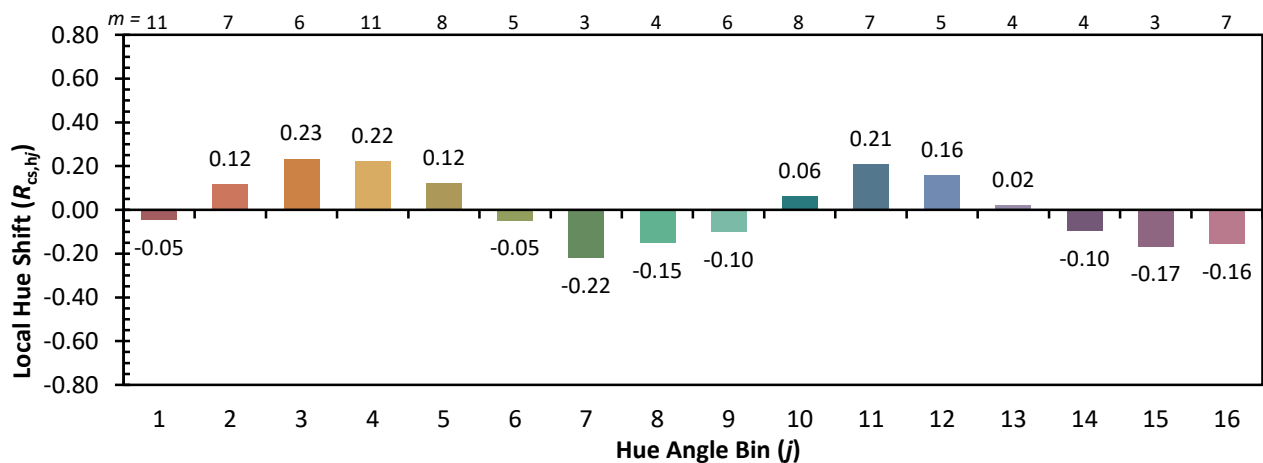
Color Vector Graphics



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

CES01 = 86	CES26 = 55	CES51 = 78	CES76 = 50
CES02 = 63	CES27 = 77	CES52 = 80	CES77 = 75
CES03 = 31	CES28 = 80	CES53 = 68	CES78 = 56
CES04 = 71	CES29 = 46	CES54 = 80	CES79 = 81
CES05 = 50	CES30 = 51	CES55 = 78	CES80 = 80
CES06 = 52	CES31 = 51	CES56 = 67	CES81 = 73
CES07 = 43	CES32 = 49	CES57 = 64	CES82 = 91
CES08 = 41	CES33 = 55	CES58 = 67	CES83 = 84
CES09 = 29	CES34 = 65	CES59 = 86	CES84 = 89
CES10 = 77	CES35 = 82	CES60 = 91	CES85 = 84
CES11 = 60	CES36 = 84	CES61 = 85	CES86 = 66
CES12 = 66	CES37 = 75	CES62 = 75	CES87 = 78
CES13 = 44	CES38 = 59	CES63 = 70	CES88 = 75
CES14 = 74	CES39 = 91	CES64 = 70	CES89 = 68
CES15 = 72	CES40 = 85	CES65 = 67	CES90 = 71
CES16 = 48	CES41 = 78	CES66 = 64	CES91 = 97
CES17 = 51	CES42 = 74	CES67 = 62	CES92 = 71
CES18 = 57	CES43 = 63	CES68 = 68	CES93 = 82
CES19 = 73	CES44 = 98	CES69 = 77	CES94 = 58
CES20 = 67	CES45 = 75	CES70 = 60	CES95 = 77
CES21 = 88	CES46 = 70	CES71 = 59	CES96 = 80
CES22 = 80	CES47 = 65	CES72 = 86	CES97 = 80
CES23 = 92	CES48 = 56	CES73 = 52	CES98 = 74
CES24 = 91	CES49 = 68	CES74 = 93	CES99 = 68
CES25 = 73	CES50 = 78	CES75 = 59	



Color Rendition by Hue-Angle Bin


Measure Comparisons


(END OF REPORT)