

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P1357189

Luminaire Tested: 4ASL4-20VHE-3-40-UNV

Issue Date: 2/17/2026

**Test Information**

Test Method: LM-79-2019  
Report Number: P1357189  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2511-597-12)  
Test Lab: INNOVATION CENTER  
Issue Date: 2/17/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: FAIL-SAFE  
Catalog Number: 4ASL4-20VHE-3-40-UNV  
Description: 4FT 2000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND 4000K LEDS 3 ROW  
Light Source: -  
Ballast/Driver: -

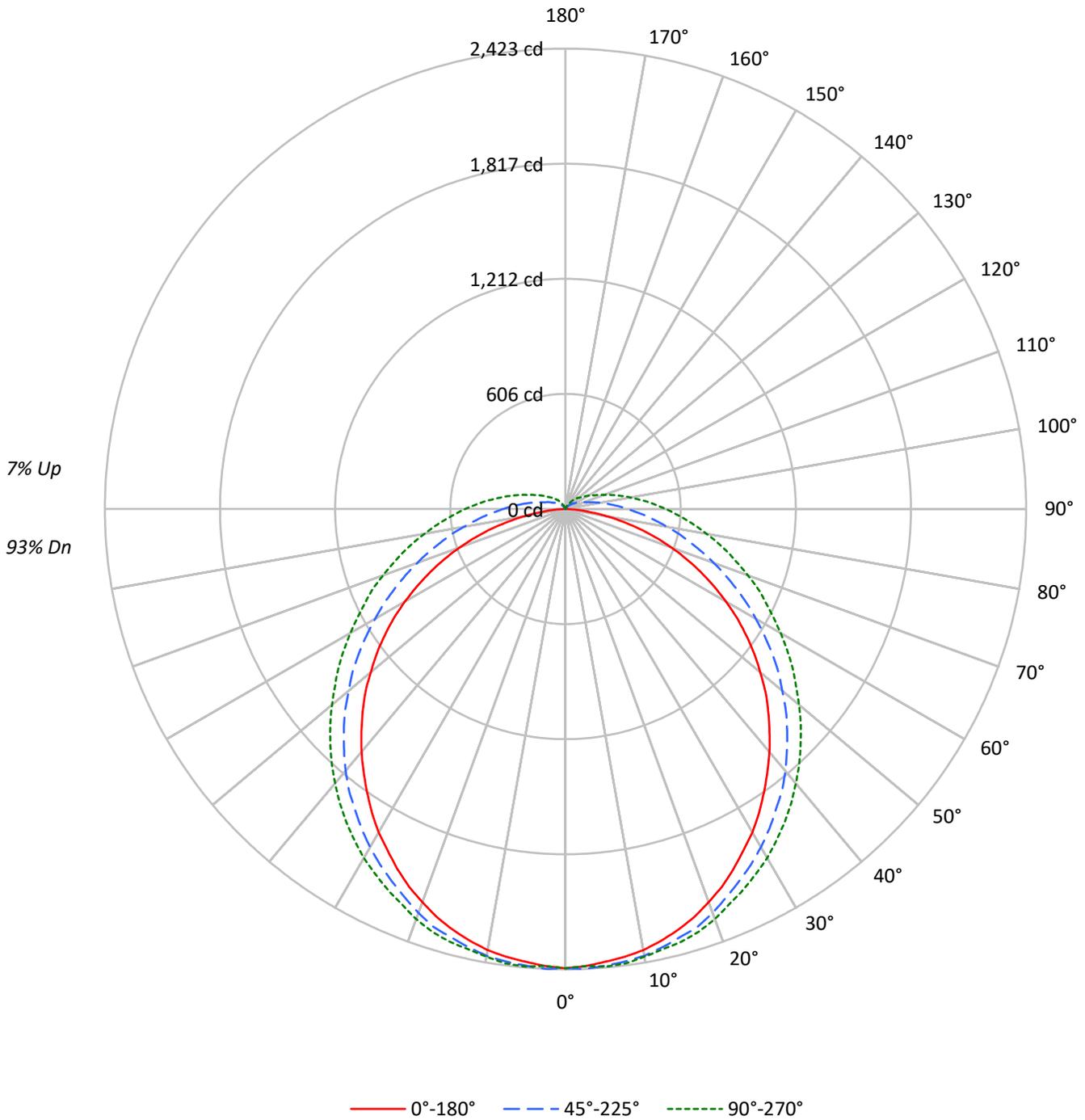
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 8220.0 lumens  
Efficiency: N/A  
Efficacy: 122.3 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 3.98' x H: 0.1')  
CIE Type: Direct

Input Watts (W): 67.2  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: 24 FT

