

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: METALUX

Report Number: P859965

Luminaire Tested: **SPHB-18SE-M-L835-CD**

Issue Date: 7/11/2024

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



Test Information

Test Method: LM-79-08
Report Number: P859965
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2404-343-1)
Test Lab: INNOVATION CENTER
Issue Date: 7/11/2024
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: SPHB-18SE-M-L835-CD
Description: 18000 Lumen Standard Efficacy Select Pro High Bay with Medium Lens
and, 3500K 80CRI LEDs
Light Source: -
Ballast/Driver: -

Luminaire Equipment: Sample No. Condition Description

Summary

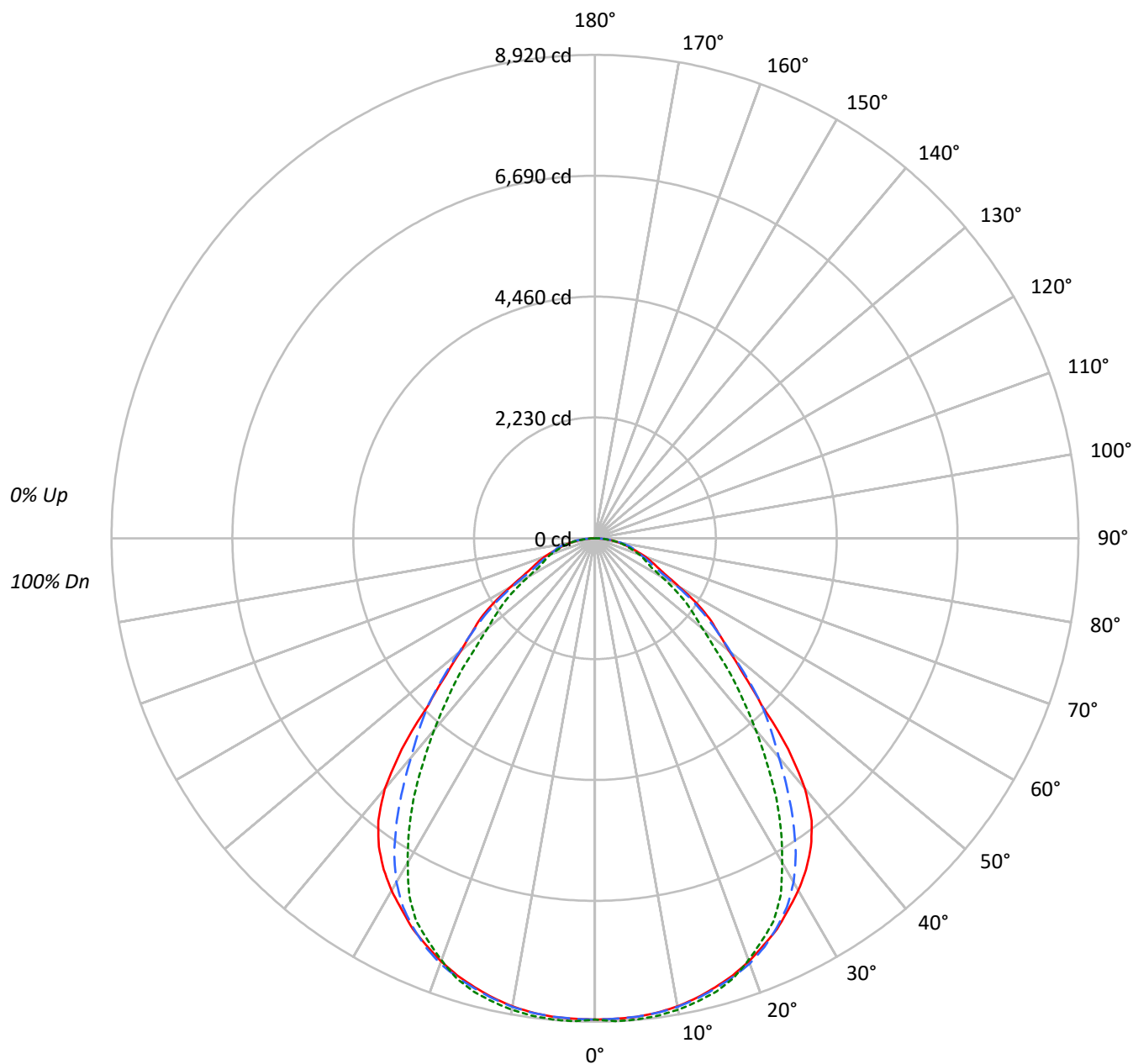
Lumens per Lamp: N/A
Luminaire Lumens: 18432.0 lumens
Efficiency: N/A
Efficacy: 157.0 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.16 / 1.22
Luminous Opening: Rectangular (W 1' x L: 1.38' x H: 0')
CIE Type: Direct

Input Watts (W): 117.4
Input Voltage (V): NR
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

TEST NUMBER: P859965

CATALOG NUMBER: SPHB-18SE-M-L835-CD

Luminous Intensity Polar Plot





TEST NUMBER: P859965

CATALOG NUMBER: SPHB-18SE-M-L835-CD

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	110	106	103	99	108	104	101	98		100	97	95		96	94	92		92	91	89
2	102	95	89	84	99	93	87	83		89	85	81		86	82	79		83	80	77
3	94	85	78	72	92	83	77	71		80	75	70		78	73	69		75	71	68
4	87	76	69	63	85	75	68	62		73	66	61		70	65	61		68	64	60
5	81	69	61	55	79	68	61	55		66	59	54		64	58	54		62	57	53
6	75	63	55	49	73	62	54	49		60	54	48		59	53	48		57	52	48
7	70	58	50	44	68	57	49	44		55	49	44		54	48	43		53	47	43
8	66	53	45	40	64	52	45	40		51	44	39		50	44	39		49	43	39
9	61	49	41	36	60	48	41	36		47	41	36		46	40	36		45	40	36
10	58	45	38	33	57	45	38	33		44	37	33		43	37	33		42	37	33

