

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: P1357187

Luminaire Tested: 4ASL4-20VHE-3-30-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1357187
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-3-30-UNV
Description: 4FT 2000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND 3000K LEDS 3 ROW
Light Source: -
Ballast/Driver: -

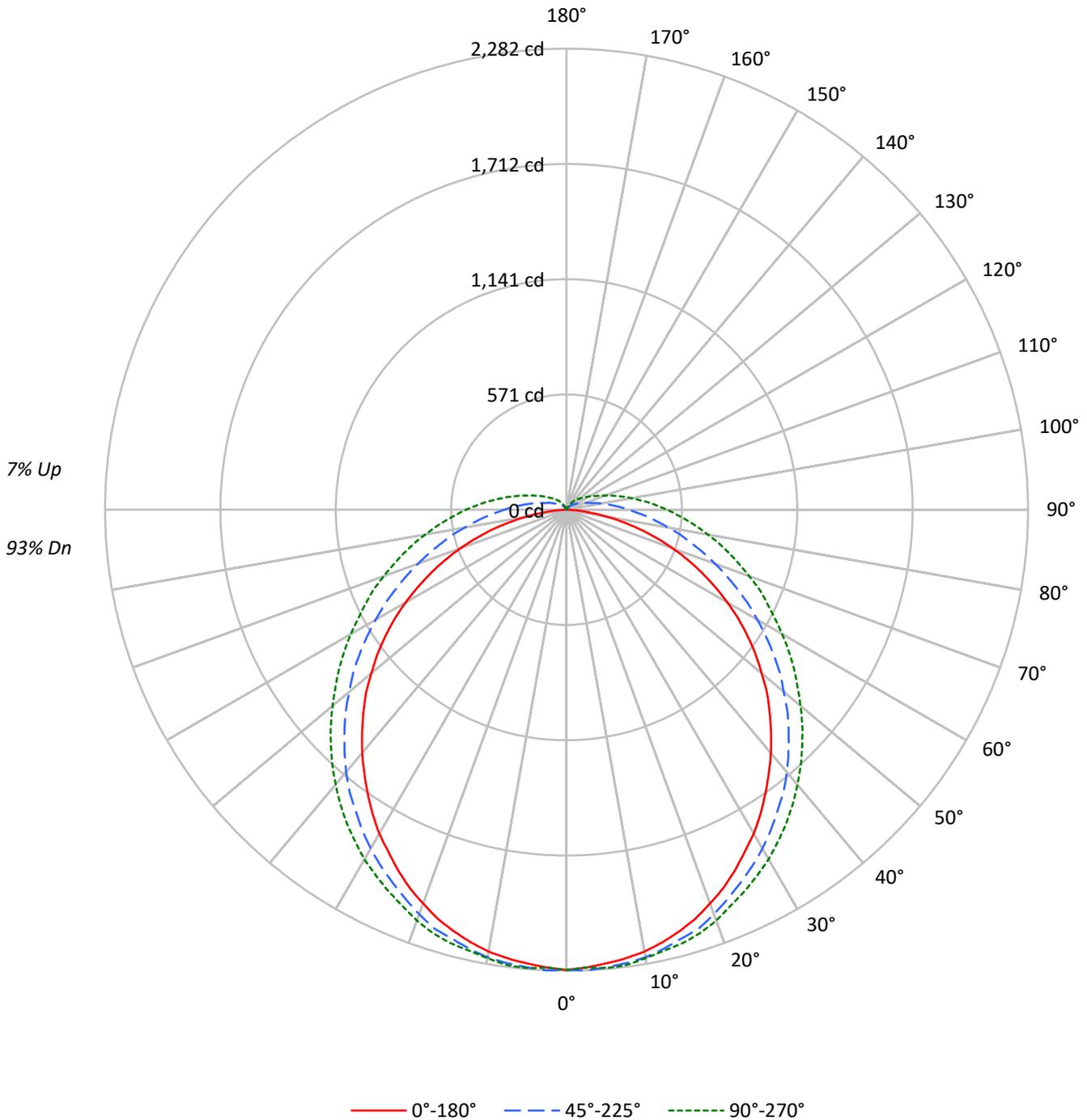
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7744.0 lumens
Efficiency: N/A
Efficacy: 115.2 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_{in}): 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: P1357187
CATALOG NUMBER: 4ASL4-20VHE-3-30-UNV

Luminous Intensity Polar Plot





TEST NUMBER: P1357187
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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°	18483	18483	18483
5°	18319	18136	18060
10°	18216	17784	17603
15°	18014	17346	17217
20°	17742	16926	16780
25°	17425	16400	16283
30°	17091	15944	15863
35°	16676	15427	15396
40°	16296	14954	14903
45°	15887	14381	14409
50°	15421	13766	13895
55°	14918	13179	13433
60°	14263	12494	12964
65°	13431	11834	12576
70°	12367	11181	12271
75°	10820	10583	12063
80°	8476	10135	11974
85°	5088	10028	12150

