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: McGRAW-EDISON

Report Number: P832688

Luminaire Tested: **TTN-D3-740-U-RW-CG**

Issue Date: 5/14/2024

Report Generated By 670246001

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

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P832688
	TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2312-254-14)
Test Lab:	INNOVATION CENTER
Issue Date:	5/14/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	McGRAW-EDISON
Catalog Number:	TTN-D3-740-U-RW-CG
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE
	4000K, 70 CRI LEDS AND RECTANGULAR DISTRIBUTION WITH CLEAR GLASS
Light Source:	-
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	6433 lumens
Efficiency:	N/A
Efficacy:	108.7 lumens/watt
Luminous Opening:	Circular (Dia: 0.71' x H: 0')
IES Classification:	Type II - Short
BUG Rating:	B3 - U0 - G3

Input Watts (W):	59.2
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:	24 FT

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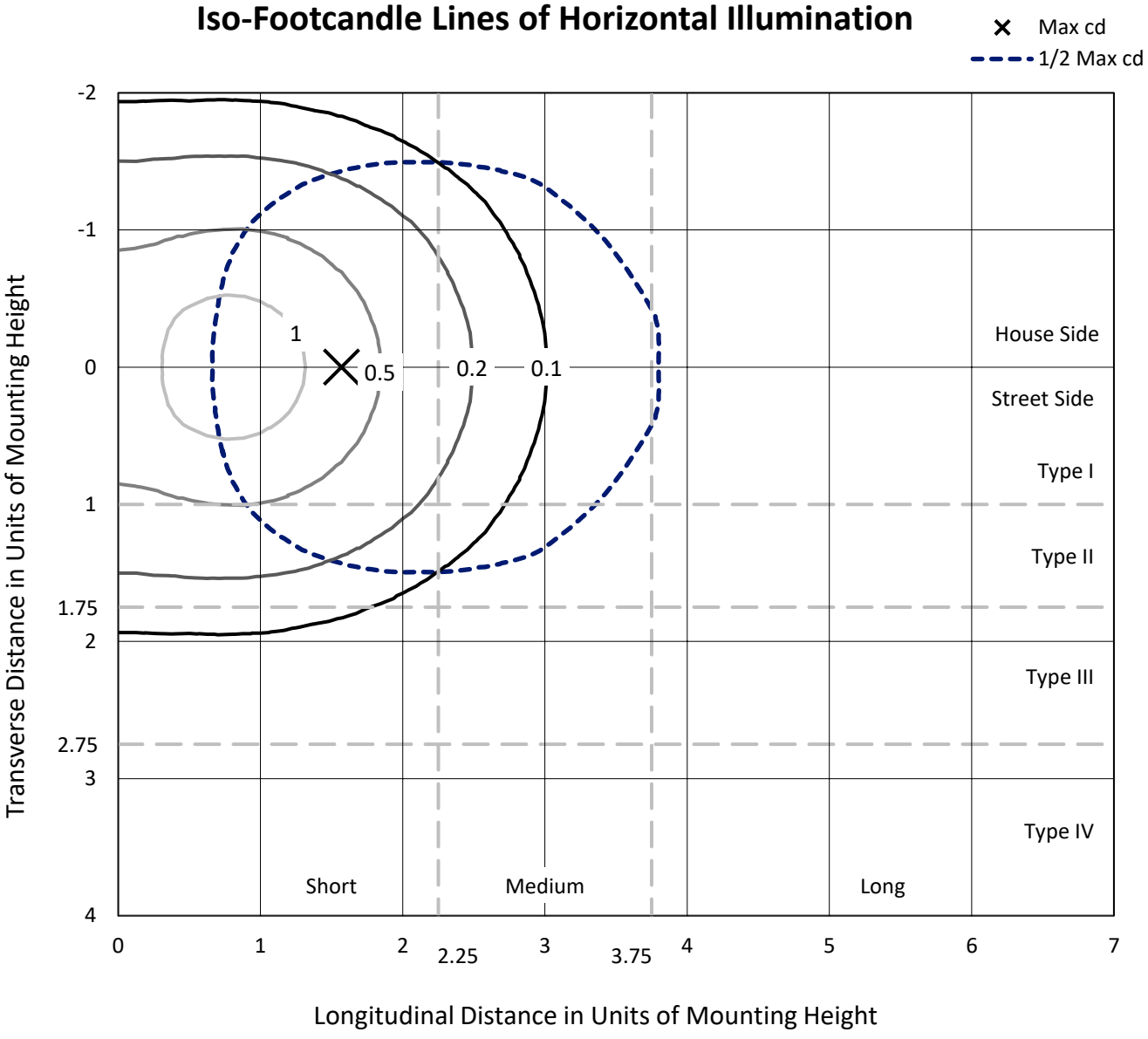
Scaled Data Report

REPORT NUMBER: P832688
CATALOG NUMBER: TTN-D3-740-U-RW-CG

Iso-Footcandle Lines of Horizontal Illumination



Based on 25 foot mounting height. Maximum calculated value = 1.4 fc
Type II - Short - N/A