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	69265	69265	69265
5°	69401	69382	69777
10°	69462	69536	69962
15°	69258	69439	69921
20°	68957	69306	68752
25°	68453	68261	67101
30°	67585	65993	62227
35°	66166	60713	55461
40°	61404	53736	46974
45°	47906	48035	38875
50°	39127	39680	31395
55°	35056	33733	27586
60°	28064	26567	22071
65°	23519	21529	19519
70°	22329	20514	19873
75°	20261	21777	19167
80°	20361	22252	20200
85°	17711	20754	16879



TEST NUMBER: P859965

CATALOG NUMBER: SPHB-18SE-M-L835-CD

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	844.4	4.6
10°-20°	2428.3	13.2
20°-30°	3625.1	19.7
30°-40°	3955.6	21.5
40°-50°	3235.9	17.6
50°-60°	2127.6	11.5
60°-70°	1220.6	6.6
70°-80°	739.7	4.0
80°-90°	248.4	1.3
90°-100°	6.4	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°-30°	6897.8	37.4
0°-40°	10853.4	58.9
0°-60°	16216.9	88.0
0°-90°	18425.5	100.0
90°-120°	6.4	0.0
90°-150°	6.4	0.0
90°-180°	6.0	0.0
0°-180°	18432.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	8880	8880	8880	8880	8880	
5°	8864	8850	8861	8898	8912	843
15°	8577	8576	8599	8654	8659	2421
25°	7954	7972	7932	7836	7797	3659
35°	6949	6792	6376	5942	5824	4307
45°	4343	4667	4355	3844	3524	3447
55°	2578	2508	2481	2132	2029	2270
65°	1274	1256	1166	1135	1058	1303
75°	672	727	723	693	636	728
85°	198	225	232	203	189	215
90°	1	16	33	39	41	9
95°	1	2	4	4	2	0
105°	0	0	0	0	0	0
115°	0	0	0	0	0	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	



TEST NUMBER: P859965

CATALOG NUMBER: SPHB-18SE-M-L835-CD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	8880.2	8880.2	8880.2	8880.2	8880.2
2.5°	8874.3	8861.4	8873.2	8909.5	8920.0
5°	8863.8	8849.7	8861.4	8897.8	8911.8
7.5°	8827.5	8819.3	8831.0	8867.3	8884.9
10°	8770.1	8760.7	8779.5	8811.1	8833.3
12.5°	8684.6	8681.1	8698.6	8744.3	8753.7
15°	8576.8	8575.7	8599.1	8654.1	8658.8
17.5°	8455.0	8453.9	8483.1	8519.5	8506.6
20°	8307.5	8315.7	8349.6	8315.7	8282.9
22.5°	8130.6	8156.4	8164.6	8058.0	8041.6
25°	7953.8	7972.5	7931.5	7835.5	7796.8
27.5°	7725.4	7747.6	7671.5	7534.5	7424.4
30°	7504.0	7482.9	7327.2	7062.5	6909.0
32.5°	7249.9	7174.9	6895.0	6529.6	6390.2
35°	6948.8	6791.9	6376.1	5941.6	5824.5
37.5°	6568.2	6281.3	5826.8	5373.6	5196.7
40°	6030.6	5699.2	5277.5	4809.0	4613.4
42.5°	5277.5	5154.5	4805.5	4278.5	4045.4
45°	4342.9	4667.3	4354.6	3843.9	3524.2
47.5°	3717.5	4168.4	3792.4	3423.5	2983.1
50°	3224.4	3534.7	3270.0	2937.4	2587.2
52.5°	2868.3	2962.0	2855.4	2490.0	2290.9
55°	2577.9	2507.6	2480.6	2131.6	2028.6
57.5°	2217.1	2178.5	2109.4	1858.7	1722.9
60°	1799.0	1881.0	1703.0	1631.5	1414.8
62.5°	1478.1	1558.9	1368.0	1363.3	1182.9
65°	1274.3	1255.5	1166.5	1134.9	1057.6
67.5°	1127.9	1069.3	1038.9	997.9	970.9
70°	979.1	954.5	899.5	907.7	871.4
72.5°	816.3	848.0	792.9	808.1	742.6
75°	672.3	727.3	722.6	693.4	636.0
77.5°	554.0	612.5	623.1	596.2	549.3
80°	453.3	493.1	495.4	479.0	449.7
82.5°	332.6	356.1	373.6	345.5	326.8
85°	197.9	224.9	231.9	202.6	188.6
87.5°	64.4	90.2	100.7	104.2	105.4
90°	1.2	16.4	32.8	38.7	41.0
92.5°	1.2	4.7	7.0	10.5	11.7
95°	1.2	2.3	3.5	3.5	2.3
97.5°	0.0	0.0	0.0	0.0	0.0
100°	0.0	0.0	0.0	0.0	0.0
102.5°	0.0	0.0	0.0	0.0	0.0
105°	0.0	0.0	0.0	0.0	0.0



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CATALOG NUMBER: SPHB-18SE-M-L835-CD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.0	0.0	0.0	0.0	0.0
115°	0.0	0.0	0.0	0.0	0.0
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
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



Report Generated By 670246072 / DESKTOP-50001EG





— 0°-180° - - 45°-225° - - - 90°-270°







107.5°	0.0	0.0	0.0	0.0	0.0
110°	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

METALUX

Report Number: SP1-2404-343-4

Test Date: 05/20/2024

Luminaire Tested: SPHB-24SE-M-UNV-L835-CD

Data in this report applies to families of products SPHB-24SE-M-UNV-L835-CD.