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 15887 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	216.0	2.8
10°-20°	620.1	8.0
20°-30°	937.6	12.1
30°-40°	1135.3	14.7
40°-50°	1192.3	15.4
50°-60°	1112.4	14.4
60°-70°	919.3	11.9
70°-80°	661.9	8.5
80°-90°	411.3	5.3
90°-100°	241.0	3.1
100°-110°	137.9	1.8
110°-120°	77.9	1.0
120°-130°	44.8	0.6
130°-140°	24.1	0.3
140°-150°	10.2	0.1
150°-160°	1.9	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1773.7	22.9
0°-40°	2908.9	37.6
0°-60°	5213.7	67.3
0°-90°	7206.3	93.1
90°-120°	456.8	5.9
90°-150°	535.8	6.9
90°-180°	538.0	6.9
0°-180°	7744.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2278	2278	2278	2278	2278	
5°	2254	2273	2273	2273	2278	214
15°	2159	2188	2197	2211	2221	609
25°	1970	2003	2036	2064	2084	907
35°	1714	1762	1818	1870	1894	1073
45°	1420	1473	1553	1619	1648	1096
55°	1094	1155	1250	1340	1373	977
65°	739	810	933	1051	1094	731
75°	379	474	639	777	833	401
85°	71	213	402	544	597	87
90°	0	128	308	440	497	3
95°	0	80	232	355	407	0
105°	0	28	128	223	260	0
115°	0	14	76	137	161	0
125°	0	10	47	90	104	0
135°	0	0	28	57	71	0
145°	0	0	14	33	38	0
155°	0	0	0	10	14	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



TEST NUMBER: P1357187
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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2277.6	2277.6	2277.6	2277.6	2277.6
2.5°	2268.1	2282.3	2282.3	2268.1	2268.1
5°	2253.9	2272.9	2272.9	2272.9	2277.6
7.5°	2239.7	2263.4	2263.4	2263.4	2272.9
10°	2220.8	2244.5	2249.2	2249.2	2253.9
12.5°	2192.4	2220.8	2225.5	2230.3	2235.0
15°	2159.2	2187.6	2197.1	2211.3	2220.8
17.5°	2121.4	2154.5	2173.4	2187.6	2197.1
20°	2074.0	2107.1	2130.8	2149.8	2164.0
22.5°	2026.7	2055.1	2083.5	2107.1	2121.4
25°	1969.8	2003.0	2036.1	2064.5	2083.5
27.5°	1908.3	1946.2	1988.8	2021.9	2040.9
30°	1851.4	1889.3	1936.7	1979.3	1998.2
32.5°	1785.2	1827.8	1879.9	1922.5	1946.2
35°	1714.1	1761.5	1818.3	1870.4	1894.1
37.5°	1643.1	1690.5	1761.5	1813.6	1837.2
40°	1572.1	1619.4	1695.2	1752.0	1775.7
42.5°	1496.3	1543.7	1624.2	1685.7	1714.1
45°	1420.5	1472.6	1553.1	1619.4	1647.8
47.5°	1344.8	1396.9	1482.1	1553.1	1581.5
50°	1259.6	1316.4	1401.6	1482.1	1510.5
52.5°	1179.1	1235.9	1330.6	1411.1	1439.5
55°	1093.8	1155.4	1250.1	1340.1	1373.2
57.5°	1008.6	1070.1	1169.6	1264.3	1302.2
60°	918.6	984.9	1089.1	1188.5	1231.1
62.5°	828.7	899.7	1013.3	1117.5	1160.1
65°	738.7	809.7	932.8	1051.2	1093.8
67.5°	648.7	724.5	857.1	980.2	1032.3
70°	558.7	639.2	781.3	909.2	961.2
72.5°	468.8	554.0	710.3	842.9	894.9
75°	378.8	473.5	639.2	776.6	833.4
77.5°	288.8	397.8	577.7	715.0	771.8
80°	208.3	331.5	511.4	653.5	710.3
82.5°	132.6	265.2	454.6	596.6	653.5
85°	71.0	213.1	402.5	544.5	596.6
87.5°	23.7	165.7	350.4	492.5	544.5
90°	0.0	127.8	307.8	440.4	497.2
92.5°	0.0	99.4	269.9	397.8	449.8
95°	0.0	80.5	232.0	355.1	407.2
97.5°	0.0	66.3	203.6	317.3	364.6
100°	0.0	52.1	175.2	284.1	326.7
102.5°	0.0	42.6	151.5	251.0	293.6
105°	0.0	28.4	127.8	222.6	260.4
107.5°	0.0	23.7	108.9	198.9	232.0
110°	0.0	18.9	99.4	170.5	203.6



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CATALOG NUMBER: 4ASL4-20VHE-3-30-UNV