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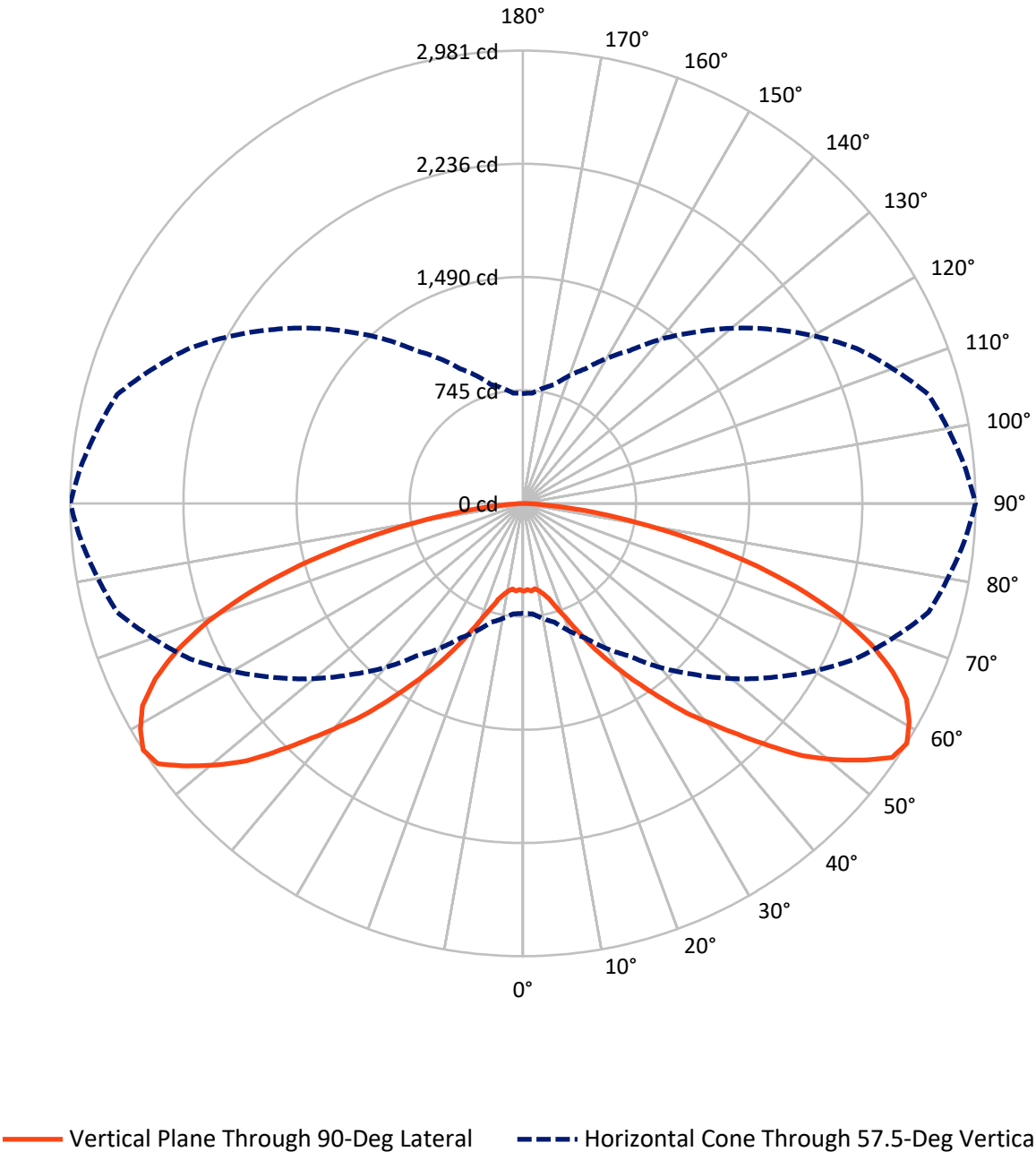
Luminous Intensity Polar Plot



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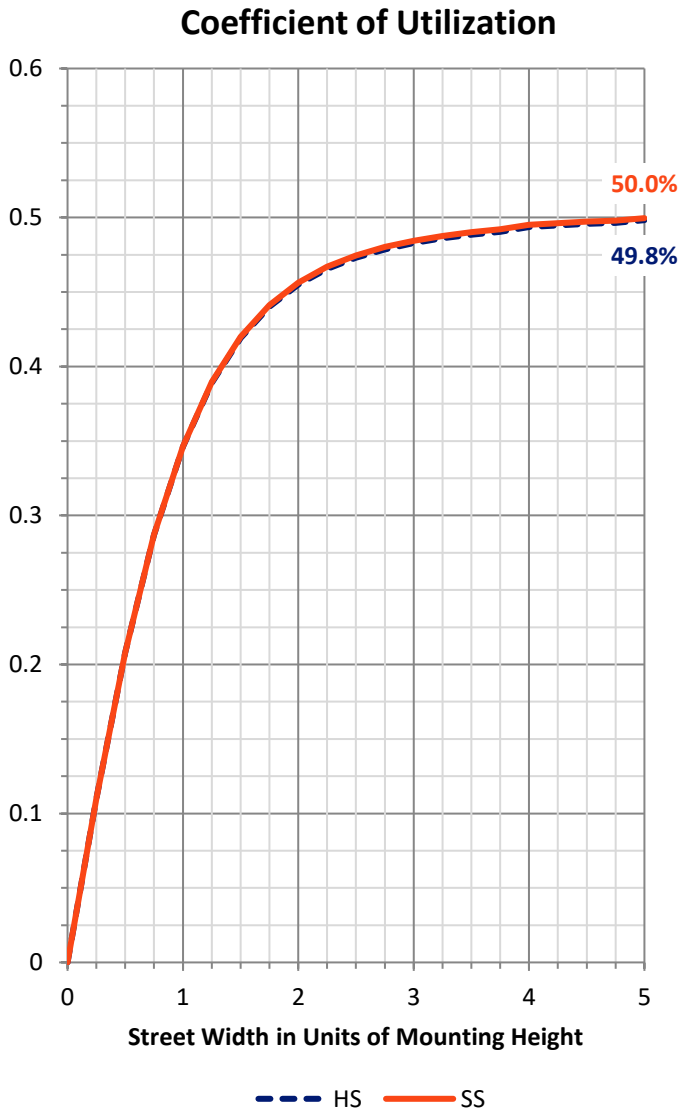
REPORT NUMBER: P832688
CATALOG NUMBER: TTN-D3-740-U-RW-CG

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3216.5	0.0	3216.5
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3216.5	0.0	3216.5
	% Fixture	50.0	0.0	50.0
Total	Lumens	6433.0	0.0	6433.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	55.1	0.9
10°-20°	177.7	2.8
20°-30°	378.3	5.9
30°-40°	697.3	10.8
40°-50°	1122.7	17.5
50°-60°	1519.5	23.6
60°-70°	1477.4	23.0
70°-80°	859.6	13.4
80°-90°	145.3	2.3
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°	6433.0	100.0
0°-180°	6433.0	100.0