TEST NUMBER: P1357189  
CATALOG NUMBER: 4ASL4-20VHE-3-40-UNV

### Luminous Intensity Polar Plot





TEST NUMBER: P1357189

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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	117	117	117	117	114	114	114	114	107	107	107	101	101	101	96	96	96	96	96	96	93
1	105	100	95	91	102	97	92	88	91	88	84	86	83	80	81	79	77	77	77	77	74
2	95	86	79	72	92	84	77	71	79	73	68	75	70	66	71	67	63	63	63	63	61
3	86	75	67	60	83	73	65	59	69	62	57	65	60	55	62	57	53	53	53	53	50
4	79	66	57	50	76	65	56	49	61	54	48	58	52	47	55	50	45	45	45	45	43
5	73	59	50	43	70	58	49	42	55	47	41	52	45	40	49	44	39	39	39	39	37
6	67	53	44	37	64	52	43	37	49	42	36	47	40	35	45	39	34	34	34	34	32
7	62	48	39	33	60	47	38	32	45	37	32	43	36	31	41	35	30	30	30	30	28
8	58	44	35	29	56	43	35	29	41	34	28	39	32	28	37	32	27	27	27	27	25
9	54	40	32	26	52	39	31	26	38	30	25	36	30	25	35	29	24	24	24	24	22
10	50	37	29	24	49	36	29	23	35	28	23	33	27	23	32	26	22	22	22	22	20

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	19619	19619	19619
5°	19445	19250	19170
10°	19336	18877	18686
15°	19122	18413	18275
20°	18833	17967	17811
25°	18497	17409	17284
30°	18142	16923	16838
35°	17701	16375	16342
40°	17298	15873	15819
45°	16864	15265	15294
50°	16369	14613	14750
55°	15836	13989	14259
60°	15140	13262	13761
65°	14256	12562	13349
70°	13129	11868	13025
75°	11486	11234	12804
80°	9001	10757	12709
85°	5404	10643	12898

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 16864 cd/sqm



TEST NUMBER: P1357189  
 CATALOG NUMBER: 4ASL4-20VHE-3-40-UNV

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	229.3	2.8
10°-20°	658.2	8.0
20°-30°	995.2	12.1
30°-40°	1205.0	14.7
40°-50°	1265.6	15.4
50°-60°	1180.8	14.4
60°-70°	975.9	11.9
70°-80°	702.6	8.5
80°-90°	436.6	5.3
90°-100°	255.9	3.1
100°-110°	146.3	1.8
110°-120°	82.6	1.0
120°-130°	47.6	0.6
130°-140°	25.6	0.3
140°-150°	10.8	0.1
150°-160°	2.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1882.7	22.9
0°-40°	3087.7	37.6
0°-60°	5534.1	67.3
0°-90°	7649.2	93.1
90°-120°	484.8	5.9
90°-150°	568.8	6.9
90°-180°	571.0	6.9
0°-180°	8220.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2418	2418	2418	2418	2418	
5°	2392	2413	2413	2413	2418	227
15°	2292	2322	2332	2347	2357	646
25°	2091	2126	2161	2191	2212	963
35°	1820	1870	1930	1985	2010	1139
45°	1508	1563	1649	1719	1749	1163
55°	1161	1226	1327	1422	1458	1037
65°	784	860	990	1116	1161	776
75°	402	503	678	824	885	425
85°	75	226	427	578	633	92
90°	0	136	327	467	528	3
95°	0	85	246	377	432	0
105°	0	30	136	236	276	0
115°	0	15	80	146	171	0
125°	0	10	50	96	111	0
135°	0	0	30	60	75	0
145°	0	0	15	35	40	0
155°	0	0	0	10	15	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P1357189  
 CATALOG NUMBER: 4ASL4-20VHE-3-40-UNV

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2417.6	2417.6	2417.6	2417.6	2417.6
2.5°	2407.6	2422.6	2422.6	2407.6	2407.6
5°	2392.5	2412.6	2412.6	2412.6	2417.6
7.5°	2377.4	2402.5	2402.5	2402.5	2412.6
10°	2357.3	2382.4	2387.5	2387.5	2392.5
12.5°	2327.1	2357.3	2362.3	2367.4	2372.4
15°	2292.0	2322.1	2332.2	2347.2	2357.3
17.5°	2251.7	2286.9	2307.0	2322.1	2332.2
20°	2201.5	2236.7	2261.8	2281.9	2297.0
22.5°	2151.2	2181.4	2211.5	2236.7	2251.7
25°	2090.9	2126.1	2161.3	2191.4	2211.5
27.5°	2025.6	2065.8	2111.0	2146.2	2166.3
30°	1965.3	2005.5	2055.7	2101.0	2121.1
32.5°	1894.9	1940.1	1995.4	2040.6	2065.8
35°	1819.5	1869.8	1930.1	1985.4	2010.5
37.5°	1744.1	1794.4	1869.8	1925.0	1950.2
40°	1668.7	1719.0	1799.4	1859.7	1884.8
42.5°	1588.3	1638.5	1724.0	1789.3	1819.5
45°	1507.9	1563.2	1648.6	1719.0	1749.1
47.5°	1427.4	1482.7	1573.2	1648.6	1678.8
50°	1337.0	1397.3	1487.8	1573.2	1603.4
52.5°	1251.5	1311.8	1412.4	1497.8	1528.0
55°	1161.1	1226.4	1326.9	1422.4	1457.6
57.5°	1070.6	1135.9	1241.5	1342.0	1382.2
60°	975.1	1045.5	1156.0	1261.6	1306.8
62.5°	879.6	955.0	1075.6	1186.2	1231.4
65°	784.1	859.5	990.2	1115.8	1161.1
67.5°	688.6	769.0	909.7	1040.4	1095.7
70°	593.1	678.5	829.3	965.0	1020.3
72.5°	497.6	588.1	753.9	894.7	950.0
75°	402.1	502.6	678.5	824.3	884.6
77.5°	306.6	422.2	613.2	759.0	819.3
80°	221.2	351.8	542.8	693.6	753.9
82.5°	140.7	281.5	482.5	633.3	693.6
85°	75.4	226.2	427.2	578.0	633.3
87.5°	25.1	175.9	371.9	522.7	578.0
90°	0.0	135.7	326.7	467.4	527.8
92.5°	0.0	105.6	286.5	422.2	477.5
95°	0.0	85.4	246.3	377.0	432.3
97.5°	0.0	70.4	216.1	336.8	387.0
100°	0.0	55.3	186.0	301.6	346.8
102.5°	0.0	45.2	160.8	266.4	311.6
105°	0.0	30.2	135.7	236.2	276.4
107.5°	0.0	25.1	115.6	211.1	246.3
110°	0.0	20.1	105.6	180.9	216.1