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	14.2	90.0	151.5	184.7
115°	0.0	14.2	75.8	137.3	161.0
117.5°	0.0	14.2	66.3	123.1	146.8
120°	0.0	9.5	61.6	108.9	132.6
122.5°	0.0	9.5	52.1	99.4	118.4
125°	0.0	9.5	47.4	90.0	104.2
127.5°	0.0	4.7	42.6	80.5	94.7
130°	0.0	4.7	37.9	71.0	85.2
132.5°	0.0	4.7	33.1	66.3	80.5
135°	0.0	0.0	28.4	56.8	71.0
137.5°	0.0	0.0	23.7	52.1	61.6
140°	0.0	0.0	18.9	42.6	56.8
142.5°	0.0	0.0	14.2	37.9	47.4
145°	0.0	0.0	14.2	33.1	37.9
147.5°	0.0	0.0	9.5	23.7	33.1
150°	0.0	0.0	4.7	18.9	23.7
152.5°	0.0	0.0	0.0	14.2	18.9
155°	0.0	0.0	0.0	9.5	14.2
157.5°	0.0	0.0	0.0	0.0	4.7
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	19.47	21.01	19.94	21.46	21.94	21.49	23.03	21.96	23.49	23.97
	3H	20.96	22.37	21.44	22.83	23.36	23.96	25.36	24.44	25.83	26.35
	4H	21.44	22.78	21.95	23.26	23.80	25.15	26.49	25.66	26.97	27.51
	6H	21.72	22.96	22.24	23.46	24.01	26.41	27.65	26.92	28.14	28.70
	8H	21.77	22.96	22.30	23.48	24.04	27.05	28.24	27.58	28.76	29.32
	12H	21.79	22.93	22.32	23.44	24.03	27.76	28.90	28.30	29.42	30.01
4H	2H	20.34	21.67	20.85	22.16	22.69	21.93	23.26	22.43	23.74	24.28
	3H	22.08	23.21	22.59	23.74	24.30	24.62	25.75	25.13	26.28	26.84
	4H	22.68	23.72	23.22	24.26	24.85	25.98	27.02	26.52	27.56	28.15
	6H	23.08	24.00	23.64	24.56	25.17	27.43	28.35	27.98	28.91	29.52
	8H	23.18	24.04	23.74	24.60	25.22	28.18	29.05	28.74	29.61	30.23
	12H	23.22	24.00	23.80	24.59	25.22	29.02	29.80	29.60	30.39	31.02
8H	4H	23.36	24.23	23.92	24.79	25.41	26.20	27.06	26.76	27.63	28.25
	6H	23.94	24.67	24.54	25.28	25.90	27.82	28.55	28.41	29.15	29.78
	8H	24.12	24.79	24.73	25.40	26.04	28.71	29.37	29.31	29.98	30.62
	12H	24.24	24.83	24.85	25.43	26.14	29.73	30.32	30.34	30.92	31.63
12H	4H	23.56	24.34	24.14	24.93	25.56	26.21	26.99	26.79	27.58	28.21
	6H	24.24	24.90	24.84	25.51	26.15	27.85	28.51	28.46	29.13	29.77
	8H	24.52	25.11	25.12	25.71	26.41	28.82	29.41	29.42	30.01	30.71

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

Fail-Safe

Report Number: SP1-2511-597-3

Test Date: 11/18/2025

Luminaire Tested: 4ASL-2-30-UNV-OPL-1_600mA

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

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2511-597-3
 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-2-30-UNV-OPL-1_600mA**
 Description: 2foot 4ASL LED LUMINAIRE WITH OPL LENS AND 3000K LEDs with 1 rows at 600mA

Spectral Parameters

CCT (K): 3005
 CIE u': 0.2513
 CIE v': 0.5178
 Duv: -0.0025
 CIE x: 0.4330
 CIE y: 0.3966
 CIE z: 0.1704
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 583
 Purity: 49.00645
 Rf: 90.1
 Rg: 103.3

CRI (Ra): 93.9
 R1: 96.5
 R2: 96.6
 R3: 95.5
 R4: 94.4
 R5: 96.0
 R6: 96.4
 R7: 91.7
 R8: 84.0
 R9: 62.0
 R10: 90.8
 R11: 94.1
 R12: 88.9
 R13: 96.4
 R14: 96.3
 R15: 91.9