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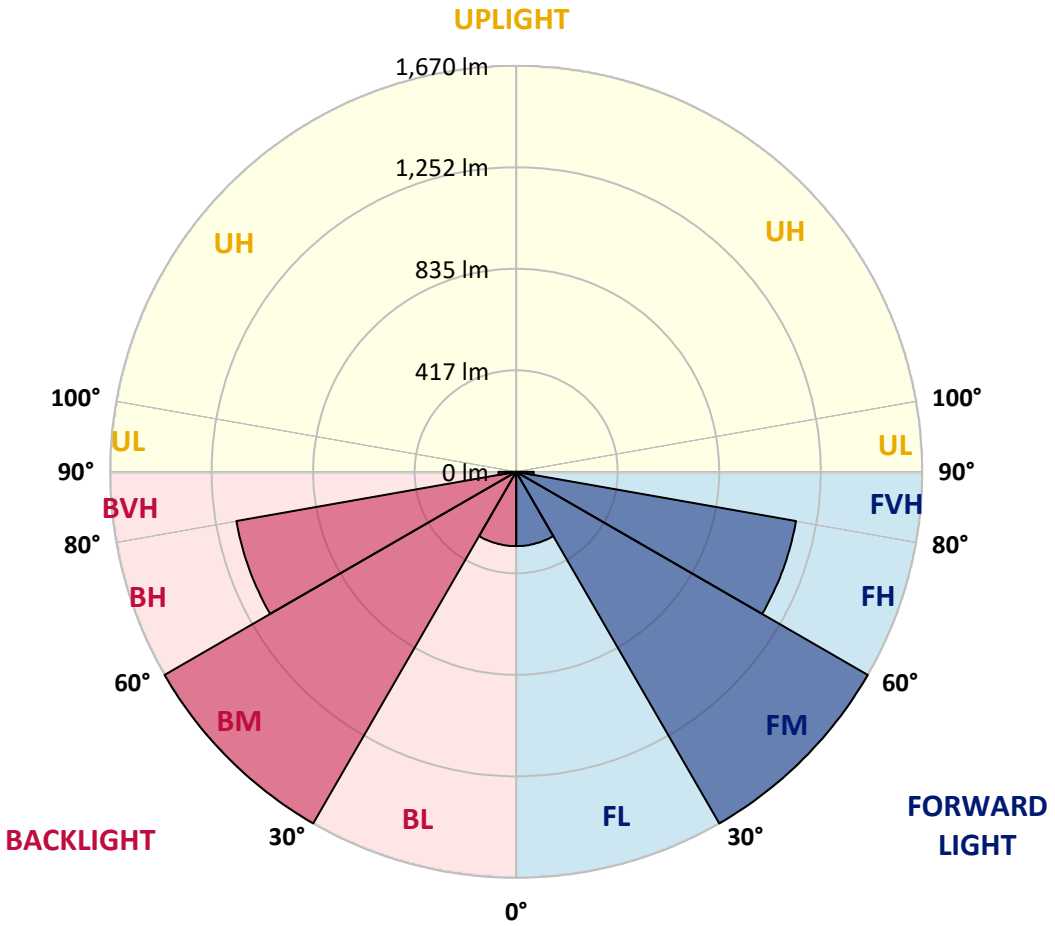
Scaled Data Report

REPORT NUMBER: P832688
CATALOG NUMBER: TTN-D3-740-U-RW-CG

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	305.6	4.8			
FM	(30°-60°)	1669.7	26.0			
FH	(60°-80°)	1168.5	18.2			G1/1800
FVH	(80°-90°)	72.7	1.1			G1/100
BL	(0°-30°)	305.6	4.8	B1/500		
BM	(30°-60°)	1669.7	26.0	B2/2500		
BH	(60°-80°)	1168.5	18.2	B3/2500		G3/2500
BVH	(80°-90°)	72.7	1.1			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3
Type II Short



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REPORT NUMBER: P832688
CATALOG NUMBER: TTN-D3-740-U-RW-CG

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	578.8	578.8	578.8	578.8	578.8	578.8	578.8	578.8	578.8	578.8	*578.8*
2.5°	578.8	578.8	578.8	578.8	573.0	573.0	573.0	567.2	567.2	567.2	*567.2*
5°	578.8	578.8	578.8	584.6	584.6	584.6	578.8	578.8	578.8	578.8	*578.8*
7.5°	578.8	584.6	584.6	578.8	578.8	573.0	573.0	573.0	567.2	567.2	*567.2*
10°	578.8	578.8	578.8	578.8	573.0	573.0	578.8	578.8	584.6	584.6	*584.6*
12.5°	573.0	573.0	578.8	578.8	578.8	584.6	596.2	602.0	607.7	613.5	*613.5*
15°	578.8	578.8	584.6	590.4	596.2	607.7	625.1	642.5	654.0	659.8	*654.0*
17.5°	578.8	584.6	590.4	602.0	619.3	636.7	665.6	688.8	711.9	717.7	*723.5*
20°	590.4	590.4	596.2	619.3	648.3	677.2	717.7	758.2	787.2	798.8	*798.8*
22.5°	596.2	602.0	607.7	636.7	683.0	729.3	787.2	833.5	874.0	897.1	*902.9*
25°	613.5	613.5	625.1	665.6	723.5	793.0	868.2	937.7	989.8	1018.7	*1024.5*
27.5°	625.1	630.9	648.3	700.4	775.6	862.4	966.6	1047.6	1111.3	1146.0	*1151.8*
30°	636.7	642.5	677.2	735.1	827.7	931.9	1053.4	1157.6	1238.6	1279.2	*1284.9*
32.5°	654.0	659.8	700.4	764.0	874.0	1001.3	1140.2	1267.6	1383.3	1418.1	*1423.9*
35°	671.4	677.2	723.5	798.8	926.1	1070.8	1232.9	1383.3	1522.3	1568.6	*1580.1*
37.5°	688.8	694.6	740.9	833.5	978.2	1146.0	1337.0	1516.5	1667.0	1730.6	*1748.0*
40°	706.1	711.9	764.0	868.2	1030.3	1227.1	1447.0	1643.8	1817.4	1892.7	*1904.3*
42.5°	717.7	723.5	781.4	897.1	1082.4	1302.3	1562.8	1782.7	1967.9	2066.3	*2077.9*
45°	735.1	740.9	804.5	937.7	1128.7	1389.1	1672.7	1939.0	2153.2	2263.1	*2274.7*
47.5°	746.7	752.4	821.9	960.8	1180.8	1470.2	1788.5	2077.9	2332.6	2448.3	*2483.1*
50°	752.4	758.2	833.5	984.0	1215.5	1528.0	1881.1	2216.8	2488.9	2633.6	*2650.9*
52.5°	752.4	764.0	839.3	1001.3	1238.6	1580.1	1956.4	2332.6	2639.4	2801.4	*2807.2*
55°	746.7	752.4	833.5	995.5	1250.2	1603.3	2008.5	2402.0	2743.5	2899.8	*2951.9*
57.5°	*723.5*	*729.3*	*810.3*	*978.2*	*1227.1*	*1591.7*	*1996.9*	*2419.4*	*2766.7*	*2917.2*	*2980.8*
60°	688.8	700.4	775.6	937.7	1192.3	1551.2	1962.1	2384.7	2732.0	2917.2	*2923.0*
62.5°	648.3	654.0	729.3	885.6	1140.2	1487.5	1898.5	2315.2	2650.9	2841.9	*2836.1*
65°	590.4	596.2	659.8	821.9	1047.6	1366.0	1771.1	2205.2	2494.6	2697.2	*2679.9*
67.5°	526.7	532.5	590.4	735.1	937.7	1232.9	1597.5	2020.0	2274.7	2483.1	*2471.5*
70°	457.3	457.3	509.3	630.9	821.9	1082.4	1406.5	1776.9	2031.6	2205.2	*2211.0*
72.5°	376.2	376.2	422.5	526.7	688.8	908.7	1186.6	1516.5	1724.8	1875.3	*1886.9*
75°	295.2	289.4	329.9	416.7	544.1	723.5	937.7	1221.3	1383.3	1528.0	*1522.3*
77.5°	208.4	208.4	231.5	301.0	393.6	538.3	694.6	920.3	1030.3	1151.8	*1128.7*
80°	133.1	133.1	144.7	196.8	260.5	358.9	457.3	625.1	700.4	793.0	*764.0*
82.5°	69.5	63.7	75.2	104.2	138.9	196.8	254.7	364.6	399.4	468.8	*445.7*
85°	23.2	23.2	23.2	34.7	52.1	75.2	98.4	156.3	162.1	208.4	*191.0*
87.5°	5.8	0.0	0.0	5.8	5.8	5.8	5.8	17.4	17.4	34.7	*23.2*
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*0.0*