Test Information

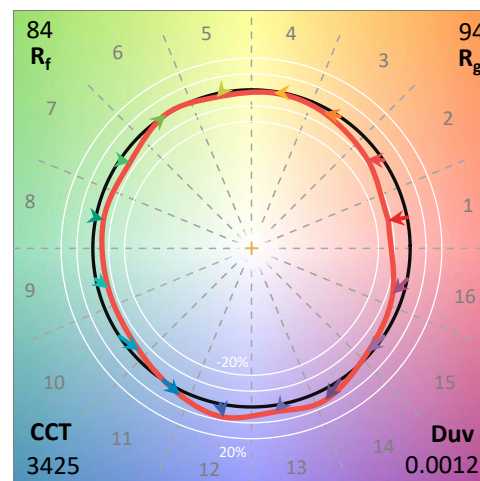
Test Method: LM-79-2019
 Report Number: SP1-2404-343-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 05/21/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: METALUX
 Catalog Number: **SPHB-24SE-M-UNV-L835-CD**
 Description: 18IN SPHB WITH MEDIUM LENS, 3500K/80CRI, 24K LUMENS, SE

Spectral Parameters

CCT (K): 3425
 CIE u': 0.2370
 CIE v': 0.5143
 Duv: 0.0012
 CIE x: 0.4108
 CIE y: 0.3961
 CIE z: 0.1931
 Peak Wavelength (nm): 598
 Dominant Wavelength (nm): 580
 Purity: 42.4
 Rf: 84.3
 Rg: 94.4

CRI (Ra): 82.9
 R1: 81.2
 R2: 90.5
 R3: 96.5
 R4: 80.4
 R5: 80.9
 R6: 87.3
 R7: 84.6
 R8: 61.9

R9: 8.8
 R10: 77.5
 R11: 79.1
 R12: 64.2
 R13: 83.5
 R14: 98.5



Test Conditions

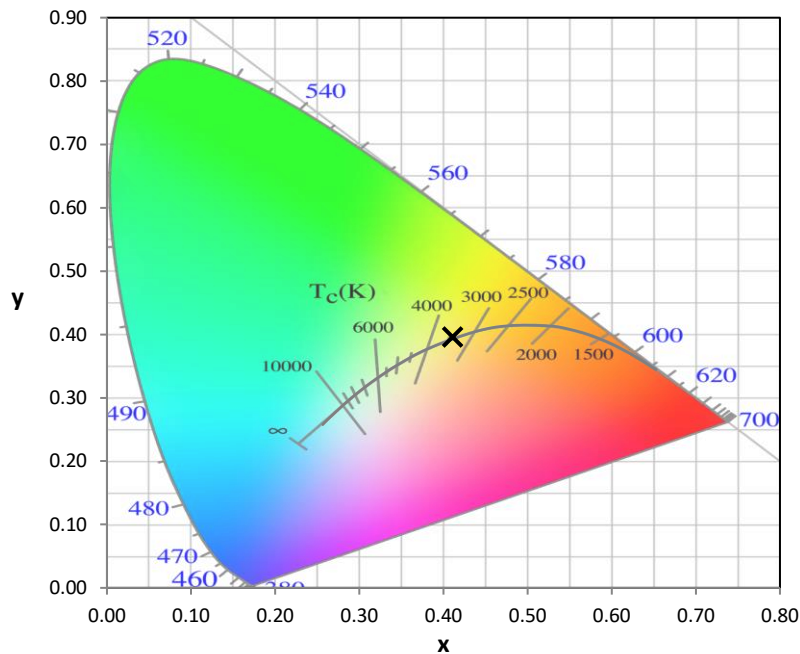
Stabilization Time: 27M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0/41%
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2404-343-4