Test Conditions

Stabilization Time: 32M
 Operation Time: 1H 32M
 Sphere Temperature (°C): 24.1

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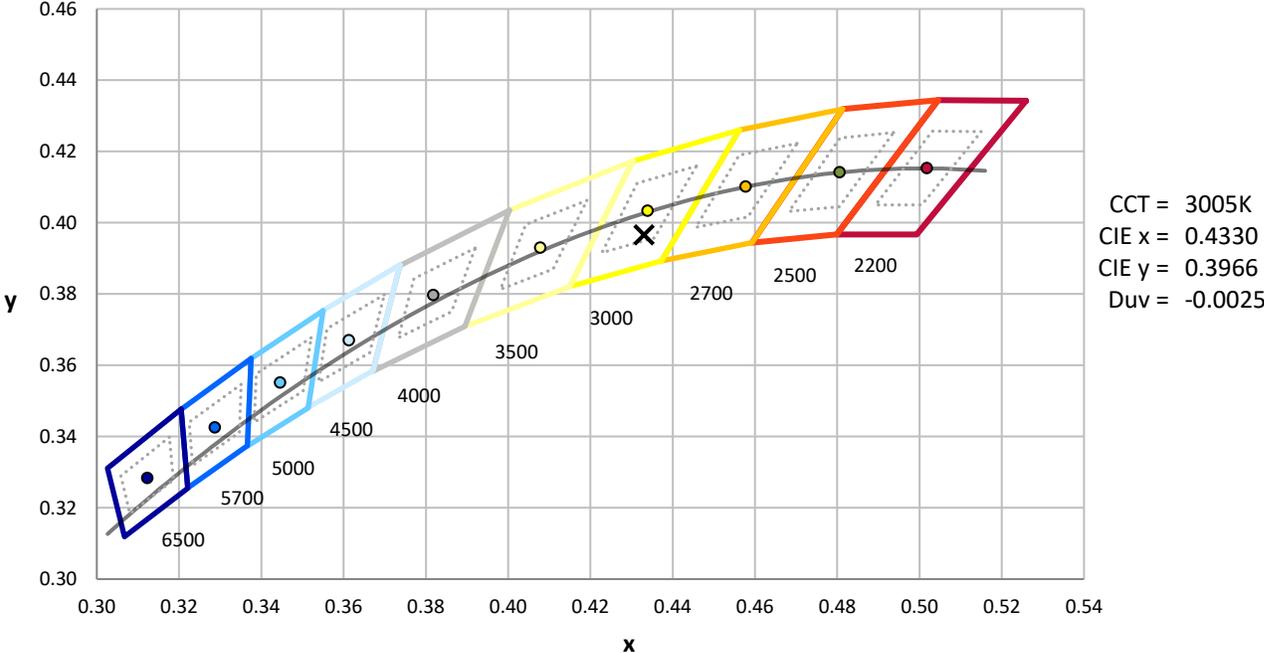
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	6/16/2025	12/16/2025
Power Meter	XITRON INXT2011004	10/21/2025	10/21/2026
AC Power Source	CHROMA 61603 IN0063	10/21/2025	10/21/2026
DC Power Source	AGILENT E3634A IN0208	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 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength

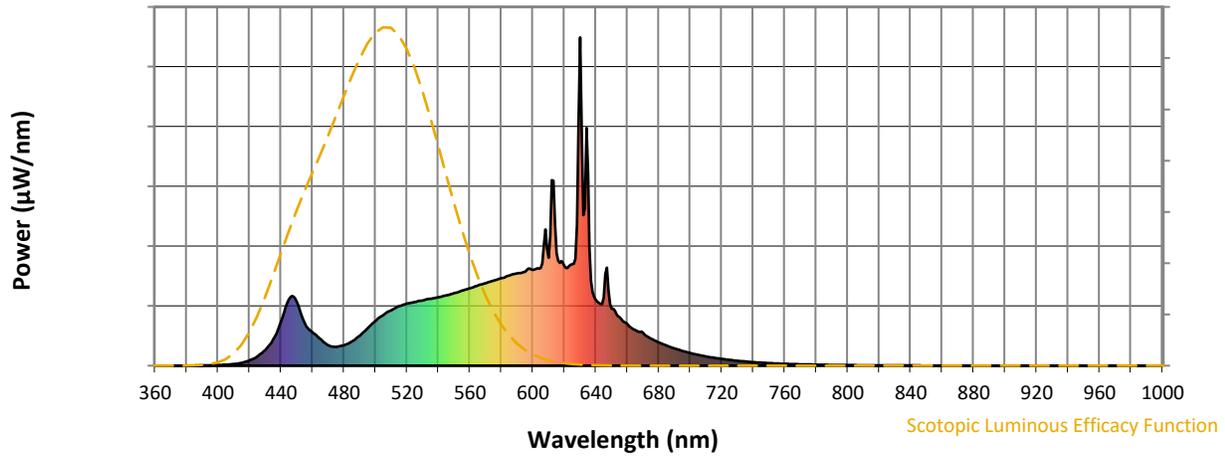


Photopic Lumens: NR

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	92	NR	620	304	NR	750	8	NR	880	0	NR
365	0	NR	495	114	NR	625	309	NR	755	7	NR	885	0	NR
370	0	NR	500	136	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	154	NR	635	582	NR	765	5	NR	895	0	NR
380	0	NR	510	169	NR	640	200	NR	770	4	NR	900	0	NR
385	0	NR	515	181	NR	645	207	NR	775	4	NR	905	0	NR
390	1	NR	520	189	NR	650	174	NR	780	3	NR	910	0	NR
395	1	NR	525	194	NR	655	148	NR	785	3	NR	915	0	NR
400	2	NR	530	199	NR	660	127	NR	790	2	NR	920	0	NR
405	3	NR	535	203	NR	665	108	NR	795	2	NR	925	0	NR
410	5	NR	540	208	NR	670	100	NR	800	2	NR	930	0	NR
415	9	NR	545	214	NR	675	83	NR	805	2	NR	935	0	NR
420	16	NR	550	221	NR	680	71	NR	810	1	NR	940	0	NR
425	28	NR	555	228	NR	685	61	NR	815	1	NR	945	0	NR
430	48	NR	560	236	NR	690	53	NR	820	1	NR	950	0	NR
435	80	NR	565	244	NR	695	45	NR	825	1	NR	955	0	NR
440	135	NR	570	251	NR	700	38	NR	830	1	NR	960	0	NR
445	202	NR	575	259	NR	705	33	NR	835	1	NR	965	0	NR
450	195	NR	580	266	NR	710	28	NR	840	1	NR	970	0	NR
455	130	NR	585	274	NR	715	24	NR	845	1	NR	975	0	NR
460	101	NR	590	281	NR	720	20	NR	850	0	NR	980	0	NR
465	82	NR	595	286	NR	725	17	NR	855	0	NR	985	0	NR
470	62	NR	600	292	NR	730	15	NR	860	0	NR	990	0	NR
475	58	NR	605	298	NR	735	13	NR	865	0	NR	995	0	NR
480	62	NR	610	328	NR	740	11	NR	870	0	NR	1000	0	NR
485	74	NR	615	342	NR	745	9	NR	875	0	NR			