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Peachtree City, GA 30269

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

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2411-284-2

Test Date: 11/20/2024

Luminaire Tested: TTN-D0-740-U-WQ

Data in this report applies to TT and TTN families of products

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

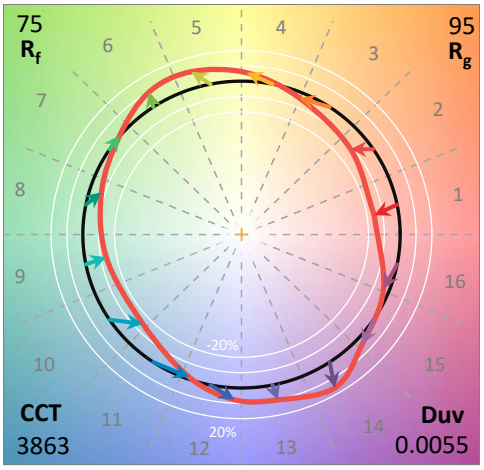
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2411-284-2
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	11/20/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	MCGRAW EDISON
Catalog Number:	**TTN-D0-740-U-WQ**
Description:	TOPTIER NANO LED PARKING GARAGE LUMINAIRE. 4000K, 70 CRI LEDS AND WIDE DISTRIBUTION

Spectral Parameters

CCT (K):	3863
CIE u':	0.2247
CIE v':	0.5111
Duv:	0.0055
CIE x:	0.3911
CIE y:	0.3954
CIE z:	0.2136
Peak Wavelength (nm):	448
Dominant Wavelength (nm):	577
Purity:	36.03443
Rf:	74.7
Rg:	95.4

CRI (Ra):	71.9
R1:	69.4
R2:	76.9
R3:	83.3
R4:	72.7
R5:	68.4
R6:	67.5
R7:	82.0
R8:	55.3
R9:	-23.5
R10:	45.4
R11:	68.7
R12:	38.7
R13:	70.0
R14:	90.3
R15:	62.1



Test Conditions

Stabilization Time:	37M
Operation Time:	1H 37M
Sphere Temperature (°C):	25.0

REPORT NUMBER: SP1-2411-284-2

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/22/2024	10/22/2025
DC Power Source	IN0208	10/22/2024	10/22/2025
Sphere Thermometer	IN0085	10/22/2024	10/22/2025
Room Thermometer	IN0046	10/22/2024	10/22/2025

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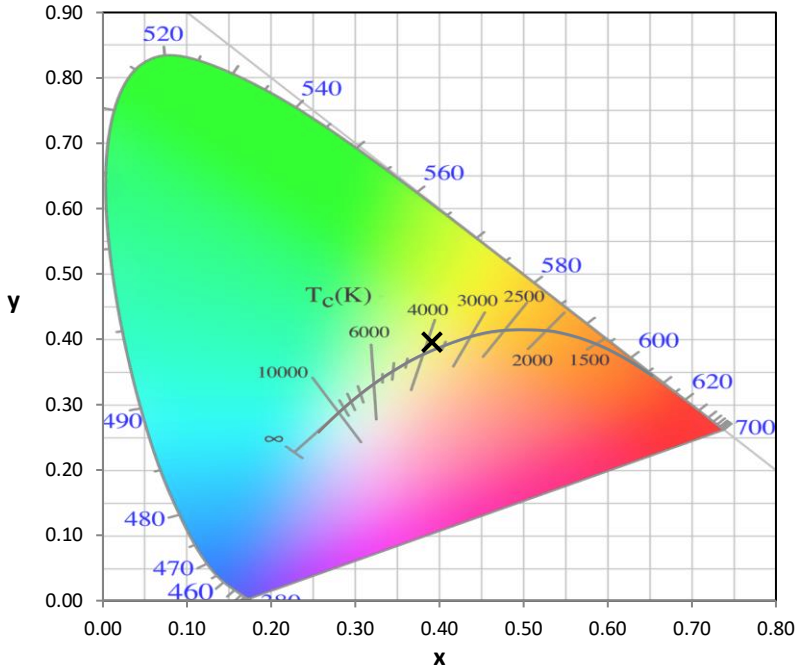
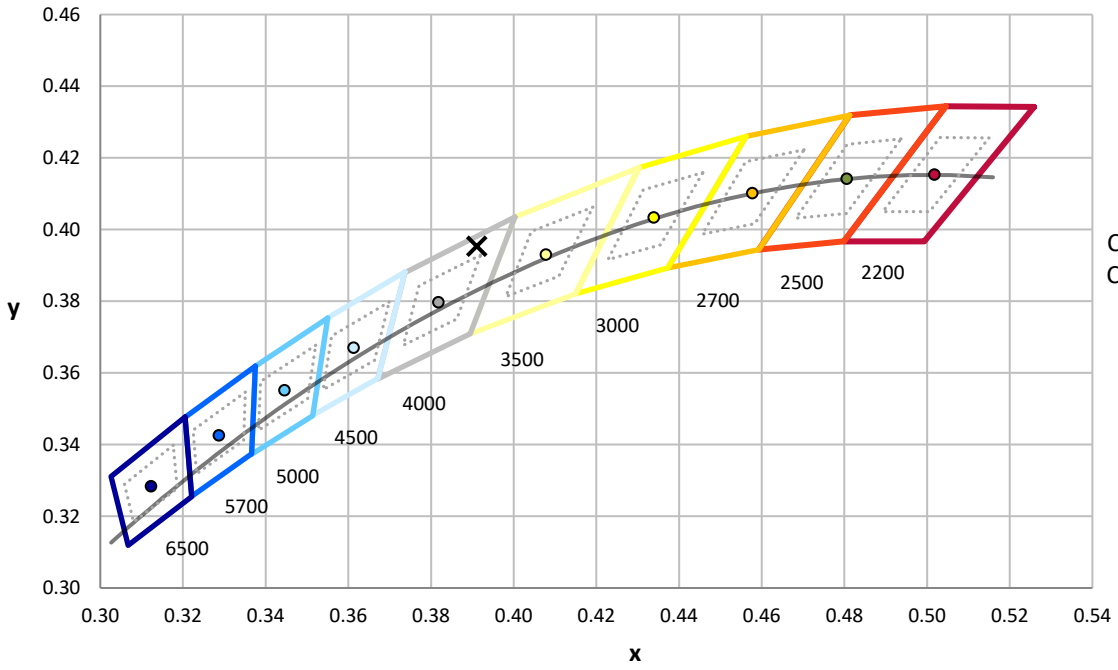
CIE 1931 Chromaticity Diagram