TEST NUMBER: P1357189  
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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	15.1	95.5	160.8	196.0
115°	0.0	15.1	80.4	145.8	170.9
117.5°	0.0	15.1	70.4	130.7	155.8
120°	0.0	10.1	65.3	115.6	140.7
122.5°	0.0	10.1	55.3	105.6	125.7
125°	0.0	10.1	50.3	95.5	110.6
127.5°	0.0	5.0	45.2	85.4	100.5
130°	0.0	5.0	40.2	75.4	90.5
132.5°	0.0	5.0	35.2	70.4	85.4
135°	0.0	0.0	30.2	60.3	75.4
137.5°	0.0	0.0	25.1	55.3	65.3
140°	0.0	0.0	20.1	45.2	60.3
142.5°	0.0	0.0	15.1	40.2	50.3
145°	0.0	0.0	15.1	35.2	40.2
147.5°	0.0	0.0	10.1	25.1	35.2
150°	0.0	0.0	5.0	20.1	25.1
152.5°	0.0	0.0	0.0	15.1	20.1
155°	0.0	0.0	0.0	10.1	15.1
157.5°	0.0	0.0	0.0	0.0	5.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0



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**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	19.67	21.21	20.14	21.67	22.15	21.70	23.24	22.17	23.70	24.18
	3H	21.17	22.58	21.65	23.04	23.56	24.16	25.57	24.64	26.03	26.56
	4H	21.65	22.98	22.15	23.47	24.00	25.36	26.69	25.86	27.17	27.71
	6H	21.93	23.17	22.44	23.66	24.22	26.61	27.85	27.13	28.35	28.90
	8H	21.98	23.17	22.51	23.69	24.25	27.26	28.45	27.79	28.97	29.53
	12H	21.99	23.13	22.53	23.65	24.24	27.97	29.11	28.50	29.62	30.21
4H	2H	20.55	21.88	21.05	22.36	22.90	22.14	23.47	22.64	23.95	24.49
	3H	22.29	23.42	22.80	23.95	24.51	24.82	25.96	25.34	26.48	27.04
	4H	22.89	23.93	23.43	24.46	25.06	26.19	27.23	26.73	27.77	28.36
	6H	23.29	24.21	23.84	24.77	25.37	27.64	28.55	28.19	29.12	29.72
	8H	23.38	24.25	23.94	24.81	25.43	28.39	29.25	28.95	29.81	30.43
	12H	23.43	24.21	24.01	24.80	25.43	29.22	30.01	29.81	30.60	31.22
8H	4H	23.57	24.43	24.13	25.00	25.62	26.41	27.27	26.97	27.83	28.45
	6H	24.15	24.88	24.74	25.49	26.11	28.02	28.75	28.62	29.36	29.98
	8H	24.33	24.99	24.94	25.61	26.24	28.92	29.58	29.52	30.19	30.83
	12H	24.45	25.04	25.05	25.64	26.34	29.94	30.53	30.54	31.13	31.83
12H	4H	23.76	24.55	24.35	25.14	25.76	26.42	27.20	27.00	27.79	28.42
	6H	24.44	25.11	25.05	25.72	26.36	28.06	28.72	28.66	29.34	29.97
	8H	24.72	25.31	25.33	25.92	26.62	29.02	29.61	29.63	30.22	30.92

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

Report Prepared for

Cooper Lighting Solutions

Fail-Safe

Report Number: SP1-2511-597-4

Test Date: 11/18/2025

Luminaire Tested: 4ASL-2-40-UNV-OPL-1\_600mA

Data in this report applies to families of products including 4ASL

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2511-597-4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 11/18/2025  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Fail-Safe  
 Catalog Number: **4ASL-2-40-UNV-OPL-1\_600mA**  
 Description: 2foot 4ASL LED LUMINAIRE WITH OPL LENS AND 4000K LEDs with 1 rows at 600mA