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Scotopic Flux vs. Wavelength



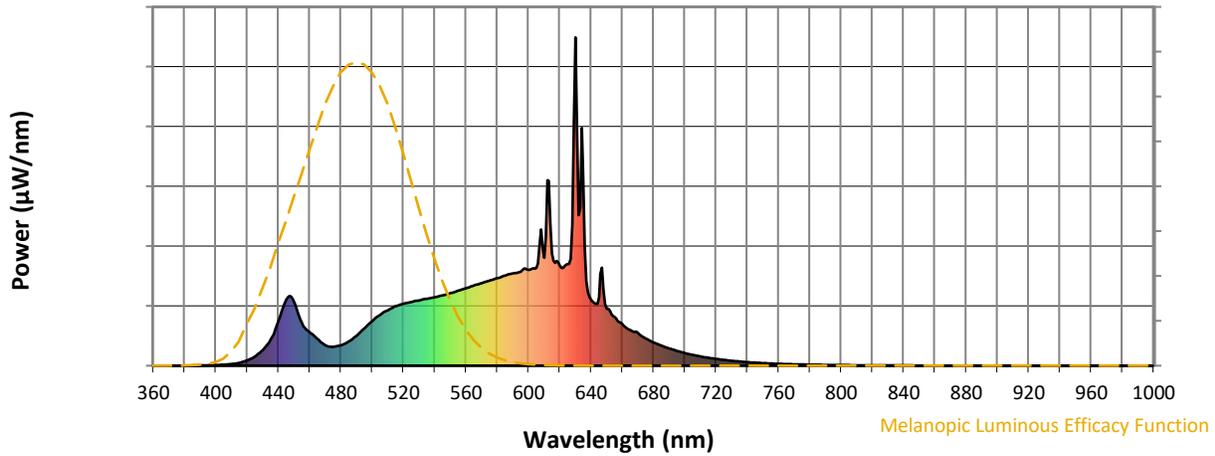
Scotopic Lumens: NR

S/P: 1.42

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	92	NR	620	304	NR	750	8	NR	880	0	NR
365	0	NR	495	114	NR	625	309	NR	755	7	NR	885	0	NR
370	0	NR	500	136	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	154	NR	635	582	NR	765	5	NR	895	0	NR
380	0	NR	510	169	NR	640	200	NR	770	4	NR	900	0	NR
385	0	NR	515	181	NR	645	207	NR	775	4	NR	905	0	NR
390	1	NR	520	189	NR	650	174	NR	780	3	NR	910	0	NR
395	1	NR	525	194	NR	655	148	NR	785	3	NR	915	0	NR
400	2	NR	530	199	NR	660	127	NR	790	2	NR	920	0	NR
405	3	NR	535	203	NR	665	108	NR	795	2	NR	925	0	NR
410	5	NR	540	208	NR	670	100	NR	800	2	NR	930	0	NR
415	9	NR	545	214	NR	675	83	NR	805	2	NR	935	0	NR
420	16	NR	550	221	NR	680	71	NR	810	1	NR	940	0	NR
425	28	NR	555	228	NR	685	61	NR	815	1	NR	945	0	NR
430	48	NR	560	236	NR	690	53	NR	820	1	NR	950	0	NR
435	80	NR	565	244	NR	695	45	NR	825	1	NR	955	0	NR
440	135	NR	570	251	NR	700	38	NR	830	1	NR	960	0	NR
445	202	NR	575	259	NR	705	33	NR	835	1	NR	965	0	NR
450	195	NR	580	266	NR	710	28	NR	840	1	NR	970	0	NR
455	130	NR	585	274	NR	715	24	NR	845	1	NR	975	0	NR
460	101	NR	590	281	NR	720	20	NR	850	0	NR	980	0	NR
465	82	NR	595	286	NR	725	17	NR	855	0	NR	985	0	NR
470	62	NR	600	292	NR	730	15	NR	860	0	NR	990	0	NR
475	58	NR	605	298	NR	735	13	NR	865	0	NR	995	0	NR
480	62	NR	610	328	NR	740	11	NR	870	0	NR	1000	0	NR
485	74	NR	615	342	NR	745	9	NR	875	0	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.76