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

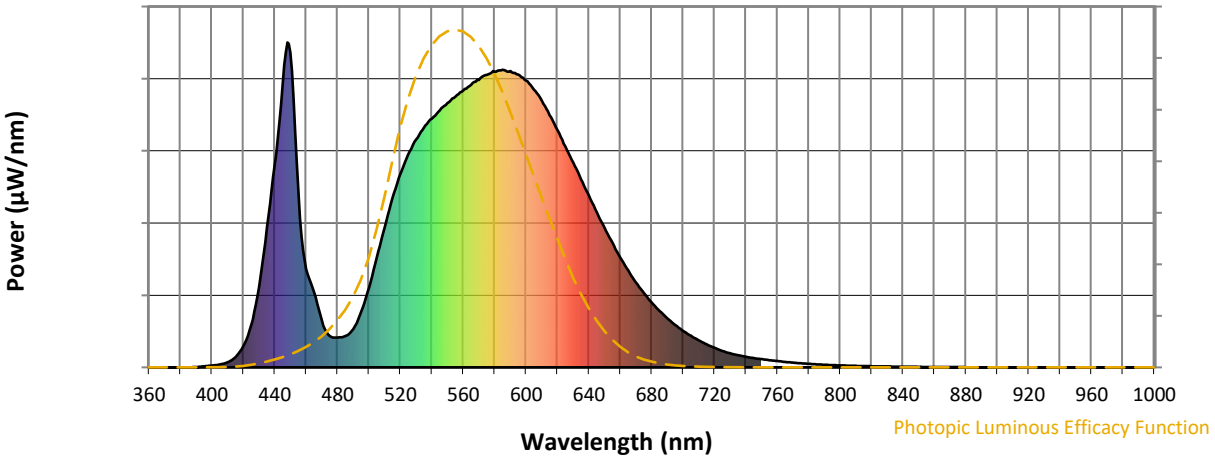


CCT = 3863K
CIE x = 0.3911
CIE y = 0.3954
Duv = 0.0055

Point lies inside the ANSI 4000K 7-step quadrangle

REPORT NUMBER: SP1-2411-284-2

Photopic Flux vs. Wavelength

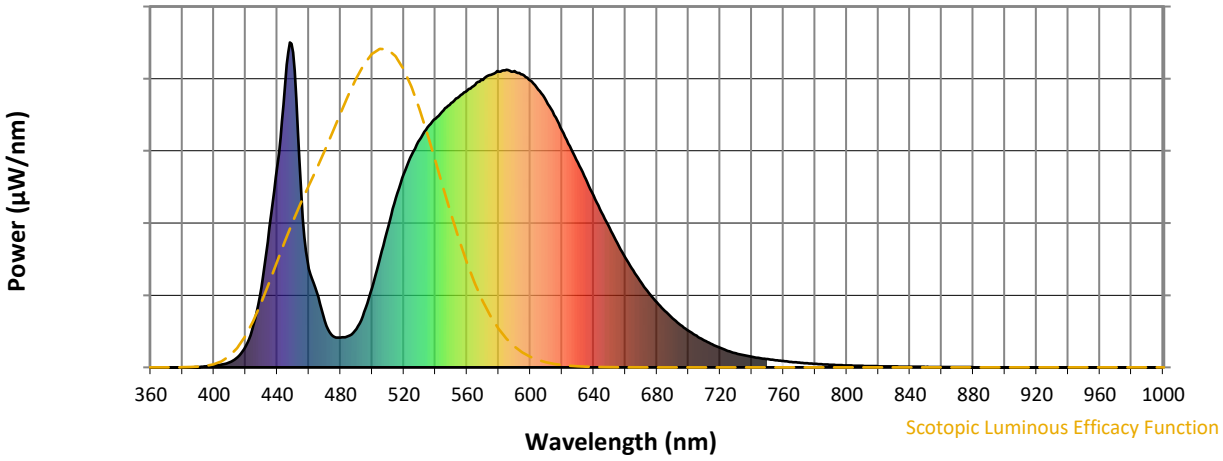


Photopic Lumens: NR

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	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-2

Scotopic Flux vs. Wavelength

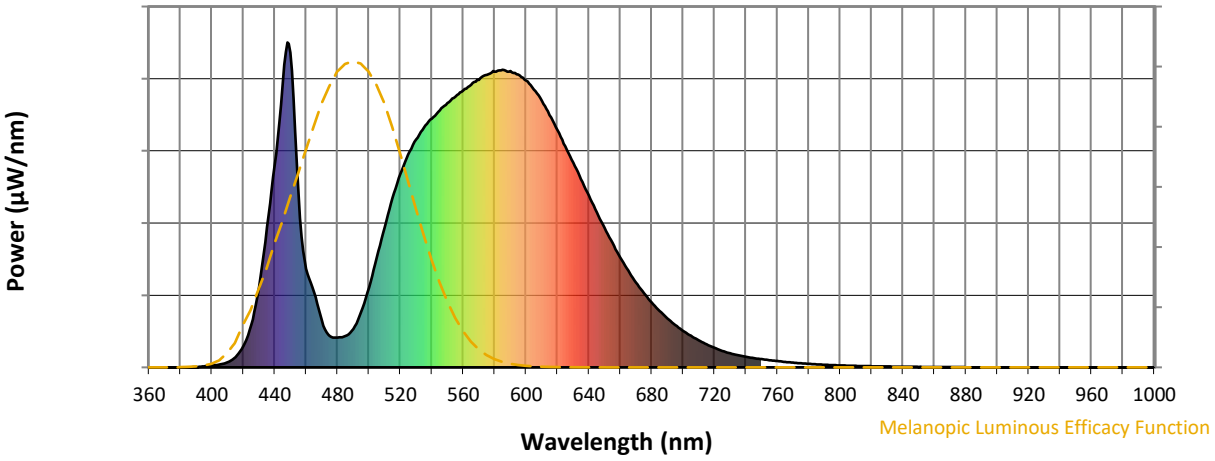


Scotopic Lumens: NR **S/P: 1.45**

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	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

REPORT NUMBER: SP1-2411-284-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.72**