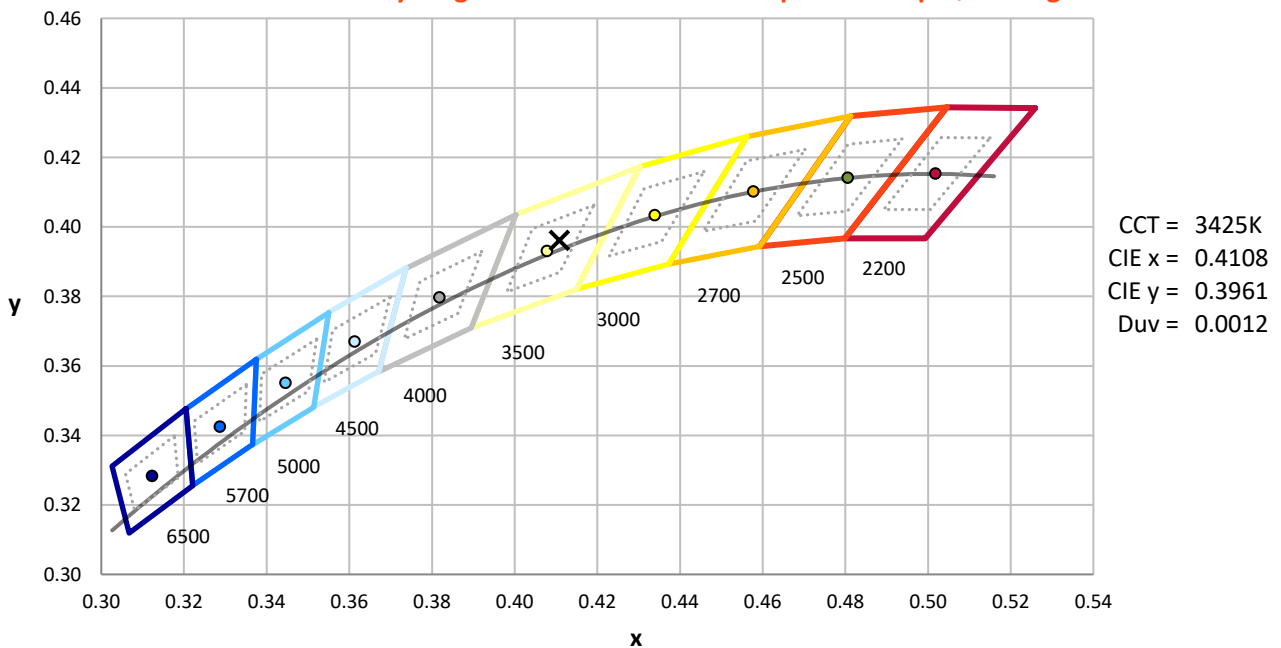
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	2/12/2024	8/12/2024
Power Meter	XITRON 2801 IN0071	10/23/2023	10/23/2024
AC Power Source	CHROMA 61603 IN0063	10/24/2023	10/24/2024
DC Power Source	AGILENT E3634A IN0208	10/24/2023	10/24/2024
Sphere Thermometer	ONSET IN0085	10/24/2023	10/24/2024
Room Thermometer	ONSET 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 3500K 4-step quadrangle

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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	6937	NR	490	86536	NR	620	285855	NR	750	14885	NR	880	8993	NR
365	5820	NR	495	100007	NR	625	270301	NR	755	13434	NR	885	6908	NR
370	6342	NR	500	117528	NR	630	253548	NR	760	12497	NR	890	6405	NR
375	7421	NR	505	135586	NR	635	235289	NR	765	11021	NR	895	6392	NR
380	6619	NR	510	153068	NR	640	217346	NR	770	9938	NR	900	5762	NR
385	5813	NR	515	167170	NR	645	198000	NR	775	9105	NR	905	5445	NR
390	5630	NR	520	178364	NR	650	180267	NR	780	8315	NR	910	6424	NR
395	4917	NR	525	186887	NR	655	162796	NR	785	8364	NR	915	5977	NR
400	4279	NR	530	194310	NR	660	143827	NR	790	7202	NR	920	5589	NR
405	4043	NR	535	201832	NR	665	127951	NR	795	7271	NR	925	6728	NR
410	4666	NR	540	208553	NR	670	112526	NR	800	6583	NR	930	7328	NR
415	6309	NR	545	216697	NR	675	97790	NR	805	6730	NR	935	5077	NR
420	9564	NR	550	224567	NR	680	85489	NR	810	7628	NR	940	5558	NR
425	16500	NR	555	235296	NR	685	74086	NR	815	6335	NR	945	2171	NR
430	28210	NR	560	246750	NR	690	65039	NR	820	5679	NR	950	10555	NR
435	47088	NR	565	258189	NR	695	56035	NR	825	6974	NR	955	8787	NR
440	76402	NR	570	270186	NR	700	49223	NR	830	7136	NR	960	6936	NR
445	124288	NR	575	282577	NR	705	43027	NR	835	5971	NR	965	8547	NR
450	197266	NR	580	295795	NR	710	38080	NR	840	6371	NR	970	7502	NR
455	240978	NR	585	304888	NR	715	33706	NR	845	6027	NR	975	8793	NR
460	199802	NR	590	313177	NR	720	29961	NR	850	6816	NR	980	5517	NR
465	147559	NR	595	317388	NR	725	26440	NR	855	6168	NR	985	4652	NR
470	121976	NR	600	317783	NR	730	23027	NR	860	6333	NR	990	7259	NR
475	97268	NR	605	315536	NR	735	20496	NR	865	6493	NR	995	11735	NR
480	80092	NR	610	309123	NR	740	18168	NR	870	7357	NR	1000	8351	NR
485	79203	NR	615	300672	NR	745	15812	NR	875	7188	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 25661.8