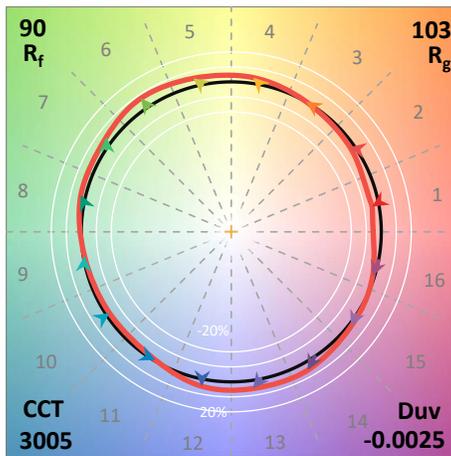
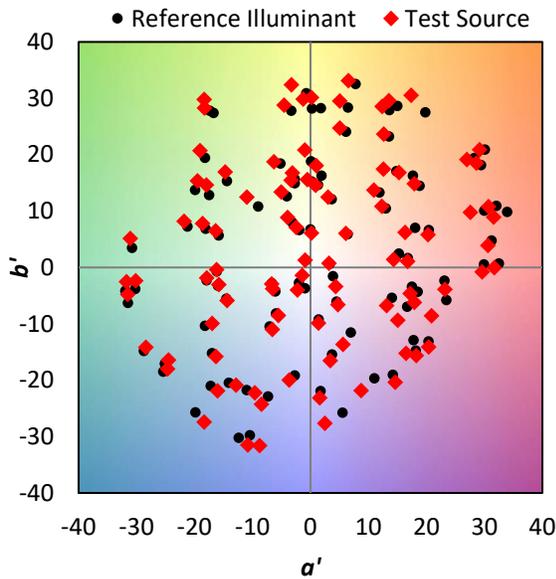
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	92	NR	620	304	NR	750	8	NR	880	0	NR
365	0	NR	495	114	NR	625	309	NR	755	7	NR	885	0	NR
370	0	NR	500	136	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	154	NR	635	582	NR	765	5	NR	895	0	NR
380	0	NR	510	169	NR	640	200	NR	770	4	NR	900	0	NR
385	0	NR	515	181	NR	645	207	NR	775	4	NR	905	0	NR
390	1	NR	520	189	NR	650	174	NR	780	3	NR	910	0	NR
395	1	NR	525	194	NR	655	148	NR	785	3	NR	915	0	NR
400	2	NR	530	199	NR	660	127	NR	790	2	NR	920	0	NR
405	3	NR	535	203	NR	665	108	NR	795	2	NR	925	0	NR
410	5	NR	540	208	NR	670	100	NR	800	2	NR	930	0	NR
415	9	NR	545	214	NR	675	83	NR	805	2	NR	935	0	NR
420	16	NR	550	221	NR	680	71	NR	810	1	NR	940	0	NR
425	28	NR	555	228	NR	685	61	NR	815	1	NR	945	0	NR
430	48	NR	560	236	NR	690	53	NR	820	1	NR	950	0	NR
435	80	NR	565	244	NR	695	45	NR	825	1	NR	955	0	NR
440	135	NR	570	251	NR	700	38	NR	830	1	NR	960	0	NR
445	202	NR	575	259	NR	705	33	NR	835	1	NR	965	0	NR
450	195	NR	580	266	NR	710	28	NR	840	1	NR	970	0	NR
455	130	NR	585	274	NR	715	24	NR	845	1	NR	975	0	NR
460	101	NR	590	281	NR	720	20	NR	850	0	NR	980	0	NR
465	82	NR	595	286	NR	725	17	NR	855	0	NR	985	0	NR
470	62	NR	600	292	NR	730	15	NR	860	0	NR	990	0	NR
475	58	NR	605	298	NR	735	13	NR	865	0	NR	995	0	NR
480	62	NR	610	328	NR	740	11	NR	870	0	NR	1000	0	NR
485	74	NR	615	342	NR	745	9	NR	875	0	NR			