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	118	NR	620	730	NR	750	25	NR	880	1	NR
365	0	NR	495	170	NR	625	680	NR	755	22	NR	885	0	NR
370	0	NR	500	245	NR	630	630	NR	760	19	NR	890	0	NR
375	0	NR	505	338	NR	635	579	NR	765	17	NR	895	0	NR
380	0	NR	510	431	NR	640	529	NR	770	14	NR	900	0	NR
385	0	NR	515	521	NR	645	477	NR	775	13	NR	905	0	NR
390	1	NR	520	596	NR	650	429	NR	780	11	NR	910	0	NR
395	3	NR	525	655	NR	655	383	NR	785	9	NR	915	0	NR
400	6	NR	530	701	NR	660	338	NR	790	8	NR	920	0	NR
405	9	NR	535	739	NR	665	298	NR	795	7	NR	925	0	NR
410	16	NR	540	766	NR	670	261	NR	800	6	NR	930	0	NR
415	32	NR	545	791	NR	675	228	NR	805	5	NR	935	0	NR
420	65	NR	550	813	NR	680	200	NR	810	5	NR	940	0	NR
425	131	NR	555	833	NR	685	173	NR	815	4	NR	945	0	NR
430	245	NR	560	852	NR	690	151	NR	820	3	NR	950	0	NR
435	432	NR	565	870	NR	695	130	NR	825	3	NR	955	0	NR
440	622	NR	570	885	NR	700	112	NR	830	3	NR	960	0	NR
445	870	NR	575	900	NR	705	97	NR	835	2	NR	965	0	NR
450	969	NR	580	911	NR	710	83	NR	840	2	NR	970	0	NR
455	544	NR	585	916	NR	715	71	NR	845	2	NR	975	0	NR
460	304	NR	590	912	NR	720	60	NR	850	1	NR	980	0	NR
465	231	NR	595	901	NR	725	51	NR	855	1	NR	985	0	NR
470	142	NR	600	882	NR	730	43	NR	860	1	NR	990	0	NR
475	96	NR	605	855	NR	735	37	NR	865	1	NR	995	0	NR
480	92	NR	610	820	NR	740	32	NR	870	1	NR	1000	0	NR
485	96	NR	615	776	NR	745	29	NR	875	1	NR			

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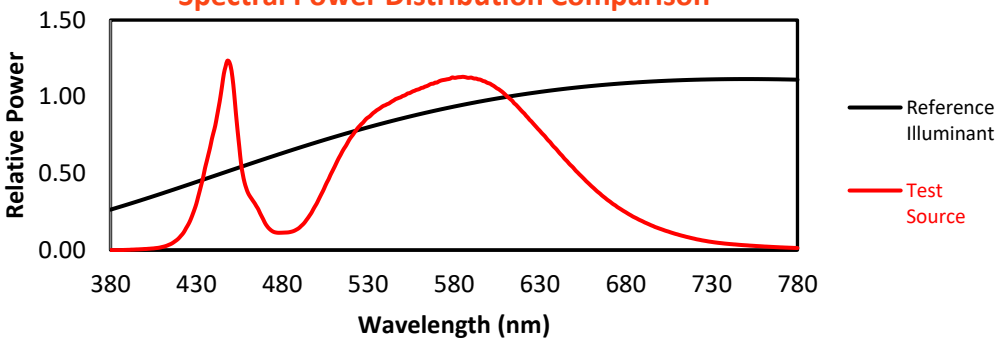
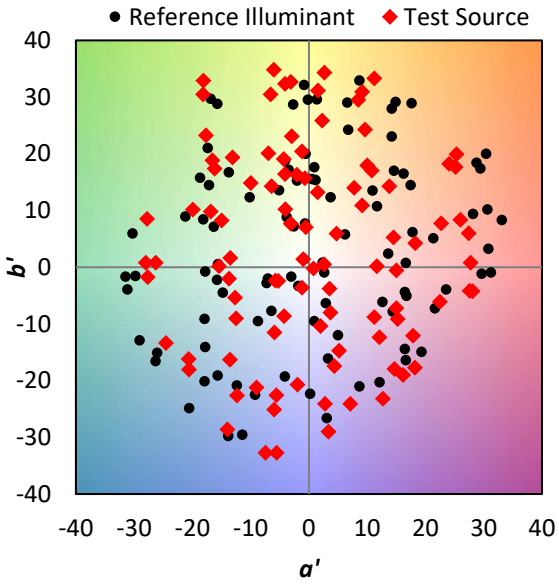
Summary

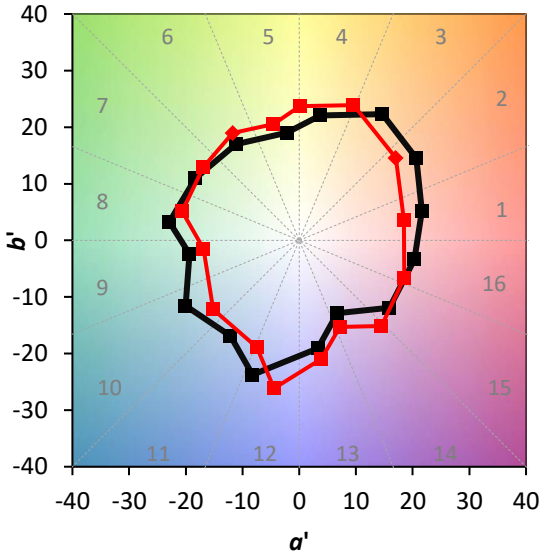
R_f = 74.7
R_g = 95.4
CIE R_a = 71.9
R_9 = -23.5