**Spectral Parameters**

CCT (K): 4015  
 CIE u': 0.2259  
 CIE v': 0.4990  
 Duv: -0.0019  
 CIE x: 0.3785  
 CIE y: 0.3715  
 CIE z: 0.2500  
 Peak Wavelength (nm): 630  
 Dominant Wavelength (nm): 580  
 Purity: 25.06827  
 Rf: 90.7  
 Rg: 100.2

CRI (Ra): 93.9  
 R1: 95.7  
 R2: 96.3  
 R3: 94.8  
 R4: 95.2  
 R5: 94.6  
 R6: 93.5  
 R7: 94.0  
 R8: 87.2  
 R9: 66.3  
 R10: 89.1  
 R11: 95.0  
 R12: 73.8  
 R13: 96.0  
 R14: 96.4  
 R15: 93.2



**Test Conditions**

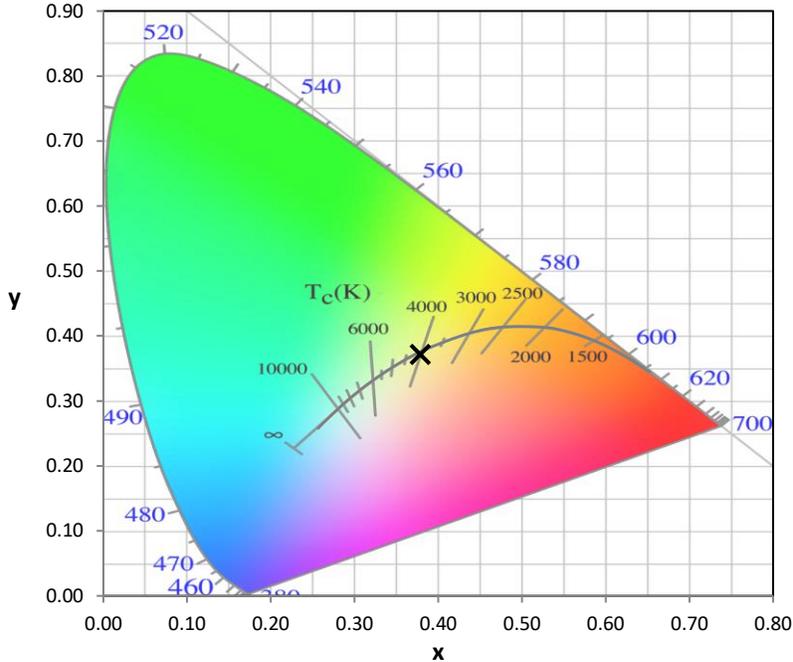
Stabilization Time: 23M  
 Operation Time: 1H 23M  
 Sphere Temperature (°C): 24.1

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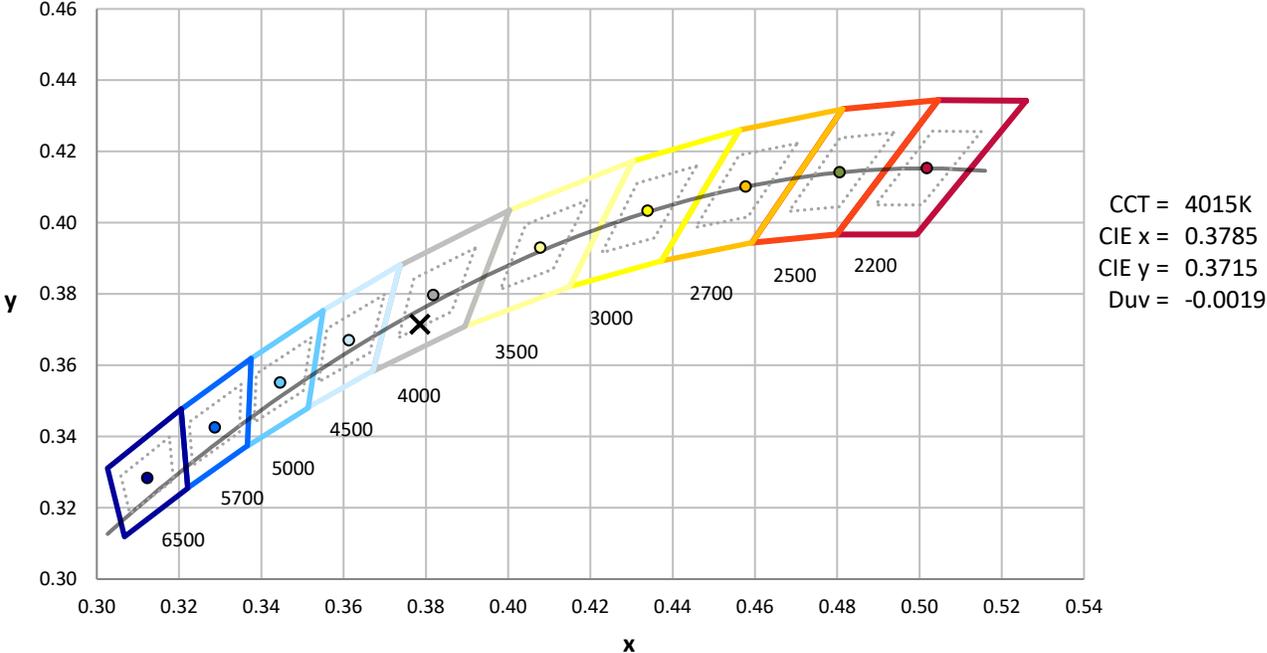
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	6/16/2025	12/16/2025
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208	10/21/2025	10/21/2026
Sphere Thermometer	ONSET IN0085	10/21/2025	10/21/2026
Room Thermometer	ONSET IN0046	10/21/2025	10/21/2026