Summary

$R_f = 90.1$
 $R_g = 103.3$
 CIE $R_a = 93.9$
 $R_9 = 62.0$

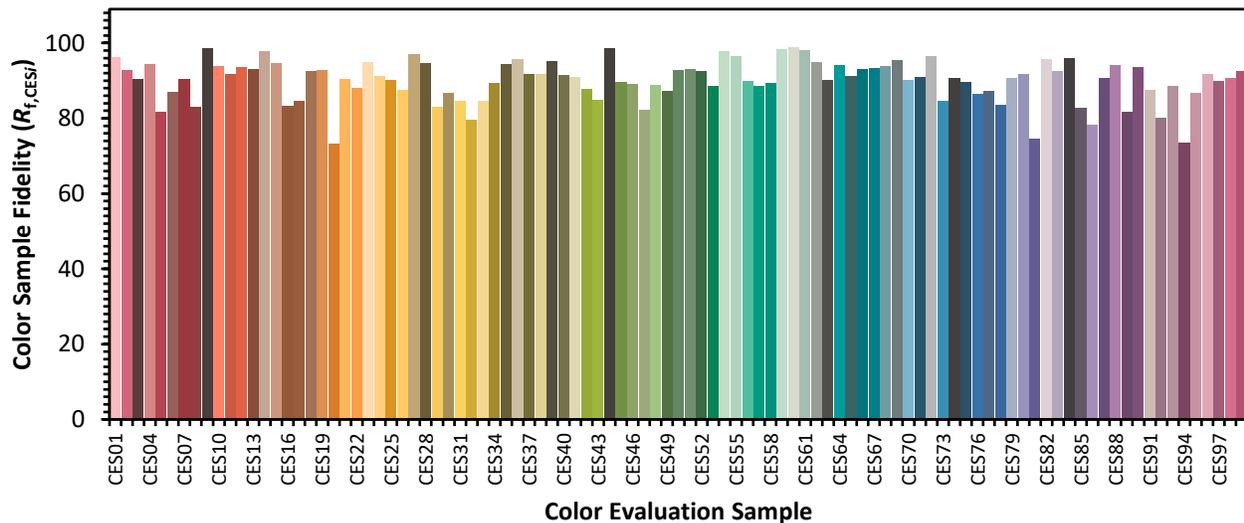


Color Vector Graphics

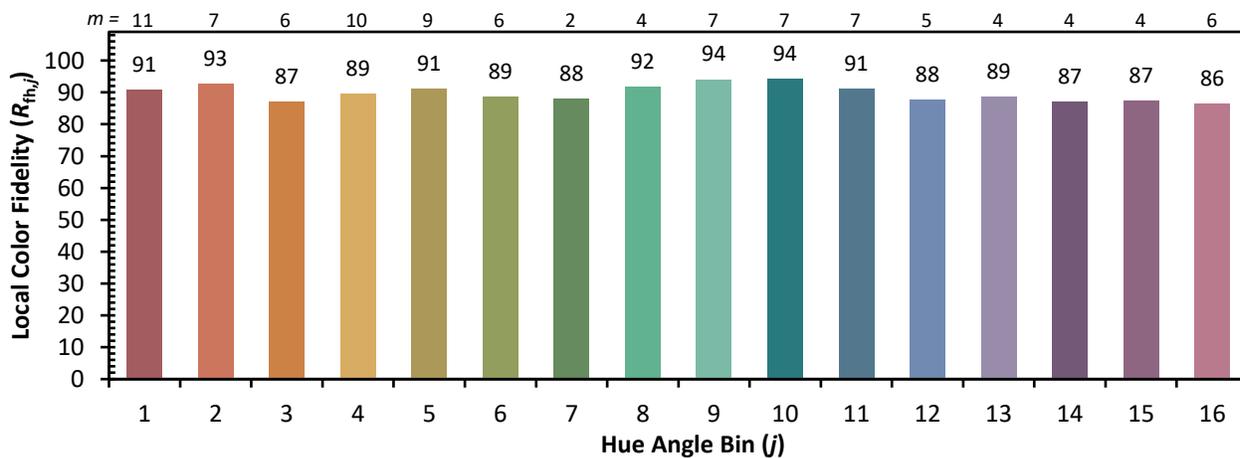
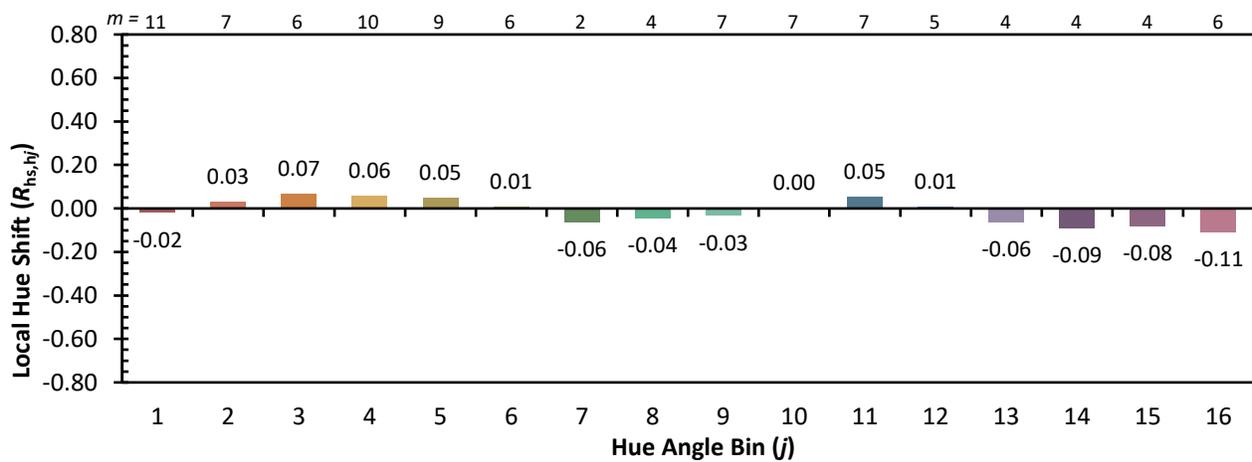
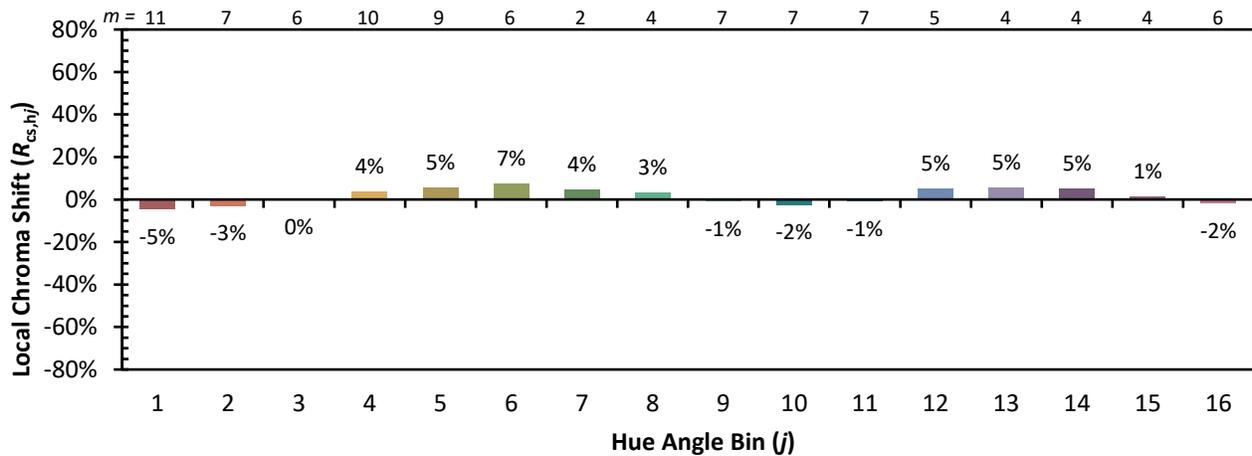