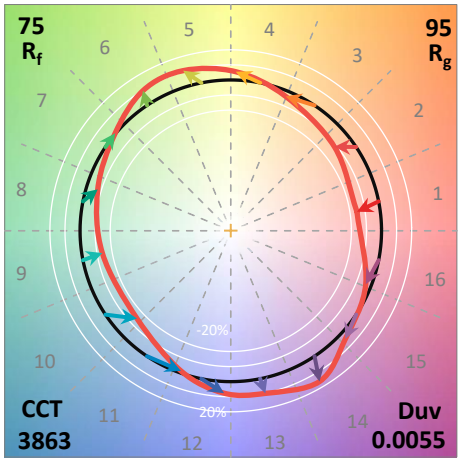
Spectral Power Distribution Comparison

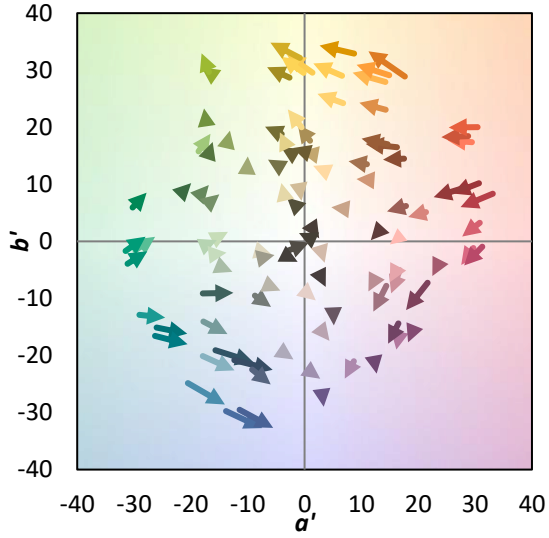


Color Vector Graphics









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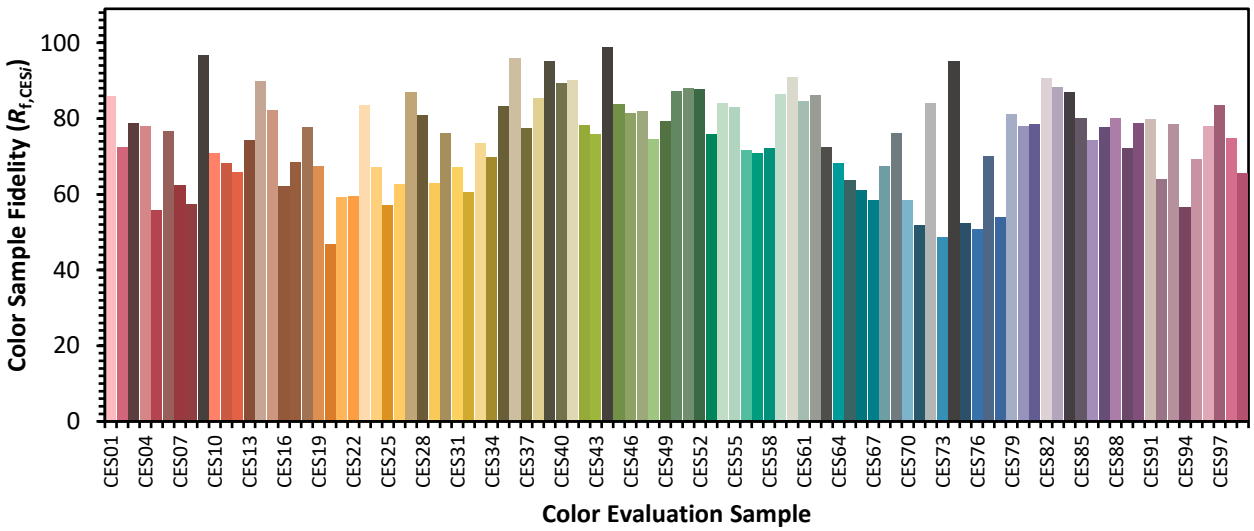
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 63	CES51 = 88	CES76 = 51
CES02 = 61	CES27 = 87	CES52 = 88	CES77 = 70
CES03 = 30	CES28 = 81	CES53 = 76	CES78 = 54
CES04 = 70	CES29 = 63	CES54 = 84	CES79 = 81
CES05 = 47	CES30 = 76	CES55 = 83	CES80 = 78
CES06 = 50	CES31 = 67	CES56 = 72	CES81 = 79
CES07 = 40	CES32 = 61	CES57 = 71	CES82 = 91
CES08 = 39	CES33 = 73	CES58 = 72	CES83 = 88
CES09 = 29	CES34 = 70	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 83	CES60 = 91	CES85 = 80
CES11 = 57	CES36 = 96	CES61 = 85	CES86 = 74
CES12 = 63	CES37 = 77	CES62 = 86	CES87 = 78
CES13 = 42	CES38 = 85	CES63 = 72	CES88 = 80
CES14 = 74	CES39 = 95	CES64 = 68	CES89 = 72
CES15 = 71	CES40 = 89	CES65 = 64	CES90 = 79
CES16 = 46	CES41 = 90	CES66 = 61	CES91 = 80
CES17 = 49	CES42 = 78	CES67 = 58	CES92 = 64
CES18 = 56	CES43 = 76	CES68 = 67	CES93 = 78
CES19 = 71	CES44 = 99	CES69 = 76	CES94 = 57
CES20 = 65	CES45 = 84	CES70 = 58	CES95 = 69
CES21 = 86	CES46 = 81	CES71 = 52	CES96 = 78
CES22 = 78	CES47 = 82	CES72 = 84	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 49	CES98 = 75
CES24 = 91	CES49 = 79	CES74 = 95	CES99 = 66
CES25 = 72	CES50 = 87	CES75 = 52	