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CIE 1931 Chromaticity Diagram



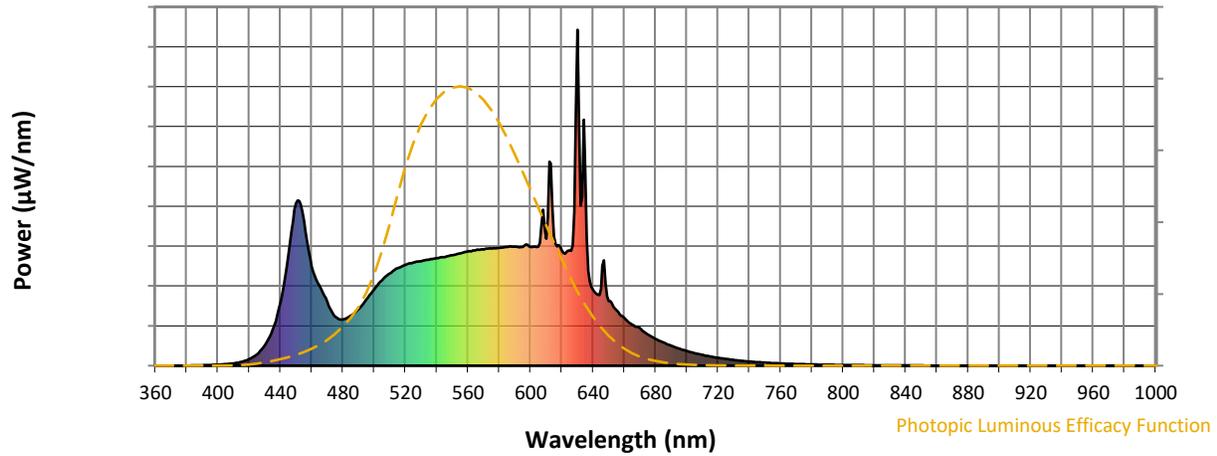
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	169	NR	620	343	NR	750	9	NR	880	0	NR
365	0	NR	495	197	NR	625	343	NR	755	8	NR	885	0	NR
370	0	NR	500	228	NR	630	1000	NR	760	7	NR	890	0	NR
375	0	NR	505	254	NR	635	591	NR	765	6	NR	895	0	NR
380	0	NR	510	274	NR	640	225	NR	770	5	NR	900	0	NR
385	1	NR	515	290	NR	645	229	NR	775	4	NR	905	0	NR
390	1	NR	520	300	NR	650	193	NR	780	4	NR	910	0	NR
395	2	NR	525	307	NR	655	165	NR	785	3	NR	915	0	NR
400	3	NR	530	311	NR	660	142	NR	790	3	NR	920	0	NR
405	5	NR	535	316	NR	665	122	NR	795	2	NR	925	0	NR
410	7	NR	540	320	NR	670	112	NR	800	2	NR	930	0	NR
415	11	NR	545	323	NR	675	93	NR	805	2	NR	935	0	NR
420	20	NR	550	329	NR	680	80	NR	810	2	NR	940	0	NR
425	35	NR	555	334	NR	685	69	NR	815	1	NR	945	0	NR
430	61	NR	560	340	NR	690	59	NR	820	1	NR	950	0	NR
435	108	NR	565	344	NR	695	51	NR	825	1	NR	955	0	NR
440	187	NR	570	346	NR	700	43	NR	830	1	NR	960	0	NR
445	329	NR	575	349	NR	705	37	NR	835	1	NR	965	0	NR
450	484	NR	580	351	NR	710	32	NR	840	1	NR	970	0	NR
455	433	NR	585	353	NR	715	27	NR	845	1	NR	975	0	NR
460	296	NR	590	354	NR	720	23	NR	850	1	NR	980	0	NR
465	237	NR	595	353	NR	725	20	NR	855	0	NR	985	0	NR
470	188	NR	600	354	NR	730	17	NR	860	0	NR	990	0	NR
475	146	NR	605	354	NR	735	15	NR	865	0	NR	995	0	NR
480	138	NR	610	378	NR	740	12	NR	870	0	NR	1000	0	NR
485	149	NR	615	385	NR	745	11	NR	875	0	NR			