S/P: 1.51

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	6937	NR	490	86536	NR	620	285855	NR	750	14885	NR	880	8993	NR
365	5820	NR	495	100007	NR	625	270301	NR	755	13434	NR	885	6908	NR
370	6342	NR	500	117528	NR	630	253548	NR	760	12497	NR	890	6405	NR
375	7421	NR	505	135586	NR	635	235289	NR	765	11021	NR	895	6392	NR
380	6619	NR	510	153068	NR	640	217346	NR	770	9938	NR	900	5762	NR
385	5813	NR	515	167170	NR	645	198000	NR	775	9105	NR	905	5445	NR
390	5630	NR	520	178364	NR	650	180267	NR	780	8315	NR	910	6424	NR
395	4917	NR	525	186887	NR	655	162796	NR	785	8364	NR	915	5977	NR
400	4279	NR	530	194310	NR	660	143827	NR	790	7202	NR	920	5589	NR
405	4043	NR	535	201832	NR	665	127951	NR	795	7271	NR	925	6728	NR
410	4666	NR	540	208553	NR	670	112526	NR	800	6583	NR	930	7328	NR
415	6309	NR	545	216697	NR	675	97790	NR	805	6730	NR	935	5077	NR
420	9564	NR	550	224567	NR	680	85489	NR	810	7628	NR	940	5558	NR
425	16500	NR	555	235296	NR	685	74086	NR	815	6335	NR	945	2171	NR
430	28210	NR	560	246750	NR	690	65039	NR	820	5679	NR	950	10555	NR
435	47088	NR	565	258189	NR	695	56035	NR	825	6974	NR	955	8787	NR
440	76402	NR	570	270186	NR	700	49223	NR	830	7136	NR	960	6936	NR
445	124288	NR	575	282577	NR	705	43027	NR	835	5971	NR	965	8547	NR
450	197266	NR	580	295795	NR	710	38080	NR	840	6371	NR	970	7502	NR
455	240978	NR	585	304888	NR	715	33706	NR	845	6027	NR	975	8793	NR
460	199802	NR	590	313177	NR	720	29961	NR	850	6816	NR	980	5517	NR
465	147559	NR	595	317388	NR	725	26440	NR	855	6168	NR	985	4652	NR
470	121976	NR	600	317783	NR	730	23027	NR	860	6333	NR	990	7259	NR
475	97268	NR	605	315536	NR	735	20496	NR	865	6493	NR	995	11735	NR
480	80092	NR	610	309123	NR	740	18168	NR	870	7357	NR	1000	8351	NR
485	79203	NR	615	300672	NR	745	15812	NR	875	7188	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 10080.3 M/P: 0.59

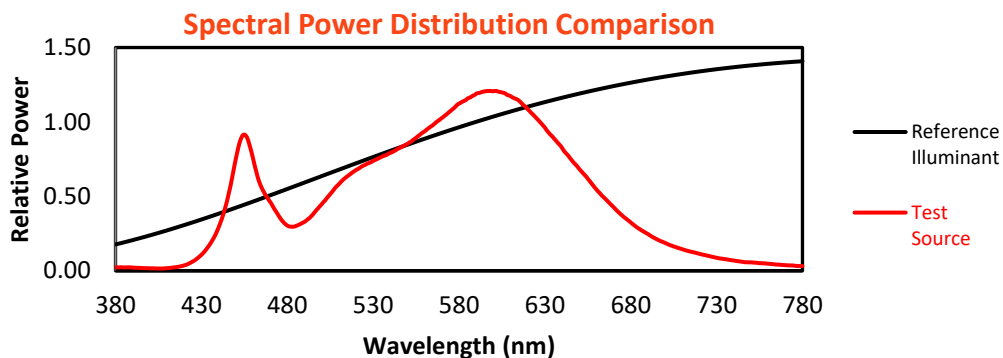
λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)	λ (nm)	Power (μW/nm)	Lumens (φ/nm)
360	6937	NR	490	86536	NR	620	285855	NR	750	14885	NR	880	8993	NR
365	5820	NR	495	100007	NR	625	270301	NR	755	13434	NR	885	6908	NR
370	6342	NR	500	117528	NR	630	253548	NR	760	12497	NR	890	6405	NR
375	7421	NR	505	135586	NR	635	235289	NR	765	11021	NR	895	6392	NR
380	6619	NR	510	153068	NR	640	217346	NR	770	9938	NR	900	5762	NR
385	5813	NR	515	167170	NR	645	198000	NR	775	9105	NR	905	5445	NR
390	5630	NR	520	178364	NR	650	180267	NR	780	8315	NR	910	6424	NR
395	4917	NR	525	186887	NR	655	162796	NR	785	8364	NR	915	5977	NR
400	4279	NR	530	194310	NR	660	143827	NR	790	7202	NR	920	5589	NR
405	4043	NR	535	201832	NR	665	127951	NR	795	7271	NR	925	6728	NR
410	4666	NR	540	208553	NR	670	112526	NR	800	6583	NR	930	7328	NR
415	6309	NR	545	216697	NR	675	97790	NR	805	6730	NR	935	5077	NR
420	9564	NR	550	224567	NR	680	85489	NR	810	7628	NR	940	5558	NR
425	16500	NR	555	235296	NR	685	74086	NR	815	6335	NR	945	2171	NR
430	28210	NR	560	246750	NR	690	65039	NR	820	5679	NR	950	10555	NR
435	47088	NR	565	258189	NR	695	56035	NR	825	6974	NR	955	8787	NR
440	76402	NR	570	270186	NR	700	49223	NR	830	7136	NR	960	6936	NR
445	124288	NR	575	282577	NR	705	43027	NR	835	5971	NR	965	8547	NR
450	197266	NR	580	295795	NR	710	38080	NR	840	6371	NR	970	7502	NR
455	240978	NR	585	304888	NR	715	33706	NR	845	6027	NR	975	8793	NR
460	199802	NR	590	313177	NR	720	29961	NR	850	6816	NR	980	5517	NR
465	147559	NR	595	317388	NR	725	26440	NR	855	6168	NR	985	4652	NR
470	121976	NR	600	317783	NR	730	23027	NR	860	6333	NR	990	7259	NR
475	97268	NR	605	315536	NR	735	20496	NR	865	6493	NR	995	11735	NR
480	80092	NR	610	309123	NR	740	18168	NR	870	7357	NR	1000	8351	NR
485	79203	NR	615	300672	NR	745	15812	NR	875	7188	NR			