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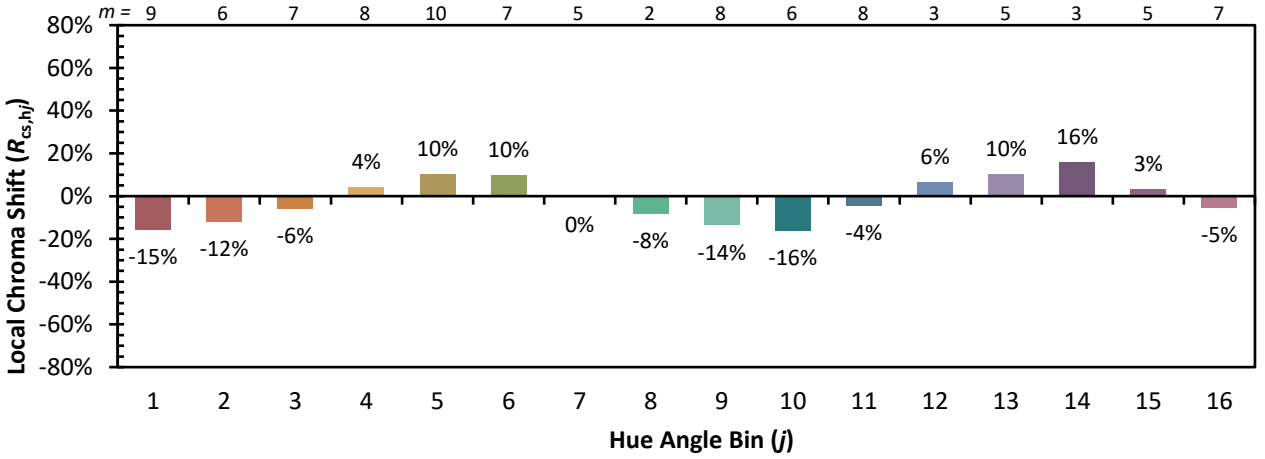
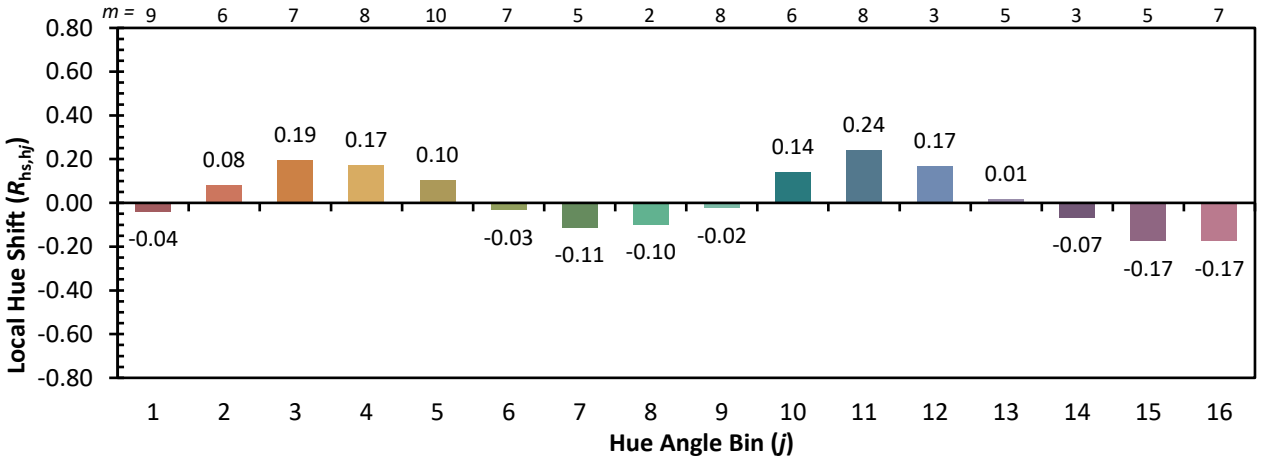
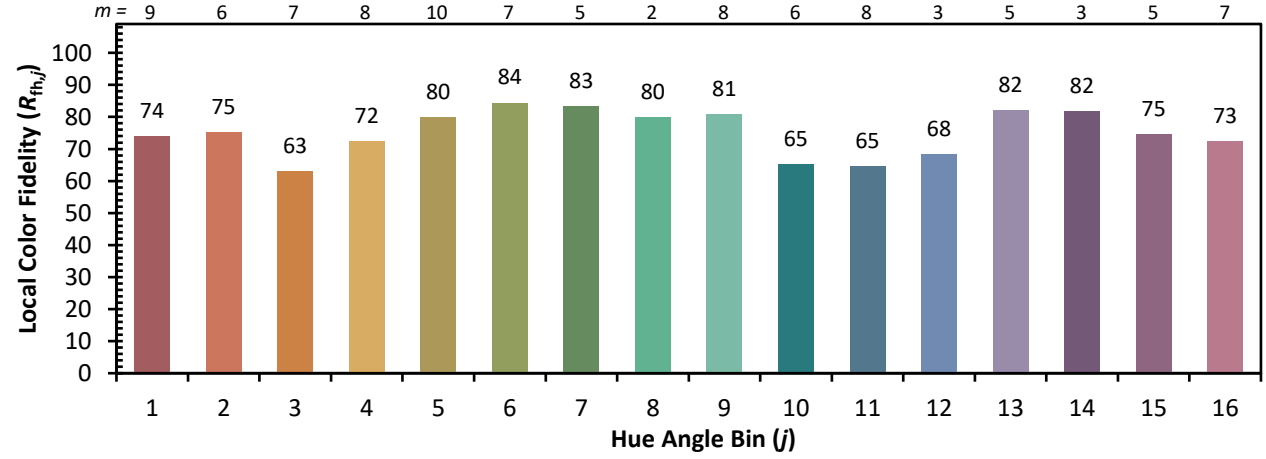
Color Rendition by Hue-Angle Bin







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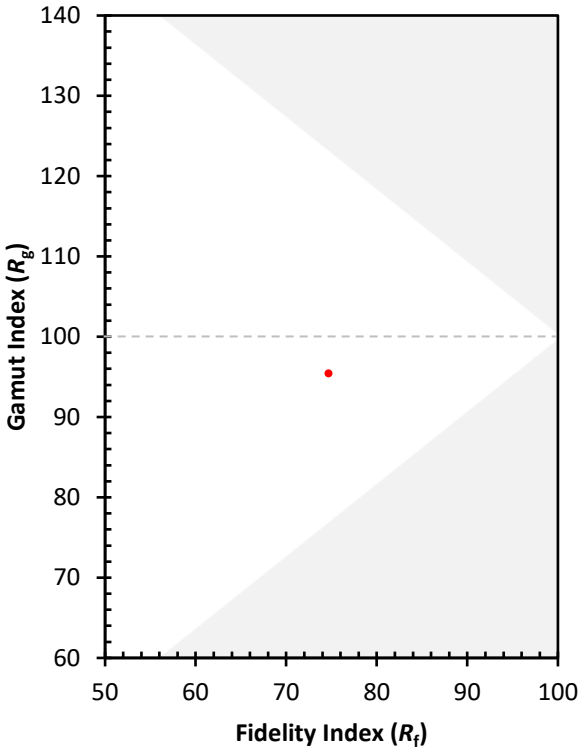
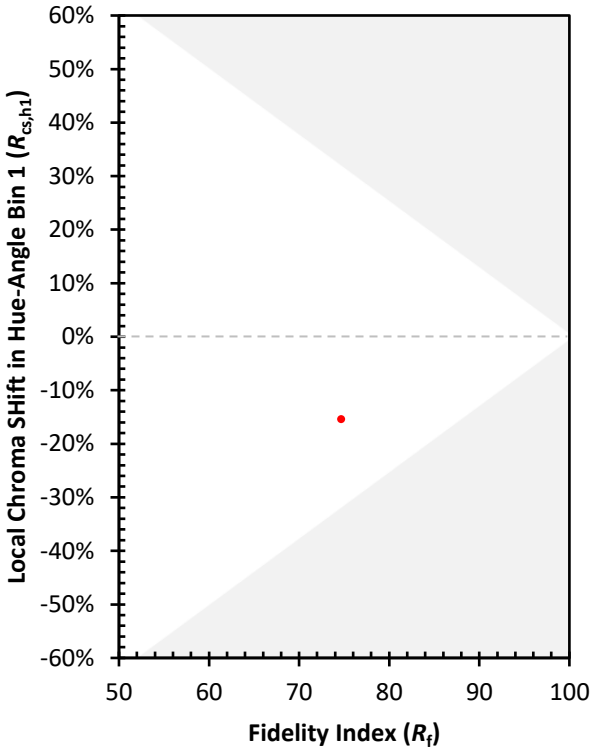
Measure Comparisons





(END OF REPORT)