REPORT NUMBER: SP1-2511-597-4

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.79**

$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)
360	0	NR	490	169	NR	620	343	NR	750	9	NR	880	0	NR
365	0	NR	495	197	NR	625	343	NR	755	8	NR	885	0	NR
370	0	NR	500	228	NR	630	1000	NR	760	7	NR	890	0	NR
375	0	NR	505	254	NR	635	591	NR	765	6	NR	895	0	NR
380	0	NR	510	274	NR	640	225	NR	770	5	NR	900	0	NR
385	1	NR	515	290	NR	645	229	NR	775	4	NR	905	0	NR
390	1	NR	520	300	NR	650	193	NR	780	4	NR	910	0	NR
395	2	NR	525	307	NR	655	165	NR	785	3	NR	915	0	NR
400	3	NR	530	311	NR	660	142	NR	790	3	NR	920	0	NR
405	5	NR	535	316	NR	665	122	NR	795	2	NR	925	0	NR
410	7	NR	540	320	NR	670	112	NR	800	2	NR	930	0	NR
415	11	NR	545	323	NR	675	93	NR	805	2	NR	935	0	NR
420	20	NR	550	329	NR	680	80	NR	810	2	NR	940	0	NR
425	35	NR	555	334	NR	685	69	NR	815	1	NR	945	0	NR
430	61	NR	560	340	NR	690	59	NR	820	1	NR	950	0	NR
435	108	NR	565	344	NR	695	51	NR	825	1	NR	955	0	NR
440	187	NR	570	346	NR	700	43	NR	830	1	NR	960	0	NR
445	329	NR	575	349	NR	705	37	NR	835	1	NR	965	0	NR
450	484	NR	580	351	NR	710	32	NR	840	1	NR	970	0	NR
455	433	NR	585	353	NR	715	27	NR	845	1	NR	975	0	NR
460	296	NR	590	354	NR	720	23	NR	850	1	NR	980	0	NR
465	237	NR	595	353	NR	725	20	NR	855	0	NR	985	0	NR
470	188	NR	600	354	NR	730	17	NR	860	0	NR	990	0	NR
475	146	NR	605	354	NR	735	15	NR	865	0	NR	995	0	NR
480	138	NR	610	378	NR	740	12	NR	870	0	NR	1000	0	NR
485	149	NR	615	385	NR	745	11	NR	875	0	NR			

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**Melanopic Flux vs. Wavelength**