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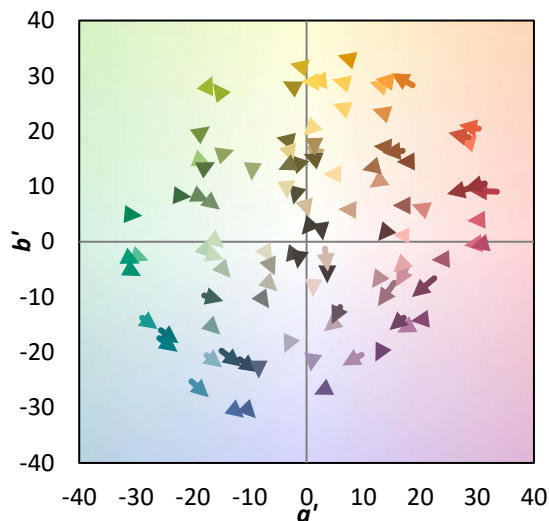
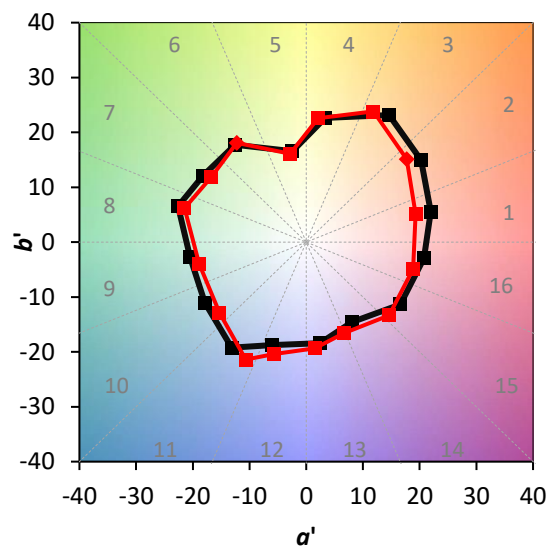
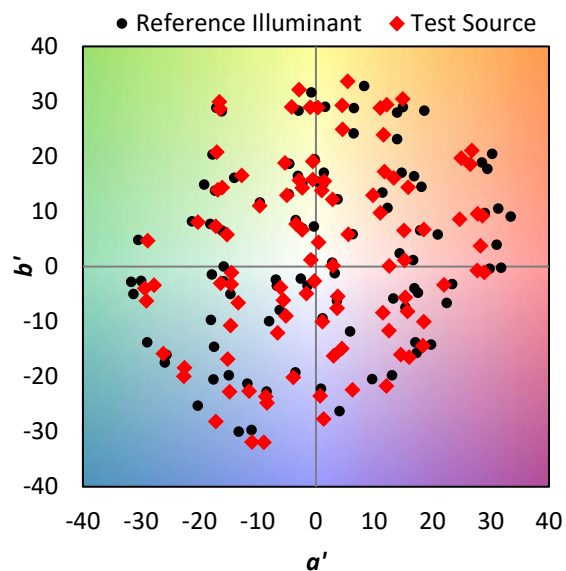
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Summary

$R_f = 84.3$
 $R_g = 94.4$
 CIE $R_a = 82.9$
 $R_9 = 8.8$



Color Vector Graphics

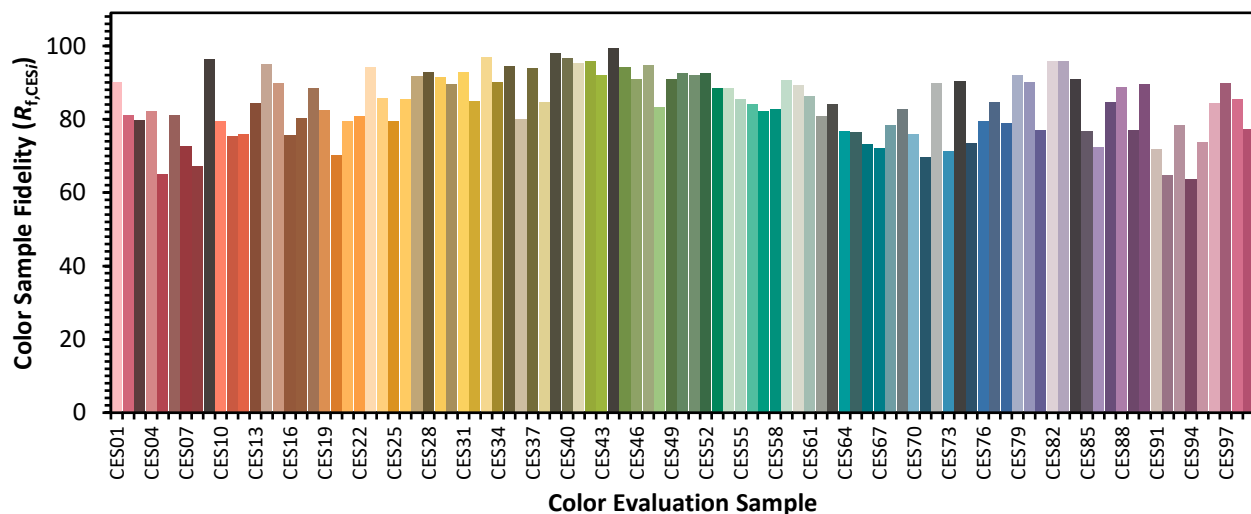


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Individual Sample Fidelity Index ($R_{f,i}$)