Individual Sample Fidelity Index ($R_{f,i}$)

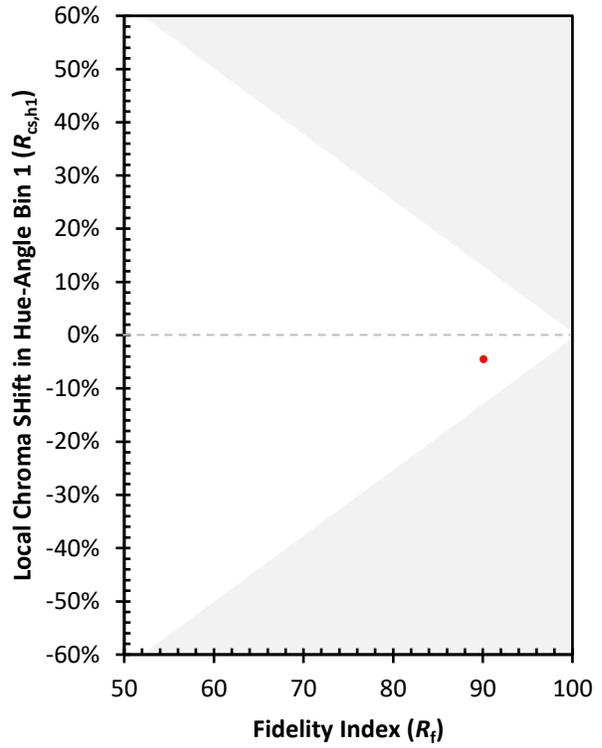
CES01 = 86	CES26 = 88	CES51 = 93	CES76 = 86
CES02 = 63	CES27 = 97	CES52 = 93	CES77 = 87
CES03 = 32	CES28 = 95	CES53 = 89	CES78 = 83
CES04 = 70	CES29 = 83	CES54 = 98	CES79 = 91
CES05 = 51	CES30 = 87	CES55 = 97	CES80 = 92
CES06 = 51	CES31 = 85	CES56 = 90	CES81 = 75
CES07 = 44	CES32 = 80	CES57 = 89	CES82 = 96
CES08 = 42	CES33 = 85	CES58 = 89	CES83 = 92
CES09 = 29	CES34 = 89	CES59 = 98	CES84 = 96
CES10 = 76	CES35 = 94	CES60 = 99	CES85 = 83
CES11 = 59	CES36 = 96	CES61 = 98	CES86 = 78
CES12 = 65	CES37 = 92	CES62 = 95	CES87 = 91
CES13 = 44	CES38 = 92	CES63 = 90	CES88 = 94
CES14 = 74	CES39 = 95	CES64 = 94	CES89 = 82
CES15 = 72	CES40 = 91	CES65 = 91	CES90 = 94
CES16 = 48	CES41 = 91	CES66 = 93	CES91 = 87
CES17 = 50	CES42 = 88	CES67 = 93	CES92 = 80
CES18 = 57	CES43 = 85	CES68 = 94	CES93 = 89
CES19 = 72	CES44 = 99	CES69 = 96	CES94 = 74
CES20 = 67	CES45 = 90	CES70 = 90	CES95 = 87
CES21 = 86	CES46 = 89	CES71 = 91	CES96 = 92
CES22 = 79	CES47 = 82	CES72 = 96	CES97 = 90
CES23 = 92	CES48 = 89	CES73 = 85	CES98 = 91
CES24 = 91	CES49 = 87	CES74 = 91	CES99 = 93
CES25 = 72	CES50 = 93	CES75 = 90	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)