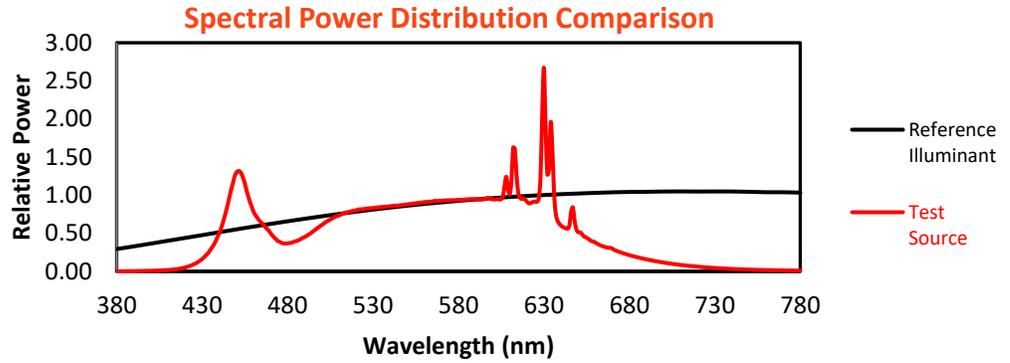
**Melanopic Lumens: NR**

**M/P: 3.74**

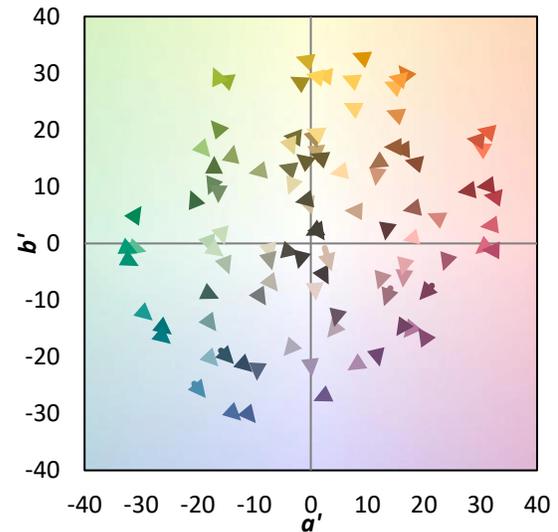
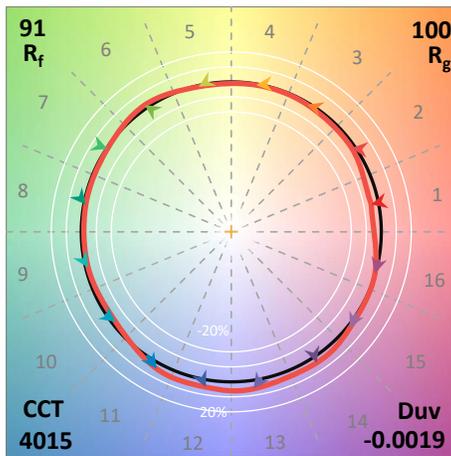
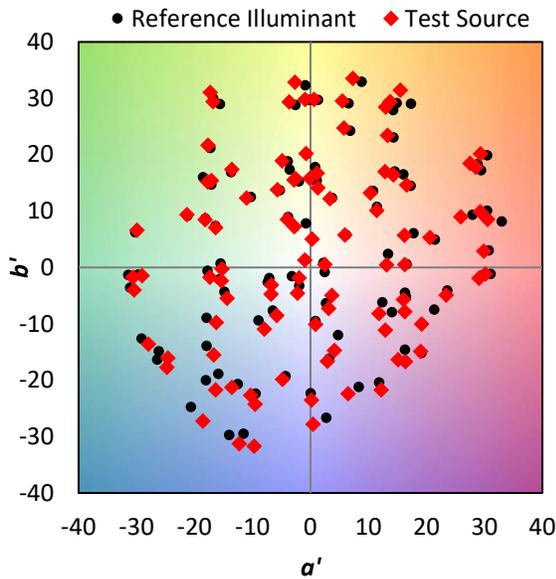
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	169	NR	620	343	NR	750	9	NR	880	0	NR
365	0	NR	495	197	NR	625	343	NR	755	8	NR	885	0	NR
370	0	NR	500	228	NR	630	1000	NR	760	7	NR	890	0	NR
375	0	NR	505	254	NR	635	591	NR	765	6	NR	895	0	NR
380	0	NR	510	274	NR	640	225	NR	770	5	NR	900	0	NR
385	1	NR	515	290	NR	645	229	NR	775	4	NR	905	0	NR
390	1	NR	520	300	NR	650	193	NR	780	4	NR	910	0	NR
395	2	NR	525	307	NR	655	165	NR	785	3	NR	915	0	NR
400	3	NR	530	311	NR	660	142	NR	790	3	NR	920	0	NR
405	5	NR	535	316	NR	665	122	NR	795	2	NR	925	0	NR
410	7	NR	540	320	NR	670	112	NR	800	2	NR	930	0	NR
415	11	NR	545	323	NR	675	93	NR	805	2	NR	935	0	NR
420	20	NR	550	329	NR	680	80	NR	810	2	NR	940	0	NR
425	35	NR	555	334	NR	685	69	NR	815	1	NR	945	0	NR
430	61	NR	560	340	NR	690	59	NR	820	1	NR	950	0	NR
435	108	NR	565	344	NR	695	51	NR	825	1	NR	955	0	NR
440	187	NR	570	346	NR	700	43	NR	830	1	NR	960	0	NR
445	329	NR	575	349	NR	705	37	NR	835	1	NR	965	0	NR
450	484	NR	580	351	NR	710	32	NR	840	1	NR	970	0	NR
455	433	NR	585	353	NR	715	27	NR	845	1	NR	975	0	NR
460	296	NR	590	354	NR	720	23	NR	850	1	NR	980	0	NR
465	237	NR	595	353	NR	725	20	NR	855	0	NR	985	0	NR
470	188	NR	600	354	NR	730	17	NR	860	0	NR	990	0	NR
475	146	NR	605	354	NR	735	15	NR	865	0	NR	995	0	NR
480	138	NR	610	378	NR	740	12	NR	870	0	NR	1000	0	NR
485	149	NR	615	385	NR	745	11	NR	875	0	NR			