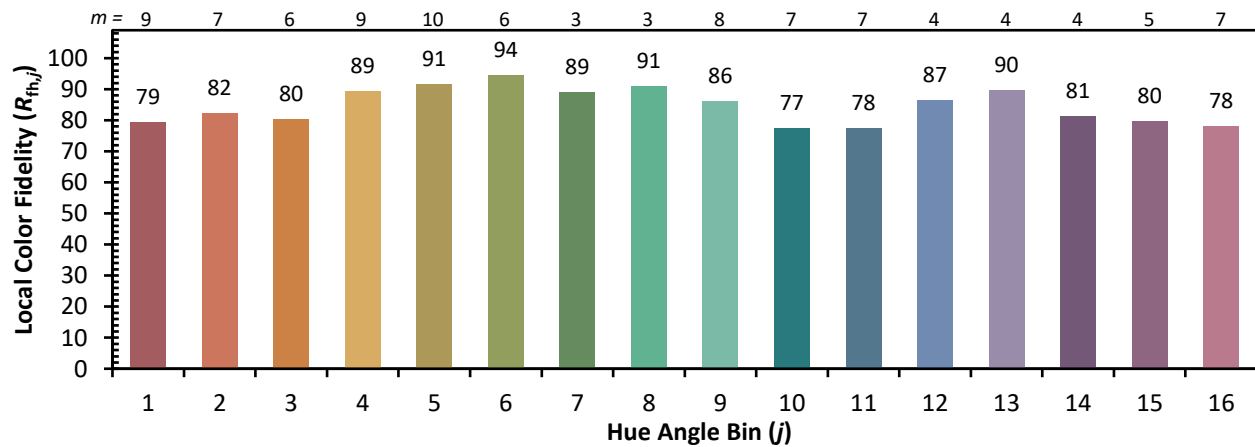
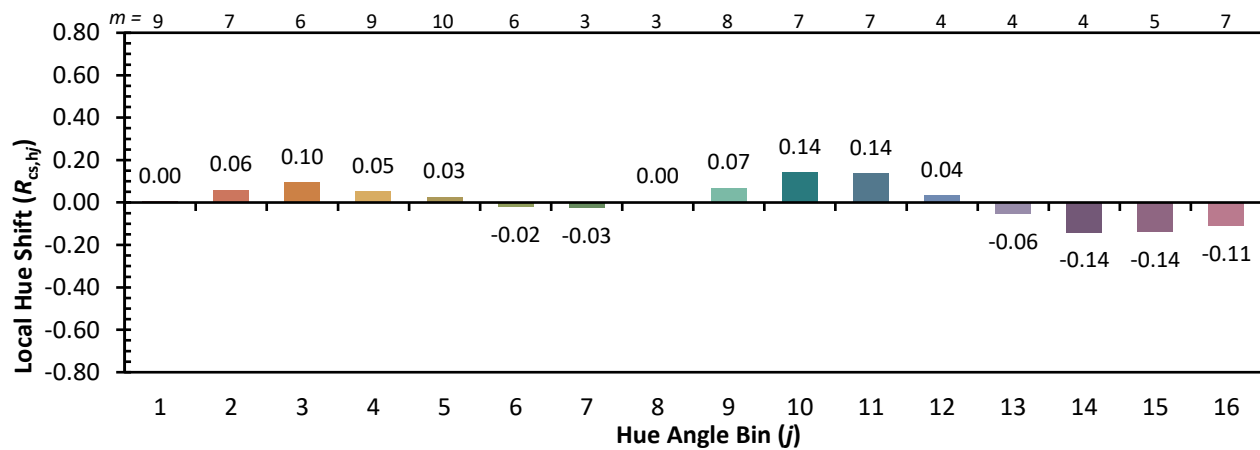
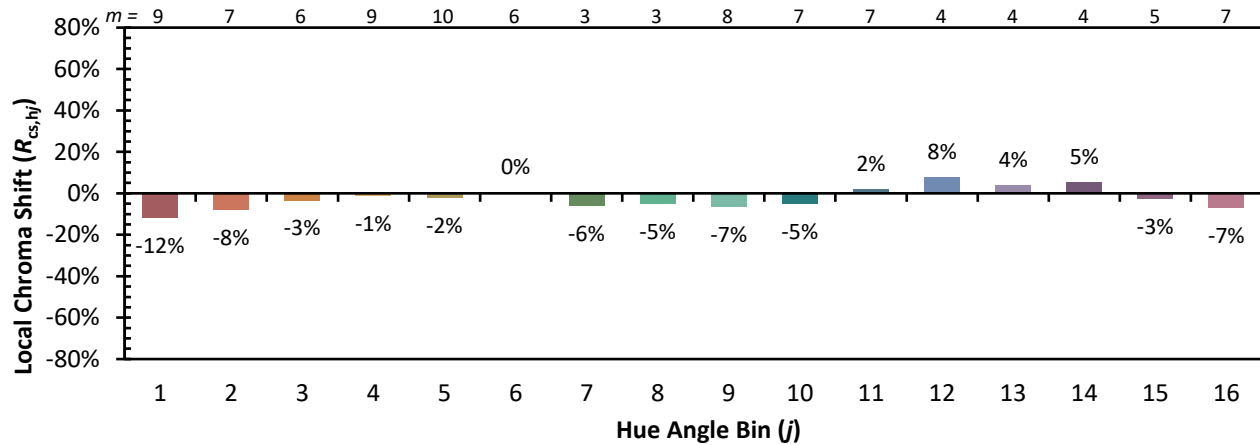
CES01 = 86	CES26 = 86	CES51 = 92	CES76 = 79
CES02 = 62	CES27 = 92	CES52 = 93	CES77 = 85
CES03 = 31	CES28 = 93	CES53 = 88	CES78 = 79
CES04 = 70	CES29 = 91	CES54 = 88	CES79 = 92
CES05 = 49	CES30 = 90	CES55 = 86	CES80 = 90
CES06 = 51	CES31 = 93	CES56 = 84	CES81 = 77
CES07 = 41	CES32 = 85	CES57 = 82	CES82 = 96
CES08 = 40	CES33 = 97	CES58 = 83	CES83 = 96
CES09 = 29	CES34 = 90	CES59 = 91	CES84 = 91
CES10 = 75	CES35 = 94	CES60 = 89	CES85 = 77
CES11 = 58	CES36 = 80	CES61 = 86	CES86 = 72
CES12 = 64	CES37 = 94	CES62 = 81	CES87 = 85
CES13 = 43	CES38 = 85	CES63 = 84	CES88 = 89
CES14 = 74	CES39 = 98	CES64 = 77	CES89 = 77
CES15 = 71	CES40 = 97	CES65 = 76	CES90 = 90
CES16 = 47	CES41 = 95	CES66 = 73	CES91 = 72
CES17 = 50	CES42 = 96	CES67 = 72	CES92 = 65
CES18 = 56	CES43 = 92	CES68 = 78	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 83	CES94 = 64
CES20 = 66	CES45 = 94	CES70 = 76	CES95 = 74
CES21 = 86	CES46 = 91	CES71 = 70	CES96 = 84
CES22 = 78	CES47 = 95	CES72 = 90	CES97 = 90
CES23 = 92	CES48 = 83	CES73 = 71	CES98 = 86
CES24 = 91	CES49 = 91	CES74 = 90	CES99 = 77
CES25 = 72	CES50 = 93	CES75 = 74	



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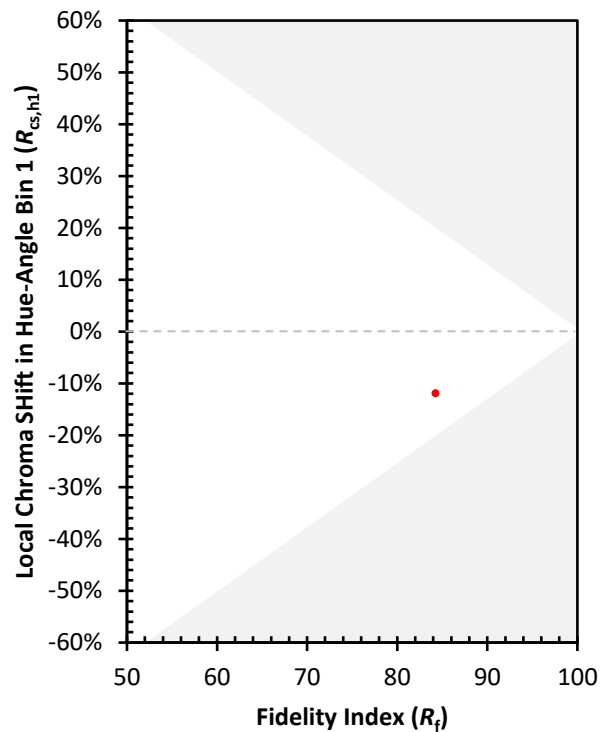
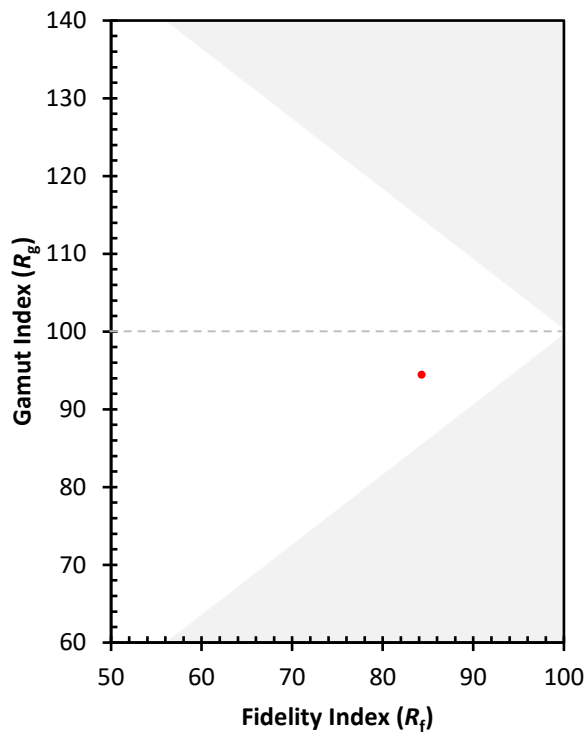
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)