**Summary**

$R_f = 90.7$   
 $R_g = 100.2$   
 CIE  $R_a = 93.9$   
 $R_9 = 66.3$

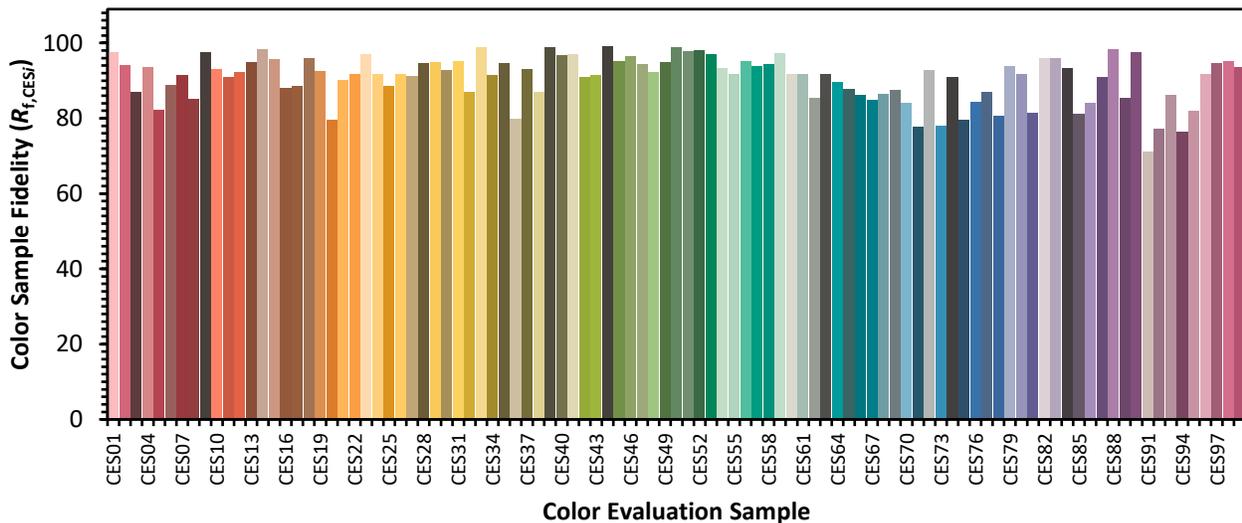


**Color Vector Graphics**



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

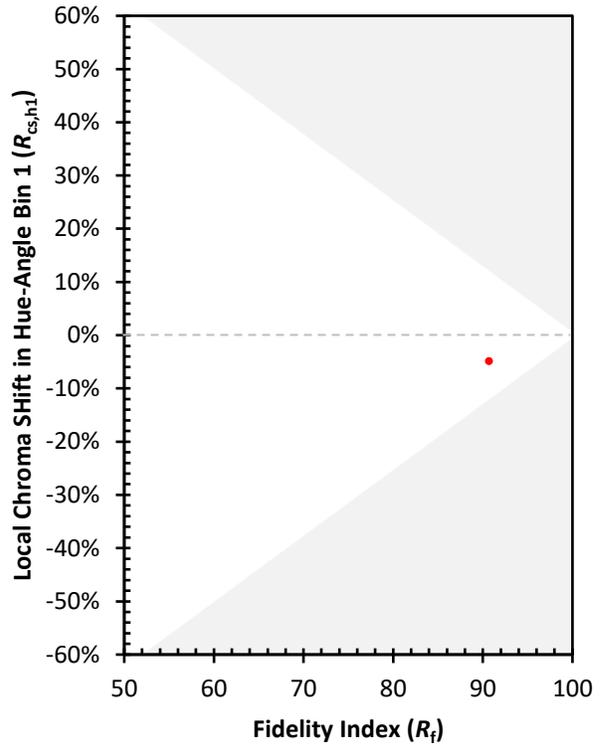
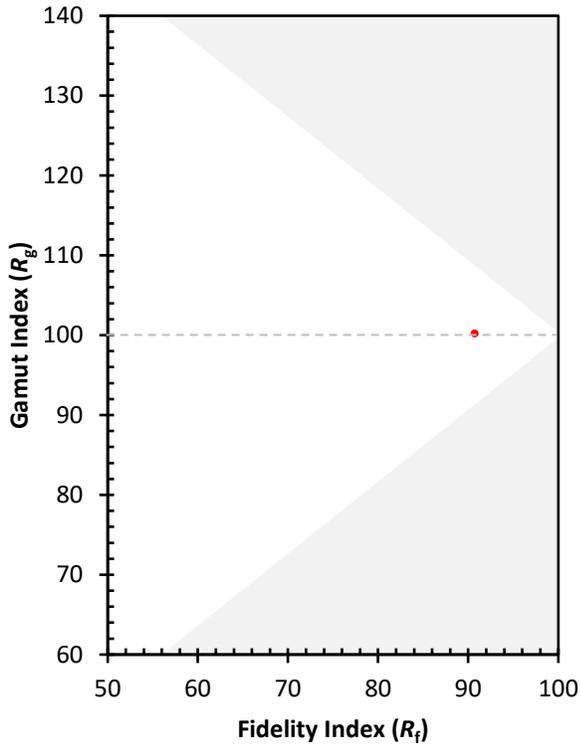
CES01 = 86	CES26 = 92	CES51 = 98	CES76 = 84
CES02 = 62	CES27 = 91	CES52 = 98	CES77 = 87
CES03 = 31	CES28 = 95	CES53 = 97	CES78 = 81
CES04 = 69	CES29 = 95	CES54 = 93	CES79 = 94
CES05 = 49	CES30 = 93	CES55 = 92	CES80 = 92
CES06 = 50	CES31 = 95	CES56 = 95	CES81 = 81
CES07 = 42	CES32 = 87	CES57 = 94	CES82 = 96
CES08 = 41	CES33 = 99	CES58 = 94	CES83 = 96
CES09 = 29	CES34 = 91	CES59 = 97	CES84 = 93
CES10 = 74	CES35 = 95	CES60 = 92	CES85 = 81
CES11 = 57	CES36 = 80	CES61 = 92	CES86 = 84
CES12 = 63	CES37 = 93	CES62 = 85	CES87 = 91
CES13 = 43	CES38 = 87	CES63 = 92	CES88 = 98
CES14 = 74	CES39 = 99	CES64 = 90	CES89 = 85
CES15 = 71	CES40 = 97	CES65 = 88	CES90 = 98
CES16 = 47	CES41 = 97	CES66 = 86	CES91 = 71
CES17 = 49	CES42 = 91	CES67 = 85	CES92 = 77
CES18 = 56	CES43 = 91	CES68 = 87	CES93 = 86
CES19 = 71	CES44 = 99	CES69 = 87	CES94 = 76
CES20 = 66	CES45 = 95	CES70 = 84	CES95 = 82
CES21 = 85	CES46 = 96	CES71 = 78	CES96 = 92
CES22 = 78	CES47 = 94	CES72 = 93	CES97 = 95
CES23 = 91	CES48 = 92	CES73 = 78	CES98 = 95
CES24 = 90	CES49 = 95	CES74 = 91	CES99 = 94
CES25 = 71	CES50 = 99	CES75 = 80	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)